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# The Emergence of Global Environmental Law

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*With the global growth of public concern about environmental issues over the last several decades, environmental legal norms have become increasingly internationalized. This development has been reflected both in the surge of international environmental agreements as well as the growth and increased sophistication of national environmental legal systems around the world. The result is the emergence of a set of legal principles and norms regarding the environment, such that one can arguably describe it as a body of law. After exploring the diverse forces that are contributing to the emergence of what we call “global environmental law,” this Article considers the implications of this emergence for the implementation, practice, and development of environmental law worldwide.*

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## INTRODUCTION

Worldwide growth of public concern for the natural environment has been one of the most important developments in recent decades. Globalization has helped connect societies and their environmental fates more closely than ever before. At the same time, environmental problems increasingly transcend national borders and pose serious challenges to the health of the planet. The development of more effective environmental laws and legal systems throughout the world has thus become critical to directing economic development and growth onto a path of environmental sustainability.

The responses have been surprisingly progressive. Countries are transplanting law and regulatory policy innovations of others nations, even when they have very different legal and cultural traditions. Short of deliberate copying, many national regulatory initiatives also exhibit design and functional similarities that reveal a growing convergence around a few principal approaches to environmental regulation. Increased cross-border collaboration between governments, non-governmental organizations (NGOs), multinational corporations, and the growth of transnational environmental networks have also significantly influenced the development of environmental law and regulation. Such growing international linkages are blurring the traditional divisions between private and public law and domestic and international law, promoting integration and harmonization. The result has been the emergence of “global environmental law”—a field of law that is international, national, and transnational in character all at once.<sup>1</sup>

Global environmental law is the set of legal principles developed by national, international, and transnational environmental regulatory systems to protect the environment and manage natural resources. As a body of law, it is made up of a distinct set of substantive principles and procedural methods that

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1. To facilitate the teaching of global environmental law, we are writing *GLOBAL ENVIRONMENTAL LAW*, the first casebook on the subject, which will be published by Aspen Publishers in 2010. The casebook will include the results of a three-year effort to gather environmental case studies from all over the world. The casebook will present cases and materials that illustrate the principal approaches to environmental law employed by countries throughout the world. We hope that it will be a vehicle for spawning a new approach to teaching environmental law that presents it in a global context.

are specifically important or unique to governance of the environment across the world. It includes: (1) public international environmental law, commonly used to refer to the set of treaties and customary international legal principles governing the relations between nations; (2) national environmental law, which describes the principles used by national governments to regulate the behavior of private individuals, organizations, and subnational governmental entities within their borders; and (3) transnational law, which describes the set of legal principles used to regulate the cross-border relationships between private individuals and organizations.<sup>2</sup>

We cannot set out in detail the substantive governing principles of global environmental law within the limited confines of this piece. It is an emergent system that is made up of the legal principles developed by national, international, and transnational systems. Defining and describing it would be no easier of a task than setting out the governing principles of national, international, and transnational environmental law. More importantly, it would require a far longer exposition than we are prepared to engage in here.

Though the trends of transplantation, convergence, integration, and harmonization are difficult to describe, they are contributing to the emergence of a set of norms and principles that are global in nature, not just national or international. As this discussion illustrates, global environmental law is the result of sovereign national initiatives to improve and advance national legal systems as well as coordinate efforts to integrate and harmonize environmental norms.

American environmental lawyers will find much that looks familiar in global environmental law. But there is also much that is not. For example, China's environmental contracting system between central and local governments and its requirement that polluters bear the burden of disproving that they have caused nearby harm are unlike anything in U.S. law. American lawyers will also discover that environmental principles, methodologies, and approaches they believe to be their own, such as environmental impact assessments, now exist in many other systems.

The dominant political and economic influence of the United States in the world today creates a risk that American lawyers will mistake the emergence of global environmental law for a mere extension of U.S. environmental law to the rest of the world.<sup>3</sup> Rather, American lawyers can profitably learn about environmental governance from the experiences and approaches developed elsewhere, especially in the areas of regulatory non-compliance and environmental human rights. Global environmental law can help draw these

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2. Of course, globalization of law is occurring not only in the environmental law field, but also in other areas of public law such as antitrust and securities regulation. But as Professor Martin Shapiro noted some time ago, "[p]erhaps globalization is clearest and most dramatic in environmental law." Martin Shapiro, *The Globalization of Law*, 1 *IND. J. GLOBAL LEGAL STUD.* 37, 51, 64 (1993).

3. Shapiro, *supra* note 2, at 63.

connections and facilitate understanding of how globalization is affecting environmental law.

To be sure, some of the most important innovations in U.S. environmental law—the creation of national parks, environmental assessments, and public access to information—have been widely adopted and uploaded into international treaties.<sup>4</sup> But there can be no question that the American politics and law of the environment is increasingly affected and shaped by international developments and trends. On the issue of global climate change, for example, some might argue that the United States has become a follower of initiatives led by the international community. In short, American environmental lawyers have much to learn from the rest of the world.

This trend has profound implications for the teaching and development of environmental law. Future lawyers and policy makers will benefit from being educated in environmental law without pigeonholing it into particular national or international branches of law. Moreover, the design and implementation of national and international environmental regulatory systems can be improved through systematic study and understanding of global environmental law.

Part I begins this Article by describing some of the global trends that evidence the emergence of global environmental law. It also articulates the conceptual framework that makes up global environmental law and the main pathways through which it is being created: primarily by transplantation and convergence, and to a lesser extent by integration and harmonization. In Part II, we examine some of the forces that are driving the crystallization of this new field and why global environmental law is emerging at this point in time. In Part III, we explain the implications for the practice and development of environmental law across the globe. We finish with a few words about what the emergence of global environment law might mean for the teaching and practice of environmental law and address some of the applications of global environmental law to the important case of China.

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4. One notable exception has been tort litigation against companies that expose the public to environmental risks. It has not been a prominent feature of environmental law in countries that do not share the common law tradition. Yet exceptions are emerging. In Japan, which does not have a litigation-friendly culture, a group of seven automakers settled a decade-old Tokyo air pollution case in August 2007 by agreeing to pay \$1.2 billion yen (\$10 million) to patients with respiratory diseases. *See Eri Osaka, Fighting against Air Pollution through Litigation* (May 23, 2009) (unpublished manuscript), available at [http://www.allacademic.com/meta/p\\_mla\\_apa\\_research\\_citation/2/3/5/8/9/p235892\\_index.html](http://www.allacademic.com/meta/p_mla_apa_research_citation/2/3/5/8/9/p235892_index.html). After U.S. tobacco companies reached a multi-billion dollar settlement with state governments in 1998 for reimbursement of added health care costs, a spate of such lawsuits has surfaced in other parts of the world, most recently in Nigeria. Nat'l Ass'n of Attorneys Gen., *Master Settlement Agreement* (1998) available at [http://www.naag.org/backpages/naag/tobacco/msa/msa-pdf/1109185724\\_1032468605\\_cigmsa.pdf](http://www.naag.org/backpages/naag/tobacco/msa/msa-pdf/1109185724_1032468605_cigmsa.pdf). Judicial review also is gradually becoming an important feature of foreign legal cultures with traditions dissimilar to the common law. *See generally* Tomas V. Ginsburg, *Confucian Constitutionalism: Globalization and Judicial Review in Korea and Taiwan*, ILLINOIS PUBLIC LAW AND LEGAL THEORY RESEARCH PAPER SERIES NO. 00-03 (2001), available at [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=289255](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=289255).

## I. WHAT IS GLOBAL ENVIRONMENTAL LAW?

We begin illustrating the globalization of environmental law by using chemicals and product regulation as an example. We then examine the concept of global environmental law by putting the idea into the context of the existing legal literature on globalization and the law. Finally, we explain the pathways by which global environmental law is being created.

A. *One Manifestation of Global Environmental Law:  
The Growing Regime of Global Product and Chemical Regulation*

One highly visible area in the evolution of global environmental law has been the regulation of products and materials routinely traded and shipped throughout the world: chemicals and consumer goods. Corporations that operate in markets across the globe must now deal with a wide variety of national and regional initiatives to control the environmental risks of chemicals and products.

During the 1980s and 1990s, the U.S. chemical industry successfully fended off domestic attempts to require pre-market toxicity testing of its products.<sup>5</sup> In 1997, a U.S. environmental NGO publicized that basic toxicity data was unavailable for the vast majority of thousands of high production volume (HPV) chemicals produced or imported into the country in volumes of more than one million pounds per year.<sup>6</sup> A year later, the U.S. Environmental Protection Agency (EPA) launched a voluntary testing program (now known as the Extended High Production Volume program) with the cooperation of the industry's trade association.<sup>7</sup> This initial 1998 HPV "Challenge" program encouraged companies to conduct testing to gather data on health and environmental effects of high volume chemicals used or produced in the United States. In 2005, the program was expanded to include additional chemicals whose volume qualified them for screening at that time.<sup>8</sup> It also broadened the scope of the information collected to include exposure and use data.<sup>9</sup>

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5. U.S. Gov't Accountability Office, Rep. No. GAO/T-RCED-94-212, Toxic Substances Control Act: EPA's Limited Progress in Regulating Toxic Chemicals (1994); U.S. Gov't Accountability Office, Rep. No. GAO/RCED-90-112, EPA's Chemical Testing Program Has Made Little Progress 3 (1990).

6. ENVTL. DEF. FUND, TOXIC IGNORANCE: THE CONTINUING ABSENCE OF BASIC HEALTH TESTING FOR TOP-SELLING CHEMICALS IN THE UNITED STATES 53 (1997), available at [http://www.edf.org/documents/243\\_toxicignorance.pdf](http://www.edf.org/documents/243_toxicignorance.pdf).

7. See EPA, High Production Volume (HPV) Challenge, Basic Information, <http://www.epa.gov/hpv/pubs/general/basicinfo.htm> (last visited Aug. 5, 2009).

8. See EPA, OFFICE OF POLLUTION PREVENTION & TOXICS, STATUS AND FUTURE DIRECTIONS OF THE HIGH PRODUCTION VOLUME CHALLENGE PROGRAM 10-11 (2004), available at <http://www.epa.gov/hpv/pubs/general/hpvreport.pdf>.

9. See *id.* Chemical reporting through this "Extended HPV" program is submitted by industry sponsors to the American Chemical Council, which tracks the information. As of June 2007, more than 2200 HPV chemicals have been sponsored: 1400 directly through the HPV Challenge Program and over 860 chemicals indirectly through international efforts. EPA, High Production Volume (HPV) Challenge,

Recognizing similar needs, but taking the screening approach one step further, Canada adopted a more protective approach. In 1999, it created the New Substances Notification Program pursuant to the Canadian Environmental Protection Act (CEPA 1999).<sup>10</sup> For more than 23,000 chemicals already in use in Canada, CEPA 1999 required “categorization” under the Domestic Substances List by 2006. “Categorization” identified those substances that were:

- inherently toxic to humans or to the environment and that might be:
  - persistent (take a very long time to break down), and/or
  - bioaccumulative (collect in living organisms and end up in the food chain), and
- substances to which people might have greatest potential for exposure.<sup>11</sup>

The categorization resulted in a determination that more than 85 percent of those chemicals did not require further attention at that time.<sup>12</sup> It also generated information on the remaining 4,000 chemicals, identifying those that warranted top priority for regulation.<sup>13</sup>

The European Union’s new REACH program (Registration, Evaluation, Authorization and Restriction of Chemicals)<sup>14</sup> is even more extensive than Canada’s. The REACH program was approved in December 2006 and entered into force on June 1, 2007.<sup>15</sup> The provisions of REACH, which will be phased in over an eleven-year period, establish a comprehensive registration scheme for 30,000 chemicals with sales of over one ton per year.<sup>16</sup> It also provides for tiered testing to evaluate the risks posed by the substances. The effects will extend far beyond the European Union because the program requires importers to register their chemicals. Even companies downstream will have to provide details concerning the use of chemicals in their products.<sup>17</sup> Chemicals determined through testing to be substances of “high concern” may eventually

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<http://www.epa.gov/HPV/> (last visited July 13, 2009); Am. Chemistry Council, Extended HPV Initiative, [http://www.americanchemistry.com/S\\_ACC/sec\\_policyissues.asp?CID=432&DID=1493](http://www.americanchemistry.com/S_ACC/sec_policyissues.asp?CID=432&DID=1493) (last visited July 13, 2009).

10. See New Substances Program, Assessment and Management of New Substances in Canada, [http://www.ec.gc.ca/Substances/nsb/eng/home\\_e.shtml](http://www.ec.gc.ca/Substances/nsb/eng/home_e.shtml) (last visited Aug. 5, 2009).

11. Gov’t of Canada, Chemical Substances: What is Categorization?, [http://www.chemicalsubstanceschimiques.gc.ca/categor/what-quoi/index\\_e.html](http://www.chemicalsubstanceschimiques.gc.ca/categor/what-quoi/index_e.html) (last visited July 13, 2009).

12. *Id.*

13. *Id.*

14. Regulation (EC) No. 1907/2006, Registration, Evaluation, Authorization, and Restriction of Chemicals, 2006 O.J. (L 396), available at <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2007:136:0003:0280:EN:PDF>.

15. See Europa, European Comm’n on the Env’t, What is REACH?, [http://ec.europa.eu/environment/chemicals/reach/reach\\_intro.htm](http://ec.europa.eu/environment/chemicals/reach/reach_intro.htm) (last visited Aug. 5, 2009).

16. *See id.*

17. ENV’T DIRECTORATE GEN., EUROPEAN COMM’N, REACH IN BRIEF 11 (2007), available at [http://ec.europa.eu/environment/chemicals/reach/pdf/2007\\_02\\_reach\\_in\\_brief.pdf](http://ec.europa.eu/environment/chemicals/reach/pdf/2007_02_reach_in_brief.pdf).

be phased out.<sup>18</sup> Thus, companies doing business with the European Union eventually would also have to shift to less toxic materials in their products.

In 2003, China, the second-largest consumer and the third-largest producer of chemicals in the world,<sup>19</sup> adopted a set of regulations covering new chemical substances.<sup>20</sup> Like the REACH program, China's law requires registration and toxicity testing of new chemical substances.<sup>21</sup> The law requires that testing be performed in China by Chinese laboratories, though the procedure is simplified for chemicals that have been listed as in use in at least four other countries. Japan and Korea have also adopted new chemical control laws. Japan's Chemical Substance Control Law requires pre-market notification and mandatory, step-wise testing of chemicals, depending upon their potential for biodegradation and bioaccumulation.<sup>22</sup> South Korea's Toxic Chemical Control Law requires registration and testing of industrial chemicals and chemical products used in volumes of 100 kilograms per year or more.<sup>23</sup>

In the past when developed countries banned the use of certain hazardous substances, producers redoubled their efforts to export them to the developing world. While it is possible that many of these banned chemicals will end up in such markets, globalization of environmental concerns has made this more difficult. Leaded gasoline began disappearing from the developing world not too long after developed countries phased out its use.<sup>24</sup> Eighteen years after a U.S. court struck down EPA's regulations phasing out nearly all uses of asbestos,<sup>25</sup> many other countries with less developed systems of environmental

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18. The program is applicable to all new chemicals as of June 2008. Pre-registration will be required by December 2008 and formal regulations for existing chemicals will be developed between 2010 and 2018. *Id.* at 10.

19. Provisions on the Environmental Management of New Chemical Substances (issued by the State Env'tl. Prot. Admin., Sept. 12, 2003, effective Oct. 15, 2003), available at <http://www.crc-mep.org.cn/newchem/enewchem.htm> [hereinafter *Provisions*]; Charles R. McElwee, *China: An Introduction to Current Environmental Trends*, INT'L ENVTL. LAW COMM. NEWSLETTER (ABA Section of Env't, Energy & Res.), Oct. 2007, at 39, available at <http://www.abanet.org/environ/committees/intenviron/newsletter/oct07/IELCOct07.pdf>.

20. See *Provisions*, *supra* note 19.

21. Chapter III, Articles 14–18 of Provisions on the Environmental Management of New Chemical Substances (issued by the State Env'tl. Prot. Admin., Sept. 12, 2003, effective Oct. 15, 2003).

22. Ministry of the Env't, Outline of Chemical Substance Control Law, [http://www.env.go.jp/en/chemi/outline\\_CSCL.pdf](http://www.env.go.jp/en/chemi/outline_CSCL.pdf) (last visited Aug. 4, 2009).

23. See Rich LeNoir, Presentation, Country by Country Comparison of Chemical Control Laws and Regulations (March 7, 2007), available at [http://www.socma.com/assets/File/socma1/PDFfiles/gcrc/2007/presentations/International\\_Fundamentals\\_Lenoir.pdf](http://www.socma.com/assets/File/socma1/PDFfiles/gcrc/2007/presentations/International_Fundamentals_Lenoir.pdf).

24. UNEP, Leaded Petrol Phase-out: Global Status February 2009, <http://www.unep.org/pcfv/PDF/MapWorldLead-February2009.pdf> (last visited Aug. 5, 2009). In an unrelated but illuminating incident about consumer perception about product safety and lead, U.S. consumers were shocked by the recall of toys imported from China found to contain lead-based paint is because of the widespread assumption that the use of lead-based paint had long been discontinued worldwide. Eric S. Lipton & David Barboza, *As More Toys Are Recalled, Trail Ends in China*, N.Y. TIMES, June 19, 2007 (quoting an American consumer as saying "Lead paint, in this day and age?").

25. *Corrosion Proof Fittings v. EPA*, 947 F.2d 1201 (5th Cir. 1991).

law have also banned asbestos.<sup>26</sup> Awareness of the possible health risks of asbestos is now so widespread that even the World Trade Organization (WTO) has upheld prohibitions on its import despite claims by producers that such bans violate free trade laws.<sup>27</sup>

The adoption of extended producer responsibility regulations in European countries has also been influential in the development of global environmental law. Germany pioneered them in 1991 when it required manufacturers to take back and recycle all bottles, cans, boxes, and other packaging materials.<sup>28</sup> The program was so successful that it was quickly adopted by several other European countries and a number of Canadian provinces, and then endorsed by the European Union.<sup>29</sup> The European Union has also acted to control the impact of electronic wastes through use restrictions on certain hazardous substances in electrical and electronic equipment (“the ROHS program”).<sup>30</sup>

Again, China has adopted regulations similar to those in other countries. It has embraced producer responsibility by adopting its own version of the ROHS program to reduce the use of hazardous substances in electronics products.<sup>31</sup> As of March 1, 2007, all electronic information products in China must contain recyclability markings and indications of the period of years during which the product is environmentally safe.<sup>32</sup> Producers must also disclose the amount of six hazardous substances contained in these products.<sup>33</sup> During the second phase of this program, a list of products using mature technologies, where a reduction of the risk from these six substances is feasible, will be published and a timetable to reduce the risk developed.<sup>34</sup> A draft regulation requires electronic equipment manufacturers to identify recyclable and nonrecyclable

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26. Approximately forty countries have banned the future use of asbestos, according to the Director of International Labour Office’s SafeWork program. Hazards Magazine, ILO to Promote Global Asbestos Ban, <http://www.hazards.org/asbestos/ilo.htm> (last visited July 13, 2009).

27. Panel Report, *European Communities—Measures Affecting Asbestos and Asbestos-Containing Products*, WT/DS135/R (Sept. 18, 2000).

28. Verordnung über die Vermeidung von Verpackungsabfällen, Bundesgesetzblatt 1991, Part I, p. 1234 (June 20, 1991) (English language translation unavailable).

29. Bette Fishbein, *Extended Producer Responsibility: A New Concept Spreads Around the World*, RUTGERS UNIVERSITY DEMANUFACTURING PARTNERSHIP PROGRAM NEWSLETTER (New Brunswick, New Jersey) Winter 1996, available at <http://www.grn.org/resources/Fishbein.html>.

30. Council Directive 2003/108/EC, 2003 O.J. (L 345) (EC), amending Council Directive 2002/96/EC, 2002 O.J. (L 037) (EC) and Council Directive 2002/95/EC, 2003 O.J. (L 037) (EC) on the restriction of the use of certain hazardous substances in electrical and electronic equipment.

31. Ministry of Information Industry, Measures for the Control of Pollution from Electronic Information Products (“China RoHS”), Feb. 28, 2006 (on file with author).

32. *Id.* at arts. 11, 13.

33. *Id.* at arts. 3, 13.

34. See generally Ministry of Industry and Information Technology, Procedures for Creating the List of Major Electronic Information Products Subject to Pollution Control, arts. 2, 5 (Oct. 9, 2008) (on file with author).

parts of their products and to arrange for disassembly and recycling at the end of their useful life.<sup>35</sup>

*B. The Concept of Global Environmental Law*

Legal education traditionally organizes fields of law into distinct categories, separating private from public law and domestic from international law. Yet the forces of globalization already have begun to blur these boundaries in fundamental ways. Advancements in global information flows have not only made it easier for countries to borrow legal and regulatory policy innovations from each other, they have also created closer linkages between international and national legal systems. Elements of national environmental law have been “uploaded” into international agreements and international legal norms have in turn been “downloaded” into national and regional systems.<sup>36</sup>

Global environmental law’s content is the common set of legal principles developed by national, international, and transnational environmental regulatory systems. It includes substantive values, principles, and procedural approaches. Among the most readily identifiable principles and tools are the precautionary principle, “polluter pays,” environmental impact assessments, and pollution permitting. One might also readily assert that protection of public health and the integrity of ecological systems are among the most important substantive goals in environmental law.<sup>37</sup>

As we noted at the outset, the evolving nature of the field makes definition of its contours difficult. Nor can one set out in detail what global environmental law entails any more readily than one could set out the governing principles of national, international, or transnational environmental law. Nevertheless, we can provide illustrations of specific trends, descriptions of the field’s contours, characteristics, and drivers, along with analysis of the ramifications of these trends.

One characteristic we identify is that, as in other areas of law, there are obvious variations among national and local environmental regulatory systems. Such differences are often rooted in a country’s particular cultural and social mores or political idiosyncrasies and thus they are likely to persist despite greater global regulatory harmonization. Fundamental ecological and public health considerations, however, impose significant constraints on regulatory solutions. After all, environmental law is concerned not only with the relationship of humans with each other but also with the inextricable

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35. *China RoHS*, *supra* note 31, at art. 13.

36. See Jonathan B. Wiener, *Something Borrowed for Something Blue: Legal Transplants and the Evolution of Global Environmental Law*, 27 *ECOLOGY L. Q.* 1295, 1309–1312 (2001).

37. However, like any regulatory and legal regime, there are bound to be significant, even fundamental, disagreements about other goals, especially the role of economic development and how precautionary regulatory policy should be. See generally NOGA MORAG-LEVINE, *CHASING THE WIND: REGULATING AIR POLLUTION IN THE COMMON LAW STATE* (2003).

connection between humanity and the common exterior world—the global environment as a whole and its component parts.<sup>38</sup> That relationship requires environmental law to be defined and structured by references to the basic physical, ecological, and physiological characteristics of humans and the environment. Regulatory tactics have thus coalesced around a number of principal approaches that bridge such cultural or political variations. It has also led to environmentalism becoming one of the few defining sets of values that appear to command widespread support across the world.<sup>39</sup>

Another obvious characteristic of global environmental law is its focus on the global environment as a whole. Regional, national, and local problems remain significant as components of global environmental ills. Governing legal norms and regulatory schemes, however, must extend beyond national jurisdictions. The rapid expansion of international environmental law and growth of multilateral environmental agreements has attempted to meet these needs. Yet, traditional international law, the norms and obligations of which have been directed almost exclusively at state actors, has been unable to address many of the relevant issues affecting the global environment. Instead, modern international legal regimes increasingly seek to affect private behavior, as described in more detail below.

For example, the shift in focus toward private behavior, primarily business conduct, is especially visible in the climate change context. The Kyoto Protocol's Clean Development Mechanism (CDM) and the international emission trading system have forced businesses to consider not only the direct implementing requirements of domestic regulators, but also more generally applicable requirements of international institutions.<sup>40</sup> A more unusual example is the above-mentioned E.U. REACH program, which is profoundly affecting companies throughout the world, whether they are headquartered in states that are members of the European Union or not.<sup>41</sup> The European Union's directive applies directly only to its twenty-seven current member states, but it is also having a profound indirect impact on domestic environmental law in many other countries.

Former Dean and now State Department Legal Adviser Harold Koh often has referred to regulations that have effects beyond national boundaries as a form of "transnational law" because their effects extend far beyond the nations

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38. In that sense, the community of interests that environmental law concerns itself with is not purely a psychological construct but is significantly based on physical relationships and an external reality. *See, e.g.*, Paul Schiff Berman, *From International Law to Law and Globalization*, 43 COLUM. J. TRANSNAT'L L. 485, 517 (2005).

39. *See, e.g.*, PHILIP SHABECOFF, *A NEW NAME FOR PEACE: INTERNATIONAL ENVIRONMENTALISM, SUSTAINABLE DEVELOPMENT, AND DEMOCRACY* (1996).

40. *See generally* discussion *infra* Part II.C.3.

41. Under the REACH program, companies must register, report, test, and reformulate their products to reduce their environmental impact. *See* discussion *supra* Part I.A.

responsible for adopting them.<sup>42</sup> Professor Mark Tushnet notes that the Mexican historian Carlos Rico Ferrat has tried to popularize the term “intermestic” to describe “issues that are at the same time domestic and international.”<sup>43</sup> Regardless of what proposed terminology resonates best, most observers agree that it is no longer useful to draw sharp distinctions between international and domestic law. As Professor Paul Berman notes, “it is becoming clear that ‘international law’ is itself an overly constraining rubric and that we need an expanded framework, one that situates cross-border norm development at the intersection of legal scholarship on comparative law, conflict of laws, civil procedure, cyberlaw, and the cultural analysis of law, as well as traditional international law.”<sup>44</sup> In the brave new world of global environmental law, the focus is on “transnational legal processes, governmental and non-governmental networks, and judicial influence and cooperation across borders.”<sup>45</sup>

Legal evolution is an exceedingly complex phenomenon but the practice of “borrowing” law from other legal systems is nothing new.<sup>46</sup> As Koh points out, in commercial law, “the law merchant has gone from transnational custom to domestic common law to domestic statutory law to international treaty law” over the course of a few centuries.<sup>47</sup> Such developments are now occurring at an unprecedented scale. As legal systems cope with the consequences of globalization, forms of “global law” are affecting an unprecedented variety of areas such as intellectual property, trade and competition policy, corporate law, and criminal law.<sup>48</sup>

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42. Harold Koh, *The Globalization of Freedom*, 26 YALE J. INT'L L. 305, 305 (2001) (“The most striking change in the law [in the last two decades] is the rise of a body of law that is genuinely transnational—neither fish nor fowl, in the sense that it is neither traditionally domestic nor traditionally international.”).

43. Mark Tushnet, *Globalization and Federalism in a Post-Printz World*, 36 TULSA L.J. 11, 15 (2000) (quoting David Thelen, *Mexico, the Latin North American Nation: A Conversation with Carlos Rico Ferrat*, 86 J. AM. HIST. 467, 473 (1999)).

44. See Berman, *supra* note 38, at 485.

45. *Id.* at 489. This ultimately may somewhat expand the conception of what counts as law. According to Berman, in this new “transnational century” there are “networks of governmental and non-governmental organizations” (including terrorist networks) that can “disseminate alternative normative systems across a diffuse and constantly shifting global landscape.” *Id.* at 492.

46. See generally ALAN WATSON, *LEGAL TRANSPLANTS: AN APPROACH TO COMPARATIVE LAW* (2d ed. 1993).

47. Harold Koh, *On Law and Globalization*, Address at the American Law Institute 83d Annual Meeting, (May 17, 2006), available at [http://www.law.yale.edu/documents/pdf/Law\\_and\\_Globalization.pdf](http://www.law.yale.edu/documents/pdf/Law_and_Globalization.pdf).

48. See, e.g., Madhavi Sunder, *IP3*, 59 STAN. L. REV. 257, 263 (2006); EINER ELHAUGE & DAMIEN GERADIN, *GLOBAL ANTITRUST LAW AND ECONOMICS* (2007); Henry Hansmann & Reinier Kraakman, *The End of History for Corporate Law*, 89 GEO. L.J. 439, 468 (2001); Benedict Kingsbury et al., *The Emergence of Global Administrative Law: Foreword: Global Governance as Administration—National and Transnational Approaches to Global Administrative Law*, 68 LAW & CONTEMP. PROBS. 1 (2005); Beverley McLachlin, *Criminal Law: Towards an International Legal Order*, 29 HONG KONG L. J. 448 (1999).

Professor Jonathan Wiener has used the idea of global environmental law to describe the evolution of environmental law from a distinctly national enterprise to a set of international frameworks.<sup>49</sup> He focused in particular on the adoption of U.S. pollution trading and integrated pollution management principles in the U.N. Framework Convention on Climate Change and the Kyoto Protocol.<sup>50</sup> As Wiener also pointed out, such efforts of adaptation are not mere coincidence, but driven by the emerging recognition of global public goods, such as the earth's atmospheric climate system.<sup>51</sup> As a matter of globalization, such "trans-echelon borrowing," as he calls the adoption of national legal principles by international regimes, demonstrates that environmental law principles are not only being transferred—or "borrowed"—between national legal systems, but also transferred from national to international systems.<sup>52</sup>

Wiener's focus on "trans-echelon borrowing" provides a useful lens through which to understand the evolution of global environmental law. However, we also believe that it is only a partial description of the trends that are contributing to the emergence of global environmental law and the implications for its practice and development. We see global environmental law not only as describing "inter-echelon" borrowing of environmental legal principles between national and international systems, or, for that matter, as simply more "traditional" borrowing among nations, but more generally as an emerging set of independent and convergent legal principles.

As sovereign national initiatives to improve and coordinate national environmental law systems combine with civil society and business-led efforts to solve environmental problems, global environmental law is gradually emerging as a new field. We explore these trends and their ramifications in more detail below.

### C. *The Evolution of Global Environmental Law*

Global environmental law is emerging through multiple pathways. Most dominant are deliberate efforts of transplantation, convergence, and integration and harmonization. Transplantation, as comparative law scholar Alan Watson describes it, is the deliberate copying and adaptation of significant portions of statutes or particular doctrines of law by one country from another.<sup>53</sup> In its purest form, legal transplants are efforts by countries with less developed legal systems to "catch-up" with more sophisticated systems already in place elsewhere by wholesale "importation."

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49. Wiener, *supra* note 36.

50. *Id.* at 1308.

51. *Id.* at 1321.

52. *Id.* at 1298.

53. WATSON, *supra* note 46, at 22–24.

In contrast, we use the term convergence to describe how disparate legal systems, like biological species, can evolve to become more similar not because of deliberate acts of copying but rather as a response to similar external pressures, especially environmental pressures.<sup>54</sup>

Finally, integration and harmonization both refer to multi-country efforts of legal cooperation and standardization that result in similar legal approaches. Such multi-country cooperation can most easily be seen in formal international treaties and institutions, such as the WTO. Legal harmonization in such contexts appears similar to transplantation but is not uni-directional in nature. Rather than one country simply copying another's legal doctrines or chunks of law, it is usually a joint effort of many countries to achieve some level of uniformity with respect to particular laws or legal issues.

Three developments across the world illustrate the development of global environmental law by these mechanisms: (1) the virtually universal adoption of environmental impact assessment processes in national regulatory regimes; (2) the growing involvement of civil society participants in the development and implementation of environmental standards; and (3) the growing international and transnational regime governing global climate change.

#### 1. *Transplantation: Environmental Impact Assessment Requirements*

The Kyoto Protocol's borrowing of the U.S. Clean Air Act's pollution trading principles is a highly visible instance of legal transplantation.<sup>55</sup> Yet, it is not the most significant. That designation must be reserved for the international spread of environmental impact assessment requirements, arguably the most widely adopted environmental management tool across the world.

First adopted in the United States as part of the National Environmental Policy Act of 1969 (NEPA),<sup>56</sup> the tool calls for the assessments of environmental impacts of proposed projects. Its purpose is to improve environmental decision making by requiring that information be gathered about the environmental effects and potential alternatives to the project or activity at issue. In the United States, at least at the federal level, this tool has largely remained a procedural requirement.<sup>57</sup> There is no mandate for particular

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54. For an example discussing convergence in the corporate law context, see Hansmann & Kraakman, *supra* note 48, at 448–459.

55. Wiener, *supra* note 36, at 1327.

56. National Environmental Policy Act of 1969, Pub. L. 91-190, 83 Stat. 852 (1969) (codified at 42 U.S.C. §§ 4321–4327. See generally JOHN GLASSON ET AL., INTRODUCTION TO ENVIRONMENTAL IMPACT ASSESSMENT 28 (3d ed. 2005).

57. See *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 350 (1989) (“NEPA itself does not mandate particular results, but simply prescribes the necessary process.” (citing *Strycker's Bay Neighborhood Council, Inc. v. Karlen*, 444 U.S. 223, 227–28 (1980); *Vermont Yankee Nuclear Power Corp. v. Natural Res. Def. Council, Inc.*, 435 U.S. 519, 558 (1978))).

substantive action based on the information that is revealed.<sup>58</sup> Nevertheless, the significance of this tool as a mechanism of environmental governance is clear based on how ingrained it has become in environmental decision making in the United States and worldwide.<sup>59</sup> For example, from 1970 to 2007, American agencies filed 33,605 Environmental Assessments and resulting Environmental Impact Statements.<sup>60</sup> Since then, the use of environmental impact assessments has spread to many nations and environmental treaties.

Mexico adopted impact assessments as part of its 1988 General Law of Ecological Balance and Environmental Protection.<sup>61</sup> China required such processes initially in its Basic Environmental Protection Law and expanded its application in its 2003 Environmental Impact Assessment Law.<sup>62</sup> India adopted it in 1994.<sup>63</sup> Many other countries have impact assessment processes built into their national environmental policy structure.<sup>64</sup> Principle 17 of the 1992 Rio Declaration, now 192 members strong, went as far as explicitly indicating that “[e]nvironmental impact assessment, as a national instrument, shall be undertaken for proposed activities that are likely to have a significant adverse impact on the environment and are subject to a decision of a competent national authority.”<sup>65</sup>

While impact assessment processes are limited in what they attempt to do for the environment and their implementation remains little better than the

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58. *Strycker's Bay*, 444 U.S. 223 (1980).

59. A preponderance of the literature highlights the ubiquity of environmental impact assessment requirements around the world, while noting that they vary in effectiveness. See John H. Knox, *The Myth and Reality of Transboundary Environmental Impact Assessment*, 96 AM. J. INT'L L. 291 (2002); Alan D. Levy, *A Review of Environmental Impact Assessment in Ontario*, 11 J. ENV. L. & PRAC. 173; JANE HOLDER & DONALD MCGILLIVRAY, *TAKING STOCK OF ENVIRONMENTAL ASSESSMENT: LAW, POLICY AND PRACTICE* (2007).

60. NEPAnet, Environmental Impact Statements Filed 1973 through 2007, [http://www.nepa.gov/nepa/EISs\\_by\\_Year\\_1970\\_2007.pdf](http://www.nepa.gov/nepa/EISs_by_Year_1970_2007.pdf) (last visited Aug. 5, 2009). Because NEPA only applies to federal actions, many states and some local governments soon followed suit with their own “little NEPAs” or state environmental policy acts that addressed activities covered by state law. Most were enacted by 1975. Daniel P. Selmi, *Themes In The Evolution Of The State Environmental Policy Acts*, 38 URB. LAW. 949, 954 (2006). As of 2007, twenty states, the District of Columbia, Puerto Rico, Guam, and the city of New York had environmental planning requirements similar to NEPA. See NEPAnet, State Environmental Planning Information, <http://ceq.hss.doe.gov/NEPA/regs/states/states.cfm> (last visited Aug. 5, 2009).

61. Ley General del Equilibrio Ecológico y la Protección al Ambiente [General Law of Ecological Equilibrium and Environmental Protection], *last amended* 2008, Diario Oficial de la Federación, 28 de Enero de 1988 (Mex.).

62. Zhong guo ren min gong he guo huan jing yin xiang ping jia fa [The Law of the People's Republic of China on Appraising Environmental Impacts] (adopted October 28, 2002, effective September 1, 2003).

63. MINISTRY OF ENV'T & FORESTS, ENVIRONMENTAL IMPACT ASSESSMENT NOTIFICATION S.O.60(E) (1994) (India), *available at* [http://envfor.nic.in/legis/eia/so-60\(e\).html](http://envfor.nic.in/legis/eia/so-60(e).html).

64. NEPAnet, International Environmental Impact Assessment (EIA) Agencies, <http://www.nepa.gov/nepa/eia.html> (last visited June 17, 2009).

65. The Rio Declaration on Environment and Development, U.N. Doc. A/CONF.151/26 (June 14, 1992).

implementation of environmental laws generally, it is clear that they are starting to change environmental governance around the world. One of the most dramatic examples occurred in China's 2005 "Environmental Assessment Storm," when the State Environmental Protection Administration issued orders seeking to halt thirty ongoing large construction projects because of failures to comply with environmental impact assessment requirements.<sup>66</sup> Among the projects was the new Xiluodu dam project on Yangtze River, upstream of the Three Gorges Dam, carried out by the powerful China Three Gorges Dam Project Corporation.<sup>67</sup> After some political wrangling, impact assessments were submitted, projects were modified, and fines paid.<sup>68</sup> Although the outcome has been criticized by some as bureaucratic posturing,<sup>69</sup> the initiative does demonstrate that environmental impact assessment laws have risen in their significance and can be used with some dramatic effects.

Environmental impact assessment provisions have also proliferated in multilateral environmental agreements,<sup>70</sup> especially since the 1990s. They can now be found in treaties ranging from the U.N. Framework Convention on Climate Change<sup>71</sup> and the Convention on Biological Diversity<sup>72</sup> to the Stockholm Convention on Persistent Organic Pollutants<sup>73</sup> and the North American Agreement on Environmental Cooperation.<sup>74</sup> As an instrument of managing transboundary environmental matters, the members of the U.N. Economic Commission for Europe, which includes North America, adopted the

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66. Qin Chuan, *All 30 Law-breaking Projects Building Stopped*, CHINA DAILY, Feb. 3, 2005, available at [http://www.chinadaily.com.cn/english/doc/2005-02/03/content\\_414637.htm](http://www.chinadaily.com.cn/english/doc/2005-02/03/content_414637.htm). The State Environmental Protection Administration also ordered a controversial restoration project at the Yuanminyuan Park to be halted because of environmental impact concerns that same spring. Jane Cai, *Restoration of Palace Lake Hangs in Balance*, S. CHINA MORNING POST, Apr. 5, 2005, at 5.

67. *Three Gorges Co. Faces Fines*, CHINA DAILY, Feb. 2, 2005, available at [http://english.peopledaily.com.cn/200502/02/eng20050202\\_172738.html](http://english.peopledaily.com.cn/200502/02/eng20050202_172738.html).

68. *Id.*

69. Ray Cheung, *Watchdog is Still a Paper Tiger, Green Bodies Claim Environmentalists Say Administration is Putting on a Show to Placate the Public*, S. CHINA MORNING POST, May 6, 2005, at 8.

70. The 1972 Stockholm Declaration on the Human Environment implied the need for environmental impact assessments in calling for more rational and integrated development planning that is compatible with environmental protection. Declaration of the U.N. Conference on the Human Environment, U.N. Doc. A/CONF.48/14, 11 I.L.M. 1416 (June 16, 1972); Declaration of the U.N. Conference on the Human Env't (Stockholm), arts. 13–15, U.N. Doc. A/Conf.48/14/Rev. 1 (1972) [hereinafter *Stockholm Declaration*]. Even the Law of the Sea Convention calls for environmental impact assessments. U.N. Convention on the Law of the Sea, arts. 204–206, Dec. 10, 1982, 1833 U.N.T.S. 397 [hereinafter *UNCLOS*].

71. U.N. Framework Convention on Climate Change, arts. 2, 4(1)(f), May 9, 1982, 1771 U.N.T.S. 107, 165 [hereafter *UNFCCC*].

72. Convention on Biological Diversity, art. 14, June 15, 1982, 1760 U.N.T.S. 79.

73. Stockholm Convention on Persistent Organic Pollutants, Annex E, May 22, 2001, 40 I.L.M. 532, available at [http://www.pops.int/documents/convtext/convtext\\_en.pdf](http://www.pops.int/documents/convtext/convtext_en.pdf).

74. Comm'n for Env'tl. Cooperation, North American Agreement on Environmental Cooperation, arts. 2(1)(e), 10(7), 1993, 32 I.L.M. 1480.

Espoo Convention in 1991.<sup>75</sup> The Espoo Convention requires the application of environmental impact assessments in a transboundary context, “lay[ing] down the general obligation of States to notify and consult each other on all major projects under consideration that are likely to have a significant adverse environmental impact across boundaries.”<sup>76</sup>

In addition to environmental impact assessment, there are other environmental legal principles that increasingly are being adopted by regulatory systems across the world. For example, air pollution control strategies have been freely borrowed by various jurisdictions. Although Thailand did not establish its first air quality standards until 1992, it now has achieved remarkable progress in improving air quality in Bangkok, in part by borrowing from other countries.<sup>77</sup> In addition to adopting tailpipe emissions standards based on European standards, the country has required the use of cleaner burning fuels and imposed taxes on older polluting vehicles.<sup>78</sup> Particulate levels in Bangkok have fallen by 47 percent (from 83 to 43 micrograms per cubic meter of air) even though the number of vehicles in Bangkok has increased by 40 percent.<sup>79</sup> Similarly, as part of efforts to improve air quality for the 2008 Olympics, the city of Beijing adopted the newest European auto emission standards, the so-called Euro IV.<sup>80</sup> In short, active efforts of transplantation and adaptation, as illustrated by the spread of environmental impact assessment requirements and air pollution control standards, are contributing significantly to the emergence of global environmental law.

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75. Convention on Environmental Impact Assessment in a Transboundary Context, Feb. 25, 1991, 1989 U.N.T.S. 310 (1997), 30 I.L.M. 800 (1991).

76. See U.N. Econ. Comm’n for Eur., Convention on Environmental Impact Assessment in a Transboundary Context (Espoo, 1991)—the “Espoo (EIA) Convention,” <http://www.unece.org/env/eia/eia.htm> (last visited Aug. 5, 2009). In 2003, the parties adopted a Protocol on Strategic Environmental Assessment “to provide for a high level of protection of the environment, including health . . . .” U.N. Econ. Comm’n for Eur., Protocol on Strategic Environmental Assessment (Kiev, 2003), [http://www.unece.org/env/eia/sea\\_protocol.htm](http://www.unece.org/env/eia/sea_protocol.htm) (last visited Aug. 5, 2009). “Strategic environmental assessment (SEA) is undertaken much earlier in the decision-making process than project environmental impact assessment (EIA), and it is therefore seen as a key tool for sustainable development. The Protocol also provides for extensive public participation in government decision-making in numerous U.S. development sectors.” *Id.*

77. Thomas Fuller, *Breathing Easier as the Battle for Blue Skies Pays Off*, N.Y. TIMES, March 6, 2007.

78. *Id.*

79. *Id.*

80. Shi Jiangtao, *Capital Sets Tougher Emissions Standards*, S. CHINA MORNING POST, Feb. 18, 2008.

2. *Convergence: Regulatory Evolution and the Broadening of Civil Society Involvement in Environmental Governance*

Apart from deliberate acts of borrowing, convergence through independent regulatory evolution has also contributed to the emergence of global environmental law.<sup>81</sup> Common functional goals, governance considerations, and ecological and public health constraints have driven design, implementation, and operation of regulatory systems in similar directions. For example, the greater involvement of civil society in environmental concerns has been reflected in increased activism at the state and local levels when national governments fail to address critical environmental problems. In the United States, this heightened involvement has been especially visible in the increased activism of lower levels of governmental organizations on global environmental matters and the involvement of private actors in promoting global environmental governance.

The broadening of civil society involvement in environmental governance can serve as an important check on the economic and political influence of polluters, which can be strong at the local level. An engaged civil society and affected communities can provide important voices in regulatory decision making.<sup>82</sup> Environmental behaviors by businesses and private individuals are shaped not only by laws and regulation but also by social norms, customs, and expectations.<sup>83</sup> Laws and regulations cannot be enforced by government officials all of the time. Indeed, voluntary compliance and social pressures must fill in more often than not.<sup>84</sup> The role of civil society in shaping such informal influences has been especially visible in American efforts to curb climate change.

Until recently, federal leadership on global climate change has been eclipsed by state and local governments.<sup>85</sup> After the United States rejected the Kyoto Protocol to the Framework Convention on Climate Change in 2001, several U.S. states launched their own ambitious initiatives to cut greenhouse gas emissions.<sup>86</sup> California, the world's fifth-largest economy, imposed the first

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81. We define convergence here as unintended similarities as opposed to purposeful copying.

82. See, e.g., Christine Overdevest & Brian Mayer, *Harnessing The Power Of Information Through Community Monitoring: Insights From Social Science*, 86 TEX. L. REV. 1493 (2008).

83. See, e.g., Ann Carlson, *Recycling Norms*, 89 CAL. L. REV. 1231 (2001). See generally MANCUR OLSON, *THE LOGIC OF COLLECTIVE ACTION* (1971).

84. JOEL A. MINTZ ET AL., *ENVIRONMENTAL ENFORCEMENT: CASES AND MATERIALS* 258 (2007).

85. With the Obama Administration's support for greater regulation of greenhouse gas emissions, however, climate change politics has changed significantly. On June 26, 2009, the House of Representatives passed H.R. 2454, the American Clean Energy and Security Act of 2009, which is designed to address climate change in part through a carbon cap-and-trade scheme.

86. Australia was in a similar position with respect to non-ratification of the Kyoto Protocol, yet involvement by Australian provinces has resulted in high-visibility efforts on climate change. See, e.g., Declaration of the Federated States and Regional Governments on Climate Change (Dec. 6, 2005), available at [http://www.gov.mb.ca/stem/climate/pdf/montreal\\_summit.pdf](http://www.gov.mb.ca/stem/climate/pdf/montreal_summit.pdf).

limits on emissions of carbon dioxide from mobile sources.<sup>87</sup> In September 2006, it also enacted legislation creating comprehensive statewide controls on greenhouse gas emissions.<sup>88</sup> In the Northeast, the Regional Greenhouse Gas Initiative (RGGI) created a voluntary cap-and-trade program to control carbon emissions from power plants across seven states.<sup>89</sup> On a local level, the International Council for Local Environmental Initiatives (ICLEI), an association of local governments with a commitment to sustainable development, has also seen a significant growth in membership. ICLEI now has 1089 municipal members representing more than 400 million people.<sup>90</sup>

These state and local initiatives fall squarely within the best traditions of U.S. environmental law, which generally permits lower levels of government to adopt their own more stringent environmental protection measures if they so choose. Federal standards are meant to guarantee that all residents enjoy a baseline level of environmental protection no matter where they may live in the country, while state and local regulation can provide more tailored regulations. What is striking about these new initiatives is that they represent state and local action to tackle a truly global problem. These initiatives survived an early key legal test when a Vermont statute adopting California's emissions standards for automobiles was upheld despite arguments that federal law preempted it.<sup>91</sup> State-level involvement is evidence of a growing understanding of global environmental issues and greater appreciation of the (inevitable) regulatory needs that reach far beyond individual jurisdictional responsibilities.

In addition to governmental initiatives, the growth of civil society and business involvement in environmental governance has spawned several quasi-private, quasi-public initiatives to promote more sustainable development policies.<sup>92</sup> Some of these initiatives are the outgrowth of pressure applied by

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87. A.B. 1493, CAL. HEALTH & SAFETY CODE § 43018.5 (West 2009) (also referred to as the "Pavley Bill"). See *Central Valley Chrysler-Jeep, Inc. v. Goldstone*, 529 F. Supp. 2d 1151 (E.D. Cal. 2007).

88. California Global Warming Solutions Act of 2006, CAL. HEALTH & SAFETY § 38500–38599 (West 2007), available at <http://www.arb.ca.gov/cc/docs/ab32text.pdf>.

89. See Anthony DePalma, *Seven States Agree on a Regional Program to Reduce Emissions from Power Plants*, N.Y. TIMES, Dec. 21, 2005. See generally Regional Greenhouse Gas Initiative: Memorandum of Understanding 2 (December 20, 2005), available at [http://www.rggi.org/docs/mou\\_12\\_20\\_05.pdf](http://www.rggi.org/docs/mou_12_20_05.pdf).

90. ICLEI—Local Governments for Sustainability, Our Members, <http://www.iclei.org/index.php?id=global-members> (last visited July 14, 2009). ICLEI "provides technical consulting, training, and information services to build capacity, share knowledge, and support local government in the implementation of sustainable development at the local level." ICLEI—Local Governments for Sustainability, About ICLEI, <http://www.iclei.org/index.php?id=global-about-iclei> (last visited July 14, 2009). The association's "basic premise is that locally designed initiatives can provide an effective and cost-efficient way to achieve local, national, and global sustainability objectives." *Id.*

91. *Green Mountain Chrysler-Plymouth-Dodge Jeep v. Crombie*, 508 F. Supp. 2d 295 (D. Vt. 2007).

92. Some of these initiatives are described in Erik Assadourian, *The State of Corporate Responsibility and the Environment*, 18 GEO. INT'L ENVTL. L. REV. 571, 583–586 (2006).

NGOs, such as the Rainforest Action Network (RAN), which began by targeting individual companies and then leveraged initial, company-specific agreements into broader industry campaigns.<sup>93</sup>

The Equator Principles are another significant initiative demonstrating convergence, spawned in part by concerns about private bank financing of environmentally sensitive projects in the developing world. In June 2003 several large private banks announced the adoption of the Equator Principles that committed them to following environmental guidelines developed by the International Finance Corporation and the World Bank when lending to development projects.<sup>94</sup> These principles require the banks to analyze the environmental risks created by projects that they finance, to consider alternative mitigation measures, and to establish environmental management plans for the projects to ensure that their project lending does not contribute to environmental harm. A total of sixty-six financial institutions with operations in more than one hundred countries, accounting for the vast majority of the world's project financing, have now agreed to abide by the Equator Principles.<sup>95</sup> While the Principles are voluntary and cannot be enforced through traditional mechanisms of public law,<sup>96</sup> they nonetheless have the potential to become significant forces for improving environmental conditions in the developing world, in part because private, multilateral investment flows now dwarf intergovernmental lending.

Environmental activism on a worldwide scale by civil society organizations and private individuals can also be seen, especially in Europe and North America. "Over the years it has consistently been citizens who have provided the critical vital catalyst to force creation of new laws, and force governmental agencies to enforce them."<sup>97</sup> While the picture has been more mixed in Asia and Africa,<sup>98</sup> this private activism is one of many ways in which

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93. For example, since 2000, RAN's Global Finance campaign has successfully challenged the world's largest banks—including Citibank, Bank of America, JP Morgan Chase, Goldman Sachs, and Toronto Dominion—to stop funding environmentally-damaging projects. In 2007, Toronto Dominion became the first Canadian bank to adopt a comprehensive environmental policy to guide its financing and operations. RAN, *Banking on Climate Change*, [http://ran.org/campaigns/global\\_finance/about\\_the\\_campaign/](http://ran.org/campaigns/global_finance/about_the_campaign/) (last visited June 18, 2009).

94. See generally Andrew Hardenbrook, *The Equator Principles: The Private Financial Sector's Attempt at Environmental Responsibility*, 40 VAND. J. TRANSNAT'L L. 197 (2007).

95. See *The Equator Principles*, <http://www.equator-principles.com> (last visited July 28, 2009).

96. For a critical appraisal of voluntary business initiatives to protect the environment, see David Barnhizer, *Waking from Sustainability's "Impossible Dream": The Decisionmaking Realities of Business and Government*, 18 GEO. INT'L ENVTL. L. REV. 595, 600–604 (2006).

97. Zygmunt J.B. Plater, *Dealing With Dumb and Dumber: The Continuing Mission of Citizen Environmentalism*, 20 J. ENVTL. L. & LITIG. 9, 27 (2005).

98. See generally JAPAN ENVTL. COUNCIL, *THE STATE OF THE ENVIRONMENT IN ASIA: 1999/2000* 41 (Rick Davis, trans., 2000), available at <http://www.popline.org/docs/1385/159999.html> (describing situation in Asia); Peter G. Veit & Deanna M. Wolfire, *Participatory Policy-making and the Role of Local Non-governmental Organizations, in Africa's Valuable Assets*, in A READER IN NATURAL RESOURCE MANAGEMENT 155, 156 (Peter Veit ed., 1998) (describing situation in Africa); Allan Hoben,

global environmental law has evolved away from a system controlled by nation-state actors defending state sovereignty as a paramount principle.

Sub-national governmental entities, NGOs, and multinational corporations now play a significant role in the articulation and implementation of global legal norms.<sup>99</sup> Purely private initiatives are also playing a more important role in shaping global environmental policies. Some companies are now discovering that they have sufficient market power to insist that their suppliers conform to environmental requirements as a condition of doing business. For example, major retailers such as Wal-Mart are establishing their own environmental standards for retail products.<sup>100</sup> In response to efforts by the NGO Carbon Disclosure Project, Wal-Mart is now asking its suppliers to calculate their climate change footprint and to make the information publicly available.<sup>101</sup>

Increased concern and activism environmental matters, while a mainstay in industrialized nations such as the United States, are increasingly spreading beyond regulators to the courts in developing countries. One of the most activist judiciaries has been the Indian court system. In a well-known series of cases, the Indian judiciary used its powers of judicial review to broadly shape the interpretation of environmental rights in India's Constitution to protect public health and the environment.<sup>102</sup> Thus, air quality in New Delhi improved after the Supreme Court of India mandated that diesel buses be replaced with compressed natural gas (CNG) vehicles.<sup>103</sup>

Acting in the same spirit of judicial activism as the Indian Court, the Supreme Court of Argentina in 2006 ordered the federal, provincial, and municipal governments in Buenos Aires to develop a plan to clean up the

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Pauline Peters & Dianne Rocheleau, *Participation, Civil Society, and Foreign Assistance to Africa, in Africa's Valuable Assets*, in A READER IN NATURAL RESOURCE MANAGEMENT 109, 118 (Peter Veit ed., 1998) (same).

99. Philippe Sands, *Turtles and Torturers: The Transformation of International Law*, 33 N.Y.U. J. INT'L L. & POL. 527, 541-45 (2001).

100. In July 2009 Wal-Mart also announced plans to create its own universal sustainability index for every product it sells. See Wal-Mart Stores, Inc., Sustainability Index, <http://walmartstores.com/Sustainability/9292.aspx> (last visited on July 28, 2009).

101. Fiona Harvey & Jonathan Brichall, *Wal-Mart Maps Out Grand Plan to Go Greener*, FINANCIAL TIMES, Sept. 24, 2007, at A1.

102. See, e.g., S.P. Gupta v. Union of India, A.I.R. 1982 S.C. 149; M.C. Mehta v. Union of India (Taj Trapezium Case), A.I.R. 1997 S.C. 734; M.C. Mehta v. Union of India (Kanpur Tanneries), A.I.R. 1988 S.C. 1037; M.C. Mehta v. Union of India (Municipalities), A.I.R. 1988 S.C. 1115; M.C. Mehta v. Union of India (Shriram Gas Leak Case), A.I.R. 1987 S.C. 965; M.C. Mehta v. Union of India, A.I.R. 1987 S.C. 1086; M.C. Mehta v. Union of India (Calcutta Tanneries), (1997) 2 S.C.C. 411; M.C. Mehta v. Kamal Nath, (1997) 1 S.C.C. 388.

103. M.C. Mehta v. Union of India, July 28, 1998, WP 13029/1985, available at <http://www.elaw.org/node/2638>. See also Armin Rosencranz & Michael Jackson, *The Delhi Pollution Case: The Supreme Court Of India And The Limits Of Judicial Power*, 28 COLUM. J. ENVTL. L. 223 (2003). However, a subsequent study claimed that despite the mandate, soaring vehicle ownership caused air quality to deteriorate in the next two years. Amelia Gentleman, *New Delhi Air Quality Is Worsening, Group Says*, N.Y. TIMES, Nov. 6, 2007.

heavily polluted Riachuelo-Matanza River.<sup>104</sup> Millions of people live in the Riachuelo-Matanza watershed, and the river is heavily polluted with sewage and industrial wastes from factories and leather processing facilities.<sup>105</sup> As a result of a lawsuit brought by local community activists who complained of living alongside an “open sewer,” the Court’s decision prompted the national government to establish a commission with representatives of three jurisdictions that will spend \$1.8 billion over the next fifteen years to clean up the area. An emphasis will be placed on improving the conditions affecting the area’s seven million residents, including the poor living in thirteen slums along the river, by providing potable water and sewers.<sup>106</sup> Additionally, the number of environmental inspectors will be increased from 3 to 250.<sup>107</sup> In an interview after the case was decided, Chief Justice Lorenzetti, the author of the decision, argued that “the function of the Court is to make noise.”<sup>108</sup> He noted that the Court had ruled against polluters of the river as far back as 1887 and that an amendment to the Argentina Constitution in 1994 now provided the public with a right to a healthy environment.<sup>109</sup> Thus, even in countries with very different legal traditions like India and Argentina, the judiciary has used constitutional provisions relating to the environment to intervene when the other branches of government fail to respond adequately to severe pollution problems. Even without deliberate efforts of copying, similar environmental and political pressures have resulted in convergent approaches.

### 3. *Integration and Harmonization: Global Responses to Climate Change*

One additional pathway contributing to the emergence of global environmental law is integration and harmonization. We define integration as the process of linking national legal systems and harmonization as the adjusting and conforming of their standards and requirements to an international system

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104. Corte Suprema de Justicia [CSJN], 20/6/2006, “Mendoza v. National State,” Case No. M. 1569.XL (2006) (Arg.).

105. *Id.*

106. Marcela Valente, *Argentina: Riachuelo Factories Must Clean Up or Close Down*, INTER PRESS SERVICE, Sept. 6, 2006, available at <http://ipsnews.net/news.asp?idnews=34610>.

107. *Id.*

108. Mario Wainfeld & Irina Hauser, *La Funcion de la Corte es Poner Ruido*, EL PAIS, June 25, 2006, available at <http://www.pagina12.com.ar/diario/elpais/1-69025-2006-06-25.html>.

109. *Id.*; CONSTITUCIÓN ARGENTINIA, art. 41 (“All inhabitants are entitled to the right to a healthy and balanced environment fit for human development in order that productive activities shall meet present needs without endangering those of future generations; and shall have the duty to preserve it. As a first priority, environmental damage shall bring about the obligation to repair it according to law. The authorities shall provide for the protection of this right, the rational use of natural resources, the preservation of the natural and cultural heritage and of the biological diversity, and shall also provide for environmental information and education. The Federal Government shall regulate the minimum protection standard, and the provinces those necessary to reinforce them, without altering their local jurisdictions), translated in [http://www.argentina.gov.ar/argentina/portal/documentos/constitucion\\_ingles.pdf](http://www.argentina.gov.ar/argentina/portal/documentos/constitucion_ingles.pdf).

or to each other. Together, integration and harmonization are designed to coordinate and facilitate cooperation in order to achieve an environmental objective. The results are visible in emerging global environmental regulatory regimes. As Professor Richard Stewart explains, there has been:

A vast increase in transnational regulation to address the consequences of global interdependency in such fields as . . . environmental protection . . . . These consequences can no longer be effectively managed by separate national regulatory and administrative measures. In response, many different systems of transnational regulation or regulatory cooperation have been established by states, international organizations, domestic administrative officials, and multinational businesses and NGOs, producing a wide variety of global regulatory regimes.<sup>110</sup>

One of the most important regimes that has emerged is the climate change treaty system. It is made up of two primary treaties: the U.N. Framework Convention on Climate Change<sup>111</sup> and the 1997 Kyoto Protocol.<sup>112</sup> These treaties have given rise to a variety of implementing mechanisms, including the emission trading system, the CDM, the Joint Implementation Mechanism, and the Non-compliance Mechanism.<sup>113</sup> The emission trading system, designed to facilitate compliance with Annex B emission limitation obligations, and the CDM, which is intended to stimulate developing country participation in an effort to curb global greenhouse gas emissions, are among the most far-reaching institutions. Both have extended their influence beyond traditional governmental activities to private and business behaviors traditionally under the sole control of national regulatory authorities.

Under the Kyoto Protocol, Annex B requires thirty-nine of the most developed countries and the European Union to reduce their greenhouse gas emissions by an average of 5.2 percent from 1990 levels during the 2008 to 2012 commitment period.<sup>114</sup> Individual reduction commitments vary, with some countries even allowed increases in emissions.<sup>115</sup> The European Union nations agreed to a joint 8 percent emissions cut.<sup>116</sup> The 7 percent emission reduction originally negotiated by the United States was publicly repudiated in 2001 by the Bush Administration, which cited economic concerns and the failure of the developing world to take on binding emission limits in Kyoto as

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110. Richard Stewart, *The Global Regulatory Challenge to U.S. Administrative Law*, 37 N.Y.U. J. INT'L L. & POL. 695, 699 (2005).

111. See UNFCCC, *supra* note 71.

112. Kyoto Protocol to the United Nations Framework Convention on Climate Change, Dec. 10, 1997, UN Doc FCCC/CP/1997/7/Add.1, 2303 U.N.T.S. 148 (entered into force 16 February 2005) [hereinafter *Kyoto Protocol*].

113. *Id.* at arts. 6, 12, 17, 18.112.

114. Clare Breidenich et al., *The Kyoto Protocol to the United Nations Framework Convention on Climate Change*, 92 AM. J. INT'L L. 315, 320 (1998).

115. Australia is allowed to increase emissions to 108 percent of 1990 levels, Iceland to 110 percent, and Norway to 101 percent. *Kyoto Protocol*, *supra* note 112, at Annex B.

116. *Id.*

reasons for the repudiation.<sup>117</sup> Participation by developing countries has remained an important issue that is dominating negotiations on a post-Kyoto, post-2012 agreement to continue international efforts to curb greenhouse gases.<sup>118</sup>

To facilitate compliance with the Annex B reduction goals, the Kyoto Protocol included several market-based flexibility mechanisms to make compliance easier and cheaper. These mechanisms, especially Kyoto's Article 17 emission trading provision, have contributed significantly to integration. Emission trading under Article 17 was modeled after the U.S. Clean Air Act's sulfur dioxide trading program.<sup>119</sup> It is intended to allow emission credits gained through emission reduction efforts in one country to be sold and used toward the emission reduction obligation by another country.<sup>120</sup>

Article 17's provisions, strictly speaking, address only the emission allowance trading that occurs on a government-to-government basis.<sup>121</sup> After all, the Kyoto Protocol's provisions apply only to state parties. However, the practical reality of making such a system work requires careful monitoring of how emission allowances are generated, traded, and used, so that emission credits can be matched up with actual use of allowances in other countries. Credits are ultimately generated through emission reductions by private entities that are carbon sources, and the credits are used to meet carbon emissions of other private sources subject to government regulations. Negotiations and trading of such credits typically happen directly between those private entities with credits to sell and those private entities with an interest in purchasing them.

The result has been a global administrative system that is involved in supervising and monitoring the activities of private entities and businesses. Because emission allowances can be traded by both Annex B nations as well as private entities within them, the Kyoto Protocol's international transactions log coordinates with national greenhouse gas registries and the European Union Community Independent Transaction Log in addition to the CDM.<sup>122</sup> This mechanism has linked the business and regulatory decisions within individual nations to Kyoto Protocol requirements and to the regulatory schemes of other

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117. Douglas Jehl, *U.S. Going Empty-Handed to Meeting on Global Warming*, N.Y. TIMES, March 28, 2001, at A22.

118. UNFCCC, *Report on the Conference of the Parties on its Thirteenth Session, held in Bali, from 3 to 15 December 2007*, 3, U.N. Doc. FCCC/CP/2007/6/Add.1, available at <http://unfccc.int/resource/docs/2007/cop13/eng/06a01.pdf#page=3>.

119. See generally Wiener, *supra* note 36.

120. UNFCCC, Emission Trading, [http://unfccc.int/kyoto\\_protocol/mechanisms/emissions\\_trading/items/2731.php](http://unfccc.int/kyoto_protocol/mechanisms/emissions_trading/items/2731.php) (last visited June 20, 2009).

121. *Kyoto Protocol*, *supra* note 112, at art. 17.

122. UNFCCC Secretariat, *Checks to be Performed by the International Transaction Log*, U.N. Doc. FCCC/SBSTA/2005/INF.3 (May 13, 2005), available at <http://unfccc.int/resource/docs/2005/sbsta/eng/inf03.pdf>.

nations. The Kyoto Protocol's international transaction log has thus facilitated international and transnational regulation by promoting the integration of emission trading regulatory schemes worldwide.

Likewise, and equally palpable, have been the requirements of the CDM, an offset mechanism promoting emission reduction projects in developing countries.<sup>123</sup> Under the CDM, emission reduction projects in developing countries, which do not have emission limits under the Kyoto Protocol, generate valuable carbon credits that can be sold to industrialized nations to meet their Kyoto Annex B limits. The project-specific focus of the CDM and the supervision of project development activities by the CDM Executive Board have extended CDM influence deeply into non-Annex B project host countries.<sup>124</sup> Recognition, and thus validity, of CDM credits hinges on project compliance with requirements set out by the CDM Executive Board. As a result, the design of CDM projects within the developing world is greatly shaped by the actions of an international administrative body, arguably even more so than the regulatory requirements of any individual host country. National regulatory systems are thus being driven to conform their regulatory standards and requirements to international standards.

Traditionally, international law was seen as applicable to and imposing obligations only on state actors rather than on private individuals and their activities.<sup>125</sup> The Kyoto Protocol's CDM provision and regulatory implementation are among the most visible alterations of that model by its deep reach into the economic and business activities within individual nations. Thus, national and regional implementation schemes of the Kyoto Protocol, especially the European emission trading system, have become closely integrated with each other and with the requirements of the Kyoto Protocol.

While the climate change regime has been the most visible driver of regulatory integration, there are also other multilateral environmental agreements that have been successful in promoting harmonization and coordination of environmental norms among nations and enhancing the integration of national regulatory norms into transnational regimes. For example, the International Maritime Organization (IMO) has taken on a significant leadership role in coordinating national marine pollution standards and other marine environmental protection efforts around the world.<sup>126</sup> In addition to addressing "accidental and operational oil pollution as well as

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123. *Kyoto Protocol*, *supra* note 112, at art. 12.

124. *See generally* UNFCCC, *Modalities and Procedures for the CDM: Role of the Executive Board*, Decision 17/CP. 7, available at [http://unfccc.int/essential\\_background/convention/convention\\_bodies/constituted\\_bodies/items/2790.php](http://unfccc.int/essential_background/convention/convention_bodies/constituted_bodies/items/2790.php).

125. *See, e.g.*, DAVID HUNTER, JAMES SALZMAN, & DURWOOD ZAELEKE, *INTERNATIONAL ENVIRONMENTAL LAW AND POLICY* 286 (2007).

126. *See* IMO, *Marine Environment*, <http://www.imo.org> (follow "Marine Environment" hyperlink) (last visited July 16, 2009).

pollution by chemicals, goods in packaged form, sewage, garbage and air pollution,” which are covered by MARPOL 73/78,<sup>127</sup> IMO administers the Oil Pollution Convention,<sup>128</sup> the London Dumping Convention,<sup>129</sup> and sponsors the Marine Environmental Protection Committee to address technical issues related to marine pollution.<sup>130</sup> It provides both technical and policy leadership. Similarly, the Montreal Protocol regime was successful in linking and coordinating international goals for the gradual worldwide reduction or phase-out of ozone depleting substances production and consumption with individual national regulatory efforts.<sup>131</sup>

In addition to the high-visibility efforts of formally structured international regimes, there have also been more informal and less structured efforts of integration and harmonization. Professor Richard Stewart has identified two examples in transnational regulatory networks and mutual recognition agreements.<sup>132</sup> Transnational regulatory networks arise through the efforts by national officials to coordinate their regulatory and enforcement policies.<sup>133</sup> Mutual recognition agreements represent determinations by regulators in one country to recognize products or services certified by another country as equivalent to or compatible with their own regulatory standards.<sup>134</sup>

Finally, private initiatives, such as the International Standards Organization (ISO), have also contributed to harmonization of environmental standards, primarily by facilitating corporate behavior changes.<sup>135</sup> Among the most significant have been the ISO’s environmental management systems,

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127. Int’l Convention for the Prevention of Pollution from Ships, Nov. 2, 1973, 34 U.S.T. 3407, 1340 U.N.T.S. 184 (entered into force Oct. 2, 1983).

128. International Convention on Oil Pollution Preparedness, Response and Co-operation (OPRC), 30 I.L.M. 733, available at [http://www.imo.org/Conventions/contents.asp?topic\\_id=258&doc\\_id=682](http://www.imo.org/Conventions/contents.asp?topic_id=258&doc_id=682).

129. Protocol of 1996 to the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, 1972, Nov. 7, 1996, 36 I.L.M. 1, available at [http://www.imo.org/Conventions/contents.asp?topic\\_id=258&doc\\_id=681](http://www.imo.org/Conventions/contents.asp?topic_id=258&doc_id=681).

130. IMO, *supra* note 126.

131. Montreal Protocol on Substances that Deplete the Ozone Layer, Sept. 16, 1987, 1522 U.N.T.S. 29, 26 ILM 1541. See generally RICHARD ELLIOT BENEDICK, OZONE DIPLOMACY: NEW DIRECTIONS IN SAFEGUARDING THE PLANET (1998).

132. Richard B. Stewart, *U.S. Administrative Law: A Model for Global Administrative Law?*, 68 LAW & CONTEMP. PROBS. 63, 67 (2005).

133. *Id.* at 68.

134. *Id.* at 65–66.

135. The growing need for domestic regulatory agencies to harmonize disparate systems of regulation applicable to multinational corporations can also be seen in the securities regulation context. The U.S. Securities and Exchange Commission has been involved in intensive contacts with foreign regulators to determine whether to allow multinational corporations to file financial statements in accordance with the international financial reporting standards (IFRS) used since 2005 by the European Union and now recognized in more than 100 countries. See Christopher Cox, International Financial Reporting Standards: The Promise of Transparency and the Comparability for the Benefit of Investors Around the Globe, Address to the Annual Conference of the International Organization of Securities Commissions (May 28, 2008), available at <http://www.sec.gov/news/speech/2008/spch052808cc.htm>.

which work with corporations under the ISO 14000 family of standards.<sup>136</sup> Launched in September 1996, this initiative was undertaken by a global non-governmental organization with representatives from 161 countries.<sup>137</sup> Its objective is to develop international environmental management systems, standards, and processes through an expert consensus-building process.<sup>138</sup> Its best known standard, ISO 14001, is intended as a management tool to help an organization improve its environmental performance by providing “generic requirements for an environmental management system.”<sup>139</sup> In addition to developing standards and models that have become accepted as environmentally-responsible best practices, ISO also has been certifying businesses that satisfy those requirements.

Adoption of ISO standards has encouraged convergence in corporate behavior worldwide. ISO standards and certification are reinforcing the idea within multinational corporations that use of uniform operating standards and practices with respect to pollution, worker safety, and other matters may ultimately be cheaper and more efficient than the maintenance of multiple standards or practices, even when applicable regulatory standards vary across the countries in which the multinational corporations operate.<sup>140</sup> The voluntary adoption of privately promulgated international standards by businesses worldwide has driven convergence of corporate behavior and correspondingly the expectations and norms of the public and government officials.<sup>141</sup>

All three processes—transplantation, convergent evolution, and integration and harmonization—have helped to spread environmental law principles across the globe and unify it as a field. An examination of the root causes of the emergence of global environmental law will help explain specifically how these processes are developed.

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136. Int’l Org. for Standardization, ISO 14000 Essentials, [http://www.iso.org/iso/iso\\_catalogue/management\\_standards/iso\\_9000\\_iso\\_14000/iso\\_14000\\_essentials.htm](http://www.iso.org/iso/iso_catalogue/management_standards/iso_9000_iso_14000/iso_14000_essentials.htm) (last visited July 28, 2009).

137. Int’l Org. for Standardization, About ISO, <http://www.iso.org/about.htm> (last visited July 28, 2009).

138. Naomi Roht-Arriaza, *Shifting the Point of Regulation: The International Organization for Standardization and Global Lawmaking on Trade and the Environment*, 22 *ECOLOGY L.Q.* 479, 489–490 (1995).

139. Int’l Org. for Standardization, *supra* note 136.

140. Roht-Arriaza, *supra* note 138, at 488.

141. The growing acceptance of public-private partnerships is reflected in the immediate response of U.S. companies to the discovery that many imported products contained dangerous substances, such as lead-based paint. Fearful of tightened government regulation, these companies proposed the creation of a public-private system to monitor imported food and products that should require testing and inspections of foreign suppliers. Jane Zhang, *Food Makers Get Appetite for Regulation*, WALL ST. J., Sept. 17, 2007. The ultimate objective of these efforts is not complete harmonization of global environmental law. Rather, it is the development of a transparent system that can easily be navigated by lawyers steeped in diverse regulatory traditions. *Id.*

## II. WHY IS GLOBAL ENVIRONMENTAL LAW EMERGING?

Remarkably, global environmental law has emerged out of a diverse set of legal systems and cultures. We can point chiefly to four trends that lie at its root: (1) globalization, (2) the growth of international environmental law, (3) economic development and law reform in many nations, and (4) fundamental ecological and public health necessities.

A. *Globalization*

Trade liberalization, the WTO, and the growing influence of large multinational corporations have popularly been viewed as the primary purveyors of globalization.<sup>142</sup> Their dramatic growth and increasing influence on the global economy has facilitated the growth of global markets and the integration of national economies. Increased global competitive pressures on businesses have benefited consumers worldwide through lower prices and have helped many poor countries develop their economies.<sup>143</sup> However, globalization critics have also pointed out the negative labor and social consequences, such as job losses in industrialized nations and serious social dislocation.<sup>144</sup> Ultimately, these critics argue, free trade and the global movement of industrial activities have promoted social injustice and contributed to the exploitation of workers and the poor in the developing world.<sup>145</sup>

The environmental critique is equally harsh. Trade liberalization and the growth of multinational corporations have not only improved the efficiency of world markets but also facilitated externalization of pollution and environmental degradation.<sup>146</sup> Relocating manufacturing activities to developing countries has enabled businesses to take advantage of legitimate competitive advantages, such as closer proximity to raw materials. However, it has also enabled businesses to exploit weak environmental standards, ineffective and corrupt regulatory systems, and desperate people who have few other options. When environmental standards are low or their implementation and enforcement weak, consumers of globally traded products externalize the environmental costs of production. In other words, global trade allows consumers in one part of the world to enjoy the benefits of goods produced

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142. The reference here is to the economic form of globalization, which is the subject of most globalization controversies. *See, e.g.*, JAGDISH BHAGWATI, IN DEFENSE OF GLOBALIZATION 3 (2004).

143. *See, e.g.*, JOSEPH STIGLITZ, GLOBALIZATION AND ITS DISCONTENTS 4-5 (2002).

144. *Id.* at 5-6.

145. *See generally* VANDANA SHIVA, BIOPIRACY: THE PLUNDER OF NATURE AND KNOWLEDGE (1999).

146. *See generally* Carmen Gonzalez, *Beyond Eco-Imperialism: An Environmental Justice Critique Of Free Trade*, 78 DENV. U. L. REV. 979 (2001).

elsewhere without bearing the associated negative consequences of pollution. Thus, globalization arguably has facilitated the spread of environmental ills.

Trade liberalization and the outsourcing of manufacturing activity also have obscured responsibility for global greenhouse gas emissions. The rise of China as the workshop for the rest of the world has allowed industrialized societies to transfer portions of greenhouse gas emissions associated with their consumption patterns to the developing world.<sup>147</sup> For example, it has been estimated that 14 percent of China's greenhouse gas emissions in 2003 were attributable to the manufacture of goods destined for the United States.<sup>148</sup> Overall, exports are thought to account for 23 percent of China's total carbon dioxide emissions.<sup>149</sup>

There is, however, also a more positive side to globalization. Even though trade liberalization is widely viewed as a threat to the adoption of stringent domestic environmental controls,<sup>150</sup> careful studies have indicated that globalization actually may have positive environmental effects because "international linkages contribute to environmental self-regulation."<sup>151</sup> Survey data from firms in China find that "multinational ownership, multinational customers, and exports to developed countries increase self-regulation of environmental performance"<sup>152</sup> as many multinationals adhere to standards in the developing world that reflect what they are required to do in the developed world.<sup>153</sup> Thus, "increased trade linkages between China and developed countries contribute to environmental self-regulation of Chinese industry."<sup>154</sup>

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147. For a general discussion of the negative labor, health and safety, and environmental consequences associated with shifting manufacturing activity to China, see generally ALEXANDRA HARNEY, *THE CHINA PRICE* (2008).

148. National Center for Atmospheric Research, *Trade Imbalance Shifts U.S. Carbon Emissions To China, Boosts Global Total*, SCIENCE DAILY, Dec. 1, 2005, available at <http://www.sciencedaily.com/releases/2005/12/051201223809.htm>. Thus, U.S. greenhouse gas emissions in 2003 would have been 6 percent higher if goods imported from China had been manufactured domestically. *Id.*; see also Shui Bin & Robert Hariss, *Talking Carbon: Implications of U.S.-China Trade*, in INTERNATIONAL CENTRE FOR TRADE AND SUSTAINABLE DEVELOPMENT, CLIMATE, EQUITY AND GLOBAL TRADE: SELECTED ISSUE BRIEFS No. 2, 6 (2007).

149. Tao Wang & Jim Watson, *Who Owns China's Carbon Emissions?*, in TYNDALL CENTRE FOR CLIMATE RESEARCH, TYNDALL BRIEFING NOTE No. 23 (2007), available at [http://tyndall.webapp1.uea.ac.uk/publications/briefing\\_notes/bn23.pdf](http://tyndall.webapp1.uea.ac.uk/publications/briefing_notes/bn23.pdf).

150. David A. Wirth, *Globalization and the Environment: Why All the Fuss?*, in BOSTON COLLEGE LAW SCHOOL FACULTY PAPERS 2007, available at <http://lsr.nellco.org/cgi/viewcontent.cgi?article=1190&context=bc/bclsfp>.

151. Petra Christmann & Glen Taylor, *Globalization and the Environment: Determinants of Firm Self-Regulation in China*, 32 J. INT'L BUSINESS STUDIES 439, 452 (2001).

152. *Id.* at 439.

153. Often, it is not clear whether such corporate policies are the result of an improved corporate sense of good citizenship and responsibility to society. They may simply be "good business" because they contribute to a better bottom-line or can blunt negative publicity and help keep regulators at bay.

154. Christmann & Taylor, *supra* note 151, at 453. Trade officials have expressed some concern that the proliferation of private agreements on green product standards between consumer groups and Western companies ultimately may harm developing countries, as WTO Director General Pascal Lamy

There arguably also have been salutary effects with respect to legislative reform efforts. During the negotiations of the North American Free Trade Agreement (NAFTA), concerns about potential competitive downward pressures on environmental standards in the United States resulted in Mexico enacting significant reforms in its environmental regulatory system, including the creation of a special attorney general for the environment.<sup>155</sup> Such concerns also led the NAFTA parties to negotiate and adopt an environmental side agreement, the North American Agreement on Environmental Cooperation.<sup>156</sup> Similar concerns in post-NAFTA trade liberalization negotiations with other nations, ranging from Jordan to Peru, have led the United States to press for adoption of environmental provisions within those agreements.<sup>157</sup> In other words, trade liberalization can also be used as a tool to spur greater environmental protection.

Of course, globalization has been important in other ways. As global “interconnectedness” intensifies, “capital, people, commodities, images, and ideologies move across distance and physical boundaries with increased speed and frequency.”<sup>158</sup> For example, Hollywood studios have spread not only Western (and especially American) movies, music, and sports across the world, but also Western attitudes and environmental values.<sup>159</sup> The rapid growth of the Internet across the world has increased public access to a wealth of information and made communities better informed. It arguably has fostered democratic engagement by allowing individuals to share views and opinions, including dissent from the mainstream media or official government views.

As an important catalyst for the spread of concern about and understanding of the environment around the world, globalization has positively influenced the public’s perceptions, popular norms, and governmental views of how environmental issues should be properly

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has opined. Raphael Minder, *Trade Dispute Warning over ‘Green’ Product Standards*, FINANCIAL TIMES, Sept. 23, 2007, available at <http://www.ft.com/cms/s/0/8ddbfe24-68a5-11dc-b475-0000779fd2ac.html>.

155. Scott C. Fulton & Lawrence I. Sperling, *The Network of Environmental Enforcement and Compliance Cooperation in North America and the Western Hemisphere*, 30 INT’L LAW. 111, 119–120 (1996). As another example, China translated its environmental laws into English in 2003 as part of increased transparency conditions for China’s entry into the WTO. See STATE ENVTL. PROT. ADMIN., ENVIRONMENTAL LAWS & REGULATIONS IN CHINA AND RULES OF WTO, Preface (2002).

156. See generally North American Agreement on Environmental Cooperation, *supra* note 74.

157. See, e.g., United States-Peru Free Trade Agreement, Chapter Eighteen: Environment, U.S.-Peru, Apr. 12, 2006, available at [http://www.ustr.gov/Trade\\_Agreements/Bilateral/Section\\_Index.html](http://www.ustr.gov/Trade_Agreements/Bilateral/Section_Index.html).

158. Berman, *supra* note 38, at 552. “[T]he destruction of distance is the difference that makes all the difference . . . [and] is the single most important catalyst for deciding the global vision children today will be living under tomorrow.” HISHAM M. NAZER, POWER OF A THIRD KIND: THE WESTERN ATTEMPT TO COLONIZE THE GLOBAL VILLAGE 7 (1999).

159. For example, the documentary “An Inconvenient Truth,” starring former Vice President and environmentalist Al Gore, won an academy award for best documentary in 2007 and is generally thought to have significantly enhanced the knowledge of many about global climate change.

addressed.<sup>160</sup> For example, virtually every country that has substantially revised its constitution in recent years has added an environmental provision.<sup>161</sup> According to a count by Professor James May, about 130 countries now have constitutions with environmental provisions, many having adopted them over the past few decades.<sup>162</sup>

The tools created by globalization also have enabled environmentalists to build international networks.<sup>163</sup> Environmentalists and environmental agencies have become better able to assist and nurture each other and change prevailing understandings and attitudes about the environment and pollution. Networks of government officials such as the International Network for Environmental Compliance and Enforcement, a partnership of government and non-government enforcement and compliance practitioners from more than 150 countries, and Parliamentarians for Global Action, a network of 1300 legislators from more than 100 countries, have been crucial in speeding up establishment and improving implementation of environmental laws while providing environmental government officials in nations all over the world with mutual support.<sup>164</sup> Among environmental academics, the creation of a global environmental law scholars network through the activities of the IUCN Academy of Environmental Law has been able to bring together hundreds of

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160. Globalization has given rise to what Dean Anne-Marie Slaughter of the Woodrow Wilson School of Public and International Affairs at Princeton University has described as a “globalization paradox.” While people increasingly need global institutions to respond to problems that are collective in dimension and can only be addressed on a global scale, they also fear centralization of power and any notion of global government modeled on the existing idea of a sovereign state. ANNE-MARIE SLAUGHTER, *A NEW WORLD ORDER* 8 (2004). As a result, despite the seemingly inexorable advance of globalization, it is not laying the foundation for any future world government. Instead, it is fostering the development of “government networks”—relatively loose, cross-border, cooperative efforts that are becoming the core of a new order of world governance. *Id.* at 14. Slaughter argues that a “new sovereignty” is emerging centered around “the capacity to participate in international institutions of all types—in collective efforts to steer the international system and address global and regional problems together with their national and supranational counterparts.” *Id.* at 267.

161. For example, in September 2008, Ecuador adopted a new constitution designed to grant inalienable rights to nature, including “the right to exist, persist, maintain and regenerate its vital cycles, structure, functions and its processes in evolution.” Constitution of Ecuador, Title II, Chapter 1, Art. 1, available at <http://www.celdf.org/Default.aspx?tabid=538>.

162. James R. May, *Constituting Fundamental Environmental Rights Worldwide*, 23 PACE ENVTL. L. REV. 113, 129 (2005–06).

163. One example of this is the Climate Action Network (CAN). See Asher Alkoby, *Global Networks and International Environmental Lawmaking: A Discourse Approach*, 8 CHI. J. INT’L L. 377, 389–390 (2008).

164. See Int’l Network for Env’tl. Compliance and Enforcement, Overview, <http://www.inece.org/overview> (last visited July 28, 2009); Parliamentarians for Global Action, <http://www.pgaction.org> (last visited July 28, 2009). The global judiciary also is involved in informal cooperative networks, see Anne-Marie Slaughter, *Judicial Globalization*, 40 VA. J. INT’L L. 1103, 1104 (2000), though not without criticism. See John O. McGinnis & Mark L. Movsesian, *Against Global Governance in the WTO*, 45 HARV. INT’L L. J. 353, 355 (2004) (arguing that global regulatory “deals” could serve as vehicles for interest group transfers).

environmental law scholars from all over the world, facilitating the development of global environmental law.<sup>165</sup>

Finally, changing global perceptions are arguably at the root of behavioral changes by multinational corporations. Multinational corporations now realize that their activities anywhere in the world can become a focus of global protests by environmental and human rights activists. This exposure has put pressure on multinational corporations to improve their behavior.<sup>166</sup> Even when legal standards diverge sharply between countries, multinational corporations find it harder to justify the use of less protective practices in the developing world, especially when placed under the spotlight of the international media by NGOs raising environmental justice concerns.<sup>167</sup> In one highly successful publicity campaign about sweatshop clothing factories in the developing world, NGOs were able to shame high-end American clothing retailer into requiring their suppliers in developing countries to provide workers with better working conditions and wages.<sup>168</sup> Thus, globalization has not only extended the reach of businesses and economies around the world, but also that of environmentalists and their ideas.

### B. *The Growth of International Environmental Law*

Another factor contributing to the emergence of global environmental law has been the growth and spread of international environmental law, binding and non-binding norms, and international institutions. Between 1970 and 2000 the number of international treaties addressing environmental concerns more than quadrupled from 52 to 215.<sup>169</sup> Among the most prominent are the U.N.

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165. See IUCN Academy of Environmental Law, Home, <http://www.iucnael.org> (last visited June 20, 2009). The Academy's 2007 colloquium was held in Rio and Paraty, Brazil in May and June 2007; in November 2008 the colloquium was held in Mexico City; in November 2009 it will take place in Wuhan, China. *Id.* A similar effort has occurred through efforts by the University of Maryland School of Law with respect to environmental law clinics across the world, designed to give students practical experience in the field. See Welcome to Global Environmental Law, <http://www.globalenvironmentallaw.com> (last visited June 20, 2009).

166. Business operations have also reacted proactively and positively to globalization. For example, the difficulty of adhering to separate product regulation standards in different jurisdictions has led some multinational companies to comply with the most stringent directive to which they are subject on a global basis. Such business practices can be cost-effective for companies by simplifying and providing a common operational standard for their worldwide activities. See *supra* note 153 and accompanying text.

167. See, e.g., Erik Assadourian, *The State of Corporate Responsibility and the Environment*, 18 GEO. INT'L ENVTL. L. REV. 571, 583 (2006).

168. These companies included the Gap, Kathie Lee Gifford/Wal-Mart, and the Walt Disney Company. See The National Labor Committee, Mission Statement, <http://www.nlcnet.org/aboutus.php> (last visited July 16, 2009).

169. ROBERT PERCIVAL ET AL., ENVIRONMENTAL REGULATION: LAW, SCIENCE AND POLICY 1118 (6th ed. 2009) (noting that by "one estimate there are now more than 1,000 international legal instruments with at least one important environmental provision").

Framework Convention on Climate Change<sup>170</sup> and its 1997 Kyoto Protocol,<sup>171</sup> the Convention on Biological Diversity,<sup>172</sup> the Basel Convention on the Transboundary Movement of Hazardous Wastes,<sup>173</sup> the Rotterdam Convention on Prior Informed Consent,<sup>174</sup> and the International Tropical Timber Agreement.<sup>175</sup> Such environmental agreements have contributed to the global acceptance and spread of international environmental legal norms, and has entrenched environmental norms, some as aspirational, others as legally binding.

The process of creating implementing legislation for these treaties has helped embed globally agreed-upon values and principles in member states' national regulatory systems.<sup>176</sup> In carrying out treaty commitments, national legislation implicitly adopts the underlying value commitment and principles.<sup>177</sup> Thus, participation in multilateral environmental agreements has facilitated informal, cross-border collaboration between government officials, who learn from each other's experience and share technical expertise, and has furthered the legal process of internalizing environmental norms into national legal systems.

Parallel growth of non-binding environmental commitments, declarations, and other international instruments has had similar effects. Non-binding norms and instruments have helped to reinforce worldwide recognition of environmental values and on occasion assisted in the crystallization of both national and international binding legal norms. For example, the most widely accepted environmental norm of customary international law—the “sic utere” or transboundary harm principle<sup>178</sup>—is commonly associated with Principle 21 of the non-binding Stockholm Declaration on the Human Environment.<sup>179</sup>

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170. See UNFCCC, *supra* note 71.

171. See Kyoto Protocol, *supra* note 112.

172. See Convention on Biological Diversity, *supra* note 72.

173. Basel Convention on the Transboundary Movement of Hazardous Wastes, Mar. 22, 1989, 1673 U.N.T.S. 126, 28 I.L.M. 657 (entered into force May 5, 1992).

174. Rotterdam Convention on Prior Informed Consent, Sept. 10, 1998, 2244 U.N.T.S. 393 (entered into force Feb. 24, 2004).

175. International Tropical Timber Agreement, Jan. 1, 1994, 1955 U.N.T.S. 144 (entered into force Jan. 1, 1997).

176. See Harold Hongju Koh, *Transnational Legal Process*, 75 NEB. L. REV. 181, 199 (1996) (arguing that once nations begin to interact, a complex process occurs whereby international legal norms seep into, are internalized, and become embedded in domestic legal and political processes).

177. For example, conclusion and implementation of the Aarhus Convention on Access to Information, Public Participation in Decisionmaking and Access to Justice in Environmental Matters (1998) has encouraged greater access to information in many European countries. See European Comm'n, Inventory of EU Member States' Measures on Access to Justice in Environmental Matters (2007), [http://ec.europa.eu/environment/aarhus/study\\_access.htm](http://ec.europa.eu/environment/aarhus/study_access.htm) (last visited on July 28, 2009).

178. Embraced by an English common law court in *Tenant v. Goldwin*, 92 Eng. Rep. 222 (1702), it is referred to as the “sic utere” principle because it evolved from the ancient Roman law maxim “*sic utere tuo ut alienum non laedas*,” which means that everyone must use his own property so as not to harm another.

179. See Stockholm Declaration, *supra* note 70.

Principle 21 traces its historical origins to an ancient principle of Roman law, embraced by English common law courts in 1702 and in the 1941 Trail Smelter Arbitration, an international arbitral tribunal hearing.<sup>180</sup> It is widely accepted that worldwide concern, as expressed through non-binding declarations and other international instruments, has contributed significantly to the general acceptance of Principle 21 as customary international law.<sup>181</sup>

The growth of international institutions has similarly supported the development of international environmental law. Among the most important institutions is the U.N. Environment Programme (UNEP), created in 1972 in the wake of the Stockholm Conference on the Human Environment.<sup>182</sup> However, treaty secretariats and technical expert entities established by various multilateral environmental agreements have also had significant influence, despite their primary function as administrative support bodies. Their daily work of providing substantive research, policy development, and coordination functions with other institutions usually relies on and incorporates existing and emerging environmental legal norms. Such practices facilitate the legal process by which environmental norms become both entrenched in international legal discourse as well as internalized in the actions of national and international actors.

International organizations that have traditionally had a primarily non-environmental focus, such as the International Maritime Organization,<sup>183</sup> the World Bank,<sup>184</sup> and many United Nations specialized agencies, such as the Food and Agriculture Organization<sup>185</sup> and the U.N. Development Program,<sup>186</sup>

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180. In the *Trail Smelter* arbitration a tribunal held a smelter in British Columbia liable for harm caused in Washington state by its emissions of air pollutants pursuant to the Boundary Waters Treaty between the United States and Canada. *United States v. Canada (Trail Smelter Case)*, 3 Reps. Of Int'l Arbitral Awards 1905 (1941); see also John Read, *The Trail Smelter Dispute*, 1 CAN. Y.B. INT'L L. 213, 213–17 (1963).

181. See U.N. Conference on Environment and Development, Declaration of Principles (“Rio Declaration”), Principle 2 (1992).

182. Another organization significant to the development of environmental law has been the World Conservation Union (IUCN) and its Environmental Law Commission. See About IUCN, Commission on Environmental Law, <http://www.iucn.org/about/union/commissions/cel/> (last visited Aug. 5, 2009). In more recent decades, the Intergovernmental Panel on Climate Change has taken an important leadership role in advancing public awareness about global warming, prompting the adoption of the U.N. Framework Convention on Climate Change in 1992. See Intergovernmental Panel on Climate Change, <http://www.ipcc.ch> (last visited Aug. 5, 2009).

183. See, e.g., IMO, About IMO, <http://www.imo.org> (last visited June 21, 2009) (indicating that the IMO’s major responsibility has focused on shipping, but that the IMO has shown more environmental concern since the late 1960s).

184. The World Bank, About Us, <http://web.worldbank.org/WBSITE/EXTERNAL/EXTABOUTUS/0,,contentMDK:20653660~menuPK:72312~pagePK:51123644~piPK:329829~theSitePK:29708,00.html> (last visited June 21, 2009) (indicating a change of focus from post-war reconstruction to poverty alleviation, including environment and climate change).

185. See, e.g., FOOD & AGRIC. ORG., FAO AT WORK 2007–2008—FOOD, ENERGY, AND CLIMATE: A NEW EQUATION (2008), available at <ftp://ftp.fao.org/docrep/fao/011/i0330e/i0330e00.pdf>.

have increasingly adopted environmental protection as part of their organizational mission. Even the WTO, traditionally viewed by environmentalists as the organization most indifferent, sometimes even hostile, to environmental concerns, has arguably become much more solicitous of the environment.<sup>187</sup>

There is even progress on the enforcement problem in international environmental law, one of the most important weaknesses of current environmental legal norms.<sup>188</sup> The most recent and most visible sign of progress in this regard has been the Kyoto Protocol's Non-compliance Mechanism.<sup>189</sup> The Non-compliance Mechanism is designed to facilitate compliance and monitor violations of Kyoto Annex B emission limits and the market-mechanism requirements. It is the latest and most sophisticated institutional mechanism to enhance compliance with international norms. Stronger enforcement and compliance mechanisms are likely to improve not only the effectiveness of such treaties but also facilitate the development and growth of global environmental law. Enforcement efforts not only strengthen the legal and obligatory dimension of treaty norms but also affirm the international community's commitment to and consensus on the norms embodied in the treaty.<sup>190</sup>

Unilateral sanctions efforts can have similar effects in spreading and strengthening environmental norms. They have been used by some nations, especially the United States, to affect environmental behavior.<sup>191</sup> There can be little doubt that environmental unilateralism by the United States has been deemed contrary to the spirit of multilateralism embodied in institutional enforcement mechanisms like that of the Kyoto Protocol. It is frequently disruptive and the cause of significant diplomatic tensions, international

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186. U.N. Development Program, Environment and Energy for Sustainable Development, <http://www.undp.org/energyandenvironment/> (last visited June 21, 2009).

187. See, e.g., John H. Knox, *The Judicial Resolution of Conflicts Between Trade and the Environment*, 28 HARV. ENVTL. L. REV. 1 (2004); Pascal Lamy, Director General of the WTO, Address at Yale University, *The WTO and its Agenda for Sustainable Development* (Oct. 24, 2007), available at [http://www.wto.org/english/news\\_e/sppl\\_e/sppl79\\_e.htm](http://www.wto.org/english/news_e/sppl_e/sppl79_e.htm).

188. See generally Tseming Yang, *International Treaty Enforcement as a Public Good*, 27 MICH. J. INT'L L. 1131 (2006).

189. See *Kyoto Protocol*, supra note 112, at art. 18; UNFCCC, *Procedures and Mechanisms Relating to Compliance under the Kyoto Protocol*, in REPORT OF THE CONFERENCE OF THE PARTIES ON ITS SEVENTH SESSION, HELD AT MARRAKESH FROM OCT. 29 TO NOV. 10 2001, 64 (2001) [hereafter, *Procedures and Mechanisms*]. Two additional means of addressing noncompliance are the multilateral consultative process of the Framework Convention and the dispute settlement provisions. *Kyoto Protocol*, supra note 112, at arts. 16, 19. These two processes are to operate unaffected by the noncompliance process. *Procedures and Mechanisms*, supra note 189, at § XVI.

190. Yang, supra note 188, at 1150.

191. One example has been American efforts to use unilateral trade sanctions to protect marine species. See, e.g., Report of the Panel, *United States—Restrictions on Imports of Tuna* (Sept. 3, 1991), GATT B.I.S.D. (39th Supp.) at 155 (1993); Appellate Body Report, *United States—Import Prohibition of Certain Shrimp and Shrimp Products*, WT/DS58/AB/R (October 12, 1998).

resentment, and concern. Yet, linking access to markets or other economic opportunities to environmental protection creates strong incentives for behavioral change and compliance with emerging environmental norms and legal principles that might otherwise be ignored. Such approaches have given the environmental movement significant clout in advocating for more serious commitments to environmental protection by international organizations and foreign governments.

Arguably less objectionable have been instances when countries such as the United States have sought to facilitate the enforcement process of international environmental norms through litigation in their own courts. The Alien Tort Act is one example of an avenue for litigation.<sup>192</sup> However, nearly all the environmental lawsuits brought under the Alien Tort Act have failed to win judgments in court because the actions they seek to redress are not considered violations of “the law of nations.”<sup>193</sup> But by shining the glare of international publicity on the activities of multinational corporations, these lawsuits have increased pressure on companies to upgrade their environmental practices in developing countries and have given greater credence to such international environmental norms.<sup>194</sup>

Ultimately, both the growth of binding and non-binding international environmental legal norms and the rise of international environmental organizations promote acceptance and strengthen environmental norms internationally and in national legal systems. Even though binding multilateral environmental agreements have had the most direct effect by making their norms part of applicable national law for treaty parties, non-binding instruments and international organizations have also been influential in facilitating the international legal process by which these norms enter into particular systems.

### C. *Development, Law Reform, and Spreading the Rule of Law*

The third driver of the emergence of global environmental law has been economic development and legal reform initiatives, especially those specifically targeting the reform of environmental regulatory systems in developing nations. Some countries have been actively engaged in an extensive process of law reform; for example, China’s reform has included the country’s environmental law system.

Since environmental protection has become an urgent priority of the Chinese government, China has sought out legal and technical expertise from

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192. 28 U.S.C. § 1350 (2006).

193. *See, e.g.*, *Beanal v. Freeport-McMoran, Inc.*, 197 F.3d 161 (5th Cir. 1999); *Flores v. Southern Peru Copper Corp.*, 414 F.3d 233 (2d Cir. 2003).

194. *See, e.g.*, *Jota v. Texaco, Inc.*, 157 F.3d 153 (2d Cir. 1998); *Aguinda v. Texaco, Inc.*, 303 F.3d 470 (2d Cir. 2002).

other countries to inform its efforts to improve its environmental laws. For example, to promote efforts of adaptation and transplantation of foreign laws to China, the National People's Congress (NPC) has worked for many years to prepare "A Corpus of Foreign Environmental Laws," a comprehensive translation into Chinese of the principal environmental laws employed by a number of other countries.<sup>195</sup> Concurrently, the Chinese legal system has also incorporated a variety of regulatory policy innovations into its environmental laws. These include the use of emissions trading,<sup>196</sup> effluent charges,<sup>197</sup> green labeling,<sup>198</sup> extended product responsibility,<sup>199</sup> and chemical testing and toxics reduction schemes.<sup>200</sup> In fact, the Chinese government recently announced plans to become the world's leader in the manufacture of electric cars.<sup>201</sup> China has become a vital part of efforts to protect the global environment, and its environmental laws now reflect the globalization of environmental law.

Development itself has contributed significantly to such changes. As national economies grow in size and complexity, the need for environmental regulation grows. As manufacturing, heavy industry, and other sectors of developing country economies rise relative to agricultural and subsistence activities, the shift creates a more urgent need for complex regulatory schemes addressing pollution, chemical use, and natural resource exploitation. Rising levels of affluence and consumption have also increased the demand for environmental quality and protection. With these changes happening within an economically interconnected world, the development of national environmental law and regulatory systems are shaped by global environmental regulatory trends.

For example, Beijing adopted "Euro IV," the most up-to-date European motor vehicle exhaust standards and currently the most advanced standard in the world, to address serious air quality issues in the run-up to the 2008

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195. Robert Percival participated in the Beijing conference that unveiled this work.

196. Heather Jarvis & Xu Wei, *Comparative Analysis of Air Pollution Trading in the United States and China*, 36 *Envtl. L. Rep. (Envtl. Law Inst.)* 10234, 10239-40 (2006).

197. Zhong hua ren min gong he guo huan jing bao hu fa [Environmental Protection Law of the People's Republic of China], art. 28 (promulgated by Standing Comm. 7th Nat'l People's Cong., Dec. 26, 1989), available at <http://74.125.155.132/search?q=cache:http://www.chinaenvironmentallaw.com/wp-content/uploads/2008/03/environmental-protection-law-of-the-people.doc>.

198. State Env'tl. Prot. Admin. of China, General Introduction to the Environmental Labeling Program in China, [http://www.sepacec.com/cecen/labelling/introduction/200406/t20040629\\_94143.htm](http://www.sepacec.com/cecen/labelling/introduction/200406/t20040629_94143.htm) (last visited June 21, 2009).

199. Zhong Hua Ren Min Gong He Guo Xun Huan Jing Ji Cu Jin Fa [Circular Economy Promotion Law of the People's Republic of China] art. 15 (promulgated by the Standing Comm. 11th Nat'l People's Cong., Aug. 29, 2008, entered into force Jan. 1, 2009), available at [http://www.fdi.gov.cn/pub/FDI\\_EN/Laws/GeneralLawsandRegulations/BasicLaws/P020080919377641716849.pdf](http://www.fdi.gov.cn/pub/FDI_EN/Laws/GeneralLawsandRegulations/BasicLaws/P020080919377641716849.pdf).

200. See *Provisions*, *supra* note 19.

201. Keith Bradsher, *China Vies to be World's Leader in Electric Cars*, N.Y. TIMES, April 2, 2009, at A1, available at <http://www.nytimes.com/2009/04/02/business/global/02electric.html?scp=1&sq=china%20electric%20car&st=cse>.

Olympics.<sup>202</sup> In harmonizing its applicable domestic regulatory standards with those across the world, China's budding auto manufacturing industry has become more competitive globally, broadening their marketability in the industrialized world.<sup>203</sup>

Development is also spurring the evolution of domestic environmental values and regulatory systems. Increased availability of imported goods that adhere to higher international standards raises consumer expectations about quality. This shift increases pressure on domestic producers to make better goods and on regulators to enhance consumer and environmental protections.<sup>204</sup>

Some of this evolution has been supported by governmental and non-governmental organizations in industrialized nations. Among the most notable American efforts is that of the American Bar Association (ABA). In the early 1990s, the ABA created the Central and Eastern European Law Initiative which was intended to promote law reform and the rule of law in the former communist countries and Soviet Union.<sup>205</sup> Since then, the ABA has expanded that work to other parts of the globe.<sup>206</sup> The renamed Rule of Law Initiative is now engaged in work in over forty countries. Similarly, the U.S. State Department, the U.S. Agency for International Development,<sup>207</sup> and many international organizations, including the UNEP, have sought to promote the rule of law and law transplantation efforts across the world.<sup>208</sup> More targeted efforts, such as by the U.S. EPA, have worked specifically on environmental issues with particular countries such as China, India, and Mexico.<sup>209</sup> These initiatives have helped foster closer cooperation among environmental officials in various countries, expanding opportunities for future collaborative work.

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202. See Jiangtao, *supra* note 80.

203. Zhang Ya, *Auto Competitiveness in China Improves Steadily*, CHINA ECON. NET, Feb. 20, 2009, available at [http://en.ce.cn/Insight/200902/20/t20090220\\_18267245.shtml](http://en.ce.cn/Insight/200902/20/t20090220_18267245.shtml).

204. Simon Kuznets, *Economic Growth and Income Inequality*, 45(1) AM. ECON. REV. 1-28 (1955).

205. See ABA, About ABA Rule of Law Initiative, <http://www.abanet.org/rol/about.shtml> (last visited June 21, 2009); Talbot D'Alemberte, *Our Eastern European Challenge. Providing Technical Assistance to Struggling Democracies*, 78 A.B.A. J. 8 (1992).

206. See ABA, Rule of Law Initiative Programs, <http://www.abanet.org/rol/programs> (last visited July 28, 2009).

207. See U.S. STATE DEPT. & U.S. AGENCY FOR INT'L DEV., JOINT HIGHLIGHTS OF PERFORMANCE, BUDGET, AND FINANCIAL INFORMATION, FISCAL YEAR 2007 at 17 (Feb. 2008), available at <http://www.usaid.gov/policy/highlights07/>; see also U.S. Agency for Int'l Dev., Office of Democracy and Governance: Rule of Law, [http://www.usaid.gov/our\\_work/democracy\\_and\\_governance/technical\\_areas/dg\\_office/rol.html](http://www.usaid.gov/our_work/democracy_and_governance/technical_areas/dg_office/rol.html) (last visited June 21, 2009).

208. UNEP, Division of Law and Conventions, <http://www.unep.org/delc> (last visited July 28, 2009).

209. See EPA, Bilateral Programs, [http://www.epa.gov/oia/about/oia\\_bilateral.htm](http://www.epa.gov/oia/about/oia_bilateral.htm) (last visited June 21, 2009).

D. *Ecological and Public Health Necessities*

The final set of drivers of the emergence of global environmental law has been similarities in the ecological and social regulatory conditions among different countries, as well as a shared focus on protecting the ecological commons, environmental public goods, and public health.<sup>210</sup> As a fundamental matter, the goals of environmental regulation are largely the same across the world—protecting human health and environmental public goods. Since humans tend to live in similar conditions and industrialization has led societies to use resources in similar ways, pollution and other forms of environmental degradation are causing similar adverse effects and are acting through similar pathways across the world.<sup>211</sup>

The environment's interconnectedness, the ease with which pollution crosses political and legal jurisdictions, and the effects of globalization provide further reasons for commonalities. If national and international regulatory regimes must address problems that have similar characteristics, similar causal pathways, and similar limiting constraints, it seems inevitable that such systems would converge in design and function. In other words, shared characteristics of environmental problems result in legal and regulatory solutions that also share important characteristics in their design and effect.

III. THE IMPACT OF GLOBAL ENVIRONMENTAL LAW  
ON THE PRACTICE AND DEVELOPMENT OF ENVIRONMENTAL LAW

What are the ramifications for the emergence of global environmental law? We have not attempted to provide a complete description of the field, given the limited nature of this Article. Nevertheless, our description of the contours of the field suggests at least several implications related to the practice and teaching of environmental law, the design of international environmental institutions, and the evolution of national environmental regulatory systems.

A. *The Development and Evolution of Environmental Law Worldwide*

The globalization of environmental law means that regulatory approaches, legal principles, and institution structures will be similar or have analogues across different national and international systems. As a result, knowledge gained by scholars and practitioners in one system is more likely to transcend geographic and political boundaries and be relevant and meaningful to the

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210. See, e.g., Richard Lazarus, *Human Nature, the Laws of Nature, and the Nature of Environmental Law*, 24 VA. ENVTL. L. J. 231, 234–240 (2005).

211. Numerous environmental problems have geographically disjointed causes and effects. For example, air pollution caused by the burning of fossil fuels can travel great distances, and sewage discharge or and fertilizer run-off can cause the eutrophication of distant lakes and water bodies. See, e.g., MARK BRINSON, CONSEQUENCES FOR WETLANDS OF A CHANGING GLOBAL ENVIRONMENT, IN ECOLOGY OF FRESHWATER AND ESTUARINE WETLANDS 436 (2006).

operation and effectiveness of environmental regulatory systems elsewhere. Hence, the possibility for trans-jurisdictional practice and application of environmental legal doctrines, principles, and approaches seems to be increasing.

Environmental regulatory systems at an “earlier” stage of development can profitably use many of the lessons of more developed regulatory systems. As such, environmental lawyers and regulatory specialists can share knowledge and expertise outside of their own home jurisdictions,<sup>212</sup> fueling the prospect for greatly increased opportunities for environmental lawyers to supply multi-jurisdictional legal services. Though many leading international law firms are already engaged in international, multi-jurisdictional practice,<sup>213</sup> the emergence of global environmental law will accelerate and broaden such opportunities.

Global environmental law suggests an additional conclusion. Our shared interest in the global environmental commons makes the creation and development of environmental law a communal endeavor. Its collective nature necessitates that environmental regulation not remain the responsibility, or sovereign prerogative, of individual national legal systems or the specialized province of international lawyers and diplomats. Instead, it is an enterprise in which environmental law practitioners, scholars, activists, regulators, and legislators worldwide share an interest.

For environmentalists, the idea that the environment and pollution do not respect political boundaries may be self-evident. Comparative law scholars, however, have long maintained that law transplantation must be considered in the context of a system’s specific legal history, culture, and social mores. In other words, even if law transplantation is a common phenomenon, and legal systems appear to share common elements, Watson has denied that “one can set up a theory of general legal development applicable to all or many unrelated societies.”<sup>214</sup> Contrary efforts are bound to be “superficial,” simply “wrong,” and “scarcely systematic.”<sup>215</sup> The endeavor of global environmental law hardly seeks to set out a “theory of general legal development.” However, it does break with Watson’s premise that legal systems and cultures cannot share fundamental similarities, at least in the field of law that regulates and addresses human interactions with parts of a common external world.

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212. Opportunities for environmental law experts and regulatory specialists would seem to increase with the growth of global environmental law. Of course, transferability and applicability are the very premise of law “transplantation.” However, the nature of global environmental law lends enhanced legitimacy to such processes because transferability would be based on ideas of fundamental utility to managing the environment as opposed to hegemonic dominance of one (Western) legal culture.

213. See, e.g., James R. Faulconbridge et al., *Global Law Firms: Globalization and Organizational Spaces of Cross-Border Legal Work*, 28 NW. J. INT’L L. & BUS. 455 (2008).

214. WATSON, *supra* note 46, at 13.

215. *Id.* at 10–11.

B. *Teaching and Conceptualizing Environmental Law*

For those of us who teach environmental law, the emergence of global environmental law should change the way we teach the subject to future generations of lawyers and policy makers as well as our scholarly understanding of it. At the most basic level, we need to expose newcomers not only to domestic law, but also to the principal approaches to environmental regulation that are emerging around the world.

Global environmental law confirms how many environmentalists think of their field as its own discipline—a distinct set of problems that require specially-tailored rather than generic legal tools for solutions. In the United States, environmental law is already considered distinct from administrative law, property law, or tort law. It is not just concerned with processes for constraining the exercise of government power and bureaucratic discretion in the environmental context, the protection of private possessions, or protection against personal injury. It also encompasses a comprehensive set of substantive principles unique to environmental regulation and the interaction and relationship of humans with the natural world.<sup>216</sup>

That distinctiveness has yet to be fully recognized in international environmental law, which has traditionally been thought of as a mere application of public international law principles to the global environment.<sup>217</sup> Like its domestic analogue, however, and alluded to in Part I, international environmental law has its own unique substantive concerns and principles that go beyond structuring relations between sovereign nations.

Global environmental law clarifies the complementary relationship between international, national, and comparative environmental law. National schemes are the implementing systems of international regimes and vice versa. International regimes are international coordinating extensions of nationally-scoped regulatory systems. Given the global and international scope of most environmental problems, neither can be truly effective without the other any

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216. See, e.g., A. Dan Tarlock, *Is There A There There in Environmental Law?* 19 J. LAND USE & ENVTL. L. 213, 222 (2004) (arguing that environmental law can be viewed as a radical break with the Western legal tradition); RICARDO LORENZETTI, *TEORIA DEL DERECHO AMBIENTAL* (2008) (President of the Supreme Court of Argentina argues that environmental law should be viewed as transformative of all other areas of law).

217. ALAN BOYLE & PATRICIA BIRNIE, *INTERNATIONAL LAW AND THE ENVIRONMENT* 1 (1992) (“Some legal scholars dislike the use of the term ‘international environmental law’, because they consider that there is no distinct ‘environmental’ body of law.”). The three major international environmental law books currently on the market, while excellent treatments of the subject matter, focus almost exclusively on the international components of the regimes that they discuss with little or no discussion of the domestic implementing schemes. See HUNTER, SALZMAN & ZAELKE, *supra* note 125; EDITH BROWN WEISS, ET AL., *INTERNATIONAL ENVIRONMENTAL LAW AND POLICY* (2d ed. 2006); LAKSHMAN D. GURUSWAMY ET AL., *INTERNATIONAL ENVIRONMENTAL LAW AND WORLD ORDER: A PROBLEM ORIENTED COURSEBOOK* (2d ed. 1999).

longer. Hence, to teach one without significant reference or discussion of the other would provide a seriously incomplete picture.

There is also a pedagogical point for students of international environmental law, who are persistently frustrated by international environmental law's enormous enforcement challenges. Many students draw the conclusion, consistent with prevailing public perception, that international environmental law is unenforceable and therefore ineffective. While there is important scholarly discourse on this issue,<sup>218</sup> global environmental law provides a relatively simple clarification to an underlying mistaken premise: international environmental regimes are not stand-alone systems. As integral parts of a larger system that also includes national regulatory systems, enforcement, compliance, and effectiveness matters must be judged on the performance of the overall whole, not just on the perceived deficiencies of one piece, such as international environmental laws. In other words, concern about lack of enforcement mechanisms in environmental treaties can be misplaced if the agreement is reasonably designed to rely on national systems to implement its goals.<sup>219</sup> A focus on global environmental law, not just international systems, would go far to remedy this misperception.

Finally, global environmental law is consistent with and supportive of problem-based approaches to regulation as opposed to jurisdiction-based regulation. For transnational or global environmental problems, the availability of well-recognized environmental legal principles that apply on a transnational and global basis facilitates the design of regulatory solutions. Government regulators and activists can look to global environmental law principles as generally accepted tools and building blocks for designing solutions rather than examining problems from a "first principles" perspective.

### C. *Advancing International Environmental Law and Governance*

Global environmental law also expands our thinking about how to advance international environmental governance. It suggests that the effort to design an effective international environmental law system requires more institution building than has traditionally been engaged in. It also opens a variety of options for improving the international system, some of which are not ordinarily considered in scholarly discourse.

Traditionally, multilateral treaty negotiations have concerned themselves primarily with the drafting of legal commitments that parties can accept and

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218. For a discussion of this debate, see Yang, *supra* note 188, at 1134–49.

219. Of course, *blind reliance* on national environmental regulatory systems for implementation and enforcement of international environmental legal norms is inappropriate since many developing countries still lack regulatory and enforcement capacity. The conclusion to be drawn is that environmental regulatory regimes must be viewed in context, and solutions require reform of both international law as well as national regulatory systems. For further discussion, see *infra* text accompanying notes 235–237.

carry out. At its extreme, such agreements have largely served as “contracts” memorializing agreements about actions each party has committed to carrying out in order to achieve shared environmental goals.<sup>220</sup> However, the modern trend in environmental treaty making has been to create environmental institutions as key tools for achieving treaty objectives.<sup>221</sup> Thus, multilateral agreements are not mere “contracts” between the parties but are increasingly creating regulatory regimes and multi-function institutions.

The close relationship of global environmental law to national environmental law systems suggests that this institution-building trend will continue with efforts to strengthen the international environmental law system. In other words, the focus of international environmental law will continue to shift and broaden from negotiation and formulation of limited legal commitments by each party to greater attention to the design of institutional structures. Such institutions are likely to function more like delegated decision makers in much the same way that administrative agencies do, with many of the same attendant benefits and concerns.<sup>222</sup>

Global environmental law also has important implications for two of the most important and persistent concerns about international environmental law—effectiveness and enforceability. As noted above, international environmental agreements are frequently characterized as entirely unenforceable because of the absence or weakness of international enforcement mechanisms in most environmental agreements.<sup>223</sup> While the most important and recent multilateral agreements have begun to include such mechanisms, they are rarely utilized.<sup>224</sup> Noncompliance, even in egregious instances, is rarely, if ever, punished by the international community—or at least not

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220. Yang, *supra* note 188, at 1160–62. As a non-environmental example, consider the pervading use of “contracting parties” in the 1947 General Agreement on Tariffs and Trade to refer to treaty parties. See General Agreement on Tariffs and Trade, Oct. 30, 1947, 61 Stat. A-11, 55 U.N.T.S. 194 [hereinafter *GATT*].

221. See, e.g., HUNTER, SALZMAN, & ZAEKE, *supra* note 217, at 248–254 (describing bureaucratic institutions within environmental treaties that have become increasingly important to treaty implementation).

222. For a discussion of the concerns raised by the rise of such institutions, see Daniel C. Esty, *Good Governance at the Supranational Scale: Globalizing Administrative Law*, 115 YALE L.J. 1490 (2006).

223. The Kyoto Protocol’s Non-compliance Mechanism is of course one of the few exceptions.

224. However, there have been exceptions, such as in the North American Agreement on Environmental Cooperation. Under Part V of the agreement, a successful dispute settlement outcome may allow an aggrieved party to impose sanctions in the amount of up to “0.007 percent of total trade in goods between the Parties.” North American Agreement on Environmental Cooperation, *supra* note 74, at art. 34(5) & Annex 34. Unfortunately, since the NAAEC’s adoption in 1994, these provisions have never been triggered. See, e.g., Tseming Yang, *The Effectiveness of the NAFTA Environmental Side Agreement’s Citizen Submission Process: A Case Study of Metales y Derivados*, 76 U. COLO. L. REV. 443, 468–69 (2005). For the most recent agreements, such mechanisms remain to be proven in their use.

through institutional mechanisms.<sup>225</sup> Thus, compared to national regulatory systems, the commitments contained in multilateral environmental agreements appear to be more aspirational than legally obligatory.<sup>226</sup>

This characterization has led to the widespread perception that the most successful means of improving the effectiveness of international environmental regulatory regimes is the incorporation of stronger enforcement mechanisms. That view is often based on comparisons to the international trading system, the WTO and its General Agreement on Tariffs and Trade (GATT) precursor, and the success it has had in creating a global framework governing the economic relationships between nations. Unlike the international environmental law system, the WTO has constructed a strong enforcement mechanism that allows for the imposition of trade sanctions when legal obligations are violated.<sup>227</sup>

Some scholars have extended the institutional comparison of the international environmental regulatory system to the WTO to its logical conclusion.<sup>228</sup> Given that at least some of the success of the GATT and WTO in achieving its institutional mission of liberalizing trade relations among nations must be attributed to its institutional design, Professor Daniel Esty proposed some time ago the creation of a Global Environmental Organization (GEO) that is similar to the WTO in design and powers.<sup>229</sup>

Among its most important functions, a GEO would provide an institutional focus around which environmental interests worldwide could converge and advance shared global environmental protection goals. Unlike the existing UNEP,<sup>230</sup> GEO would unify the functions and administration of the

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225. For a discussion of the challenges of enforcement and the concerns raised by non-institutional enforcement processes, see Yang, *supra* note 188, at 1134–49.

226. Compliance, enforcement, and effectiveness of international legal norms are substantially shaped and affected by the anarchical nature of the international system. As such, relations between nations continue to be defined more by power dynamics than legal rights and obligations. See THOMAS HOBBS, *LEVIATHAN* ch. 13 (C.B. McPherson ed., Penguin Books 1981) (1651); see also HEDLEY BULL, *THE ANARCHICAL SOCIETY: A STUDY OF ORDER IN WORLD POLITICS* (1977).

227. See, e.g., Brett Frischmann, *A Dynamic Institutional Theory of International Law*, 51 *BUFF. L. REV.* 679, 775 nn.296–97 (2003).

228. DANIEL ESTY, *GREENING THE GATT: TRADE, ENVIRONMENT, AND THE FUTURE*, 78–82, 85–86 (1994). See also Frank Biermann, *The Case for a World Environment Organization*, 42 *ENV'T* 22 (Nov. 2000).

229. For another model of a WTO-type environmental organization, see Biermann, *supra* note 228, at 28–29.

230. UNEP, Home, <http://www.unep.org> (last visited Aug. 5, 2009). While one might think of UNEP as the WTO's environmental counterpart, UNEP has largely served as an information clearing-house, administrative support body, and initiator of treaty negotiations. While UNEP is an important promoter of the development of international environmental law and facilitator of multilateral treaty negotiations, it remains little more than a general administrative support body with virtually no independent substantive regulatory authority and limited influence in shaping global environmental governance. See, e.g., Mark Allan Gray, *The United Nations Environment Programme: An Assessment*, 20 *ENVTL. L.* 291, 294–95 (1990). More importantly, when environmental interests have come into conflict with international trade norms, the environment is often perceived to have lost in the past. See Herman Daly, *From Adjustment to Sustainable Development: The Obstacle of Free Trade*, 15 *LOY. L.A.*

existing multitude of multilateral environmental agreements. The result would be an environmental analogue and counterweight to the power of the WTO.

Needless to say, the quest for a GEO has so far been fruitless. Despite the world's pressing environmental problems, the prospect of UNEP or any other international organization becoming Esty's GEO or the creation of a new organization with such powers seems remote at this point in time. And so, the effectiveness and stature of international environmental law remains a tremendous source of frustration for environmentalists.

Putting aside the question of whether a GEO or an analogous entity is the most desirable or appropriate governing institution for the global environment, other options exist for enhancing the effectiveness of international and global environmental governance. Lessons from the evolution of international institutions suggest the second option we consider here.<sup>231</sup> Rather than inventing a single, entirely new governing body for the global environment, domestic administrative regulatory systems show that regulation can be effective even if administrative oversight functions are placed in multiple specialized entities.

For example, in the United States, major environmental management functions are spread out across a number of specialized administrative agencies, including the EPA, the Department of Interior, the Forest Service, the Coast Guard, the National Atmospheric and Oceanic Administration, and many more. Effective management of the environment requires that particular coordinative, cooperative, and supervisory functions and outcomes be met. No one single administrative agency is assigned a regulatory monopoly over all aspects of environmental regulation. While inefficiency, duplication, and

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INT'L & COMP. L. J. 33 (1992). The resulting perception has been that the environmental regulatory system has much less clout and is much less effective than its trade counterpart. *See, e.g.,* ESTY, *supra* note 228, at 77.

There is no doubt that UNEP's shorter existence, about 35 years compared to the WTO/GATT system's approximately 50 years and the greater international concern and commitment to promoting economic growth over environmental protection are important reasons for UNEP's relatively marginal role in shaping the international diplomatic priorities. Yet, it seems to be an unassailable conclusion that possession of coercive sanctions powers has endowed the international trading system with a powerful tool for making it more effective as a system of governance than the set of environmental regimes.

231. One of the most important examples of this trend has been the creation of various institutions within the Kyoto Protocol, such as the international emission trading system and the CDM. Unlike treaty secretariats and other subsidiary and technical support bodies, which typically perform limited secretarial, technical, and ministerial functions, these two entities have been endowed with much more authority. They carry out activities that have wide-ranging effect, engage in significant policy-making work, and enjoy a significant amount of discretionary authority. *See* discussion *supra* Part I.C.3. Even though their work remains subject to the supervision of the treaty parties, their function and operation has begun to look much more like those of administrative regulatory agencies.

conflict remain important concerns, it is clear that environmental regulatory functions can be accomplished through a diversity of administering entities.<sup>232</sup>

When such institutions already exist, whether in international or national regulatory systems, creation of appropriate linkages or appropriate expansion of institutional responsibilities can be an effective and efficient solution to implementation of international environmental regimes.<sup>233</sup> Under existing environmental treaty practice, implementation of treaty commitments is expected to come primarily through the activities of existing national environmental regulatory agencies. In effect, existing treaty practice already links national regulatory agencies to the implementation of international objectives. The converse, however, is also becoming more common. Increasingly, as the Kyoto Protocol's emission trading system and the CDM indicate, international institutions are also directly influencing regulation and environmental activities at the national and sub-national level.

Greater involvement of international institutions could potentially play an important role in addressing weaknesses in the environmental regulatory systems of developing nations. Thus, international institutions could assist in the implementation of international commitments. In many developing nations, they might act as substitutes for domestic regulation until fledgling regulatory systems can become more robust and effective. Thus, strengthening of international standards and intervention by international institutions can help achieve regulatory goals that would traditionally be viewed solely as domestic problems. Strengthened international institutions could serve as important options for remedying limited regulatory capacity.

Developed countries such as the United States have traditionally resisted such efforts, primarily for reasons of national sovereignty. Their preference has been for international environmental treaties to continue delegating responsibility for implementation to national governments.<sup>234</sup> Nevertheless, some aspects of global environmental law are already bypassing the need for strict divisions between national and international governance.

The implementation of the Kyoto Protocol's CDM is an illustrative example of the potential of this convergence of national and international governance. In recent years, CDM projects in China and other countries focused on the destruction of some chemical pollutants that contribute to

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232. Cf. Jody Freeman & Daniel A. Farber, *Modular Environmental Regulation*, 54 DUKE L. J. 795, 809–814 (2005) (discussing diffusion of regulatory authority and expertise over environment among state and federal agencies).

233. That same is true for compliance institutions. As an alternative to creating a *sui generis* enforcement mechanism, it would be appropriate to identify the carrot-and-stick functions fulfilled by such mechanisms and consider whether such functions can be achieved through other institutions or mechanisms. Such disaggregation of functions would allow consideration of second-best solutions as part of the tool box of solutions rather than hunting for the elusive ideal enforcement mechanism.

234. But given the sophistication of the U.S. system, it is difficult to make a general argument for the necessity of such assistance in the United States.

climate change. Such projects appear to have been designed more for their financial benefits than to advance the stated policy goals of the CDM. However, because these projects generate carbon credits relatively cheaply, they threaten to distort the global carbon market. Their potential to generate tremendous financial returns has the potential to easily divert valuable investment dollars from projects with the potential for promoting long-term sustainability with respect to greenhouse gas emissions, such as renewable energy facilities or energy efficiency and conservation improvements.<sup>235</sup> The result has been subversion of the very goals that the CDM was designed to promote.

National regulators, including in China, have failed to rein in such developments even though regulation of industrial development and business activity would seem to be within the traditional purview of domestic regulatory agencies. However, some have suggested that the CDM Executive Board is the primary entity responsible for lax oversight of the mechanism.<sup>236</sup> The structure of the CDM mechanism and the oversight responsibilities of the CDM Executive Board allow an international body to address such issues instead of national regulators. Because CDM credits are traded internationally through the Kyoto Protocol's mechanisms and must comply with various requirements set out by the CDM Executive Board, the Executive Board could fix much of this problem by tightening the project registration standards. In other words, the regulatory intervention of an international governing body has the potential to remedy the failings of national regulatory agencies.

#### *D. Advancing National Environmental Law and Governance*

Global environmental law also has implications for the study of comparative environmental law and the structure of national environmental governance systems across the world. An understanding of these implications will be critical for professionals and international lawyers engaged in international development assistance work focusing on environmental issues. Improved understanding of comparative and foreign environmental law can also point out deficiencies and opportunities for growth in the U.S. environmental law system. Finally, the lessons of global environmental law will be of assistance to environmental law development and reform efforts in developing countries such as China.

For an effective understanding of global environmental law, including its emergence out of convergence, transplantation, integration, and harmonization, we will need to gain a thorough understanding of what is either analogous or different between systems. It requires looking beyond superficial similarities to

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235. See, e.g., Tseming Yang, *The Implementation Challenge of Mitigating China's Greenhouse Gas Emissions*, 20 GEO. INT'L ENV'L L. REV. 681 (2008).

236. See, e.g., Jeffrey Ball, *U.N. Warming Program Draws Fire*, WALL ST. J., July 11, 2008, at A1.

gain a good grasp on the principles, practice, and outcomes of different environmental governance systems and their functional components. As in other areas of comparative law study, provisions that appear to be similar might function rather differently and have little in common; conversely, seemingly disparate schemes might be functional equivalents because of their substantive effect or analogous operation.

One example is China's pollution levy systems for excess water and air pollution emissions.<sup>237</sup> It looks much like an environmental tax system, designed to account for the environmental externalities of pollution and to provide a pollution disincentive. Unfortunately, the analogy is a poor one, arguably even inappropriate. Until recently, the pollution levy system was administered by calculating excess pollution charges based on the excess *concentrations* of pollutants rather than total *mass* of excess pollutants discharged.<sup>238</sup> Much of the revenue from such pollution levies was originally intended to finance pollution control equipment, presumably as a way of taking advantage of the "double-dividend"<sup>239</sup> of pollution taxes or to engage in "revenue-recycling." To achieve this goal such funds were oftentimes remitted directly to polluters. Few controls were imposed to ensure that the funds were actually used for pollution control purposes, sometimes leading the recipient firms to direct such funds into their operating funds—to be treated like a "rebate" on the pollution tax. As a result, the pollution levy system never achieved the pollution tax goals of providing a significant disincentive for excess pollution emissions and of promoting greater pollution control by making additional funding available for such efforts.<sup>240</sup> Thus, what would otherwise have looked like a pollution tax in form is not at all comparable in substance.

A better understanding of comparative environmental law also can help more established systems identify deficiencies. For example, there is much that the United States can learn about governance systems that take environmental human rights seriously enough to back them specifically in the law. Countries all over the world, including South Africa, India, Turkey, and Brazil, have

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237. Zhong hua ren min gong he guo huan jing bao hu fa [Environmental Protection Law], art. 28 (promulgated by the Standing Comm. Nat'l People's Cong., Dec. 26, 1989, effective Dec. 26, 1989), translation available at <http://www.lawinfoChina.com>.

238. XIAOYING MA & LEONARD ORTOLANO, ENVIRONMENTAL REGULATION IN CHINA: INSTITUTIONS, ENFORCEMENT AND COMPLIANCE 20 (2000).

239. The double-dividend refers to the benefit of pollution taxes to create disincentives for pollution as well as generating revenue that can be used to pay for other social welfare-enhancing purposes, including affirmative pollution reduction and control efforts. See, e.g., Don Fullerton & Gilbert E. Metcalf, *Environmental Taxes and the Double-Dividend Hypothesis: Did You Really Expect Something for Nothing?*, 73 CHI.-KENT L. REV. 221 (1998).

240. MA & ORTOLANO, *supra* note 238, at 67.

enshrined the right to a clean environment in their constitutions.<sup>241</sup> The United States, however, has never explicitly provided a constitutional right to a clean environment. Some general analogues can be found in the protections of common law tort, the primary tool for vindicating personal and property harms caused by pollution.<sup>242</sup> This body of tort law, however, may be attributable to the strong American tradition of providing robust protections for personal property interests generally, rather than providing an example of an early vindication of environment-specific concerns.<sup>243</sup> Likewise, the rise of the environmental justice movement in the United States in the early 1980s, with its claims of environmental discrimination, has put this environmental characterization of tort law into question.<sup>244</sup> The movement's basic assertion has been that existing individual rights protections are inadequate to protect the environmental interests of racial minorities, the poor, and other marginalized groups.<sup>245</sup> The tradition of environmental rights protections enshrined in the constitutions and laws of other regulatory systems suggest alternatives that the United States ought to consider.

Finally, for the development of China's environmental governance system, global environmental law has special significance. The sheer size of its population, its rapid economic growth, and the significance of its global environmental impact have made China's regulatory system a key to the future of the planet's environmental welfare and the single most important challenge for the development of environmental law. Among the most prominent issues is, of course, global climate change—China has just recently become the largest source of greenhouse gas emissions.<sup>246</sup> However, environmental

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241. See S. AFR. CONST. 1996 § 24 (“Everyone has the right (a) to an environment that is not harmful to their health or well-being”), available at <http://www.info.gov.za/documents/constitution/index.htm>; INDIA CONST. arts. 48A, 51A: amended by the Constitution (Forty-second) Act, 1976, available at <http://indiacode.nic.in/>; TURKEY CONST. arts. 17, 56, available at <http://www.hri.org/docs/turkey/>; CONSTITUIÇÃO FEDERAL art. 225 (Braz.), available at <http://pdba.georgetown.edu/constitutions/brazil/brazil.html>. See generally May, *supra* note 162; Carl Bruch et al., *Constitutional Environmental Law: Giving Force to Fundamental Principles in Africa*, 26 COLUM. J. ENVTL. L. 131 (2001); Megan Brynhildsen, *Constitutional Provisions for Environmental Protection*, 1996 COLO. J. INT'L. ENVTL. L. & POL'Y 97 (1996); Ernst Brandl & Hartwin Bungert, *Constitutional Entrenchment of Environmental Protection: A Comparative Analysis of Experiences Abroad*, 16 HARV. ENVTL. L. REV. 1 (1992).

242. See PERCIVAL ET AL., *supra* note 169, at 64–66.

243. *Id.*

244. See generally UNEQUAL PROTECTION: ENVIRONMENTAL JUSTICE AND COMMUNITIES OF COLOR (Robert D. Bullard ed., 1994); CONFRONTING ENVIRONMENTAL RACISM: VOICES FROM THE GRASSROOTS (Robert D. Bullard ed., 1993); LUKE W. COLE & SHEILA R. FOSTER, FROM THE GROUND UP: ENVIRONMENTAL RACISM AND THE RISE OF THE ENVIRONMENTAL JUSTICE MOVEMENT (2001).

245. *Id.*

246. Shai Oster, *China Seems Poised to Pass U.S. as Top Greenhouse-Gas Emitter*, WALL ST. J., Apr. 24, 2007; see also Press Release, Neth. Env'tl. Assessment Agency, China Now No. 1 in CO<sub>2</sub> Emissions, USA in Second Position (June 19, 2007), available at <http://www.mnp.nl/en/service/pressreleases/2007/index.html> (click on title); *China Overtakes U.S. in Greenhouse Gas Emissions*,

conditions in China also affect the environment throughout the world in other ways. As our ability to trace the fate and transport of pollutants has improved, some scientists believe that 30 percent or more of the mercury settling in the United States has a foreign origin: most of it from China, and most of it in emissions from China's coal-fired power plants.<sup>247</sup> Coal-fired power plants in China emit 600 tons of mercury into the air each year, while in 1999 such plants in the United States emitted only 120 tons.<sup>248</sup> Just as China's mercury emissions affect other countries, however, nearly two-thirds of mercury emissions from U.S. power plants reached beyond U.S. borders.<sup>249</sup> The U.S. EPA is trying to reduce mercury emissions from U.S. coal-fired power plants over the next several decades.<sup>250</sup> But much of the benefits of these reductions will not be felt if mercury transport from China continues to increase. China is expected to double its production of electric power by the year 2020, in large part by building new coal-fired power plants.<sup>251</sup> Through long-range transport, mercury from China could thus become an even larger source of mercury exposure in the United States. Fortunately, the international community, including both the United States and China, agreed recently to begin negotiations on an international mercury treaty to deal with world-wide emissions.<sup>252</sup>

There can be little doubt that reform and enhancement of China's environmental governance system are of importance not only for the sake of its own people, but also for the rest of the world. Environmental law can make a significant difference in China's path toward environmental sustainability. In spite of the grim state of China's environment, there is encouraging evidence that the central government is taking these needs seriously.<sup>253</sup> Chief among these developments have been efforts to upgrade China's environmental laws based on a careful study of the experiences of other countries.<sup>254</sup>

Our own personal experiences in China have demonstrated to us a high level of awareness of environmental issues among China's people. There has

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INT'L HERALD TRIB., June 20, 2007, available at <http://www.ihl.com/articles/2007/06/20/business/emit.php>.

247. Matt Pottinger, Steve Stecklow & John J. Fialka, *Invisible Export—A Hidden Cost of China's Growth: Mercury Migration*, WALL ST. J., Dec. 17, 2004, at A1.

248. *Id.*

249. *Id.*

250. In May 2005 the U.S. EPA issued a regulation to control mercury emissions from coal-fired power plants, 70 Fed. Reg. 28,606 (2005), but the regulation was vacated by the D.C. Circuit in February 2008. *New Jersey v. EPA*, 517 F.3d 574 (D.C. Cir. 2008).

251. Pottinger, Stecklow & Fialka, *supra* note 247.

252. Press Release, UNEP, Historic Treaty to Tackle Toxic Heavy Metal Mercury Gets Green Light (Feb. 20, 2009), available at <http://www.unep.org/NewsCentre/> (search for the press release title; then follow appropriate hyperlink).

253. Robert V. Percival, *The Challenge of Chinese Environmental Law*, 10 INT'L ENVTL. L. COMMITTEE NEWSL. 2 (Aug. 2008) (ABA Newsletter).

254. *Id.*

also been a tremendous amount of interest by Chinese leaders to learn from foreign experience with environmental regulation as they upgrade China's environmental laws. And as environmental protection has become a more urgent priority of the Chinese government, China has not hesitated to import into its environmental laws regulatory policy innovations from other countries, such as emissions trading, effluent charges, and extended product responsibility. For environmental governance in China to be effective, however, the laws must take into account the distinctive characteristics of its overarching legal and political system.<sup>255</sup>

These developments are signs of how global environmental law can assist environmental law reform as well as how a country such as China can contribute to the evolution of this emerging field of study. As time progresses, global environmental law principles will be able to provide a valuable toolbox, consisting of the experiences and examples of many environmental regulatory systems, for the enhancement of evolving environmental governance systems of China, the United States, and many other nations.

#### CONCLUSION

Global environmental law is an evolving set of substantive principles, tools, and concepts derived from elements of national and international environmental law. Yet, it also represents a significant shift in the evolution of the environmental law field. No longer can one see the national environmental law systems as distinct or separate from international environmental law or from each other. Instead, global environmental law is emerging as an amalgam of national and international environmental law and their interactions.

While comparative law scholars in the past might reasonably have described the movement and transfer of concepts from one national legal system to another or to the international systems as acts of "borrowing," global environmental law indicates that this description has become inapposite. Trends such as convergence, integration, and harmonization are creating a few principal approaches to regulation that are being embraced with local variations, blurring traditional distinctions between national and international law. Environmental legal principles can no longer be seen as belonging to any one particular system, suggesting that their transfer is an act of "lending." Like the many global environmental goods that they protect, these legal principles have become part of the global commons. As part of a system of global law, they are at home everywhere.

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255. See, e.g., *id.* at 4 (suggesting that a fundamental problem facing Chinese environmental policy is the "lack[] of an independent judiciary and a tradition of respect for the rule of law").