

SUSTAINABILITY: CAN LAW MEET THE CHALLENGE?

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It is commonplace to note that the world is experiencing an unprecedented rate of change.¹ The “boundary shattering force[s]”² of globalized markets and new technologies are likely to continue smashing through pre-existing social and political fault lines for the foreseeable future. This rate of change has significant ramifications for the sustainability of human society. Indeed, making the transition to a sustainable society may be the greatest challenge that we face as a species. The role of law, and lawyers, in that process has yet to be determined. This essay argues that law can be a tool for encouraging that transition to sustainability.

Globalization is often touted as promoting global economic growth, lowering prices for consumers, and creating the conditions for democracy and peace around the world.³ At the same time, it is also demonized as being “wonderful for managers and investors, but

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1. This observation has been made repeatedly by newspaper columnists, politicians and academics. *See e.g.*, THOMAS L. FRIEDMAN, *FLAT, HOT AND CROWDED: WHY WE NEED A GREEN REVOLUTION—AND HOW IT COULD RENEW AMERICA* (2009); THOMAS L. FRIEDMAN, *THE WORLD IS FLAT: A BRIEF HISTORY OF THE 21ST CENTURY* (2007); Martin Kettle, *Tony Blair Interview: The Full Transcript*, *THE GUARDIAN* (Sept. 1. 2010), available at <http://www.guardian.co.uk/politics/2010/sep/01/tony-blair-interview-full-transcript> (last visited Jan. 14, 2011); JACOB PALIS & ISMAIL SEREGEDON, *INVENTING A BETTER FUTURE: REPORT FOR THE INTER-ACADEMY COUNCIL 17* (2003), available at <http://www.interacademycouncil.net/CMS/Reports/9866/6403/6405.aspx> (noting information driving change is “accelerating at a dizzying clip”).

2. Ulrich Beck et al., *The Theory of Reflexive Modernization*, 20(2) *THEORY, CULTURE & SOC.*, Apr. 2003, at 1, 2.

3. Probably the most famous exposition of this point of view is THOMAS L. FRIEDMAN, *THE LEXUS AND THE OLIVE TREE* (2000). For a more scholarly take on the benefits of globalization, see generally JAGDISH BHAGWADI, *IN DEFENSE OF GLOBALIZATION* (2004).

hell on workers and nature”⁴ thus creating a global race to the bottom for wages, safety, and environmental protection.⁵

There is surely some truth to both pictures of globalization. I am not here to take a position on that perennial debate, but instead want to direct attention to a particular set of sustainability challenges that are exacerbated by globalization, yet can only be addressed through global solutions.

Part I of this article will briefly sketch the scope and scale of the sustainability challenges we face. Part II describes how international law to date has responded to those challenges. Part III then highlights two structural problems with the existing international law approaches to sustainability. Finally, Part IV proposes some possible solutions and identifies emerging trends toward incorporating those solutions into international law.

I. SCOPE AND SCALE OF THE PROBLEM

The world’s human population is expected to increase by 3 billion within the next 50 years to 9.2 billion people.⁶ That means, in the 1950-2050 hundred year period, the world’s human population will have more than tripled.⁷ Today’s human population of 6.8 billion persons already has an ecological footprint significantly larger than the earth itself. Indeed, the Global Footprint Network reports

4. The quote comes from an essay uploaded on the website echeat.com on Dec. 24, 2004 by someone identified only as Panda05, entitled *The Cons of Globalization, An Essay Against Globalization (Dec. 24, 2004)*. See Panda05, *The Cons of Globalization, an Essay Against Globalization* (Dec. 24, 2004), <http://www.echeat.com/essay.php?t=26030>. The website apparently is targeted at students looking for a quick (and unethical) way to obtain school essays addressing topics of public interest. Despite these rather humble beginnings, the phrase has been quoted repeatedly across the Internet, sometimes with attribution, presumably because it so neatly encapsulates the broad array of concerns raised by economic globalization.

5. See, e.g., JEREMY BRECHER, TIM COSTELLO & BRENDAN SMITH, *GLOBALIZATION FROM BELOW: THE POWER OF SOLIDARITY* (2000) (making this case); cf. Ajit Singh and Ann Zammit, *Labour Standards and the “Race to the Bottom”*: *Rethinking Globalisation and Workers Rights from Developmental and Solidaristic Perspectives*, 20 OXFORD REV. ECON. POL’Y 85 (2004) (finding little evidence for a “race to the bottom”), available at <http://www.cbr.cam.ac.uk/pdf/wp279.pdf> (last visited Jan. 27, 2011).

6. Dep’t of Econ. & Soc. Affairs of U.N. Secretariat, *World Population Prospects: The 2008 Revision*, ¶¶ 2-3, U.N. Doc. ESA/P/WP.210 (2009).

7. *World Population 1950-2050*, CENSUS.GOV, <http://www.census.gov/ipc/www/idb/worldpopgraph.php> (last visited Jan. 14, 2011).

that humanity's current ecological footprint is 1.5 planets— half a planet more than we actually have.⁸

This mismatch between our supply of worlds to inhabit and exploit, and our ecological footprint, is stark. It means that, as a species, we are consuming more resources each year than the earth can generate and producing more waste than the earth can absorb.⁹ We are fouling our nest. Even worse, we are doing this while 40% of the earth's current population (2.6 billion people) struggle to survive, living on the equivalent of \$2.00 or less per day.¹⁰ The number of people facing chronic hunger rose to a record 1 billion in 2009.¹¹ At the same time, an overwhelming majority of the world's fisheries are either fully exploited or overfished,¹² and we are losing biodiversity¹³

8. Global Footprint Network, World Footprint: Do We Fit on the Planet?, http://www.footprintnetwork.org/en/index.php/GFN/page/world_footprint/ (last visited Nov. 3, 2010).

9. See, e.g., MILLENNIUM ECOSYSTEM ASSESSMENT BD., *Living Beyond Our Means: Natural Assets and Human Well-Being* (2005), available at <http://www.maweb.org/documents/document.429.aspx.pdf> (last visited Jan. 14, 2011).

10. This number, which the World Bank believes to be the appropriate poverty measure throughout Latin America and Eastern Europe, has not budged for a decade. See World Bank Group, Replicate the World Bank's Regional Aggregation, <http://iresearch.worldbank.org/PovcalNet/povDuplic.html> (on the right margin: choose "2005" under "Step 1"; enter "60.8," the monthly average at \$2 per day, under "Step 2"; press "Submit") (last visited Apr. 20, 2011). Nevertheless, the Millennium Development Goals use the figure of \$1.25 per day as the global poverty threshold. In its 2010 progress report, the United Nations reported that as of 2005, 1.4 billion people lived below that threshold, down from 1.8 billion in 1990. United Nations, *Millennium Development Goals Report 2010* 6-7 (June 15, 2010), available at <http://www.un.org/millenniumgoals/pdf/MDG%20Report%202010%20En%20r15%20-low%20res%2020100615%20-.pdf> (last visited Jan. 14, 2011). Of course, those figures predate the financial crisis of 2008 and 2009. If the world succeeds in meeting the Millennium Development Goal of poverty eradication, by 2015 that number will be reduced to 920 million people, roughly one-half the 1990 figure. United Nations Dev. Programme, *Goal 1: Eradicate Extreme Poverty and Hunger*, MILLENNIUM DEVELOPMENT GOALS, <http://www.undp.org/mdg/goal1.shtml> (last visited Jan. 14, 2011).

11. FOOD & AGRIC. ORG. OF UNITED NATIONS, STATE OF FOOD INSECURITY IN THE WORLD 11-12 (2009), available at <ftp://ftp.fao.org/docrep/fao/012/i0876e/i0876e.pdf> (last visited Apr. 23, 2011). This number improved slightly in 2010, with food insecurity dropping to 925 million people—a number that is still unacceptably high in either absolute or percentage terms.

12. FOOD & AGRIC. ORG. OF UNITED NATIONS, STATE OF WORLD FISHERIES AND AQUACULTURE 7-8 (2008), available at <ftp://ftp.fao.org/docrep/fao/011/i0250e/i0250e.pdf> (last visited Apr. 23, 2011) (concluding 80 percent of world fish stocks for which assessment information is

and forests¹⁴ at an alarming rate.

available are reported as fully exploited or overexploited, requiring effective and precautionary management). Four years ago, a team led by Dr. Boris Worm of Dalhousie University published an article warning that ocean fisheries were on the verge of collapse. *See generally* Boris Worm et al., *Impacts of Biodiversity Loss on Ocean Ecosystem Services*, 314 *SCI.* 787 (2006). At the time, Worm cautioned that “[o]ur children will see a world without seafood” and predicted that by 2048 most global fisheries might be in collapse. Juliet Eilperin, *World’s Fish Supply Running out, Researchers Warn*, *WASH. POST*, Nov. 3, 2006, available at <http://www.washingtonpost.com/wp-dyn/content/article/2006/11/02/AR2006110200913.html> (last visited Apr. 23, 2011). A few years later, however, Worm and his team published a follow-up study that offered some room for hope. *See generally* Boris Worm et al., *Rebuilding Global Fisheries*, 325 *SCIENCE* 578 (2009). Their new study confirmed that 63% of the world’s fish stocks are in need of rebuilding, meaning they are either overexploited or collapsed. *Id.* But, the study also pointed to a few fisheries that had taken steps to rein in overexploitation, and suggested that these efforts were working. *Id.*

13. The Living Planet Index reports a precipitous drop in biodiversity between 1970 and 2006. WORLD WILDLIFE FOUND., *LIVING PLANET REPORT 2010* 5-7 (2010), available at <http://assets.panda.org/downloads/lpr2010.pdf> (last viewed Jan. 19, 2011). There is significant international momentum to stem this loss of biodiversity. In 2002, the Sixth Conference of the Parties to the Convention on Biological Diversity adopted the Strategic Plan for the Convention on Biological Diversity (CBD). Conference of the Parties to the Convention on Biological Diversity, The Hague, Neth., Apr. 7-19, 2002, Report of the Sixth Meeting of the Conference of the Parties to the Convention on Biological Diversity, Decision VI/26 para. 11, U.N. Doc. UNEP/CBD/COP/6/20 (May 27, 2002), available at <http://www.cbd.int/doc/meetings/cop/cop-06/official/cop-06-20-en.pdf> (last visited Jan. 14, 2011). The plan committed the Parties to achieve by 2010 a significant reduction of the current rate of biodiversity loss at the global, regional and national level. Called the 2010 Biodiversity Target, this Plan was endorsed by the World Sustainability Summit and was integrated into the Millennium Development Goals. The European Union announced the even more ambitious target of halting loss of biodiversity by 2010. Eur. Comm’n, *Communication from the Commission of the European Communities Halting Biodiversity Loss by 2010—and Beyond: Sustaining Ecosystem Services for Human Well-Being*, COM (2006) 216 final (May 22, 2006) available at http://eur-lex.europa.eu/smartapi/cgi/sga_doc?smartapi!celexplus!prod!DocNumber&lg=en&type_doc=COMfinal&an_doc=2006&nu_doc=216 (last visited Jan. 19, 2011). Unfortunately, both the international community and the European Union have recently announced that they failed to meet these 2010 targets. SECRETARIAT OF THE CONVENTION ON BIOLOGICAL DIVERSITY, *GLOBAL BIODIVERSITY OUTLOOK 3* 9 (2010), <http://www.cbd.int/doc/publications/gbo/gbo3-final-en.pdf>. (reporting high risk of dramatic biodiversity loss and accompanying degradation of broad range of ecosystem services).

14. The U.N. Food and Agriculture Organization reported that between 2000 and 2010, about 13 million hectares of forest were lost per year, amounting to a net annual forest loss roughly the size of Costa Rica. FORESTRY DEP’T, FOOD & AGRIC. ORG. OF UNITED NATIONS, *GLOBAL FOREST RESOURCE ASSESSMENT 2010* 10 (2010) <http://www.fao.org/docrep/013/i1757e/i1757e.pdf> (last visited Apr. 23, 2011). This rate, though alarming, was actually somewhat good news as the rate of

Human demands on the world's biocapacity have more than doubled since 1961.¹⁵ In 2007, humanity consumed the resources equivalent to 1.5 planet earths to support its activities.¹⁶ Imagine what our ecological footprint would be if those suffering from food insecurity, and those living in abject poverty had access to more resources. Americans amount to about 5% of the world's population, but consume 25% of the total energy.¹⁷ Overall, the per person resource demand in the United States is roughly twice the biocapacity of the country.¹⁸ If the world's total population all lived the lives of middle-class Americans, we would need at least four planet Earths to meet the sum total of those resource demands¹⁹—and that is without allocating any share of the resources of those four earths (such as food, water, and space) to other species. Obviously, we only have one world, and we share it not only with each other but with countless other species.

We are literally poisoning our world. In just the past few years, we have been inundated with headlines such as: "Ecological Catastrophe: Hungary Toxic Spill Kills Four, State of Emergency Declared" (Budapest),²⁰ "Nightmare before Christmas: Coal Sludge

deforestation showed a significant improvement over the previous decade when the loss was 16 million hectares per year. *Id.* Unfortunately, this decline owes less to conservation of existing forest stands and is largely attributable to ambitious tree re-planting programs in Asia. *Id.* at 96.

15. Global Footprint Network, How Big is the Human Footprint on Earth?, http://www.footprintnetwork.org/en/index.php/GFN/page/2010_living_planet_report/ (last visited Jan. 14, 2011).

16. *See id.*

17. DANIEL D. CHIRAS, ENVIRONMENTAL SCIENCE 276 (2009). By comparison, the average American consumes as much energy as two Japanese, thirteen Chinese, or 370 Ethiopian individuals. *Consumption by the United States*, MINDFULLY.ORG <http://www.mindfully.org/Sustainability/Americans-Consumes-24percent.htm> (last visited Jan. 14, 2011).

18. Global Footprint Network, Country Trends: United States, <http://www.footprintnetwork.org/en/index.php/GFN/page/trends/unitedstates/> (last visited Oct. 11, 2011).

19. World Wildlife Fund, What is an Ecological Footprint?, http://wwf.panda.org/what_we_do/how_we_work/conservation/one_planet_living/about_opl/footprint/ (last visited Jan. 11, 2011). Even without raising global living standards to the level of the average American, the World Wildlife Fund reports that in 2030 if we continue with "business as usual," we will need two Earths to absorb our waste and meet our consumption demands. WORLD WILDLIFE FUND, LIVING PLANET REPORT: BIODIVERSITY, BIOCAPACITY AND DEVELOPMENT, 9-10 (2010), <http://assets.panda.org/downloads/lpr2010.pdf>.

20. Balazs Penz & Edith Balazs, *Hungary Toxic Spill Kills Four, State of Emergency Declared*, BLOOMBERG BUS. WEEK, Oct. 5, 2010, available at <http://www.businessweek.com/news/2010-10-05/hungary-toxic-spill-kills-four->

spill 50X worse than Exxon Valdez” (Tennessee),²¹ and “America’s Gulf: A Toxic Crime Scene” (Baltimore).²² Unfortunately, the list goes on.

As frightening and dangerous as these acute crises are, they are just the tip of the iceberg. A recent UN commission reported that every year, the world’s 3000 largest companies cause an estimated \$2.2 trillion dollars worth of environmental damages.²³ For perspective, that figure exceeds the individual GDP of all but five countries: the United States, Japan, China, Germany, and France.²⁴

Around the world, firms are continually generating stockpiles of dangerous, often poorly stored wastes—the byproducts of dangerous, unsustainable production methods. Unless there is a spill, these stockpiles are typically accumulated without fanfare, and often without the knowledge of those living nearby.²⁵ Sometimes, local or

state-of-emergency-declared.html (last visited Apr. 23, 2011). On October 4, 2010, more than 1 million cubic meters of toxic sludge burst out of an open containment pond at the Ajkai Timfoldgyar Zrt plant and killed at least 4 people (with 6 missing and 120 injured, and nearly 400 displaced) in nearby towns. MSNBC News Service, *‘Ecological Catastrophe’: Toxic Sludge Kills 4*, MSNBC, Oct. 4, 2010, http://www.msnbc.msn.com/id/39513858/ns/world_news-europe (last visited Apr. 23, 2011).

21. Wendy Redal, *Nightmare Before Christmas: Coal Sludge Spill 10x Worse than Exxon Valdez*, CE JOURNAL, Dec. 23, 2008, <http://www.cejournal.net/?p=183> (last visited Apr. 23, 2010). On December 22, 2008, the dike of an 84 acre retention pond collapsed, releasing a billion gallons of coal ash loaded with arsenic, lead, and other contaminants into the Emory River, and nearby homes. Sue Sturgis, *Disaster in East Tennessee*, FACING SOUTH, May 25, 2010, <http://www.southernstudies.org/2010/05/disaster-in-east-tennessee.html> (last visited Apr. 23, 2011); CBS News: *Tennessee Toxic Spill Woes* (CBS television broadcast Dec. 29, 2008).

22. Stephen Lendman, *America’s Gulf: A Toxic Crime Scene*, BALT. CHRON., Aug. 11, 2010, available at <http://baltimorechronicle.com/2010/081110Lendman.shtml> (last visited Apr. 23, 2011); see also Maryann Tobin, *BP Oil Spill Disaster Update: The End of Life as We Know it in the Gulf of Mexico*, EXAMINER, Apr. 30, 2010, <http://www.examiner.com/political-spin-in-national/bp-oil-spill-disaster-update-the-end-of-life-as-we-know-it-the-gulf-of-mexico> (last visited Apr. 23, 2011).

23. PRINCIPLES FOR RESPONSIBLE INV., UNIVERSAL OWNERSHIP: WHY ENVIRONMENTAL EXTERNALITIES MATTER TO INSTITUTIONAL INVESTORS 3 (2010), http://www.unpri.org/files/6728_ES_report_environmental_externalities.pdf (last visited Jan. 13, 2011).

24. See generally World Bank Group, World Development Indicators Database: Gross Domestic Product 2009, available at <http://siteresources.worldbank.org/DATASTATISTICS/Resources/GDP.pdf> (last visited Jan. 24, 2011).

25. People may be surprised to learn that hazardous waste sites exist in close proximity to their homes. In the United States, interested citizens can learn about

national authorities regulate the stockpiling process, but sometimes they do not. Furthermore, even in places with significant regulatory systems, violations are legion. The toxic legacy tends to come to light only after a firm has shut its doors and moved on, leaving behind an unknown, unseen time bomb.²⁶ Even in the Arctic, about as remote and far from industrial production as one can get on this planet, many Inuit mothers have unsafe levels of persistent organic pollutants in their breast milk.²⁷

At the same time that Inuit mothers are on the receiving end of a global pollution distribution system, they are also bearing the brunt of other unsustainable choices made elsewhere. Carbon levels are rising in the atmosphere, changing our global climate in unpredictable ways.²⁸ The Arctic climate is changing even more rapidly than the rest of the world,²⁹ with summer ice currently only a

legal toxic waste storage and disposal in their neighborhoods by performing a zip code search on EPA's website. See <http://www.epa.gov/epahome/commsearch.htm> to perform a search. Obviously, the database does not contain information about illegal sites. Many countries have yet to compile similar databases.

26. The story of Walkill, NY, is typical. The Westwood Chemical facility shuttered its doors in 2005, leaving behind thousands of gallons of improperly stored corrosive chemicals. See Christian M. Wade, *A Toxic Nightmare: Firm Leaves Dangerous Waste Behind*, TIMES HERALD-RECORD, Feb. 21, 2005. In doing so, the company joined two other manufacturers that had also walked away from toxic, contaminated facilities in the town.

27. dg nanouk okpik, *Inuit Breast Milk Contamination Now Prevalent*, IAIA CHRON. (2004) <http://www.iaiachronicle.com/Previous%20issues/newchronicle/archives/breastmilk2004.htm> (last visited Jan. 14, 2011) (explaining Inuit people consume contaminants stored in animal fat); Bruce E. Johansen, *The Inuit's Struggle with Dioxins and Other Organic Pollutants*, 26 AMER. INDIAN Q. 479, 479-80 (2002) (describing toxic chemical Cocktail Inuits consume through diet consisting mainly of sea animals); Peter Calamai, *Chemical Fallout Hurts Inuit Babies*, TORONTO STAR, Mar. 22, 2000, available at http://www.chem.unep.ch/pops/POPs_Inc/press_releases/pressrel-2k/pr24.htm (last visited Jan. 14, 2011); E. Dewailly et al, *Susceptibility to Infections and Immune Status in Inuit Infants Exposed to Organochlorines*, 108 ENVTL. HEALTH PERSP., 205 (2000); E. Dewailly et al, *Breast Milk Contamination by PCDDs, PCDF and PCBs in Arctic Quebec: A Preliminary Assessment*, 25 CHEMOSPHERE 1245 (1992).

28. CO2 Now is a website that calculates the current carbon dioxide concentration in the earth's atmosphere and links to other information about the effects of changing carbon dioxide levels. As of December 2010, the CO2 concentration was 389.69 ppm. <http://co2now.org/> (last visited Jan. 11, 2011).

29. Henry Huntington et al., *An Introduction to the Arctic Climate Impact Assessment*, in ARCTIC CLIMATE IMPACT ASSESSMENT 3 (2005), http://www.acia.uaf.edu/PDFs/ACIA_Science_Chapters_Final/ACIA_Ch01_Final.pdf (last visited Apr. 23, 2011); see also Randolph E. Schmid, *Arctic Warming Accelerates in 2010, Scientists Report*, ASSOCIATED PRESS, Oct. 23, 2010.

fraction of historical levels.³⁰ Belying its name, permafrost is melting,³¹ and indigenous groups complain that their environment has “become a stranger”³² that no longer corresponds to traditional knowledge built up over millennia. The U.S. Geological Survey estimates that the Arctic might be ice free in summer time by 2050.³³ Polar bears,³⁴ Pacific walrus,³⁵ and a host of less familiar species are at increasing risk of extinction.³⁶

The longer we refuse to face the facts about climate change, the fewer options we will have and the more we risk jeopardizing our security, our prosperity, our health, and even our very lives. Carbon dioxide levels in the atmosphere are already above 350 ppm,³⁷ and along with other key greenhouse gases remain well above any of the levels documented for the 650,000 years before the Industrial

30. James A. Screen & Ian Simmonds, *The Central Role of Diminishing Sea Ice in Recent Arctic Temperature Amplification*, 464 NATURE 1334, 1334 (2010); see National Snow and Ice Data Center, <http://nsidc.org/arcticseaicenews/> (last visited Jan. 11, 2011).

31. David Fogharty, *Permafrost Melting a Growing Climate Threat—Study*, REUTERS, June 30, 2009.

32. NUNAVUT TUNNGAVIK, ELDERS CONFERENCE ON CLIMATE CHANGE: FINAL REPORT 9 (2001) <http://www.tunngavik.com/documents/publications/2001-03-21-Elders-Report-on-Climate-Change-English.pdf> (last visited Apr. 23, 2011).

33. D.C. Douglas, *Arctic Sea Ice Decline: Projected Changes in Timing and Extent of Sea Ice in the Bering and Chukchi Seas*, in U.S. GEOLOGICAL SURVEY OPEN-FILE REPORT (2010). Many think this estimate is too conservative. See e.g., Jonathan Amos, *Arctic Summers Ice-free 'by 2013'*, BBC NEWS, Dec 12, 2007, <http://news.bbc.co.uk/2/hi/7139797.stm> (last visited Apr. 23, 2011).

34. George M. Durner et al., U.S. Dep't of the Interior, PREDICTING THE FUTURE DISTRIBUTION OF POLAR BEAR HABITAT IN THE POLAR BASIN FROM RESOURCE SELECTION FUNCTIONS APPLIED TO 21ST CENTURY GENERAL CIRCULATION MODEL PROJECTIONS OF SEA ICE (2007), http://www.usgs.gov/newsroom/special/polar_bears/docs/USGS_PolarBear_Durner_Habitat_lowres.pdf (predicting two-thirds of world's polar bears will be gone by 2050).

35. Kyle Hopkins, *Retreating Sea Ice Blamed for Crowded Shores*, ANCHORAGE DAILY NEWS, Sept. 26, 2010, available at <http://www.adn.com/2010/09/25/1471943/walruses-move-inward.html> last visited Apr. 28, 2011); Seth Borenstein, *Melting Sea Ice Forces Walruses Onto Northwest Alaska Beaches*, ANCHORAGE DAILY NEWS, Sept. 13, 2010, available at <http://www.adn.com/2010/09/13/1452078/melting-sea-ice-forces-walruses.html> (last visited Apr. 23, 2011).

36. Randy Boswell, *Arctic Ice Melt Threatens the Iconic Narwhal*, MONTREAL GAZETTE, September 8, 2010, available at <http://www.montrealgazette.com/technology/Arctic+melt+threatens+iconic+narwhal/3496490/story.html>.

37. As of October 2010, the atmospheric CO₂ concentration was 387.18 ppm. See <http://co2now.org/> (last visited Oct. 1, 2010).

Revolution.³⁸ Droughts, more severe storms, and changing rainfall patterns make food production less predictable at precisely the moment when an increasing population and a growing interest in biofuel is spurring demand.³⁹ Researchers recently reported that changing environmental conditions—most specifically climate change—have eroded rice yields by 15 percent from the 1960s level.⁴⁰ Given that the rice strain they evaluated is widely credited with launching the green revolution, the significance of this finding cannot be overstated: it may be a harbinger of the end of relying on technology as a solution to increasing food production.

The complexity of the sustainability problem is daunting. The multiple interdependencies and the varying levels of uncertainty, not to mention the multitude of stakeholders with conflicting short and long-term interests, make responding to the sustainability challenge extraordinarily difficult. The temporal and spatial reach of the needed changes reach every aspect of society.

These kinds of thorny public-policy dilemmas have an evocative name: they are often called “wicked” problems.⁴¹ A wicked problem is one that is reflexive,⁴² meaning that each attempt to create a solution actually changes the way the problem is understood and perceived.⁴³ In other words, coming up with new

38. Renato Spahni et al., *Atmospheric Methane and Nitrous Oxide of the Late Pleistocene from Antarctic Ice Cores*, 310 SCI. 1317 (Nov. 25, 2005); Urs Siegenthaler et al., *Stable Carbon Cycle-Climate Relationship During the Late Pleistocene*, 310 SCI. 1313, Nov. 25, 2005.

39. *Land Grabs, Biofuel Demand Raise Global Food Security Risk*, GLOBAL RESEARCH, Sept. 8, 2010, <http://www.globalresearch.ca/index.php?context=va&aid=20949> (last visited Jan. 28, 2011); Criselda E. Diala, *Biofuel Demand to Put Pressure on Food Prices*, ALRROYA, Feb. 24, 2010, <http://english.alroya.com/content/biofuel-demand-put-pressure-food-prices> (last visited Jan. 28, 2011).

40. See Elizabeth Weise, *Environmental Changes Lowering Yields of Miracle Rice*, USA TODAY: SCIENCE FAIR, Oct. 8, 2010, citing Shaobing Peng, et al., *The Importance of Maintenance Breeding: A Case Study of the First Miracle Rice Variety-IR8*, 119 FIELD CROPS RESEARCH 342, 346-347 (2010).

41. See Horst W. J. Rittel & Melvin M. Webber, *Dilemmas in a General Planning Theory*, 4 POL'Y SCI. 155, 160 (1973) (coining term “wicked problem”). The term describes social problems that are “ill-defined” and “rely on elusive political judgment for resolution” rather than solution, because these problems are never solved—they are only resolved. *Id.*

42. Ulrich Beck et al., *The Theory of Reflexive Modernization: Problematic, Hypothes and Research Program*, 20(2) THEORY, CULTURE & SOC'Y., 1, 1-2 (2003); Anthony Giddens, *Risk, Trust, Reflexivity*, in REFLEXIVE MODERNIZATION, 184-97 (Ulrich Beck, et al., 1994).

43. Horst & Webber, *supra* note 41, at 160.

possible solutions causes the very definition of the problem to change. Moreover, wicked problems lack a definite formulation, have no clear set of possible solutions, and offer no obvious means of determining whether or not the problem has been resolved.⁴⁴

Sustainability is a particularly wicked problem, in part because of the lack of an institutional framework capable of developing, implementing, and coordinating the responses necessary to address the problem. As a result, sustainability, like climate change, can be characterized as a “super wicked” problem.⁴⁵ A “super wicked” problem has all the attributes of a wicked problem but also has a few specific additional characteristics, including a clear indication that time is running out, the lack of any central authority, the confounding factor that those seeking to solve the problem are also causing it, and hyperbolic discounting.⁴⁶

Given the tremendous spatial and temporal scope of unsustainable practices, if law is to give us that framework it will have to be stretched past its usual contours to confront the “super wicked” nature of the problem. The outdated thinking that divides law into international law, which governs the relationship *between* states, and domestic law, which governs *within* states, will have to give way to a more integrated vision. Sustainability is ultimately a global problem: destruction of the ozone layer, climate change, ocean acidification, deforestation, overpopulation and plummeting biodiversity do not just affect one, or even a group of nation states, they affect the entire world simultaneously. The threats are global and the solutions will need to be similarly global. Coordinated action between all or most states, as well as between states and the “other organs of society”⁴⁷ will be necessary. The dearth of

44. *Id.* at 161-62.

45. See Richard J. Lazarus, *Super Wicked Problems and Climate Change: Restraining the Present to Liberate the Future* 94 CORNELL L. REV. 1153, 1160 (2009); Steven Bernstein, et al., *Playing it Forward: Path Dependency, Progressive Incrementalism, and the “Super Wicked” Problem of Global Climate Change* 8 (presented at annual meeting of International Studies Association 48th Annual Convention) (Feb. 28, 2007) available at <http://environment.yale.edu/uploads/publications/2007levinbernsteincashoreauldWicked-Problems.pdf> (last visited Jan. 28, 2011).

46. *Id.* at 8-10.

47. The phrase “organs of society” comes from the Universal Declaration of Human Rights, which assigns the duty to promote human rights to individuals, states and organs of society. See *International Bill of Human Rights: Universal Declaration of Human Rights*, G.A. Res. 217(III) A, U.N. GAOR, 3rd Sess., U.N. Doc. A/810, at 72, (Dec. 10, 1948). For a discussion of this point, see Rebecca M. Bratspies, “*Organs of Society*”: *A Plea for Human Rights Accountability for*

institutions with jurisdictional reach and legal authority extending that far does not obviate the need for global solutions, it merely makes crafting and implementing those solutions more difficult because it is hard to wrap them into existing legal systems.

II. EXISTING LEGAL TOOLS IN INTERNATIONAL LAW

The problem of sustainability has not suddenly sprung, fully formed, into the international arena. Indeed, international jurists, diplomats and lawmakers have been grappling with this problem for decades. In 1972, the first major international attempt to deal with this question, the United Nations Conference on the Human Environment,⁴⁸ represented the international community's recognition that it was possible for humans to "do massive and irreversible harm to the earthly environment on which our life and well being depend."⁴⁹ The Convention produced the Declaration of the United Nations Conference on the Human Environment (commonly called the Stockholm Declaration), intended to respond to concerns about "dangerous levels of pollution in water, air, earth and living beings; major and undesirable disturbances to the ecological balance of the biosphere; destruction and depletion of irreplaceable resources."⁵⁰ Without using the term sustainable development, the Stockholm Convention laid the foundation for integrated consideration of environment and development issues. Today, this integration of environmental and economic concerns forms the cornerstone of sustainable development.⁵¹

Almost fifteen years later, the Brundtland Commission famously articulated the international definition of sustainable development.⁵² In its report, *Our Common Future*, the Brundtland

Transnational Enterprises and Other Commercial Entities, 13 MICH. ST. J. INT'L L. 9 (2005) and John H. Knox, *Horizontal Human Rights Law*, 102 AM. J. INT'L L. 1 (2008).

48. United Nations Conference on the Human Environment, Stockholm, Swed., June 5–16, 1972, *Declaration*, U.N. Doc. A/CONF.48/14 (June 16, 1972), reprinted in 11 I.L.M. 1416.

49. *Id.* para. 6.

50. *Id.* para. 3.

51. See, e.g., Int'l Law Ass'n, *New Delhi Declaration of Principles of International Law Relating to Sustainable Development*, Res. 3/2002 (Apr. 6, 2002), available at <http://www.cisd.org/pdf/ILAdclaration.pdf>; see also Edward B. Barbier, *The Concept of Sustainable Economic Development*, 14 ENVTL. CONSERVATION 101, 103 (1987) (defining sustainable economic development).

52. World Comm'n on Env't and Dev., G.A. Res 42/187. U.N. Doc.

Commission defined sustainable development as “meeting the needs of the present without compromising the ability of future generations to meet their own needs.”⁵³ This articulation of sustainable development grew from the idea or, more accurately, the reality, that the Earth has neither an infinite supply of resources nor an infinite capacity to absorb the harmful by-products of modern, industrial society. Both of those limitations lead to the conclusion that current rates of exploitation and pollution involve a massive transfer of wealth to the present generation from future generations.

The 1992 United Nations Conference on the Environment and Development (UNCED or the Rio Conference)⁵⁴ focused global attention on environmental concerns, particularly the unsustainable nature of human activities. The Rio Declaration focused attention on the poorly understood interactions between biological, physical and social systems. More importantly, the Rio Declaration recognized that human activity was undermining the integrity of natural systems on which human life and society depend.⁵⁵

The 1992 Rio Conference is generally credited as the moment at which sustainability and sustainable development entered international law’s central narrative.⁵⁶ From Rio onward, the

A/RES/42/187 (Dec. 11, 1987)

53. *Id.*

54. U.N. Conference on Env’t and Dev., June 3-14, 1992, *Rio Declaration on the Environment and Development*, Annex I, at 3, U.N. Doc. A/CONF.151/26 (Vol.IV) (Sept. 28, 1992).

55. See Rebecca M. Bratspies, *Rethinking Environmental Decision making in International Law: A Process-Oriented Inquiry into Sustainable Development*, 32 YALE J. INT’L L. 363 (2007) (noting effects of human activity on natural systems).

56. See United Nations Dep’t of Econ. & Soc. Affairs, Comm’n on Sustainable Dev., Timeline, http://www.un.org/esa/dsd/csd/csd_index.shtml (last visited Jan. 14, 2011). For example, sustainable development is a central commitment of the UN Millennium Development Goals. See Press Release, U.N. Millennium Development Goals Summit, Goal 7: Ensure Environmental Sustainability, U.N. Press Release DPI/2650 G (Sept. 2010) available at http://www.un.org/millenniumgoals/pdf/MDG_FS_7_EN.pdf/ (last visited Jan. 14, 2011). It was also the focus of the 2002 World Summit on Sustainable Development. See U.N. Rep. of the World Summit on Sustainable Dev., Johannesburg, South Africa, Aug. 26-Sept. 4, 2002, U.N. Doc. A/CONF.199/20 (2002), available at http://www.johannesburgsummit.org/html/documents/summit_docs/131302_wssd_report_reissued.pdf (last visited Jan. 14, 2011). In addition, the UN has established the UN Division for Sustainable Development and the affiliated Commission on Sustainable Development, see United Nations, Division for Sustainable Development, <http://www.un.org/esa/sustdev/> (last visited Jan. 28, 2011). Indeed in December 2002, the UN General Assembly declared a decade of education for sustainable development from 2005-2014. G.A. Res. 57/254 U.N. Doc.

international community negotiated a wealth of multilateral environmental agreements purporting to advance the goals of sustainable development. These agreements cover everything from access to environmental information,⁵⁷ to greenhouse gas emissions,⁵⁸ to persistent organic pollutants.⁵⁹ In addition, sustainable development is a central commitment of the U.N. Millennium Development Goals⁶⁰ and has become a yardstick by which the United Nations assesses its policy development, program design, and delivery.⁶¹ The U.N. General Assembly declared 2005-2014 as a “Decade of Education for Sustainable Development.”⁶²

Despite an impressive set of international treaties, agreements and laws embodying the goals of sustainability, critics point out that the international community’s success in achieving these goals has lagged far behind the rhetoric, producing a fairly significant inconsistency between the laws on the books and the way things are actually done in the world. There is no doubt that this gap between the impressive body of international law embodying a commitment to sustainability and its implementation is very wide. Awareness of this gap exists alongside a growing uneasiness with the way that

A/RES/57/254 (Dec. 20, 2002). UNESCO is the lead agency for this decade of education. See <http://www.unesco.org/new/en/education/> for UNESCO’s educational projects. See also PHILIPPE SANDS, *PRINCIPLES OF INTERNATIONAL ENVIRONMENTAL LAW* 252-65 (2d ed. 2003) (presenting development of concept of sustainable development in international environmental law).

57. Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters, Aarhus, Denmark, June 25, 1998, 38 I.L.M. 517 (entered into force Oct. 30, 2001).

58. United Nations Framework Convention on Climate Change, May 9, 1992, S. Treaty Doc. No. 102-38, 1771 U.N.T.S. 107; Kyoto Protocol to the United Nations Framework Convention on Climate Change, Dec. 10, 1997, 37 I.L.M. 22.

59. Stockholm Convention on Persistent Organic Pollutants, May 22, 2001, 40 I.L.M. 532.

60. UN Millennium Development Goals, <http://www.un.org/millenniumgoals/envIRON.shtml> (last visited Jan. 20, 2011) (outlining UN’s strategy in achieving specific aspects of environmental sustainability).

61. U.N. Secretary General, *Progress to Date and Remaining Gaps in the Implementation of the Outcomes of the Major Summits in the Area of Sustainable Development, as well as an Analysis of the Themes of the Conference*, U.N. Doc. A/CONF.216/PC/2 (April 1, 2010).

62. See U.N. G.A. Res. 57/254, GAOR, 57th Sess., 78th plen. Mtg., U.N. Doc. A/57/PV.78 (Dec. 20, 2002). UNESCO is the leading agency in the United Nations Decade of Education for Sustainable Development. See United Nations Educ., Scientific & Cultural Org., Education for Sustainable Development, <http://www.unesco.org/en/esd/> (last visited Jan. 20, 2011) (describing UNESCO’s role in United Nations Decade of Education for Sustainable Development).

technological innovation continually forces us to reassess the relationship between law, scientific knowledge, and uncertainty.⁶³ Together, these two phenomena have created “a profound institutional crisis of industrial society itself.”⁶⁴ New technologies continually bring the growing divergence between market incentives and social welfare into sharp context. As a society, we often turn to law and regulation to bridge that divergence, yet the wide gap between the varying sustainability laws as adopted and society’s actual sustainable practices undermines that instinct.

Unfortunately, in contexts as diverse as the licensing of offshore drilling in the Gulf of Mexico,⁶⁵ the approval of new drugs,⁶⁶ or oversight of new financial instruments,⁶⁷ we have seen law fail in this task. Too often, the framework and concepts of law seem to be part of the problem rather than part of the solution. The disparity between global challenges and the boundaries of the world’s political map make it extremely difficult for legal decision makers to respond on an appropriate scale. This disparity is further compounded by the emergence of multinational and transnational corporations that operate everywhere yet are accountable nowhere. These entities have exploited the gap created by rigid division of law into domestic and international spheres to elude the grasp of Westphalian states

63. See generally ULRICH BECK, *RISK SOCIETY: TOWARDS A NEW MODERNITY* (Mark Ritter trans., Sage Publications, 1992) (1986) (describing expanding unpredictability rooted in interactions of technology, nature, society as primary source of perceived vulnerability); see also ADAM SELIGMAN, *THE PROBLEM OF TRUST* 7–8 (1997).

64. ULRICH BECK ET AL., *REFLEXIVE MODERNIZATION* 8 (1994); ULRICH BECK, *ECOLOGICAL ENLIGHTENMENT* 38–40 (1995).

65. For a detailed description of the legal and regulatory failures that contributed to BP’s environmental catastrophe, see ALYSON FLOURNOY ET AL., *REGULATORY BLOWOUT: HOW REGULATORY FAILURES MADE THE BP DISASTER POSSIBLE, AND HOW THE SYSTEM CAN BE FIXED TO PREVENT A RECURRENCE*, CENTER FOR PROGRESSIVE REFORM, WHITE PAPER #1007 (Oct. 2010), http://www.progressivereform.org/articles/BP_Reg_Blowout_1007.pdf (last visited Jan. 20, 2011).

66. Walt Bogdanich & Jake Hooker, *From China to Panama, a Trail of Poisoned Medicine*, N.Y. TIMES, May 6, 2007, at A11 (describing the path of diethylene glycol-tainted cough syrup from China, through Europe to Panama as “poison pipeline stretching halfway around the world”). The article reported that similarly tainted medicines caused mass poisonings in Panama, Haiti, Bangladesh, Argentina, Nigeria and India, and estimated the death toll to be in the thousands or tens of thousands. *Id.*

67. Gretchen Morgenstern, *Regulators in Need of Rehab*, N.Y. TIMES, Oct. 12, 2008, at BU1 (noting “leading lights of finance, whether in Washington or on Wall Street, have completely squandered any trust that taxpayers may have had in them. Earning it back is going to take time and a commitment to transparency.”).

and, accordingly, the oversight of regulators. Within the state, legal sanction of short-term metrics as a legitimate measure of whether corporate decision makers are fulfilling their fiduciary duty to shareholders virtually guarantees a focus on short-term profits at the expense of sustainability.

It should not be surprising that implementation has been a challenge given that sustainability problems are complex and ambiguous, straddling multifaceted interactions between ecological and human systems. Successfully responding to these problems requires a dynamic balancing process capable of accounting for rapid technological change amidst conflicting national imperatives. This means that, if it is to be effective, law must be both the *process* of sustainability as well as the *means* of identifying its goals. In doing so, law is confronted with two seemingly countervailing trends: ever-closer ecological independence across our shrinking, warming world, and the simultaneous fragmentation and decay of traditional authority structures.

Sustainability is a structural choice—one that involves reorienting the deep structure of international and domestic law. Only by recognizing and changing the unsustainable incentives currently buried so deeply in our legal systems as to be invisible, can we move beyond a vision of sustainability limited to voluntary individual actions. In this context, law is more usefully conceptualized as a process as well as a series of rules.

Building a vision of international society as it might be if it were governed by sustainability involves being bold, both intellectually and philosophically. It starts by unlocking the complex relationships between power, authority, rules and norms. Perhaps the biggest challenge is rooted in the sense that more of the same is what we need. This approach, which I call “thin sustainability” ignores sustainability as a process, and transforms the goals of sustainability to fit what we already do. Basically, this approach denies the wicked aspects of sustainability problems, and views them instead as problems susceptible to linear solutions.

This approach is best exemplified by the argument that sustainability is merely “an obligation to conduct ourselves so that we leave to the future the option or capacity to be as well off as we are.”⁶⁸ This reframing of sustainability ratifies the status quo by emphasizing total capital stock and the possibility of substituting

68. Robert Solow, *Sustainability: An Economist's Perspective* in *ECON. OF THE ENV'T* 179, 181 (Robert Dorfman & Nancy Dorfman eds. 1993).

between natural and human-made capital.⁶⁹

Protecting ecosystem integrity or the resilience of natural populations and systems is thus no longer a priority. So long as natural resources are converted into other forms of capital that are available to future generations, they have Locke's proverbial "enough and as good," and thus sustainability is satisfied.⁷⁰ While it may be *unfortunate* if coral reefs die, if species go extinct, or if old growth forests are clearcut, those environmental outcomes do not necessarily pose a problem for this thin form of sustainability so long as total capital available to future generations remains constant.

This approach to sustainability is premised on the assumption that if we run out of natural resources, "other factors of production, especially labor and reproducible capital, can be substituted for [these exhausted resources]."⁷¹ Indeed, some advocates of thin sustainability go as far to suggest that "the world can, in effect, get along without natural resources, so exhaustion is just an event, not a catastrophe."⁷² There is tremendous pressure to structure legal systems and decision-making processes within this paradigm of thin sustainability.

But, such a vision of sustainability fundamentally

69. See, e.g., Anil Markandya & Suzette Pedrosa-Galinato, *How Substitutable is Natural Capital?*, 37 ENV'T RESOURCE ECON. 297, 308 (2007) (concluding land resources could be substituted between human capital); David Barras Humphrey & J. R. Moroney, *Substitution Among Capital, Labor and Resources in American Manufacturing*, 83 J. POL. ECON. 57, 78-79 (1975) (suggesting labor and capital are substitutable for natural resources in American manufacturing).

70. JOHN LOCKE, *THE SECOND TREATISE ON CIVIL GOVERNMENT* 20-23 (Prometheus Books 1986) (1690).

71. Robert M. Solow, *The Economics of Resources or the Resources of Economics*, 64 AM. ECON. REV. 1, 10 (1974) (highlighting assumption on which his theory is based). Solow states that there is evidence suggesting a high degree of substitutability between exhaustible resources and reproducible resources. The position that exhaustible resources can be substituted has been adopted by an entire segment of economic literature as creed. See, e.g., THE WORLD BANK, *WHERE IS THE WEALTH OF NATIONS?* 102, 102-17(2006) (finding high degree of substitutability). The finding of a high degree of substitutability is mitigated by the many caveats of the result, which is acknowledged by the authors. *Id.*; see also John R. Moroney & Alden L. Toevs, *Factor Costs and Factor Use: An Analysis of Labor, Capital and Natural Resource Inputs*, 44 S. ECON. J. 222, 234 (1977) (finding resource shortages can be partially offset by direct substitution). *But see*, Herman E. Daly, *Georgescu-Roegen versus Solow/Stiglitz*, 22 ECOL. ECON. 261-66 (1997); Nicholas Georgescu-Roegen, *Energy and Economic Myths*, SOUTH. ECON. J. 347-81 (1975) (demonstrating contrary viewpoint on sustainability).

72. Robert Solow is one of the most prominent spokespersons for this point of view. Robert Solow, *The Economics of Resources or the Resources of Economics*, 64 AMER. ECON. REV. 1, 11 (1974).

misunderstands the relationship between human society and the global systems of which we are a part. The earth is much more than merely the source of materials and inputs needed to support human society. Unsustainable practices create problems far more profound than shortages of resource “goods” or overabundances of environmental “bads”—linear problems purportedly susceptible to solutions based on appropriate substitutions or technological developments. The relationship between human society and its biophysical environment is full of complex, poorly understood interdependencies. As a result, unsustainable practices pose fundamental problems that are likely to produce transformative social consequences, often extremely undesirable ones.

If it is to mean anything at all, sustainability has to be about more than maintaining aggregate wealth over time. It must be about doing so in a fashion that preserves resilient ecosystems and wild populations. Sustainability is about passing a world on to our children’s children that supports life and health, with drinkable water, breathable air and beautiful vistas, with healthy populations of fauna and flora, rather than remnant populations of charismatic macrofauna preserved wholly in zoos.⁷³

Once we move beyond the cramped views of thin sustainability, we immediately bump into another set of problems, this time involving the capacity of governments to actually engage in the process of sustainability. It used to be assumed that such problems were precisely the type of problems best managed by governments. Only governments, the thinking went, had the tools and authority to manage resources rationally, internalize costs, and mediate conflicts over competing uses.⁷⁴ Yet, it has become increasingly clear that super-wicked problems like sustainability are so big and so complex that states have neither the capacity nor the political will to respond to them effectively.⁷⁵

73. Press Release, Lee Poston, World Wildlife Fund, WWF and TRAFFIC Highlight Dangers of America’s 5,000-Plus Backyard Tigers, <http://www.worldwildlife.org/who/media/press/2010/WWFPresitem18372.html> (last visited Apr. 23, 2011) (noting more tigers in captivity in America than exist in the wild across the globe).

74. For an introduction to these ideas, see Jason Scorse, *The Role of Government in Environmental Protection* GRIST, Jul. 31, 2006, <http://www.grist.org/article/the-role-of-government-in-environmental-protection> (last visited Apr. 23, 2011).

75. The world’s failure to develop a binding successor agreement to the Kyoto Protocol at the 2010 United Nations Climate Change Meeting in Copenhagen cast that problem into sharp focus. See Matthew Carr & Grant Smith, *Copenhagen*

Moreover, as the transboundary nature of many such problems became clearer, questions about the capacity of governments to cooperate and collaborate further undercut the belief that states can move toward sustainability. Indeed, in some cases the state and its administrative organs stand as obstructions to sustainable decision-making.

With a loss of faith in the capacity of governments, attention turned toward markets. For the past few decades, the prevailing rhetoric in the United States has been that all problems are best solved by markets.⁷⁶ Yet, disenchantment with market-based solutions grew as it became clear that increased reliance on markets had instead produced catastrophe after catastrophe, including the 2008 financial meltdown,⁷⁷ the BP Gulf Oil Spill, and a multitude of recent food contamination scares.⁷⁸ The market-centered approach so often touted as the way to solve problems instead limited the capacity of governments to foresee and prevent these market-driven crises. This market-centered approach also completely failed to

Failure Adds \$1 Trillion to Costs for Halting Climate Change, BLOOMBERG, Nov. 9, 2010, <http://www.bloomberg.com/news/2010-11-09/copenhagen-failure-adds-1-trillion-to-costs-for-halting-climate-change.html> (last visited Apr. 23, 2011); see also Vesela Todorova, *Maldives Attacks World Community Over Copenhagen Climate Failure*, Jan. 19, 2010, <http://www.thenational.ae/news/uae-news/environment/maldives-attacks-world-community-over-copenhagen-climate-failure> (last visited Apr. 23, 2011); Bo Ekman, *Roots of Copenhagen Failure—Nature Does Not Recognize Nations*, YALE GLOBAL ONLINE (Mar. 24, 2010), <http://yaleglobal.yale.edu/content/roots-copenhagen-failure-nature-does-not-recognize-nations> (last visited Apr. 23, 2011) (explaining prospect for agreement emerging from Cancun Conference of Parties meeting seems doubtful); *Climate Change Talks: Escaping Copenhagen's Shadow*, THE GUARDIAN, Nov. 29, 2010, <http://www.guardian.co.uk/commentisfree/2010/nov/29/climate-change-talks-copenhagens-shadow?INTCMP=5rch> (last visited Apr. 23, 2011); Julio Godoy, *Cancun May Deliver Little*, INTER-PRESS SERVICE, Aug 6, 2010, <http://ipsnews.net/news.asp?idnews=52402> (last visited Apr. 23, 2011).

76. See generally MILTON FRIEDMAN, *FREE TO CHOOSE* (1979) (promoting free-market fundamentals). Friedman is perhaps the most recognized academic proponent of this kind of free-market fundamentalism and *Free to Choose* is the movement's bible. See Jedediah Purdy, *A World of Passion: How to Think About Globalization Now* 11 IND. J. GLOBAL LEGAL STUD. 1 (2004) (noting well-reasoned critique of free market approach).

77. See, e.g., Fora.tv series, *Is Capitalism Dead?*, Naomi Klein and Joseph Stiglitz on *Economic Power*, FORA.TV, Oct. 20, 2008, http://fora.tv/2008/10/20/naomi_klein_and_joseph_stiglitz_on_economic_power#fullprogram (last visited Apr. 23, 2011); Symposium, *Free Market Fundamentalism: A Critical Review of Dogmas and Consequences*, 5 SEATTLE J. SOC. JUST. 497 (2007).

78. See, e.g., Lyndsey Layton, *Peanut Processor Knowingly Sold Tainted Product*, WASH. POST, Jan. 28, 2009.

address the most pressing environmental problems, like loss of biodiversity, climate change, ocean acidification, and accumulation of persistent toxins.

Many of our recent approaches to regulation and legislation flow from models containing some critical, yet unwarranted assumptions. In particular many assume that individuals are wealth-maximizing, rational actors who hold constant preferences and inhabit frictionless worlds with perfectly and transparently-specified property regimes and costless transactions.⁷⁹ These worlds exist in a state of equilibrium. The rational person in this stable and transparent world makes decisions in a procedurally reasonable manner in light of the available information, and always reaches the decision that is objectively best in light of the utility function. Game theory builds on and embraces these simplifying assumptions.⁸⁰ Unfortunately, this focus on the rational, self-interested individual fails to recognize that economic life is deeply embedded in social life.⁸¹ Indeed, a preoccupation with “the market” has blinded some thinkers to the critical role played by governments, particularly in creating and running institutions within a society.⁸²

In fact, this “rational actor” approach is often little more than a systemic denial of the super-wicked nature of sustainability challenges and other social problems. As a result, the theories for legal and economic decision-making that flow from this line of thinking bear little resemblance to the fumbling, complex, and ambiguous world human beings actually inhabit. In reality, we act on incomplete information, and rely on cognitive models that are not

79. See, e.g., RICHARD A. POSNER, *ECONOMIC ANALYSIS OF THE LAW* (1998); JAMES COLEMAN, *FOUNDATIONS OF SOCIAL THEORY* (1990); GARY S. BECKER, *THE ECONOMIC APPROACH TO HUMAN BEHAVIOR* (1976); and KENNETH J. ARROW, *SOCIAL CHOICE AND INDIVIDUAL VALUES* 9-21 (1951). But see Amartya Sen, *Rational Fools: A Critique of the Behavioral Foundations of Economic Theory*, 6 *PHIL. & PUB. AFF.* 317, 320–26 (1977) (questioning use of observed choices to identify and define preferences).

80. See John Nash, *Equilibrium Points in N-Person Games*, 36 *PROC. NAT’L ACAD. OF SCI.* 48, 48 (1950).

81. See generally Rebecca M. Bratspies, *Regulatory Trust*, 51 *ARIZ. L. REV.* 575 (2009).

82. See DOUGLASS C. NORTH, *INSTITUTIONS, INSTITUTIONAL CHANGE AND ECONOMIC PERFORMANCE* 8 (1990) (noting version of rational actor model premised on complete information has “led us astray”); see also JAMES G. MARCH & JOHANN P. OLSEN, *REDISCOVERING INSTITUTIONS: THE ORGANIZATIONAL BASIS OF POLITICS* 35, 46-7 (1989) (describing how institutions help create their own environment).

only deeply subjective but frequently wrong.⁸³ Perhaps most troublingly, this rational actor model ignores the way that legal systems shape the array of available choices to a society.

In the process, a fetishized view of markets has too often obscured the normative role for law. Law is an inherently normative project and it should be continually coupled with the question of what kind of a world we want to have. It is this focus on the “ought” that makes law a very different project from economics. For the lawmaker, efficiency should be a means to an end rather than an end itself. Over the past few decades we have blurred those lines between means and ends.

Certainly in choosing between alternative means to achieve a socially agreed upon end, efficiency concerns are important. Encoded in an efficiency assessment, however, are a host of value judgments that rarely get voiced, yet always shape the contours of the system that emerges. For example, efficiency typically implies a comparison between costs and benefits. But it is impossible to identify, let alone quantify, the full range of costs and benefits associated with any particular choice.⁸⁴ Which costs and benefits get considered will tell you a lot about the values of those doing the comparing,⁸⁵ but often fails to provide an accurate picture of what is

83. James G. March, *Bounded Rationality, Ambiguity and the Engineering of Choice*, 9 BELL J. OF ECON. 587, 591 (1978); BARUCH FISCHHOFF, PAUL SLOVICK & SARAH LICHTENSTEIN, *Knowing What You Want: Measuring Labile Values*, in COGNITIVE PROCESSES IN CHOICE AND DECISION BEHAVIOR, 120-31 (T. S. Wallstein ed., 1980).

84. See generally FRANK ACKERMAN & LISA HEINZERLING, *PRICELESS: ON KNOWING THE PRICE OF EVERYTHING AND THE VALUE OF NOTHING* (2004); MARK SAGOFF, *THE ECONOMY OF THE EARTH* 170-72 (1988); Amy Sinden, *In Defense of Absolutes: Combating the Politics of Power in Environmental Law*, 90 IOWA L. REV. 1405, 1413-23 (2005); Lisa Heinzerling, *Regulatory Costs of Mythic Proportions*, 107 YALE L.J. 1981, 2042-68 (1998); David Driesen, *Is Cost-Benefit Analysis Neutral?*, 77 COLO. L. REV. 335 (2006).

85. See Dan M. Kahan et al., *The Second National Risk and Culture Study: Making Sense of—and Making Progress in—the American Culture War of Fact*, THE CULTURAL COGNITION PROJECT (Yale Law School, New Haven, CT), Sept. 27, 2007, at 1. Many scholars have demonstrated how much cost-benefit analysis, which is presented as a “neutral” approach, is in fact an essentially value-laden enterprise. See generally DOUG KYSAR, *REGULATING FROM NOWHERE* (2010); ACKERMAN, *supra* note 84, at 61-89; SIDNEY A. SHAPIRO & ROBERT L. GLICKSMAN, *RISK REGULATION AT RISK: RESTORING A PRAGMATIC APPROACH* (2003); Sidney A. Shapiro, *OMB and the Politicization of Risk Assessment* 37 ENV'T L. 1083, 1099-1101 (2007). Stephen Clowney, *Environmental Ethics and Cost-Benefit Analysis*, 18 FORDHAM ENV'T L. REV. 105 (2006); David M. Dreisen, *The Societal Cost of Environmental Regulation: Beyond Administrative Cost-Benefit Analysis*, 24 ECOLOGY L. Q. 545 (1997); Lisa Heinzerling,

at stake in a decision. On top of that, the level of fudging in assigning numbers to those selectively considered costs and benefits is so high that it often makes those numbers wholly fictional, albeit with the illusion of precision.

There is an even more fundamental flaw in this approach. For the purposes of efficiency, the distribution of the identified costs and benefits is irrelevant. The only thing that matters is their relative size.⁸⁶ Yet, what good is a Pareto-optimal outcome if the distribution of initial endowments is unacceptable? For law, which is supposed to be about justice, distribution must always be a critical consideration.⁸⁷

If the state has retreated⁸⁸ and markets cannot solve these problems, what is left? Perhaps it is worth taking a second look at law. There is a vast corpus of international law already purporting to promote sustainability. Right now that law does not live up to its billing and does not deliver on the myriad promises it makes. Yet surely that discrepancy between law and its implementation can be narrowed.

Forging a sustainable society will require new ways of thinking about law and about the relationship between public and private actors. We must break out of parochial thinking that relegates certain questions to public spheres while leaving others to private spheres—

Regulatory Costs of Mythic Proportions, 107 YALE L. J. 1981 (1998); Thomas O. McGarity, *The Goals of Environmental Legislation*, 31 B.C. ENVTL. AFF. L. REV. 529, 544-54 (2004).

86. Ronald Coase, *The Problem of Social Cost*, 3 J. L. & ECON. 1 (1960). Indeed, the Coase Theorem famously ignores the distribution of costs and benefits between interested parties. *Id.*

87. See Bratspies, *Regulatory Trust* *supra* note 81, at 618 (noting distribution is critical consideration in law and justice). There are a host of struggles over the distribution of social “bads” that cannot be determined by science, particularly issues of the standards of responsibility, safety, monitoring, damage limitation and distribution of the consequences of damage in an industrial society. ULRICH BECK, ANTHONY GIDDENS & SCOTT LASH, *REFLEXIVE MODERNIZATION* 141 (1994). See generally NATIONAL RESEARCH COUNCIL, *IMPROVING RISK COMMUNICATION* (1989) (describing effective risk communication as including consideration of distribution of risks and benefits).

88. SUSAN STRANGE, *THE RETREAT OF THE STATE: THE DIFFUSION OF POWER IN THE WORLD ECONOMY* 46 (1996) (asserting “progressive integration of the world economy . . . has shifted the balance of power away from states and toward world markets.”). One primary effect of economic globalization has been a weakening of state-based accountability structures. For a critique of international law’s slowness in responding to this question, see Philip Alston, *The Myopia of the Handmaidens: International Lawyers and Globalization*, 3 EUR. J. INT’L L. 435 (1997).

indeed we may need to jettison the very notions of public and private spheres. We certainly need to get beyond current debates about the advisability of partially yielding sovereignty to international agreements and institutions in order to overcome collective action problems.

III. TWO STRUCTURAL PROBLEMS

Inherent in the structure of international law are two key problems that must be confronted if we are to turn law into a more effective tool for sustainability. The first is the belief that we can achieve sustainability by tinkering at the margins of the existing social, economic, and legal systems (the Marginal Fallacy). The second is the tendency to splinter each problem into discrete pieces to be dealt with one at a time (the Splintered Fallacy). The Marginal Fallacy limits our vision, by ensuring that the implicit assumptions and background power dynamics inherent in those systems remain invisible. The Splintered Fallacy creates a multitude of legal fiefdoms that do not cooperate or even recognize the entwined nature of their activities. Both of these fallacies are deeply embedded in legal thinking, and legal systems are routinely deployed in their service.

We must squarely confront and abandon both fallacies. Getting beyond our current hodgepodge of throughput production, unequal distribution, and short-term perspectives requires a fundamental shift in the way we regulate consumption, production, and distribution. The vast corpus of national, international and local law addressing discrete aspects of this challenge actually impedes our ability to respond in an integrated and comprehensive fashion. Not only have we created legal fiefdoms that do not interact, we have buttressed those fiefdoms with contending realms of expertise. This must change. We cannot resolve the array of interrelated environmental and social problems we face by dealing with them separately.

A. The Marginal Fallacy

Too many of the proffered “solutions” to sustainability challenges barely scratch the surface of the problem. For example, like many children, my four year old has learned all about recycling from Dora the Explorer.⁸⁹ She is convinced that sorting our trash

89. See, e.g., EMILY SOLLINGER & DAVE AIKINS, DORA CELEBRATES EARTH

will save the sea animals. While that may be fine for a four year old, much of American society seems to share her misconception. Recycling is well and good, everyone should do it as much as possible.⁹⁰ But all the recycling in the world will not change the fact that as a species we are over-consuming resources, generating vast amounts of waste, and degrading all of the ecosystems with which we have contact. We need something more fundamental than trash sorting if we are going to do more than marginally change the impacts on the environment from business as usual.

The problem is not with deciding to use soy ink, recycling, or double-sided printing. The problem is that these choices are touted as an answer to sustainability challenges, thereby fostering the illusion that all we need are subtle course corrections, and that change at the margins will somehow get us to the promised land of sustainability.

There is no magic that can transform existing practices into a sustainable version of global society that looks almost exactly like existing society, but with more bike lanes, recycling bins, and happy polar bears. We cannot build a sustainable society by starting with existing trade patterns and economic relations as the default, and then graft on a series of laws requiring environmental protection. Although this approach has reduced some environmental problems,⁹¹

DAY (2009); DORA SAVES, *THE MERMAIDS* (2007); LISA RAO & WARNER MCGEE, *DIEGO AND THE BABY SEA TURTLES* (2009). Recycling is a frequent theme in children's literature. See LAUREN CHILD, *WE ARE EXTREMELY GOOD RECYCLERS* (2009); H. A. REY, *CURIOUS GEORGE PLANTS A TREE* (2009); DEBBIE GLIORI, *THE TROUBLE WITH DRAGONS* (2008); STAN AND JAN BERENSTEIN, *THE BERENSTEIN BEARS DON'T POLLUTE (ANYMORE)* (1991).

90. In 2008, the most recent year for which EPA has compiled data, Americans generated 250 million tons of trash, of which 83 million tons were either recycled or composted. UNITED STATES ENVTL. PROT. AGENCY, *MUNICIPAL SOLID WASTE GENERATION, RECYCLING AND DISPOSAL IN THE UNITED STATES: FACTS AND FIGURES FOR 2008 1*, <http://www.epa.gov/osw/nonhaz/municipal/pubs/msw2008rpt.pdf> (last visited Apr. 23, 2011). Another 13 percent, or 32 million tons of trash, were combusted for energy, leaving 54 percent to be disposed of in landfills. *Id.* at 2. That amounts to 135 million tons of trash added to landfills in 2008, or almost 2.5 tons per person, per day. Clearly, there is significant room for improvement.

91. The EPA's decision to use its Clean Air Act authority to eliminate lead additives in gasoline is perhaps the clearest example of such a success. See, e.g., Press Release, United States Env'tl. Prot. Agency, *EPA Requires Phase-Out of Lead in All Grades of Gasoline* (Nov. 28, 1973), available at <http://www.epa.gov/history/topics/lead/03.htm> (last visited Apr. 23, 2011); Pamela Meyer et al., *Surveillance for Elevated Blood Lead Levels Among Children: United States 1997-2001*, *MORBIDITY AND MORTALITY WEEKLY REP.* (Sept. 12, 2003), available at <http://www.cdc.gov/mmwr/preview/mmwrhtml/ss5210a1.htm> (last visited Apr. 11, 2011) (reporting significant decreases from 1970s to the time

it cannot succeed with the wicked and multi-scalar threats that we now face such as global warming, pervasive ecosystem destruction, and the spread of persistent toxins and pollutants.

Until we confront that inconvenient reality, we cannot begin to tackle the problem of changing the defaults in a fashion that changes their ultimate impact. We must pay attention to the fashion in which law grounds environmental choices in economic, social and political structures.

B. The Splintered Fallacy

Just as powerful as the marginal fallacy is the splintered fallacy, the idea inherent in both domestic and international law that we can resolve problems one by one. For example, we can develop a legal regime for air pollution, and then an entirely separate water pollution regime, all without worrying that those regimes will simply switch pollution from air and water to land. Or, we can successfully manage fisheries without at the same time addressing the problem that excess carbon emissions are acidifying the oceans, and shrimp farming is razing mangrove forests.

We cannot respond to pollutants individually, and to industries sector-by-sector. Such an approach is simply too limited. While some degree of compartmentalization is inevitable, siloed legal regimes cannot meet the dynamic, global challenge of sustainability. Cross-institutional and cross-media approaches are critical if we are to respond to multi-pronged challenges like climate change, ocean degradation, biodiversity loss, and the pollution loads contaminating our water, air, and soils. We must look at the challenge of sustainability in a holistic rather than fragmented fashion.

IV. THE WAY FORWARD

There are some exciting international law developments that hint at a new way forward. Nascent changes emerging in a variety of international law contexts give hope that bigger changes are on the horizon. Indeed, they offer hints of what sustainability will entail, and offer encouragement that human beings can achieve it. This section will briefly introduce two of them: soft law and the norms surrounding the emerging human right to a healthy environment.

These international law developments are intertwined in a

period of the study).

fashion that makes them difficult to separate. To facilitate discussion, this section will address each independently, while acknowledging that doing so involves a bit of simplification that elides the overlaps between the two categories.

A. *Soft Law*

No media savvy corporation, city, state or university has neglected to develop a sustainability strategy of some sort. Institutions as diverse as New York City,⁹² Walmart,⁹³ and Harvard

92. The Design Trust for Public Spaces and the NYC Office of Environmental Coordination produced an important report on sustainability. DAVID HSU, SUSTAINABLE NEW YORK CITY (2006) *available at* http://www.designtrust.org/projects/project_05sustnyc.html (last visited Apr. 11, 2011). This report was followed the next year by Mayor Bloomberg's ambitious PLANYC: A GREENER AND GREATER NEW YORK, which contains the City's plans for responding to climate change and for reducing the City's carbon footprint. *See generally* MICHAEL BLOOMBERG, PLANYC: A GREENER AND GREATER NEW YORK, http://www.nyc.gov/html/planyc2030/downloads/pdf/full_report.pdf (last visited Apr. 23, 2011). The plan calls for New York City to reduce its carbon footprint by 30 percent from 2005 levels. *Id.*

93. As the world's largest retailer, Walmart is well positioned to be a major player in driving sustainability through the value chain. In recent years, Walmart has made efforts to reduce packaging and decrease the ecological footprint of its stores. Walmart, Global Sustainability Report 2010, <http://walmartstores.com/sites/sustainabilityreport/2010/> (last visited Apr. 11, 2011). Walmart's goals range from reducing its greenhouse gas emissions by 20 percent from 2005 levels by 2012, to sourcing its energy 100 percent from renewable sources at some unspecified future date. Walmart, Global Sustainability Report – Energy Goals, http://walmartstores.com/sites/sustainabilityreport/2010/commitments_energy.aspx (last visited Apr. 11, 2011); Walmart, Global Sustainability Report – How We Define Sustainability, http://walmartstores.com/sites/sustainabilityreport/2010/environment_overview.aspx (last visited Apr. 23, 2011). While its aspirations are lofty, implementation has been uneven to date. For example, in 2010, Walmart reported that it was only 25 percent of the way toward its reduction goals. Walmart, Global Sustainability Report – Energy Goals, *supra*. In 2006, Walmart announced that by 2011 it would sell only fish certified by the Marine Stewardship Council as sustainably raised or caught. Press Release, Walmart, Walmart Takes the Lead on Supporting Sustainable Fisheries (Feb. 3, 2006), <http://walmartstores.com/pressroom/news/5638.aspx> (last visited Apr. 23, 2011). The company's 2010 Sustainability Update, however, reported only 55 percent of its fish were certified as sustainable. WALMART, GLOBAL SUSTAINABILITY REPORT: 2010 PROGRESS UPDATE 38, <http://cdn.walmartstores.com/sites/sustainabilityreport/2010/WMT2010GlobalSustainabilityReport.pdf> (last visited Jan. 13, 2011); *see also* Greenpeace, Supermarket Sustainability Scorecard, <http://www.greenpeace.org/usa/Global/usa/report/2010/4/supermarket-seafood-sustainabi.pdf> (giving Walmart a low, albeit passing grade). Of course, Walmart's

University⁹⁴ all tout their various commitments to sustainability.

The sustainability promises made by these actors run the gamut from binding legal commitments complete with enforcement schemes to vague goodwill gestures with no meaningful implementation or oversight.⁹⁵ Most of these commitments fall into the mushy realm of soft law—statements of principle intended to shape conduct that are not backed up by any coercive measures to ensure compliance or penalize non-compliance.⁹⁶

Soft law was the root of the international law movement toward sustainability in the first place. The Stockholm Declaration, the Rio Declaration, Our Common Future, the Millennium Development Goals—these are all soft-law documents that have significantly changed how law and legal institutions approach questions of sustainability. Soft Law is now leading the way again.

One soft law system in particular gives me great encouragement: the Arctic Council.⁹⁷ The Arctic Council is an international organization composed of the five coastal Arctic states and the three other states above the Arctic Circle⁹⁸ as members, and the Arctic's six main indigenous groups as permanent participants.⁹⁹ Intended as a forum for discussion and communication, the Arctic

regressive labor practices continue to be a black mark on its sustainability record.

94. Harvard's Commitment to Sustainability includes reducing greenhouse gas emissions by 30 percent from 2006 levels by 2016, and to apply green building standards to all capital projects. Harvard, Harvard's Greenhouse Gas Reduction Commitment, <http://green.harvard.edu/node/594> (last visited Apr. 23, 2011).

95. For a thorough examination of various certification strategies, see Michael P. Vandenbergh, *The New Walmart Effect: The Role of Private Contracting in Global Governance*, 54 UCLA L. REV. 913 (2007).

96. See, e.g., David Vogel, *The Private Regulation of Global Corporate Conduct*, in *THE POLITICS OF GLOBAL REGULATION* (Walter Mattli & Ngaire Woods eds., 2009).

97. The Arctic Council, http://arctic-council.org/section/the_arctic_council (last visited Jan. 13, 2011).

98. Those states are Canada, Denmark (Greenland and Faroe Islands), Sweden, Iceland, Norway, Finland, the United States of America, the Russian Federation. Member States, The Arctic Council, http://arctic-council.org/section/member_states (last visited Jan. 20, 2011).

99. The Permanent Participants are: the Aleut International Association (AIA), the Arctic Athabaskan Council, the Gwich'in Council International, the Inuit Circumpolar Council (ICC), Raipon, and the Saami Council. Permanent Participants, The Arctic Council, http://arctic-council.org/section/permanent_participants (last visited Jan. 28, 2011). The Indigenous Peoples' Secretariat supports their activities and participation in the Council. Arctic Council Indigenous Peoples Secretariat (IPS), <http://www.arcticpeoples.org/> (last visited Jan. 28, 2011).

Council has no formal law-making or law enforcing powers.¹⁰⁰ Nevertheless, its Protection of the Arctic Marine Environment Working Group (PAME) is very active.¹⁰¹ Working by consensus, PAME has developed, and the Arctic Council has adopted, an excellent set of Arctic Oil and Gas Exploration Guidelines.¹⁰²

Think about that—states and indigenous nations, sitting down together to hammer out a code of conduct for the Arctic. This is certainly a change from the historical treatment of indigenous groups, both in the Arctic and elsewhere.¹⁰³ A wider range of participants are being seen as legitimate members of the decision-making process, a particularly welcome development because these are decisions that must be made under conditions of considerable uncertainty and complexity.

We could go round and round on the question of “are these guidelines law?” If these guidelines are law, there might be some interesting consequences for the idea of sovereignty, which formerly gave the state a monopoly on law. This question is particularly salient because in the context of sustainability, sovereignty has truly been a double-edged sword. Westphalian notions of sovereignty create the possibility, within a jurisdiction, of mobilizing state power to require and enforce sustainable practices. Yet, the limits of sovereignty in a globalized world have enabled multinational corporations to insulate themselves from the regulatory efforts of governments seeking to correct environmentally destructive market

100. The Arctic Council, Declaration on the Establishment of the Arctic Council, <http://arctic-council.org/filearchive/Declaration%20on%20the%20Establishment%20of%20the%20Arctic%20Council-1..pdf> (last visited Apr. 23, 2011) (declaring Arctic Council is forum for exchange).

101. The Protection of the Arctic Marine Environment Working Group (PAME), <http://www.pame.is/> (last visited Jan. 28, 2011).

102. See ARCTIC COUNCIL, ARCTIC OFFSHORE OIL AND GAS GUIDELINES (2009), <http://arctic-council.org/filearchive/Arctic%20Offshore%20Oil%20and%20Gas%20Guidelines%202009.pdf> (last visited Apr. 23, 2011). The Arctic Council has also been very active in efforts to govern Arctic shipping. See ARCTIC COUNCIL, ARCTIC MARINE SHIPPING ASSESSMENT 2009 REPORT, http://www.pame.is/images/stories/PDF_Files/AMSA_2009_Report_2nd_print.pdf (last visited Apr. 23, 2011); Øystein Jensen, *Arctic Shipping Guidelines: Towards a Legal Regime for Navigation Safety and Environmental Protection*, 44 POLAR RECORD 107, 108-09 (2008).

103. For a description of the doctrine of terra nullius and the fate of indigenous peoples, see Rebecca M. Bratspies, *The New Discovery Doctrine: Some Thoughts on Property Rights and Indigenous Knowledge*, 31 AM. INDIAN L. REV. 315, 333-38 (2006).

failures.¹⁰⁴

If they are not law, what does that tell us about the relationship between law and governance? International law continually grapples with the question of whether law requires sanctions. Sharply delimited territorial boundaries mean that governments are poorly equipped to respond to many of the most pressing sustainability problems, which extend beyond state borders. Lack of governmental response has led to an increasing influence of non-state actors, ranging from corporations to social movements to NGOs. Sometimes these actors are in concert with the state, sometimes in competition, and some even suggest that they offer an alternative organizing principle based on new constitutive rules and institutional forms.

In the meantime, the guidelines produced by the Arctic Council are tremendously useful, and are being embraced by many key actors. They may eventually harden into law: the dance between soft law and hard law is an elaborate one. In the meantime, they are shaping behavior.

B. An Emerging Human Right to a Healthy Environment

Over the past few decades, there has been increased linkage between human rights and environmental protection. In particular, scholars have written extensively about the viability of substantive environmental rights claimed as human rights, and of procedural rights in environmental decision-making claimed as human rights.¹⁰⁵ I am not here to tell you that there is an internationally accepted Human Right to a healthy environment. Instead, I want to focus on

104. See Rebecca M. Bratspies, *Organs of Society: A Plea for Human Rights Accountability for Environmental Crimes*, 13 MICH. ST. J. INT'L L. 9, 15 (2005); see also Masao Miyoshi, *A Borderless World: From Colonialism to Transnationalism and the Decline of the Nation State*, 19 CRITICAL INQUIRY 726 (1993).

105. See, e.g., Ole W. Pedersen, *European Environmental Human Rights and Environmental Rights: A Long Time Coming?*, 21 GEO. INT'L ENVTL. L. REV. 73, 74 (2008); Luis E. Rodriguez-Rivera, *Is the Human Right to Environment Recognized Under International Law? It Depends on the Source*, 12 COLO. J. INT'L ENVTL. L. & POL'Y. 1, 9 (2001); Dinah Shelton, *Human Rights, Environmental Rights, and the Right to Environment*, 28 STAN. J. INT'L L. 103, 105 (1991). But see Günther Handl, *Human Rights and Protection of the Environment: A Mildly "Revisionist" View*, in HUMAN RIGHTS, SUSTAINABLE DEVELOPMENT AND THE ENVIRONMENT 117 (1992); Philip Alston, *Conjuring up New Human Rights: A Proposal for Quality Control*, 78 AM. J. INT'L L. 607, 607 (1984); see generally, HUMAN RIGHTS APPROACHES TO ENVIRONMENTAL PROTECTION (Alan E. Boyle & Michael R. Anderson eds., 1996).

the growing influence of the emerging discourse surrounding environmental rights. Certainly, there are invocations of a human right to a healthy environment throughout the climate change discourse. One form this invocation takes is litigation in which communities argue that their justiciable human rights are violated by activities that promote climate change. For example, the Inuit people of the Arctic filed a petition with the Inter-American Commission on Human Rights claiming that the acts and omissions of the United States with respect to climate change were violating their human rights.¹⁰⁶ The suit made headlines and drew attention to the uneven distribution of climate change's impacts. Similarly, communities in Africa's Niger Delta sued Shell Oil¹⁰⁷ on the theory that its wasteful

106. Petition to the Inter American Commission on Human Rights Seeking Relief from Violations Resulting from Global Warming Caused by Acts and Omissions of the United States (Dec. 7, 2005) [hereinafter Inuit Petition], *available at* http://www.earthjustice.org/library/legal_docs/petition-to-the-inter-american-commission-on-human-rights-on-behalf-of-the-inuit-circumpolar-conference.pdf (last visited Apr. 23, 2011). For an in-depth discussion of the Inuit petition, see Hari M. Osofsky, *The Inuit Petition as a Bridge? Beyond Dialectics of Climate Change and Indigenous Peoples' Rights*, 31 AM. INDIAN L. REV. 675 (2007). The Inuit petition was dismissed without prejudice in 2006 because the Commission was not convinced of the link between climate change and human rights. Andrew C. Revkin, *Inuit Climate Change Petition Rejected*, N.Y. TIMES, Dec. 16, 2006, at A9. The Commission held hearings in early 2007 to explore this question. *See* Testimony of Martin Wagner Before the Inter-American Commission on Human Rights (Mar. 1, 2007), *available at* http://www.earthjustice.org/library/legal_docs/testimony-before-iachr-on-global-warming-human-rights-by-martin-wagner.pdf (last visited Apr. 23, 2011); *see also* SHEILA WATT-CLOUTIER, CTR. FOR INT'L ENVTL. LAW, GLOBAL WARMING AND HUMAN RIGHTS 6-10, <http://earthjustice.org/sites/default/files/library/references/Background-for-IAHRC.pdf> (last visited Jan. 27, 2011). The Commission has not issued any further findings or decisions on this topic.

107. *Gbemre v. Shell Petroleum Dev. Co. et al.*, [2005] No. FHC/B/CS/53/05 (F.H.C.) (Nigeria), *available at* <http://www.climatelaw.org/cases/case-documents/nigeria/ni-shell-nov05-decision.pdf> (last visited Apr. 23, 2011). Shell has reportedly failed to comply with the court order directing it to cease this wasteful practice. *See* Press Release, Climate Justice Programme, Shell Fails to Obey Court Order to Stop Nigeria Flaring, Again (May 2, 2007), *available at* <http://www.climatelaw.org/cases/country/nigeria/media/2007May2/> (last visited Apr. 23, 2011). The World Bank estimates that the quantity of gas being flared and vented annually amounts to 25% of the United State's annual natural gas consumption. The quantity of natural gas flared in Africa each year equals half of that continent's power consumption. *See* Press Release, World Bank, World Bank: Oil Producing Countries, Companies Can Help Mitigate Impact of Climate Change by Reducing Gas Flaring (Nov. 10, 2006), *available at* <http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTOGMC/EXTGGFR/0,,contentMDK:21126868~pagePK:64168445~piPK:64168309~theSitePK:578069,00.html> (last visited Apr. 23, 2011).

practice of “gas flaring,” which contributed more greenhouse gas emissions than all of the other sub-Saharan African sources combined, constituted a human rights violation.¹⁰⁸ Other examples abound.

Emerging international norms about the environment include the right of access to environmental information;¹⁰⁹ intergenerational equity;¹¹⁰ common but differentiated responsibilities;¹¹¹ precautionary decision-making;¹¹² and the polluter pays principle.¹¹³

108. World Bank, Memorandum of the President of the International Development Association and the International Finance Corporation to the Executive Directors on an Interim Strategy Update for the Federal Republic of Nigeria, para. 15, Report No. 23633-UNI (Feb. 13, 2002), *available at* <http://www.climatelaw.org/cases/case-documents/nigeria/report/section3/doc3.7.pdf> (last visited Apr. 23, 2011). In perhaps the most famous case invoking human rights in the struggle between oil development and environmental protection, Shell Oil recently paid \$15.5 million to settle allegations concerning the company’s involvement in the torture and murder of Ogoni leader Ken Saro-Wiwa and other non-violent activists in the Niger Delta. *Wiwa v. Royal Dutch Petroleum Co.*, 226 F.3d 88 (2d Cir. 2000). Brought under the U.S. Alien Tort Claims Act, the case notably did not make an environmental human rights argument, in part because prior ATCA jurisprudence has refused to consider environmental claims under the statute. The complaint in *Wiwa v. Shell* is available at <http://ccrjustice.org/files/11.8.96%20Wiwa%20Complaint.pdf> (last visited Apr. 23, 2011).

109. The Aarhus Convention is the most notable articulation of this right. Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters art. 1, June 25, 1998, 2161 U.N.T.S. 447 [hereinafter Aarhus Convention]. Other examples include the right of advanced informed consent in the Cartagena Protocol and the Declaration of the Rights of Indigenous Peoples. Cartagena Protocol on Biosafety to the Convention on Biological Diversity, Jan. 29, 2000, 2226 U.N.T.S. 208 [hereinafter Cartagena Protocol]; Declaration of the Rights of Indigenous Peoples, G.A. Res. 61/295, Annex, U.N. Doc. A/RES/61/295 (Sept. 13, 2007). The Espoo Convention guarantees public participation in environmental impact procedures. Convention on Environmental Impact Assessment in a Transboundary Context (Espoo Convention) (Feb. 25, 1991), Arts. 2.6, 3, *available at* <http://www.unece.org/env/eia/documents/legaltxts/conventiontextenglish.pdf> (last visited Apr. 23, 2011).

110. *See generally* EDITH BROWN WEISS, IN FAIRNESS TO FUTURE GENERATIONS: INTERNATIONAL LAW, COMMON PATRIMONY, AND INTERGENERATIONAL EQUITY 17–46 (1989).

111. Dinah Shelton, *Describing the Elephant: International Justice and Environmental Law*, in ENVIRONMENTAL LAW AND JUSTICE IN CONTEXT 55–63 (Jonas Ebbesson & Phoebe Okowa eds., 2009).

112. *See, e.g.*, Philippe Sands, *International Law in the Field of Sustainable Development: Emerging Legal Principles*, in SUSTAINABLE DEVELOPMENT AND INTERNATIONAL LAW 54–66 (Winfried Lang ed., 1995) (describing emerging international environmental law principles listed in accompanying text).

113. The polluter pays principle dates back to the Trail Smelter Arbitration

Regardless of whether these environmental norms amount to a human right on their own, they undoubtedly enrich our understanding of human rights such as the right to life,¹¹⁴ health,¹¹⁵ culture,¹¹⁶ and property¹¹⁷ articulated in both the Universal Declaration,¹¹⁸ and the Human Rights Conventions.¹¹⁹ Justice Weeramantry, for one, has characterized protecting the environment as “a vital part of contemporary human rights doctrine, for it is a *sine qua non* for numerous human rights such as the right to health and the right to life itself.”¹²⁰ The United Nations Human Rights Council recently reaffirmed that climate change “has implications for the full

and is among the most venerable and well-established principles of international environmental law. For a full discussion of the Trail Smelter Arbitration, including edited versions of the decisions themselves, see generally TRANSBOUNDARY HARM IN INTERNATIONAL LAW: LESSONS FROM THE TRAIL SMELTER ARBITRATION (Rebecca M. Bratspies & Richard A. Miller eds., 2006).

114. Universal Declaration of Human Rights, G.A. Res. 217(111)A, U.N. Doc. A/Res/217(111) (Dec. 10, 1948), *available at* <http://www.un.org/en/documents/udhr/> [hereinafter UDHR]; *see* African Charter on Human and Peoples' Rights art. 24, June 27, 1981, 1520 U.N.T.S. 217 [hereinafter African Charter]. The African Charter states that “[a]ll peoples shall have the right to a general satisfactory environment favorable to their development.” *African Charter, supra*. Furthermore, the Additional Protocol to the American Convention on Human Rights in the Area of Economic, Social and Cultural Rights: Protocol of San Salvador art. 11, Nov. 17, 1988, 28 I.L.M. 161 [hereinafter Protocol of San Salvador], recognizes the right of “[E]veryone . . . to live in a healthy environment . . .” *Id.*

115. UDHR, *supra* note 114, art. 25. One limitation of relying on the right to health as the basis for environmental rights is that, like all rights in the International Covenant for Economic, Social and Cultural Rights, it is subject to “progressive realization” which means that its contours depend on the resources of the state concerned.

116. UDHR, *supra* note 114, art. 27.

117. UDHR, *supra* note 114, art. 17. Because of the politics of the cold war, the right to property was not codified in the ICCPR and the ICESCR. It is, however, guaranteed by the African Charter, *supra* note **Error! Bookmark not defined.**, art. 14; American Convention, *supra* note **Error! Bookmark not defined.**, art. 21; European Convention for the Protection of Human Rights and Fundamental Freedoms, Protocol No.1 art. 1, Mar. 20, 1952, Europ. T.S. No. 5, 213 U.N.T.S. 221.

118. *See* Dinah Shelton, *Human Rights, Environmental Rights, and the Right to the Environment*, 28 STAN. J. INT'L L. 103 (1991).

119. *See* International Covenant on Economic, Social and Cultural Rights, G.A. Res. 2200A, U.N. GAOR, 21st Sess., Supp. No. 16, U.N. Doc. A/6316, at 49 (Dec. 16, 1966); International Covenant on Civil and Political Rights, G.A. Res. 2200A, U.N. GAOR, 21st Sess., Supp. No. 16, U.N. Doc. A/6316, at 52 (Dec. 16, 1966).

120. *See* Gabcíkovo-Nagymaros Project (Hung. V. Slov.), 1997 I.C.J. 7, 91 (Sept. 25) (Separate Opinion of J. Weeramantry).

enjoyment of human rights” and proposed a detailed analytical study of the relationship between climate change and human rights.¹²¹

Moreover, these emerging environmental norms certainly represent a gathering international consensus about the relationship between states and individuals vis-à-vis the environment, and about the association between international environmental norms and already established human rights.¹²²

A related phenomenon, the recognition of indigenous rights through the Declaration on the Rights of Indigenous Peoples, various decisions of the Inter-American Court of Human Rights, and the European Court of Human Rights further supports this development.¹²³ These emerging environmental norms represent a gathering international consensus about the relationship between states and individuals vis-à-vis the environment, and about the association between international environmental norms and already-established human rights.¹²⁴ This discourse is empowering civil society and peoples all around the world.¹²⁵ The process by which decision-making occurs is changing, letting more people into the process (like the Arctic Council) and giving them the information they need to participate.

V. CONCLUSION

I began this essay with the vicious cycle of environmental degradation. So, I will end with the virtuous cycle of human rights, participation, transparency and emerging governance. The very process of law itself is changing in ways that not only enhance

121. Human Rights Council, *Promotion and Protection of All Human Rights, Civil, Political, Economic, Social and Cultural Rights, Including the Right to Development*, G.A. Res. 7, U.N. HRC, 7th Sess., U.N. Doc. A/HRC/7/L.21/Rev.1 (Mar. 28, 2008), available at http://www2.ohchr.org/english/issues/climatechange/docs/Resolution_7_23.pdf (last visited Apr. 23, 2011). The resolution was adopted without a vote. *Id.*

122. See Hari M. Osofsky, *Learning from Environmental Justice: A New Model for International Environmental Rights*, 24 STAN. ENVTL. L. J. 71, 91-94 (2005) (proposing four variable matrix for assessing whether environmental harms constitute human rights violations).

123. See Rebecca M. Bratspies, *The Intersection of International Human Rights and Domestic Environmental Regulation*, 38 GA. J. INT'L L. 649 (2010).

124. See Osofsky, *supra* note 122, at 91-94 (proposing four variable matrix for assessing whether environmental harms constitute human rights violations).

125. Rebecca M. Bratspies, *Human Rights and Arctic Resources*, 15 SW. J. INT'L L. 251 (2009) (exploring civil rights empowerment via environmental norms).

democratic legitimacy, but will make law better, more responsive and more sustainable in the long run. Significant sustainability networks are emerging in our globalized world, networks that recognize the need for a holistic approach adopted on a global, or at least regional scale. These networks co-exist with a complementary, or perhaps contradictory, embrace of more bottom-up, inclusive approaches to decision-making. Together, these developments add up to a new, overarching framework, a more general theory of sustainability. This is critical because without that overarching vision, too many actors will continue to be guided by different, and often conflicting norms, priorities and assumptions.

Developing a coordinated approach to sustainability involves coming to social agreement about where we want to go, and how we want to get there. It means bringing together traditional adversaries across a host of pre-existing ideological, economic and philosophical divides. Then, the real challenge of making it happen begins. Overcoming behavioral and institutional inertia is no easy task. It requires cooperation between countries, partnership between the public and private sectors, and the commitment of civil society and individuals.

Whether our responses to systemic threats like climate change and ozone depletion, and cumulative threats like loss of biological diversity, are effective or not hinges on the social, political and economic discourses unfolding around the world. Sustainability raises hard questions about the delicate and shifting balance between public and private sector actors. Answering those questions may involve shifts in the “deep structure” of international organization, particularly in the roles assigned to sovereignty, nationalism, capitalism and democracy.

Sustainability thus poses an extraordinary intellectual challenge. The possibility of simultaneous large-scale changes in biological and physical systems, as well as in social and economic ones make it imperative that we learn to think imaginatively and rigorously about the complex relationship between global environmental change and global social changes.

We *can* choose to order our society so that our prosperity is in harmony with nature rather than existing at nature’s expense. We *can* meet today’s needs without compromising our ability to do so for tomorrow, and the next day and the next. Everything we care about—a thriving economy, national security, a stable and peaceful society that offers equal opportunity to its citizens—hinges on

making the transition to sustainability.

Perhaps the biggest hurdle on this path is believing that such a change is possible. It is very difficult to think past what is—to recognize that society is created not received, and that current legal and social configurations are neither inevitable nor natural, but the result of a past set of choices. We can choose differently if we decide it is important enough to do so.