The Earth As Eggshell Victim: A Global Perspective on Domestic Regulation

Alfred C. Aman Jr.
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In 1891, in a small schoolroom in Waukesha, Wisconsin, 12 year-old George Putney scuffled with 14 year-old Andrew Vosburg and kicked him in the shin. The kick would hardly have injured a healthy child; however, Vosburg was not healthy. The kick aggravated Vosburg's tibia infection, causing him serious injury. The Supreme Court of Wisconsin held George Putney liable for all the damages that followed, even though Putney did not know of Vosburg's weakened condition. In the now famous case of Vosburg v. Putney, the Wisconsin Court enunciated the common law doctrine since known as the "eggshell skull" or "thin skull" rule: you take your victim as you find him.

The thin skull rule is a productive starting point for a dialogue on the place of law in any effort to control (or reverse) the cumulative damage to the planet's ecosystem. Any such dialogue requires a global perspective that fuses international and domestic approaches to law. Environmental law must assess not only the level of assault against the earth, but also the risk of the planet's hypervulnerability to further injury. As in Vosburg v. Putney, some of the insult to the planet has been the result of unintended consequences, whose significance we are only now beginning to understand. The planet has become

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1. 50 N.W. 403 (Wis. 1891). For an earlier Wisconsin case reaching a similar doctrinal conclusion, see Stewart v. City of Ripon, 38 Wis. 384, 590-91 (1875). See generally, W. PAGE KEETON ET. AL., PROSSER AND KEETON ON THE LAW OF TORTS § 43, at 291-92 (5th ed. 1984). For modern cases applying this doctrine see, e.g., Stoelson v. United States, 708 F.2d 1217, 1220-21 (7th Cir. 1983); Jordan v. Atchison, T. & S. Fe Ry., 934 F.2d 225, 228-29 (9th Cir. 1991).

2. See ALFRED C. AMAN, JR., ADMINISTRATIVE LAW IN A GLOBAL ERA 154-56 (1992). In the "global discourse," international and domestic approaches are no longer at different "levels" of law, but are in dialogue on the global "level." Id. Global refers to the impact of a broad political and legal consciousness that is especially concerned with worldwide forces and their relevance to domestic law. Some of these forces are environmental and involve various global commons' issues that can only be addressed collectively. Global thus implies international, but the reverse is not necessarily true. While international issues and international law, in particular, focus primarily on the law among nations, the term global focuses primarily on domestic legal responses to worldwide conditions.
an eggshell victim of industrialization, population growth and the expansion of the consumer society.

In the case of the global environment, unlike Vosburg, we cannot point to a single culprit. The causes of environmental damage are multiple. But, as in Vosburg, the whole "body"—the earth—is an irreducible unit of analysis. True, pollution—Putney's kick—emanates from different countries and regions and with differing degrees of intensity, but its global environmental impact is general and cumulative. True, pollution, toxicity and damage to the global commons are byproducts of processes to be "assimilated" at home or abroad. Yet, viewed from the vantage point of the eggshell doctrine, the interests of the earth are prior to the interests of any particular nation, industry, or individual. To claim otherwise would be tantamount to asserting that Vosburg was unharmed, except at the precise spot where Putney's shoe made contact with Vosburg's shin. The aspect of Vosburg that I believe clarifies an approach to the environment is not Putney's liability, but the implicit distinction the judge drew between kicking someone's shin, and kicking the shin of someone who is already weakened. The judge made Putney responsible for full damages to Vosburg because Vosburg's infection made him so vulnerable as to render Putney's assault serious, when it otherwise might have been a trivial incident. As in Vosburg, responsibility for the global environment should be measured in terms of the impact of the assault, which is one episode in a long term process of cumulative injury. Pollution is part of an ongoing process—just as the injury Putney delivered to Vosburg involved not merely "an act" but an incident in Vosburg's medical history.

Once Putney's act was connected to another person with unique qualities, it was no longer merely an act, but an element of the relationship between the two boys. Pollution, too, can be viewed as an element in a vast set of relationships, linking polluters through the global environment to all other people now living. That environment is severely debilitated and accordingly, those relationships are, at present, destructive ones. The eggshell victim doctrine is relevant to the collective responsibility we bear for the earth's condition. It is this perspective that I wish to articulate more fully in commenting on Professor Stewart's article. I deal primarily with the premises of this perspective rather than problems of implementation.

3. By global commons I mean, particularly, resources such as the atmosphere and the global climate that are not and cannot be owned by any one particular state. My analysis also includes other commons, such as parts of the oceans and Antarctica as well as resources such as tropical rain forests that are located fully in one or within a group of states. The uses and misuses of resources located solely in one state or a group of states also can affect the planetary environment dramatically. For example, massive deforestation of the tropical rain forests in Brazil could alter global temperatures. In this sense, such a resource can be seen as part of the "common heritage of mankind," necessitating global cooperation for its preservation. See A.B.A. SEC. OF INT'L L. & PRACTICE, TRENDS IN INTERNATIONAL ENVIRONMENTAL LAW 60-61 (1992) [hereinafter ABA].
The purpose of this comment is thus three-fold: (1) to link the relationship of international trade and domestic environmental regulation to a broader global discourse; (2) to outline this global discourse, which includes both international and domestic elements; and (3) to articulate some additional factors (beyond trade) that are now integral to the relationship between domestic environmental law and the global regulatory discourse. I maintain that a global regulatory discourse now exists, and that it involves a logic that can and should be applied to a much broader array of circumstances than is now the case. Professor Stewart’s article focuses on how concerns about international competitiveness affect domestic environmental regulation. My response to Professor Stewart emphasizes that the domestic and international realms of law and politics have recently merged—conceptually and in fact.

I. THE EGGSHELL PLANET

While Professor Stewart recognizes the role international competition can play politically, he cites empirical studies that question the overall impact of domestic environmental regulation on competitiveness. He is, however, skeptical of the empirical studies and argues that—quite apart from whether there is a connection between environmental regulation and trade—there are environmental regulatory changes we should undertake for their own sake. These include greater use of market oriented regulatory techniques and the use of an approach to environmental regulation that relies on regulatory contracts.

Inherent in the studies that Professor Stewart cites are two distinct and important points of view on domestic environmental regulation: that of individual sovereign nation-states and that of individual corporations capable of locating their operations anywhere in the world. Neither of these are sufficiently global points of view. Individual nation-states seek to maximize their own interests by focusing primarily on the well-being of their own constituents. This puts a premium on domestic law and domestic politics.

4. See Richard B. Stewart, Environmental Regulation and International Competitiveness, 102 YALE L.J. 2039, 2-71-84.

5. Id. at 2062-71, 2084-86. I, too, am skeptical of some early studies dealing with domestic environmental regulation and trade. If empirical studies are to be useful, there are a number of factors, often omitted in the kinds of studies cited by Professor Stewart, that should be measured. See Duane Chapman, Environmental Standards and International Trade in Automobiles and Copper: The Case for a Social Tariff, 31 NAT. RESOURCES 449 (1991). Because economists seriously understate environmental costs, they tend to believe that pollution control and workplace safety are not factors in industrial location. Id. at 456-57. Professor Chapman discusses six sources of error in analyzing the costs of environmental regulation in the automobile and copper industries, including: (1) labor costs—such as those incurred in attempting to control dust in a pit mine; (2) costs of monitoring and planning activities—time spent with inspectors of protection systems as well as time spent preparing reports and meeting with regulatory officials; (3) the costs of protecting workers from environmental hazards; (4) productivity losses—i.e. “when production stops or is slowed because of environmental problems, this is not counted as an economic expense”; (5) under-reporting of costs, such as respirators; and (6) opportunity costs for investment in protection equipment. Id.

Corporations seek to maximize the interests of their own shareholders and managers, presenting an even narrower perspective.

While the changes in regulatory approach described by Professor Stewart may be welcome reforms on the domestic front, I believe that it is primarily because they resonate with the new global regulatory approaches that they seem particularly appealing at this point in our history. The impact of domestic law on the global discourse now developing adds a new and important dimension to our own domestic regulatory dialogues, one that necessitates a broader view of national sovereignty as well as of individual or corporate self-interest.

Elsewhere I have suggested that a new global awareness increasingly informs our domestic regulatory debates and actions. This shift of consciousness from a primarily domestic perspective to a more global outlook is the hallmark of the “global regulatory era.” This change of consciousness has been driven in part by increased and intensified international competition, especially in the 1980’s. Competition among industries that operated in nations with different, lower, or minimal regulatory requirements helped place the cost of U.S. domestic regulation in stark relief for policy makers and the public. Multinational corporations could lower their production costs by relocating some or all of their manufacturing facilities in parts of the world where regulatory costs were minimal or nonexistent. The cost of domestic regulation helped fuel the debate in the 1980’s that encouraged deregulation, more efficient regulation, and harmonization of the regulation imposed by the U.S. and other states.

More importantly, because of the new assumptions emerging about the nature, functions, and limits of regulation, the complex global regulatory

7. See AMAN, supra note 2.
8. Id. at 78-79; see also Chapman, supra note 5, at 449-450 (arguing that full and accurate assessment of costs of domestic pollution and workplace safety regulation are likely to be significant factors affecting productivity, the location of manufacturing, and levels of global pollution). For a discussion of the impact of lower labor costs or the decisions of some industries to look outside the U.S. when it comes to locating their manufacturing operations, see ROBERT B. REICH, THE WORK OF NATIONS 69-70 (1991).
10. See, e.g., George Bush, Address Before a Joint Session of the Congress on the State of the Union, Jan. 28, 1992 (calling for a moratorium on "anti-growth" domestic regulation).
12. Elsewhere, I have called such sets of assumptions a "regulatory matrix." AMAN, supra note 2, at 3. The term refers to the whole open-ended set of propositions, premises, assumptions, and attitudes that make a regulatory approach or outcome seem logical, or appropriate to its circumstances. In any society, at any time, one matrix can generate different, and even rival, models of regulation, since decisionmakers can justify different positions by drawing on different combinations of the elements of its logic. The
discourse now developing treats the earth as an eggshell victim. Accordingly, the logic of this discourse requires that we take seriously international differences in wealth, culture, and political will that lead to different perspectives on the environment. Moreover, this global discourse also proceeds from the premise that an individual country's domestic regulatory approaches to environmental matters simply may not be enough to protect the eggshell planet, no matter how effective or efficient they may be in national terms.

II. THE GLOBAL REGULATORY DISCOURSE

A. The Global Perspective

The image of the earth as eggshell victim redirects attention from the cause of harm to the impact of injury. Accordingly, if pollution is harmful to the global commons, its source should not be of primary relevance to law and policy. Simply because the developed world's relative affluence is, in part, the result of its history of pollution, it does not follow that pollution from less developed countries should be tolerated in the name of equity or as an inevitable stage of economic development. In other words, responsibility is both retrospective and prospective. The eggshell image also transcends propositions that focus on how individual corporate entities or countries should achieve short-term economic success or environmental soundness. From a global viewpoint, local successes "count" only if they improve planetary health, not if they simply shift the source or destination of pollution to some other site. Finally, the eggshell victim image underscores a less obvious long-term assumption inherent in the global perspective: that the historical process of the "first world's" economic development cannot be replicated by the developing world if the environment is to be preserved. Preservation, in addition to restoration, will require advances in and new applications of "green" technologies. Sustainable development must also involve new institutions, new technologies, and new relationships with our environment.

regulation–deregulation debate of the 1980's is an example of such a contest. For a discussion of these concepts and a summary of the regulatory matrix that emerged in the deregulatory movement of the 1980's, see id. at 125-30.

13. Developing countries, however, may legitimately demand assistance from the developed world in meeting new environmental standards.

14. How that responsibility should be defined and measured in practice, and the precise outlines of such issues as implementation and enforcement, are beyond the scope of this Comment.

B. A Global Perspective and Trade

Compared to standard economic approaches, a global perspective on environmental regulation involves a different view of economic growth and environmental quality. Not all forms of economic growth are to be applauded. For example, if a developing country increases its Gross National Product in the short run by destroying parts of a rain forest, it is likely to face higher costs in the long run. If manufacturing in dirty industries increases in one country, the higher levels of productivity that result are, in reality, reduced quickly by human costs and, in the long term, by the impact on the global commons. In short, any strategy by poorer countries to accept low bids in the market due to their "assimilative capacity" will only result in higher costs to their workers and citizens in the form of deteriorating health, safety, and environmental repair.

In most cases involving less developed countries, the richer countries must contribute to the necessary funding and technology transfers. To do otherwise is tantamount to exporting environmental, health, and worker-safety problems abroad. The idea that poorer countries should bear the costs of environmental degradation for the sake of their own economic growth not only overlooks the human costs of such growth, but rationalizes exploitation. This problem is compounded if the developed world can then take advantage of these "cheap" goods. But equity is not the only issue; the eggshell victim doctrine is about overall vulnerability. If we take the image of the earth as eggshell victim seriously, some types of pollution, such as ozone depleting chlorofluorocarbons (CFC's), pose a serious threat to the earth, regardless of their source.

Three hypothetical international trade scenarios illustrate how the global perspective draws the relationship between a nation's overall international competitiveness and its domestic environmental regulation. The simplest is a situation in which domestic environmental regulation influences industries' relocation of their plants and operations. Most multinational corporations adopting a global perspective would likely prefer one set of rules to a multiplicity of conflicting legal regimes. Thus, the relocation of a substantial

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17. See Stewart, supra note 4, at 2052-53, 2056, 2057-61.
18. Similar problems arose in the negotiations leading to the Montreal Protocol, supra note 11. The Protocol and its amendments deal with these problems, albeit in less than fully successful ways. See BENEDICK, supra note 11, at 91-92.
19. Because multinational corporations dealing with certain chemicals, for example, may fear liability, they would have a desire for at least minimal standards to avoid the tragedy and liability of Bhopal. See Stewart, supra note 4, at 2070-71. Even if such forces for harmonization of legal regimes did not exist, the idea that different levels of regulation in different nations would lead to efficient relocation and, in effect, efficient global production ignores the fact that the pollution in any given country will ultimately affect us all. Increased global pollution or emissions of CO2, for example, will increase the extent of global warming, not merely the short run production costs of a certain company. Similarly, pollution of other global commons, such as oceans, will ultimately affect us all. The exportation to the U.S. of fish caught in
cross-section of industries would strengthen industries' interests in the harmonization of regulation across various countries. Moreover, the countries losing industry would likely extend their regulatory approaches to other countries or lessen the stringency of their regulatory approaches at home. Whether harmonization would reduce or increase regulation in any one country would depend on a number of factors, including the persuasiveness of scientific data involved and political dynamics. Based on the empirical studies Professor Stewart cites, this hypothetical scenario seems unlikely.\(^\text{20}\)

The second hypothetical is one in which domestic environmental regulation adversely affects only dirty industries, such as copper mining and refining. These industries have a strong incentive to relocate to a country where such regulation is either nonexistent or less costly. This scenario is the most likely, according to the studies cited by Professor Stewart.\(^\text{21}\) It also is the scenario that raises most clearly some of the ethical issues involved in the emerging global discourse. If increased domestic environmental regulation results in the displacement of dirty industries, declining emissions of pollutants in one country will likely result in increased pollution world-wide. It follows that, from a global point of view, it is not enough simply to set responsible environmental standards at home. Under the eggshell victim doctrine, developed nations have a responsibility to help other countries—particularly developing countries—keep environmental effectiveness at the top of their economic agendas. Subsidies, along with the creation and transfer of new environmentally compatible technologies, might all be corollaries to this second scenario.\(^\text{22}\)

The third hypothetical scenario is one in which no local industry is adversely affected in the global marketplace by domestic environmental regulation. Either the percent of production costs this regulation involves is so small as to be insignificant, or the regulation is so efficient that it is not a factor in terms of cost. Even under this scenario, a nation adopting a global perspective realizes that the environmental problems of any nation are the problems of every nation. Hence, developed nations may, for example, choose

\(^\text{20}\) See Stewart, supra note 4, at 2079.

\(^\text{21}\) Stewart, supra note 4, at 2075-76, 2077-79.

\(^\text{22}\) See, e.g., Adjustments and Amendments to the Montreal Protocol on Substances That Deplete the Ozone Layer, June 29, 1990, arts. 10, 10A, 30 I.L.M. 537, 549-51 (entered into force Jan. 1, 1991) [hereinafter London Amendments]. Article 10 attempts to provide financial assistance to less developed countries (LDC's) by creating a mechanism to establish a multilateral fund to help LDC's adapt to new technologies. Article 10A makes technology transfer an express goal, if LDC's were to adapt to new environmentally sound approaches to economic growth. See AMAN, supra note 2, at 152.
to subsidize more stringent regulations in developing nations in order to protect the global environment.

The relationship between international trade and environmental regulation may affect the focus of the global perspective in all three contexts, but regardless of the precise contours of this relationship, a global perspective on environmental issues is fundamentally different from one conceived in domestic or even strictly in international terms. No one state acting to regulate on its own can ignore the possible impact of other nations' decisions. For example, if the People's Republic of China continued industrialization by making exclusive use of its own considerable coal reserves, the amount of global pollution that would result would be enormous, rendering U.S. regulatory attempts to curb the environmental impact of its air pollution essentially irrelevant from a global point of view. Similarly, if the developing world used CFC's at the same per capita level as used in the developed world, the impact on the ozone layer would be devastating. The essential point is that even if domestic environmental regulation provides no incentives for multinational corporations to conduct business elsewhere in the world, it is impossible, from a global perspective, to ignore the effects of any nation's environmental decisions on the global commons.

C. A Global Perspective and Science

Under a global perspective, other countries' approaches to environmental problems are as important to the global commons as our own. In resolving the global problem of preserving the environment, the only meaningful unit of analysis is the planet itself. Of necessity, the physical reality of the global environment links our domestic efforts with those of other countries. Strong

23. See generally ABA, supra note 3, at 3; PAUL KENNEDY, PREPARING FOR THE TWENTY-FIRST CENTURY 190-192 (1993); Top Environmental Official Welcomes Summit Aid Pledges from Developed Nations—China, 15 Int'l Env't Rep. (BNA) 444 (July 1, 1992), available in LEXIS, BNA Library, INTENV File.

24. The Montreal Protocol, supra note 11, art. 5, S. TREATY Doc. No. 10, at 6, 26 I.L.M. at 1555-56, provided the developing world a grace period of up to ten years to comply with the terms of the Protocol, but it also limited the per capita consumption of CFC's to .3 kg. This amount is well below the developed world, but even if the developing world were to use only .3 kg CFC's per capita, this additional CFC use would devastate the ozone layer. See Duane Chapman & Thomas Drennen, Equity and Effectiveness of Possible CO2 Treaty Proposals, CONTEMP. POL'Y ISSUES, July 1990, at 16-20.

25. In addition to global commons problems and resources such as the Brazilian rain forest, supra note 3, seemingly wholly domestic environmental issues, such as landfill space for solid waste disposal, may have global consequences. If, for example, waste can be transported internationally, the high cost of landfills domestically may encourage an international market for waste. Prohibiting the export of waste internationally might then necessitate more stringent domestic regulation and affect the political and economic costs of creating domestic landfills. Allowing the international transport of waste creates the possibility that poorer countries will become the dumping grounds for the developed world. See generally Basel Convention On The Control of Transboundary Movements of Hazardous Wastes And Their Disposal, Mar. 22, 1989, S. TREATY Doc. No. 5, 102d Cong., 1st Sess. (1991), 28 I.L.M. 657.
equitable reasons support this link as well.\textsuperscript{26} But, as Professor Stewart notes, countries differ not only in their financial and technological ability to monitor their own environmental problems, but also in the political will of their leaders and citizens to deal effectively with environmental issues.\textsuperscript{27}

The connection between green technologies and the political will to invest in and to implement them highlights the importance of worldwide communication of scientific discovery and technological innovation. This includes information technologies that enable the global community to share data and assess environmental progress globally, as well as on a nation-by-nation basis. As science and technology increase our ability to measure and assess the impact on the global atmosphere of pollution emanating from various nations, they also promote a global perspective on environmental policy and regulation. Prior to the Montreal Protocol, for example, scientists hypothesized about the interaction between CFC's and the earth's ozone layer.\textsuperscript{28} With satellites and various forms of imaging they now observe the impact of CFC's on the ozone layer. This ability to theorize and then test these hypotheses assisted the political task of formulating an environmental issue in global terms.\textsuperscript{29}

Scientific data and the verification of the environmental theories they make possible must be accessible to the general public and disseminated widely to have a chance of political efficacy. Global environmental issues, however, vary in their political viability and impact. Some, like ozone depletion, have distinct, damaging effects on individuals (skin cancer, for example), brought about by dramatic, visible changes in the atmosphere (such as a hole in the ozone layer above the earth). These issues receive more media and political attention as well as remedial action than those which appear more abstract, such as biodiversity, or more local, such as the disappearance of rain forests. It is difficult both to individualize the impact of these problems and to grasp their global significance, but they too are global in their scope and effect.\textsuperscript{30}

\textsuperscript{26} The developing countries' poverty arguably necessitates wealth transfers in the form of technology and financial assistance to purchase environmentally sound equipment. Without such help they could not possibly achieve economic growth in a relatively clean way. More importantly, it may be argued that the present condition of the planet is due, in large part, to the development approaches used in the past by the developed world. The developing world is not to blame for the present eggshell condition of the earth. They have an equitable claim on the assistance of the developed world in helping them to achieve economic growth in environmentally sound ways and to secure the benefits to their populations that such growth could produce. For a detailed treatment of such equitable issues in the context of global warming, see Henry Shue, \textit{Subsistence Emissions and Luxury Emissions}, 15 LAW & POL'Y (forthcoming 1993). For a discussion of equity in the context of ozone depletion, see AMAN, \textit{supra} note 2, at 145, 151-54; BENEDICK, \textit{supra} note 11, at 148-62.

\textsuperscript{27} Stewart, \textit{supra} note 4, at 2053.


\textsuperscript{29} BENEDICK, \textit{supra} note 11, at 14-15.

\textsuperscript{30} From the point of view of dramatizing the issues involved, the prospect of increased incidences of skin cancer due to the depletion of the ozone layer is likely to result in greater attention from political
The global discourse involves specific assumptions about the nature of science and scientists. First, it assumes that the production of scientific data is the result of international cooperation among scientists. Second, it assumes that scientists, particularly multinational panels of scientists, are capable of being objective and neutral with respect to the analyses of particular global environmental issues. While these assumptions are contestable, it is important to recognize the crucial role they play in the global discourse as it now exists and may continue to develop. Taken together, these assumptions suggest that a global perspective on regulation is a scientific position. One implication is that lawyers and politicians can and should turn to science as a means of resolving policy debates. This does not mean that all scientists will agree on all issues or that some scientists will not have been politicized. Rather, it means that a consensus among a cross section of scientists can emerge in which there is general agreement on what the problem at hand may be, on what possible solutions may exist and which of these is more or less likely to succeed. Correspondingly, the global discourse also assumes that science can contribute to the consolidation and mobilization of political opinion around particular regulatory proposals.

All these science-based aspects of the global discourse can temper an exclusively nation-specific point of view on environmental problems and expand the discourse beyond the relationship between international competitiveness and domestic environmental regulation. Though competitiveness is an important aspect of the global discourse, it is just one part of a broader and ever-deepening global discourse. By focusing on the planet as eggshell victim, the global discourse has and will have a profound impact on the genesis and development of new domestic and international regulatory approaches.

III. EMERGING NEW REGULATORY IMAGES, STRUCTURES, AND APPROACHES

A. The Global Web

So far, I have considered some of the implications of the emerging global discourse in environmental regulatory contexts by discussing how its inner logic might be put into practice. In this Part, I examine how the global
perspective has already been emerging. The image of the eggshell planet helps frame environmental problems in global terms. The image of a web helps clarify the nature of global corporations and the kind of regulation necessary if government is to play an effective regulatory role vis-à-vis corporations on both national and global levels.

In *The Administrative Process*, James Landis, an architect of the New Deal, looked to business and, in particular, the structure of corporations for inspiration when evaluating the kind of organizational structure government might follow in regulating these entities:

> [W]hen government concerns itself with the stability of an industry it is only intelligent realism for it to follow the industrial rather than the political analogue. It vests the necessary powers with the administrative authority it creates, not too greatly concerned with the extent to which such action does violence to the traditional tripartite theory of government organization.\(^3\)

Landis was particularly concerned with the structure of administrative agencies. A formalistic view of separation of powers would have rendered unconstitutional the combination of functions he believed necessary for New Deal agencies to be effective. Instead he modeled his organizational and structural ideas on the more fluid, flexible corporate entities he wished to regulate.\(^3\)

Corporations at that time could be viewed as comparable in structure to the large buildings many of them occupied—many floors high, with the executives at the top and workers scattered below. The company usually located manufacturing plants nearby and often kept the materials and inventories necessary for these plants to function on the premises.\(^3\) The corporation of the twenty-first century, however, is better conceptualized as a global web rather than an immovable building; it is multinational in its reach, rather than merely local or national. Thus Robert B. Reich, now Secretary of Labor and one of the economic architects of the Clinton Administration, describes the modern corporation and its trading relationships in this manner:

> When an American buys a Pontiac Le Mans from General Motors, for example, he or she engages unwittingly in an international transaction. Of the $20,000 paid to GM, about $6,000 goes to South Korea for routine labor and assembly operations, $3,500 to Japan for advanced components (engines, transaxles, and electronics), $1,500 to West Germany for styling and design engineering, $800 to Taiwan, Singapore, and Japan for small components, $500 to Britain for

\(^{32}\) Id.; see also AMAN, supra note 2, at 13-15.
\(^{33}\) Reich, supra note 8, at 81-82.
advertising and marketing services, and about $100 to Ireland and Barbados for data processing. The rest—less than $8,000—goes to strategists in Detroit, lawyers and bankers in New York, lobbyists in Washington, insurance and health-care workers all over the country, and General Motors shareholders—most of whom live in the United States, but an increasing number of whom are foreign nationals.

The proud new owner of the Pontiac is not aware of having bought so much from overseas, of course. General Motors did the trading, within its global web.34

Thus, as Reich goes on to note, in the 1990's, trade cannot be conceptualized simply as a series of arms-length transactions between buyers in one nation and sellers in another but between “people in the same web who are likely to deal repeatedly with each other across borders.”35

An open corporate structure with so international a scope for its operations requires regulatory language that is flexible and translates easily across boundaries, if government is to be effective in regulating such entities. The market-based approaches to domestic regulation Professor Stewart describes may represent sound regulatory reforms, but if they prove to be widely adopted, it will be due to the global perspective now emerging. The corporation of the twenty-first century will be more flexible, multicentered and global than its twentieth-century ancestors. For such corporations, the global discourse easily encompasses market-based approaches to regulation because, like the language of science, the economic language of costs and incentives translates across national borders and within widespread corporate structures. Thus, if market-based approaches prevail in the 1990's and beyond, the reason is likely to be the broader global context in which they operate, and not simply the substantive regulation-deregulation debate of the 1980's.

Similarly, the contract approach to domestic regulation that Professor Stewart advocates in his article36 is also encompassed within the new global discourse. The contract approach is akin to a regulatory government agency adopting various bilateral treaties with individual, multinational companies. Since such corporate entities easily can shift their operations from country to country or from division to division in their own corporate web, a regulatory web is needed if government is to do more than simply encourage pollution to change its locale.37 The domestic approach Professor Stewart describes is

34. Id. at 113. Professor Reich's numbers in this example have been criticized, specifically the cost of a Pontiac Le Mans. See Steven Greenhouse, The New Presidency: The Labor Department: Nominee Devoted Years to Rehearsing for Role, N.Y. Times, Jan. 10, 1993, § 1, at 18. Nevertheless, the international web-like nature of this transaction and the basic ratio of the costs involved are, for our purposes, the key factors.

35. Reich, supra note 8, at 113.

36. Stewart, supra note 4, at 2090-93.

37. Of course, manufacturing plants that already exist are not likely to be moved, but increased investment in new facilities or expanding output in old facilities is more likely to occur in locations where the overall costs of production are lower.
thus a good model for the more global regulation that also is necessary if problems such as greenhouse gas emissions and acid rain are to be solved. Applying this domestic approach to global realities integrates local and global regulation, thereby promoting the effectiveness of each. It also reinforces a common regulatory discourse that blurs the line between global and local.

A contract approach to domestic regulation also emphasizes a more comprehensive approach to the domestic environment than that which is usually possible when multiple regulators seek to enforce traditional command-and-control rules. Since many domestic companies often have multiple and complex air and water pollution problems, their economic and technological ability to solve these problems often requires that they think of these issues in an interconnected way. A contract approach can provide needed flexibility for both the company and the regulators to negotiate a settlement to their problems. The two sides may thus work out an individually tailored regulatory plan that is not only less costly for both the regulated and the regulators, but likely to be more effective than blunt command-and-control regulatory tools applied by multiple regulators. More holistic, negotiation-oriented models of domestic regulation clearly will resonate with the kind of global, regulatory approaches now emerging.

This contract approach will make regulation not only more efficient, but also more acceptable to the regulators and the regulated.

B. Global Regulation and New Regulatory Structures

The global discourse described in Part I includes issues of trade, equity, economic growth, and by implication population growth, as well as science and technology. The Montreal Protocol on ozone depletion and the Rio Framework Convention dealing with greenhouse gases are early examples of how the new global discourse creates legal innovations necessary to respond to these various issues, and fuses international and domestic approaches to the law.


39. Professor Stewart has advocated a similar comprehensive approach to the eventual elimination of greenhouse gases from the atmosphere. See Richard B. Stewart & Jonathan B. Wiener, The Comprehensive Approach to Global Climate Policy: Issues of Design and Practicality, 9 ARIZ. J. INT'L & COMP. L. 83 (1992). This approach, however, understates the important wealth differences among developed and developing countries. It also understates the effectiveness of a regulatory approach that focuses specifically on the major greenhouse gas—CO$_2$. See Thomas Drennen, After Rio: Measuring the Effectiveness of the International Response, 15 LAW & POL'Y (forthcoming 1993). Nevertheless, this comprehensive approach to greenhouse gases may make the process of global bargaining among the various nations responsible for greenhouse gases easier to begin and thus make global legislative progress more likely.

40. Montreal Protocol, supra note 11.


42. For an explanation of the global discourse, see supra note 2 and accompanying text. It is important
The Montreal Protocol and its amendments, as Professor Stewart notes, do not disregard equity.\footnote{43}{For a detailed discussion of equity and the equitable considerations embodied in the Montreal Protocol, see AMAN, \textit{supra} note 2, at 145-54, and BENEDECK, \textit{supra} note 11, at 92-93.} In attempting to regulate CFC's and other ozone depleting materials, the agreement is among the first to recognize the need to treat less developed countries differently when it comes to formulating and enforcing global legislation. The 1990 London Amendments to the Montreal Protocol,\footnote{44}{See London Amendments, \textit{supra} note 22.} for example, at least begin to address difficult problems, such as technology transfer and wealth disparities, inherent in making such agreements meaningful and possible for less developed countries to sign.\footnote{45}{See id.; BENEDECK, \textit{supra} note 11, at 148-62.}

The Montreal Protocol and its amendments are also technology-forcing pieces of global legislation.\footnote{46}{Montreal Protocol, \textit{supra} note 11, art. 2 and annex A, \textit{S. Treaty Doc. No. 10}, at 2-4, 26 I.L.M. at 1552-53, 1561; London Amendments, \textit{supra} note 22, arts. 2A, 2B, 30 I.L.M. at 539-40.} For example, the Montreal Protocol's rigid timetable for phasing out CFC's created a market for and thereby promoted the development of substitutes.\footnote{47}{Montreal Protocol, \textit{supra} note 11, art. 2 and annex A, \textit{S. Treaty Doc. No. 10}, at 2-4, 26 I.L.M. at 1552-53, 1561.} Consider, for example, the case of CFC-113, widely used as a solvent in the manufacture of computer chips. During discussions on phasing out CFC's, manufacturers claimed that CFC-113 would be too costly to replace.\footnote{48}{See \textit{BENEDECK}, \textit{supra} note 11, at 78.} Yet it was the first of the CFC's to disappear after researchers discovered an equally effective, inexpensive water and citrus-based solution.\footnote{49}{See, e.g., \textit{Apple Computer Inc. Announces Worldwide Elimination of CFCs}, 15 Int'l Envt'l Rep. (BNA) 492 (July 29, 1992), available in LEXIS, BNA Library, INTENV File ("Apple Computer Inc. has eliminated the use of ozone-depleting chlorofluorocarbons to clean electronic assemblies and manufacturing equipment. . . ").} Though economics suggests firms minimize costs, the cheaper process was not discovered earlier.

The Protocol's regulatory structure had much to do with this. What is crucial to the development of new green technologies is a strong commitment to create a market for them. The firm timetable established by the Montreal Protocol for phasing out CFC's meant that investment in substitutes had to proceed in an aggressive fashion. Thus, to encourage the emergence of new green technologies, it may be necessary, through law, to ensure that a market will exist for them.
Moreover, the Montreal Protocol has also helped develop a mechanism for the creation and dissemination of information. Such information, essential to enforcement, keeps everyone apprised of progress towards reducing CFC's in the atmosphere. This aspect of knowledge creation and dissemination is a key factor in the proposal for a Sustainable Development Commission made at the first Earth Summit held in Rio de Janeiro in June, 1992. The purpose of this Commission is to develop the information on emission levels of greenhouse gases to enable it to determine whether any progress is being made toward the agreed-upon goals of the framework convention. It is thus a new international information agency enabling nations to monitor progress on this important global issue—an environmental Amnesty International, but one that includes representatives from various nation-states, thus giving it a multinational and global imprimatur.

Inevitably, if it is to succeed, the global regulatory structure now developing will have to solve a variety of complex problems, including how developing countries can enjoy economic growth without adopting nineteenth- or early twentieth-century approaches to industrialization. This is by far the greatest challenge, particularly given the enormous disparities of wealth around the world. Technology-forcing legislation can help promote new green technologies which then could be shared worldwide in some equitable manner. Intellectual property rights are held by private corporations, not by the countries doing the negotiations for the creation of new global legislative regimes. The end result is that it is difficult to facilitate the transfer of these new technologies without expropriation, from the point of view of the holders of these property rights, or a new form of economic colonialism, from the point of view of the less developed countries. These, however, are some of the

50. Montreal Protocol, supra note 11, arts. 9(2) & (3), S. TREATY DOC. No. 10, at 7, 26 I.L.M. at 1557.

51. There was a broad consensus in Rio to establish a high-level watchdog group to ensure that individual governments respect the pledges they have made or will make in the future to reduce greenhouse gas emissions. The new international body, as proposed in a follow-up resolution to the Rio Earth Summit, will be called the Sustainable Development Commission, and will rely heavily on evidence gathered by private environmental groups. One model for the Commission was the U.N. Human Rights Commission—one that seeks to shame countries into following policies that are environmentally sound. This model would not have the power to impose sanctions or fines. Other models sought to be more enforcement oriented. The United Nations, however, has adopted a resolution establishing a Commission based more on the Human Rights Commission model. The Commission is to "monitor progress in promoting, facilitating and financing, as appropriate, the access to and the transfer of environmentally sound technologies and corresponding know-how, in particular to developing countries ...." Institutional Arrangements to Follow up the United Nations Conference on Environment and Development, U.N. GAOR, U.N. Doc. A/47/719 (1992).

52. The U.N. General Assembly Resolution recommends that the Commission "consist of representatives of 53 States elected by ECOSOC from amongst the Member-States of the United Nations and its Specialized Agencies for three years terms with due regard to equitable geographical distribution." Id.

53. The Convention on Biological Diversity, June 5, 1992, 31 I.L.M. 818, signed by 150 nations in Rio, was resisted by the U.S. largely because it failed, in the view of the U.S., to adequately protect U.S. intellectual property interests.
regulatory problems for which solutions must be found.\textsuperscript{54} Simply going about our business on a domestic level as if we were not tied to the global demands of an unequal world is no longer possible in the new global era.

CONCLUSION

The eggshell image of the global environment highlights the need for new conceptualizations of national sovereignty and individual self-interest. The global discourse now emerging expresses some of these conceptualizations. I believe it will continue to do so, only in part because of the new consciousness of the global environment itself. Additional factors are the structure of the twenty-first-century corporation and the potential for market- and contract-based regulatory approaches to promote a global discourse. The nineteenth-century perspective inherent in\textit{Vosburg v. Putney}\textsuperscript{55} remains highly relevant for the new century nearly upon us. That case emphasized responsibility for harm done to a body that suffers from cumulative weakness. In the case of the global discourse outlined here, that responsibility is collective, absolute, and immediate. It affirms the capacity of legislators, scientists, and citizens to expand their concept of self-interest in response to new information and opportunities for environmental improvement.

Like Professor Stewart, I agree that environmental regulation in these times requires new and more efficient domestic regulatory approaches, but this is not because I believe pollution should be thought of merely as a commodity to be bought and sold. In my view, these new regulatory approaches must not only promote domestic industrial efficiency but also link domestic regulatory regimes to the global discourse now developing. To the extent that new approaches such as market-based regulation and environmental contracting facilitate a more global conception of environmental regulation and deal more effectively with new global corporate structures, they should be pursued. We must evaluate the efficacy of domestic regulation in global terms. The developed world can no longer accurately calculate its own self-interest without considering fully the environmental and financial realities of the developing world. In the global era of regulation now upon us, the global regulatory discourse erases the old lines between “them” and “us” at least for purposes of protecting the eggshell planet—and its present and future inhabitants—from further harm.

\textsuperscript{54} It may be that a multilateral fund will be necessary to help pay royalties to entrepreneurs, thereby preserving the incentives to develop new technologies, but also making it possible for the developing world to afford them. For a discussion of possible solutions to technology transfer problems see Jason M. Patlis, \textit{Note, The Multilateral Fund of the Montreal Protocol: A Prototype for Financial Mechanisms in Protecting the Global Environment}, 25 \textsc{Cornell Int’l L.J.} 181, 203-205 (1992). The author points to the trust fund mechanism utilized by the Montreal Protocol as a means of protecting and facilitating technology transfers.

\textsuperscript{55} 50 N.W. 403 (Wis. 1891).