# SUSTAINABLE DEVELOPMENT AND THE GLOBAL ECONOMY: NEW SYSTEMS IN ENVIRONMENTAL MANAGEMENT

**David Monsma***

## INTRODUCTION: SUSTAINABLE DEVELOPMENT

In North America, as elsewhere, the concept of "sustainable development"[1] is misconstrued, misdoubted, and frequently met with pedantic skepticism. Unfortunately, sustainable development has been is misused at times by international banks and the like to palm-off western growth attitudes on lesser developed countries in need of capital flows and economic assistance.[2] During the "development decades," government and financial institutions of consuming nations systematically exacted the commercial potential of unmarketed human and natural resources from developing nations through debt-making instruments designed to urge economic growth and instill the profit motive.[3]

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* David Monsma is an attorney and partner with Novation, a policy group based in Los Angeles. He coordinated the Environmental Task Force for the President's Council on Sustainable Development, which published its recommendations last year. Prior to this position, Mr. Monsma served as the Program Director for the Campaign for Cleaner Corporations at the Council on Economic Priorities in New York and previously worked for the Environmental Action Foundation in Washington, D.C. David Monsma participated in the Vermont Law Review 1999 Symposium, International Environmental Law: A Global View of the New Millennium, in South Royalton, Vermont.

1. The term "sustainable development" is defined in various ways. A commonly accepted definition is one used by the President's Council on Sustainable Development, a federal advisory committee to the President from 1996 to 1999 comprised of leaders from government, business, environmental, and Native American organizations. *See* PRESIDENT'S COUNCIL ON SUSTAINABLE DEVELOPMENT, SUSTAINABLE AMERICA: A NEW CONSENSUS ON PROSPERITY, OPPORTUNITY, AND A HEALTHY ENVIRONMENT FOR THE FUTURE 5 (1996) (citing THE WORLD COMMISSION ON ENVIRONMENT AND DEVELOPMENT (The Bruntland Commission), OUR COMMON FUTURE 43 (1987) (describing sustainable development as the ability "[t]o meet the needs of the present without compromising the ability of future generations to meet their own needs.")). *But c.f.*, PATRICIA W. BIRNIE & ALAN E. BOYLE, INTERNATIONAL LAW AND THE ENVIRONMENT 8 (1992) ("[S]ustainable development evinces a strictly utilitarian, non-preservationist view of environmental protection, which is likely to inhibit the scope for further development of a truly 'environmental' legal system.").

2. *See generally* Alfredo L. de Romana, *The Autonomous Economy: An Emerging Alternative to Industrial Society*, 22 INT'L J. OF INTERCULUTURAL AND TRANSDISCIPLINARY RESEARCH (discussing alternatives to mainstream economicism through a reinterpretation of the multi-dimensional and transdisciplinary analyses of the cultural and environmental impacts of mainstream economic organization and practice, including sustainable development). *See also* David Orton, *Struggling Against Sustainable Development: A Canadian Perspective*, Z PAPERS, at 13. (contrasting, for example, the "limits to growth" argument with the advent of the sustainable development justification for economic growth and "market-based measures" for protecting the environment).

3. *See, e.g.*, HERMAN E. DALY, BEYOND GROWTH: THE ECONOMICS OF SUSTAINABLE DEVELOPMENT 34 (1996) ("The focus exchange value in the macroeconomic circular flow also abstracts

One imperious result of pro-western credit policies in countries with emerging markets was a sort of "use-it-or-lose-it" obligation to produce. Under the then dominant pattern of growth, the informal or vernacular economy was "adjusted" and indigenous resources put to use in marketed production, sold outright or rented by the client state to multinational corporations or other foreign interests. The economic worth of rain forests, for instance, is still more readily realized through cattle grazing or the extraction of fossil fuels than through valuation of the informal uses intrinsic to the extant ecosystem or culture. Natural and cultural resources are put into productive use one way or another, either in environmentally harmful ways, as in some extractive or polluting industries, or in all but benign forms of agricultural, eco-tourism, and life-sciences trade. Development assistance in the form of economic aid and private capital in the form of investment are both tied to the creation of new markets and market access.

Although perceptions have changed, acceptance of sustainable development in the environmental policy context is sparse in the United States. The term sustainable development is vague and malleable lending itself to criticisms of corporate greenwash.[4] It is not surprising that some environmental organizations protest sustainable development, often conflating it with globalism and the expansion of multilateral agreements on international trade and investment. The characteristic argument against the globalization of trade is that compacts such as the North America Free Trade Agreement (NAFTA) or the General Agreement on Tariffs and Trade (GATT) result in greater economic and environmental disparity.[5]

Some international trade agreements plainly threaten environmentally protective trade restrictions and national environmental laws. National environmental protection laws restricting imported goods, or requiring import goods to comply with domestic standards or labeling requirements can be jeopardized if found to create a barrier to trade under agreements like GATT.[6]

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from use value and any idea of purpose other than maximization of the circular flow of exchange value.").

4. *See, e.g.*, Debra Firmani, *Hogwash and Greenwash: The Brownlash's Two-Pronged Attack on Environmental Education*, WILDLIFE TRACKS0, Fall 1999, at 10 (documenting continuing attempts by corporate funded organizations and coalitions to remove or replace environmental education materials in schools).

5. *See, e.g., Joint NGO Statement on the Multilateral Agreement on Investment (MAI), NGO/ OECD Consultation on the MAI, Paris: 27 October 1997* (last visited March 30, 2000) <http://www.corpwatch.org/trac/feature/planet/mai_ngo.html> ("There is an obvious need for multilateral regulation of investments in view of the scale of social and environmental disruption created by the increasing mobility of capital."); *see also* W. Pfaff, *The Inside Story on U.S. Globalization Policy*, BALTIMORE SUN, March 2, 1999, at 13A (postulating that deregulation of the international economy "was an irresponsible and, in crucial respects, disastrous experiment, inspired by ideology, promoted by Western groups that expected to profit from it, backed by the power of the U.S. government").

6. *See* BIRNIE AND BOYLE, *supra* note 1, at 133 (*citing* Panel Report on U.S. Restrictions on

Similarly, international prior-in-time agreements comprising environmental requirements or trade restrictions may also pose legal difficulties and raise compatibility questions with GATT.[7] "A policy of unrestricted free trade in all commodities will inevitably conflict in certain areas with environmental protection requirements. . . ."[8] The logical response is "to introduce into the GATT explicit rules for environmental protection"[9] and to interject a more democratic public participation process to oversee the World Trade Organization (WTO).[10]

Environmental concerns surrounding international trade and globalization are not unfounded. Critics of globalism, however, tend to disregard the incontestable fact that the United States is irrevocably tied to nearly all nations in an ever-changing global market economy. The question of how globalization will result in unforeseen problems (e.g., the unintended effects of genetically modified organisms), or potentially solve increasingly recognized problems (e.g., those associated with the build-up of greenhouse gases in the atmosphere), will be far more deciding than a political lament that flatly opposes international trade deals in general.

Free trade at any cost is not a politically acceptable outcome, particularly if democracy and environmental protection are prerequisites for sustainable development. Still, a doctrinal incapacity for change is equally unacceptable and, in any event, inadequate for meeting the environmental demands of the future. Blanket opposition to globalism based on the negative consequences of trade on the environment has become a de facto means of defending the obduracy of the existing pollution control system. But a rigid dependence on prescriptive statutes (as a singular policy approach to environmental protection) is no longer sufficient as it once was, and in any case gravely overlooks the global environment.

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Imports of Tuna, 30 ILM 1598 (1991)); *see also* PETER FUGAZZOTTO & TODD STEINER, SEA TURTLE-SAFE RESTORATION PROJECT, EARTH ISLAND INSTITUTE, SLAIN BY TRADE: THE ATTACK OF THE WORLD TRADE ORGANIZATION ON SEA TURTLES AND THE U.S. ENDANGERED SPECIES ACT (July 1998).

7. *See* BIRNIE AND BOYLE, *supra* note 1, at 132.

8. *Id.* at 133.

9. *Id.*

10. E. J. Dionne, Jr., *Globalism With a Human Face*, WASH. POST., May 29, 1998, at A27 ("Calling on the WTO to work more closely with environmentalists and the International Labor Organization to lift standards. . . ."). "Clinton directly borrowed rhetoric from critics of his past trade policies: 'We must do more to ensure that spirited economic competition among nations never becomes a race to the bottom—in environmental protections, consumer protections or labor standards. We should be leveling up, not leveling down.'" *Id. See also Uncompromising Trade Ministers Leave Environmental Policy out in the Cold*, 2 BUS. & ENVT. 13 (2000) (quoting Aaron Cosbey, a trade policy expert at the International Institute for Sustainable Development). Weaker economies exercised their right to be heard and "created a crisis for WTO in Seattle, we now have room to work toward more systemic reforms, toward changing the institution." *Id.*

## II. GLOBAL ENVIRONMENTAL MANAGEMENT

In countries working to construct modern environmental management programs, there is increasing awareness that environmentally sustainable growth requires a form of industrial environmental management more strategic than the media-specific model pioneered by the United States[11] Notwithstanding the manipulation of sustainable development for wholly free-market purposes, and criticisms thereto, sustainable practices may come to occupy a more bona fide position in the environmental management policies of both consuming nations and the developing world.[12] Within the rich, mixed array of international perspectives on the environment, a theme is emerging among diverse environmental managers wrestling with contrasting environmental conditions and economic choices. Multi-national corporations as well as governments in transitioning economies are exploring the multiple advantages of more sustainable practices and voluntary agreements, particularly as the potential for more adaptive, systemic, and performance-based approaches to environmental management suddenly advance.[13]

Some commentators argue that over time, the "common but differentiated" use of environmental, land use, and civil laws will better enable developing countries to protect the environment.[14] Nevertheless, it is unlikely that developing countries will adopt comprehensive regulatory frameworks such as those devised by the United States and Europe during the

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11. *See generally* PETER BORKEN & FRANCOIS LEVEQUE, ORGANIZATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT, VOLUNTARY APPROACHES FOR ENVIRONMENTAL PROTECTION IN THE EUROPEAN UNION (1998) (reviewing EU plan using new environmental policy instruments such as voluntary agreements and financial support in order to create a sustainable framework).

12. Sustainable development encompasses different meaning and emphasis in developing countries as compared with consuming nations in Europe and North America.

13. *See, e.g.* HIDEFUMI IMURA, ORGANIZATION FOR ECONOMIC AND CO-OPERATION DEVELOPMENT, THE USE OF VOLUNTARY AGREEMENTS IN JAPAN—AN INITIAL SURVEY 4 (1998) ("Today, however, there is a strong opinion that Japan has to minimize the government role and rely more on market mechanisms in a move away from interventionist industrial policy, while there still exist some sectors which favor regulation and government guidance to protect them."); MAGALI A. DELMAS & ANN K. TERLAAK, VOLUNTARY AGREEMENTS FOR THE ENVIRONMENT: INNOVATION AND TRANSACTION COSTS 14. "In the last decade, VAs [Voluntary Agreements] have increasingly supplemented traditional command and control regulation, in some instances replacing it altogether. To date, more than 300 VAs are in place in the European Union." *Id.*; ANDREW KING & MICHAEL LENOX, PROSPECTS FOR INDUSTRY SELF-REGULATION WITHOUT SANCTIONS: A STUDY OF RESPONSIBLE CARE IN THE CHEMICAL INDUSTRY 4 (1999) (presented at the Wharton Conference on Environmental Contracts, September 24, 1999) ("[T]rade association sponsored industry standards . . . have proliferated in recent years and consequently have attracted attention from business, government, and environmental activists."). *Id.*

14. Nicholas A. Robinson, Environmental Law in 2012: Implementing Common but Differentiated Responsibilities, Address at the *Vermont Law Review* International Environmental Law Symposium (Oct 18, 1999).

1960s and 1970s.[15] The development and implementation of effective environmental laws in these countries is not keeping pace with the expanse and impact of a rapidly changing global economy. Moreover, cost, delay, and cultural differences prevent litigation from being the principal means of protecting the environment in the future.[16]

Globally, as well as domestically, ecology and commerce need to be better aligned and must be grasped together. The logic of strategically linking environmental performance to business performance through systems and auditing methods, as compared to regulatory controls and trade restrictions alone, make environmental accounting approaches attractive to governments struggling with the cost and magnitude of environmental management. Regional variation as well as limited fiscal resources suggest a need for greater use of standardization and cooperative economic incentives wherever feasible to promote super-efficiency, restoration, continual improvement, transparency, and certifiable environmental performance. As a business matter, to be sure, many banks and other financial institutions now require environmental risk and management information from companies to protect their investment and further guide their financial analysis.[17]

Worldwide changes in the equity markets and trade in the 1990s have definite implications for environmental management in the future. First, the composition of what is made and emitted has changed immensely. The new economy does not produce the same goods and services in the same way as in the past. In the last twenty years the composition of economic activity in the United States and Europe has shifted away from traditional or monolithic manufacturing such as steel making, towards service and information technology sectors.[18]

Second, the organizational structure and location of industries and companies has also changed dramatically. Restructuring allows companies to "vertically disintegrate" and locate manufacturing and assembly away from one another—in other states and countries.[19] Whereas design, manufacture,

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15. Nelson, *Environmental Management Trends in Asia: Implications for ISO 14000 Implementation*, *in* TIBOR AND FELDMAN, IMPLEMENTING ISO 14000, at 485 (1999) ("While most Asian countries clearly have tougher enforcement, it is not true that they are adopting wholesale U.S.-style litigious systems.").

16. *Id.* at 491 (Environmental management systems, like ISO 14000, "will be implemented in a region [of the world] not accustomed to litigious societies.").

17. *See Experts Predict ISO 14000 to Spread to New Sectors,* ENVTL MNGT. REP., Jan. 2000, at 14 (According to the financial accounting firm KPMG, "the second driver in increased use of EMSs will be the growing interest of individual and institutional investors in companies promoting sustainable development in their operations and business decisions.").

18. *See* David Monsma & Janice Mazurek, *Building a Performance-Based Environmental Management System: EPA's Reinvention Efforts Revisited,* 6 CORP. ENVTL. STRAT. J., 232-36 (1999).

19. JANICE MAZUREK, MAKING MICROCHIPS: POLICY, GLOBALIZATION, AND ECONOMIC

and assembly once took place under a single roof in Silicon Valley or Dallas, a microchip engineered and sold by a Texas firm may now be manufactured by a competitor in Ireland or Taiwan, assembled by a reseller in Singapore, and sold in Sydney or Tokyo. Such changes make it harder to identify and to assess current and future environmental effects under systems designed ten to twenty years ago.

Finally, the rate of production, reorganization, and relocation has accelerated. Consider the environmental implications of industrial realignment, organizational change, and the increasing importance of time-to-market concerns of a growing number of industries and their numerous vendors and supply chains.[20] Moreover, modern equity markets have created a state of constant corporate restructuring in debt and equity, acquisition, merger, and strategic short-term capital partnerships. The case holds true not only for relatively new, dynamic industries such as semiconductors, but traditional industries such as chemical, pharmaceutical, and automobile manufacturing.[21] This makes it harder for environmental managers everywhere to identify pollution according to what is being released and who generates it, and to prevent pollution according to what is being made and where it is produced. Additionally, there is every indication that this trend will continue. The corporate entity is no longer fixed or predictable as it once was.

Notwithstanding any new pollutant trading system for a discrete number and type of pollutants (e.g., greenhouse gas emissions), another more conspicuous and driving need exists for implementing a global environmental management framework that promotes the use of strategic environmental management and performance standards.[22] Although the reasoning may differ between developing and consuming nations, the need for integral systems which aim to promote environmental performance and continuous improvement is universal: we share the same global economy, trafficked by the same transnational corporations, and, fundamentally, have the same ecology. The need for self-similar environmental management techniques that do a better job of preventing pollution while simultaneously adapting to rapidly shifting corporate restructuring and perpetual industrial migration is mutually reinforcing. Hence, a more universal system of environmental management is needed to address the problems of the growing and increasingly dynamic global economy and the new economy that is

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RESTRUCTURING IN THE SEMICONDUCTOR INDUSTRY 96 (1999).

20. *See id.* at 5-6.

21. *See* Monsma & Mazurek, *supra* note 18, at 234.

22. *See, e.g.*, I. Feldman, *ISO 14000 Can Underpin a New 'Dual-Track' Regulatory System: Greentracking as an Alternative to Command and Control*, 5 ENVTL. BUS. J. 11 (1997).

outstripping the capacity of the domestic pollution control system, while meeting the demand for international law to effectively identify, prevent, and control pollution.

## III. U.S. REFORM MOVEMENT

Environmental professionals in the United States, like their counterparts in Europe and Japan, have had to think differently about environmental management.[23] The 1999 report of the President's Council on Sustainable Development (PCSD)[24] recommended critical steps that could move the existing compliance based system towards one that is more sustainable.[25] Among others, these included: developing a new environmental management approach intentionally organized for improving performance; utilizing environmental management systems, third party certification, and environmental auditing; and a better alignment between environmental management and the economy.[26]

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23. *See, e.g.*, PRESIDENT'S COUNCIL ON SUSTAINABLE DEVELOPMENT, SUSTAINABLE AMERICA: A NEW CONSENSUS ON PROSPERITY, OPPORTUNITY, AND A HEALTHY ENVIRONMENT FOR THE FUTURE, 26-55 (1996); NATIONAL ACADEMY OF PUBLIC ADMINISTRATION, RESOLVING THE PARADOX OF ENVIRONMENTAL PROTECTION (1997); THE ASPEN INSTITUTE SERIES ON THE ENVIRONMENT IN THE 21ST CENTURY, THE ALTERNATIVE PATH: A CLEANER, CHEAPER WAY TO PROTECT AND ENHANCE THE ENVIRONMENT (1996); ENTERPRISE FOR THE ENVIRONMENT, THE ENVIRONMENTAL PROTECTION SYSTEM IN TRANSITION: TOWARD A MORE DESIRABLE FUTURE 25 (1997) (arguing that while the United States has made great strides in environmental protection over the last 30 years, new policies should increase efficiency and fairness). *See also* Daniel J. Fiorino, *Toward a New System of Environmental Regulation: The Case for an Industry Sector Approach*, 26 ENVTL. L. 457 (1996); Karl. Hausker, *Reinventing Environmental Regulation: The Only Path to a Sustainable Future*, 29 ENVTL. L. REP. 10148 (1999); S. METZENBAUM, THE BROOKINGS INSTITUTION, CENTER FOR PUBLIC MANAGEMENT, MAKING MEASUREMENT MATTER: THE CHALLENGE AND PROMISE OF BUILDING A PERFORMANCE-FOCUSED ENVIRONMENTAL PROTECTION SYSTEM (1998).

24. PRESIDENT'S COUNCIL ON SUSTAINABLE DEVELOPMENT, TOWARDS A SUSTAINABLE AMERICA: ADVANCING PROSPERITY, OPPORTUNITY, AND A HEALTHY ENVIRONMENT FOR THE 21ST CENTURY 31-51 (1999).

25. The President's Council on Sustainable Development was asked to:

> advise the President on the next steps in building the new environmental management system of the 21st century by reviewing current environmental management reforms (including Project XL and other innovations), further developing a vision of innovative environmental management that fosters sustainable development (environment, economy and equity), and recommending policy improvements and additional opportunities to advance sustainable development.

PRESIDENT'S COUNCIL ON SUSTAINABLE DEVELOPMENT, REVISED CHARTER (April 25, 1997), *reprinted as amended in* Amendment to Executive Order No. 12852, June 30, 1997 (drafted pursuant to Executive Order No. 12852 (July 19, 1993)).

26. *See* PRESIDENT'S COUNCIL ON SUSTAINABLE DEVELOPMENT, *supra* note 24, at 44-49.

In the United States, consensus on the need and desire to create a "bold, new alternative 'performance-based' environmental management system"[27] was formed by and between major stakeholders as early as 1996, and reiterated in one process or another every year thereafter.[28] Despite apparent agreement on the need to create a performance-based system, efforts in the United States toward implementing such a system remain laden.[29] A fervent political belief in the compliance mold of environmental protection and an overall unwillingness to pursue greater variance or flexibility under the law forces most regulatory experiments to stay well within the legal strictures of the command and control box producing less than consequential results.

Indeed, over the past thirty years the U.S. pollution control system has successfully and persistently reduced emissions and ambient concentrations of pollutants.[30] Yet, whereas it was once considered a model for other countries to follow, the U.S. environmental management system inadvertently decelerates the emergence of a more global and sustainable environmental management framework. Many policy analysts agree that the current U.S. environmental management framework—an able but awkward legal body of dozens of unaligned statutes passed irregularly with differing regulatory philosophies—is ill-adapted for meeting the demands of the future, and that the rate of return on environmental protection is diminishing as the economy changes and grows.[31] The present U.S. pollution control system typically produces requirements with the lowest accepted common denominator for defining environmental protection, and does not translate into continuous or increasing environmental improvement on the scale needed over the next twenty or thirty years.[32]

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27. *Id.* at 34.

28. *See id. at* 113-19 (app. B-3), *citing* K. HAUSKER, THE CONVERGENCE OF IDEAS ON IMPROVING THE ENVIRONMENTAL PROTECTION (1999); ENTERPRISE FOR THE ENVIRONMENT, THE ENVIRONMENTAL PROTECTION SYSTEM IN TRANSITION: TOWARD A MORE DESIRABLE FUTURE 25-33 (1997) (Chapter four presents recommendations on the increasing use of performance-based approaches and adopting EMSs). *See also* THE ASPEN INSTITUTE SERIES ON THE ENVIRONMENT IN THE 21ST CENTURY, A CALL TO ACTION TO BUILD A PERFORMANCE-BASED ENVIRONMENTAL MANAGEMENT SYSTEM (2000) (the most recent multi-stakeholder discussion on the design and reasoning for a performance-based system to date).

29. *See* David Monsma & Janice Mazurek, *Stepping Stones, Step Change, and Climate Change: Why Muddling Through is Insufficient*, 6-4 CORP. ENVTL. STRAT. J. 368 (1999) (examining the internal and external resistance toward earlier adoption of a performance-based environmental program at the federal level).

30. *See* J. CLARENCE DAVIES & JAN MAZUREK, POLLUTION CONTROL IN THE UNITED STATES: EVALUATING THE SYSTEM 55 (1998) ("Pollution control system" refers to the set of nine major U.S. environmental laws administered by the U.S. Environmental Protection Agency).

31. *See, e.g.*, NATIONAL ACADEMY OF PUBLIC ADMINISTRATION, SETTING PRIORITIES, GETTING RESULTS: A NEW DIRECTION FOR EPA 89 (1995).

32. *See, e.g.*, U.S. INTERAGENCY WORKING GROUP ON SUSTAINABLE DEVELOPMENT INDICATORS,

In addition, the U.S. pollution control system, by its very nature, is costly, inflexible, unresponsive, and litigious. This is due in part because it is designed to achieve a limited objective of compliance, does not readily yield a positive environmental outcome or gain, does not accommodate the now prevailing public desire for disclosure and transparency, and is seriously out of date with today's economic realities and business practices.

The challenge of preventing and controlling pollution at a time of great demand is not lost on the U.S. Environmental Protection Agency (EPA or "the Agency"). During the late 1980s and throughout the 1990s, the Agency developed and implemented at least thirty non-regulatory experiments designed to complement, integrate, or reinvent the pollution control system.[33] Multi-stakeholder policy groups such as EPA's Common Sense Initiative and Project XL were used to forge agreements that gave business participants flexibility to select the most cost-effective abatement methods, provided they reduce as much if not more pollution than control laws required. The Agency's regulatory reinvention programs have served in an ad hoc manner to test the elasticity of the current system, but required lengthy site-specific rule-making to avoid legal infirmity. By contrast, EPA's first major voluntary program, 33/50, was designed to promote pollution prevention by creating performance goals and encouraging a voluntary reduction of emissions of seventeen target chemicals by fifty percent. Concluded in 1995, firms exceeded the goals a year in advance.

A closer look reveals that, in the U.S., voluntary approaches primarily serve to complement existing regulatory compliance, whereas their role in Europe often serves as a necessary and desirable alternative to regulation. Upkeep of the pollution control and environmental management system is used to justify an incremental or gradual approach toward reform. These imperfectly aligned environmental laws also retard progress by pitting the federal system against innovation.

Whereas most agree that a performance-based system is necessary for the future, few agree on the specifics. Technically, the design of a new performance-based track–one operated in parallel with (e.g., concurrently but alternate to) the existing regulatory system–is practicable.[34] However, the

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SUSTAINABLE DEVELOPMENT IN THE UNITED STATES: AN EXPERIMENTAL SET OF INDICATORS 98 (1998) ("We can not be certain whether future increases in energy per capita or for the population as a whole could be sustained—even with improvements in energy efficiency. . . .").

33. *See* ORGANIZATION FOR ECONOMIC AND CO-OPERATION DEVELOPMENT, THE USE OF VOLUNTARY AGREEMENTS IN THE UNITED STATES-INITIAL SURVEY, ENV/EPOC/GEEI(98)27/FINAL 4 (1998).

34. *See* THE ASPEN INSTITUTE SERIES ON THE ENVIRONMENT IN THE 21ST CENTURY, A CALL TO ACTION TO BUILD A PERFORMANCE-BASED ENVIRONMENTAL MANAGEMENT SYSTEM (2000) (outlining the most detailed account in a public forum of a potential performance-based environmental management

Agency, working with its state and regional partners, will need to shift resources to developing the environmental performance criteria (i.e., environmental standards) that are needed to implement performance-based approaches. Performance criteria must be developed as much for the existing system, which lacks useful environmental performance measures, as for any new track. At the very least, EPA and the states must begin to experiment on a much larger scale than previously allowed. Consequently, it behooves Congress to move forward with confident legislation that would authorize greater experimentation with modern approaches to innovative environmental management on a wider scale.

In the conventional view of environmental politics, tinkering with hard-earned environmental standards is naive and potentially dangerous. This results in a rigid adherence to the solid but inflexible system of environmental controls that improves gradually over time but not greatly. Unfortunately, extreme reliance on regulatory compliance as the paragon of environmental protection marginalizes efforts in the United States to experiment with voluntary approaches and performance-based environmental management systems.

In the United States, concern over wide scale change in the environmental management framework is reinforced, in part, by the fact that states must conform their implementation plans and enforcement to meet federal uniform requirements.[35] At the state level, this results in a tedious conflict over federalism. Some states are truly innovative and seek to improve the system, while others simply want to reduce the stringency of environmental requirements without substituting standards as good or better than federal law requires.

Paradoxically, regulatory experimentation at all levels in the United States is restrained by the federal system since federal environmental laws allow little systematic modification or experimentation that can lead to consequential changes in the system. Although many environmental statutes provide some kind of variance, EPA has not produced and industry has not demanded a comprehensive variance program. Ambitious innovation at the federal level is in direct conflict with the federal pollution control system and modernization; therefore, it is essentially illegal.

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system to date).

35. *See, e.g.*, 33 U.S.C. § 1342(b)(describing federal requirements for state discharge permit programs under Clean Water Act); 42 U.S.C. § 6943 (outlining federal requirements for state solid waste plans under RCRA).

## III. A MORE GLOBAL FRAMEWORK

During the late 1980s and 1990s, European Union (EU) member countries showed a greater willingness than the United States to experiment with new approaches to improve environmental management and environmental quality. The EU, which must undertake to normalize environmental standards by and between its member States, is beginning to look to the development of voluntary agreements and mass customization based on the use of environmental performance standards and environmental management systems as one way to achieve this goal. There, the use "of instruments based on the voluntary implication of firms, such as voluntary agreements or codes of conduct" is increasingly common.[36] These approaches include voluntary environmental management certification schemes such as the (Eco-Management and Audit Scheme) (EMAS) and mandatory efforts such as the Integrated Pollution Prevention and Control Directive to integrate individual air, water, waste, and toxic permitting requirements. Presently, there are over 300 voluntary environmental agreements in EU member countries.[37]

An important lesson to be drawn from the European experience with respect to voluntary agreements and to radical policy change is that the most effective, efficient programs possess legislative backing and strong government commitment to achieve program goals. The most notable example is that of the Netherlands. The dramatic change in approach to environmental management in the Netherlands was seen as "necessary and inescapable."[38] In 1989, the Dutch National Institute for Public Health and the Environment concluded that even with the full application of existing end-of-pipe technologies, it was impossible to prevent further environmental degradation or create conditions for sustainable development in the Netherlands. A more recent EU communication concluded that "environmental agreements can offer more cost-effective solutions when implementing environmental objectives and can bring about effective measures in advance of and in supplement to legislation."[39]

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36. ORGANIZATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT, VOLUNTARY APPROACHES FOR ENVIRONMENTAL PROTECTION IN THE EUROPEAN UNION 4 (1998) (PDF Archive no. ENV/EPOC/GEEI (98) 29/ FINAL) ("Global environmental problems (greenhouse effect, ozone depletion), economic globalization (and its tightening effect on competition) or the necessity for the use of clean technologies (as opposed to end of pipe technologies) have convinced most policy makers and industrialists of the need for new environmental policy instruments.").

37. *See id.* at 9.

38. R. HERSH, RESOURCES FOR THE FUTURE, A REVIEW OF INTEGRATED POLLUTION CONTROL EFFORTS IN SELECTED COUNTRIES (Discussion Paper 97-15, 1996)

39. *Id.* (citing COMMISSION OF THE EUROPEAN COMMUNITIES, COMMUNICATION FROM THE COMMISSION TO THE COUNCIL AND THE EUROPEAN PARLIAMENT ON ENVIRONMENTAL AGREEMENTS (1996)

In areas of the global economy with little or no environmental regulatory foundation, the diffusion and adoption of novel systems is critical and will ultimately define the future of environmental protection worldwide. Environmental professionals in developing countries operate with much less formalism when compared with the United States and industrialized Europe. For example, at a recent international meeting, environmental managers from Vietnam, Thailand, and China discussed how to use voluntary Environmental Management Systems (EMSs), rather than regulatory means alone, to build more sustainable, performance oriented systems.[40]

The growing adoption of the International Standards Organization (ISO) EMS Standard 14001 by businesses worldwide, and the corresponding development of government programs that utilize EMS approaches, offers a glimpse of how environmental planners can align voluntary but standardized management systems with public oversight to meet environmental performance goals. The strategic use of voluntary agreements, EMSs, life cycle analyses (LCA's), clean development mechanisms (CDM's), and standardized environmental performance reporting is far more likely than environmental laws to predominate as a more global environmental management framework emerges to match the economy. EMS approaches are employed in institutions ranging from the Chinese government, to IBM, and to clusters of Japanese industry. For example, the Chinese government has developed a program devoted to disseminating EMS practices. IBM recently certified its facilities under ISO 14001 worldwide. Similarly, in one eighteen-month period, over 1400 facilities in Japan certified to ISO 14001.

As the foregoing examples suggest, there already exists a wealth of data and knowledge to assist practical efforts to implement an even more strategic use of environmental management and performance-based systems worldwide. As an initial step, for instance, a common environmental management framework could employ the building blocks that have been demonstrated in ISO 14001 and EMAS. The environmental community, corporations, and governments can all play a role in developing such a framework, perhaps by evaluating and sharing models of "EMS plus," adding the attributes and improvement goals currently lacking in ISO and EMSs in general. An "EMS plus" approach would include environmental performance standards and goals, standardized core data collection and disclosure, third-party

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(PDF no. COM(96) 561 FINAL).

40. *See* INT'L CONGRESS, PANEL DISCUSSION ON ENVIRONMENTAL MANAGEMENT TRENDS AT THE ECO 1999 CONFERENCE IN PARIS, FRANCE (June 7-9, 1999). *See also* HIDEFUMI IMURA, ORGANIZATION FOR ECONOMIC AND CO-OPERATIVE DEVELOPMENT, THE USE OF VOLUNTARY AGREEMENTS IN JAPAN: AN INITIAL SURVEY 4 (1998).

verification, and other elements now being discussed in the environmental management movement everywhere.

There is no unanimous agreement, as yet, on a universal protocol for measuring sustainable environmental performance globally, although more than one initiative is underway.[41] The Global Reporting Initiative (GRI) is one such attempt to find agreement among businesses, environmental groups, accounting firms, and others on guidelines for a set of common environmental management and sustainability reporting elements.[42] Unfortunately, like the ISO 14000 reporting series, the GRI uniform corporate environmental reporting effort does not necessarily translate into a comparable format for measuring or demonstrating actual environmental performance results or goals. This undertaking, which has recently received significant support from the United Nations, furnishes a process and some substantive analysis needed for further development of a global framework for environmental management and reporting, but does not embrace the concept of measurable performance improvement.

## IV. MOVING TOWARD ENVIRONMENTAL PERFORMANCE SYSTEMS

The U.S. statutory pollution control system is designed to improve environmental quality by enforcing compliance with a complex array of technology forcing and control-based management programs. The control-based approach acts as a proxy for measuring and reporting actual environmental performance results. For instance, compliance with requirements imposed at the time of a permit or a rule create a stationary baseline and a range of possible emission levels (e.g., from actual to allowable) devised to meet national air quality standards.[43] This kind of operational definition of environmental protection, however, does not generate as much information about the condition of the environment as it does about technical and legal compliance. The result is static, not necessarily improving environmental performance. Environmental improvement, as a practical

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41. *See, e.g.*, Letter from Seif, Secretary of the Pennsylvania Department of Environmental Protection, to Robertson, Acting U.S. EPA Deputy Administrator, March 8, 1999 (describing a cross-state initiative for environmental reporting by Massachusetts, New Jersey, Pennsylvania, and Texas) (on file with author?). *See also* ALLEN WHITE, STATE CONSOLIDATED REPORTING PROJECTS: A COMPARISON OF THE CURE PROJECT AND THE TELLUS INSTITUTE ITRP (Feb. 25, 1999) (describing and comparing the Consolidated Uniform Report for the Environment with the New Jersey Integrated Tracking and Reporting Project).

42. *See* Coalition for Environmentally Responsible Economies (CERES), *Global Reporting Initiative* (last visited January 16, 2000) <http://www.ceres.org/reporting/globalreporting.html>.

43. *See* National Ambient Air Quality Standards (NAAQS), Clean Air Act, 42 U.S.C. §§ 7408-7410 (1994).

matter, is dependent upon the drawn-out, albeit democratic, process of rule-making and enforcing environmental laws.

The need to move toward a performance-focused environmental management system is primarily an information management and performance-measuring challenge. All polluting entities, public and private, will need to adopt improved information and monitoring systems to demonstrate actual environmental conditions and performance levels. The state and federal environmental protection agencies will need to better understand the environmental value of current regulatory practices, and then determine how to set performance-based standards to reduce adverse environmental impacts.

This change in approach is also driven by the economic need for efficient management. Businesses and governments must be able to identify the best-suited and most efficient means for meeting environmental standards.[44] To do this, we must be able to translate the environmental goals of the statutory and regulatory requirements into environmental performance standards that can then be improved. Consequently, baseline environmental performance standards must be defined and environmental goals or standards accordingly set.

The business incentive for adopting a more effective system to meet environmental standards and performance goals is the opportunity to use the economic, engineering, technological, and management techniques that make the most sense internally. There is no need for EPA or another oversight body to dictate these aspects of environmental management so long as environmental performance standards are defined, a management system is in place, and an enforceable contract for certifiable and publicly reportable improvement is made. In other words, the increased cost of monitoring and verification will be offset, if not outweighed by the flexibility to select the most efficient, effective pollution abatement method.

### *A. Performance vs. Permits*

Currently, many environmental laws in the United States do not contemplate and probably do not allow the level of experimentation and wider variance needed to undertake the construction of a more efficient and more modern environmental protection system. The existing system incorporates,

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44. *See* Elizabeth Glass Geltman & Andrew E. Skroback, *Reinventing the EPA to Conform with the New American Environmentality*, 23 COLUMB. J. ENVTL. L. 4 (1998) ("The obvious lesson from the 104th Congress is that we should focus our legislative and regulatory reform efforts on determining how we should best regulate and protect the environment in an era marked by decreasing government spending and increasing concern over bureaucratic rigidity.").

though, some programs that more closely approximate environmental performance outcomes as compared to those that are merely driven by compliance with programmatic controls and technology requirements alone.

The Clean Air Act (CAA) requires the installation of specific control technology or specifies a performance standard in terms of emission rates (e.g., pollution concentrations as parts per million (ppm) or pounds of pollutant per million Btu of heat input).[45] To the degree that it expresses standards in terms of emission rates, the CAA is said to be "performance" oriented.[46] In general, the highly imperfect and uncertain data on emissions and ambient air quality show that the CAA's technical controls have helped stem air emissions from cars and factories.[47] But the CAA relies on numerous programmatic assurances, onerous technical reporting requirements, and a permitting system that forces regulated entities to conform to technology and administrative specifications that are usually externally imposed. This is necessary because historically the market has not demanded, and polluting firms have not voluntarily adopted, environmentally benign forms of operating in the absence of such requirements.

The purpose of the Act and all of its regulatory requirements is to identify and set appropriate levels of allowable air pollution based on the legally defined acceptable level of risk associated with particular pollutants at their emission source. The result is that a baseline for environmental performance at the facility level is created. However, it is the technology forcing, command, and control rules that erect the standards by which to operate. A more efficient, effective approach would be to allow the regulated entity to use its own methods and management techniques to meet the desired result.

Congress designed the CAA labyrinth to ensure that certain levels of concentration or "criteria" in the outside (ambient) air for five pollutants are met by the regulated entity.[48] The Act mostly targets criteria pollutants from two groups: stationary sources, such as existing and new industrial facilities, and mobile sources, such as highway vehicles. This facility by facility approach for new and existing stationary sources of air pollution is one way

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45. Clean Air Act, 42 U.S.C. §§ 7401-7671q (1994) and Clean Air Act Amendments, Pub. L No. 101-549, 104 Stat. 2399 (1990).

46. *See* B. MCLEAN, EVOLUTION OF MARKETABLE PERMITS: THE U.S. EXPERIENCE WITH SULFUR DIOXIDE ALLOWANCE TRADING 141-42 (Proceedings from Controlling Carbon and Sulfur, International Trading Initiative, Royal Institute of International Affairs, Chatham House, London, Dec. 5-6, 1996).

47. *See* OFFICE OF AIR QUALITY PLANNING AND STANDARDS RESEARCH, U.S. EPA, NATIONAL AIR POLLUTANT EMISSIONS TRENDS 1900-1994 (1995).

48. They include carbon monoxide (CO), particulate matter, nitrogen oxides (NOx), volatile organic compounds (VOCs), and sulfur dioxide (SO2). Lead was added under a later version of the Act, and ozone was adopted as the VOC indicator.

that National Ambient Air Quality Standards (NAAQS) are met. The permits, once engineered, stipulate how much a regulated entity will emit. However, the performance ability of regulated entities to meet the standard varies. The variance between actual and allowable levels of pollutants such as sulfur dioxide (SO2) for instance, is what gives rise to pollution trading schemes.[49]

### *B. Marketable Emissions Trading as Performance*

Under the SO2 emissions trading program established by Title IV of the CAA Amendments of 1990, sources in the electric utility industry are required to hold allowances that can be used, banked, or traded, in amounts at least equal to their total actual emissions that year. In contrast to other air programs, the SO2 program relies exclusively on measured levels of emissions output for determining compliance as opposed to relying on a specific technology, emissions rates, concentration, or percent reduction, all of which do not limit total emissions.[50] The environmental and economic underpinnings of the program are continuous emissions monitoring requirements that provide the accountability and credibility essential for a market based implementation approach, specifically, emissions trading.

Emissions trading is well suited for the electric utility sector, where output (electricity) is completely homogeneous and a variety of cost-effective abatement strategies (fuel switching or energy efficiency) exist. Although the SO2 program is cited popularly because of its trading scheme, it is limited to one pollutant. However, the method for establishing a pollutant cap, and tracking emissions reductions, is characteristic of what is needed in a performance-based system that addresses a greater number of pollutants or releases while allowing the emitter or producer to apply their own best controls and management procedures. Trading schemes may be more difficult to implement across sectors with a high degree of product heterogeneity, such as microelectronics, or even steel. In such cases, a performance-based approach that mimics the SO2 program's emphasis on emissions results, rather than prescriptive controls, may be more appropriate, with or without a trading scheme.

The SO2 program works at a source level the way an innovative performance track needs to work at a firm or sector level (i.e., at the fence-line or "bubble" so drawn). Currently, we know the environmental result of a

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49. The 1990 Clean Air Act set a goal of reducing $SO_2$ by ten mission tons below the 1980 level to protect public health and the environment. It was established that to meet this goal, electric utility emissions would need to be reduced by 8.5 million tons.

50. *See* MCLEAN, *supra* note 46, at 142.

regulated entity only through the combination of new source review, the permit, compliance, and reporting mechanisms. With the ability to continuously monitor and report actual emissions information, much like the SO2 program, emissions baselines can be identified at the facility, firm, or industry level to create a verifiable accountancy for most of the now regulated environmental aspects of the entity. In addition, if all emissions are measured and no detailed compliance schedules are needed, permit applications could be greatly streamlined, as under the SO2 program. Moreover, many unregulated environmental aspects that must improve as a matter of good environmental management and stewardship could also be better understood and abated as a voluntary matter.

### *C. Voluntary Commitment as Performance*

The EPA's 33/50 toxic use reduction program is another example of performance oriented environmental management. Although completely voluntary, the 33/50 program, and in like fashion the Toxic Release Inventory (TRI) create similar emission reduction outcomes by requiring that the estimated releases of toxic (TRI) and hazardous air pollutants (HAPS) are reported annually.[51] This allows sector sampling and firm baselines to be established and that is precisely how participating 33/50 programs were able to effect change. The 33/50 program has since been retired, but the TRI and Inventory Update Rule remain as a potential screening tool to identify priority hazardous substances and toxic pollutants that merit use reductions.

As the SO2 and 33/50 programs demonstrate, setting environmental goals is instrumental to determining performance baselines and rates of improvement. If possible, it is more important to know the actual emission levels of polluting sources and whether improvement is occurring than it is to track the command technology or program requirements that drive conformity with the permit. Meeting and enforcing environmental goals should be an auditing and verification function based on actual emissions, rather than a tangled sequence of regulatory hoops that are several steps removed from environmental results or outcomes.

### *D. Parallel Performance Track*

In September 1999, the U.S. EPA Innovations Task Force, focusing on its reinvention efforts to date, concluded: "EPA needs to encourage those that

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51. Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA), 42 U.S.C. §§ 11001-11050 (1994).

are able and willing to do more.[52] The Task Force report was based in part upon the Agency's experience with initiatives such as the Common Sense Initiative (CSI) and Project XL (which stands for Excellence and Leadership), and recommendations by several national policy reports such as the President's Council on Sustainable Development. Advanced by Vice President Gore's National Partnership for Reinventing Government, EPA's re-invention initiatives "are designed to address environmental problems that have yet to be solved through the current system."[53]

Acknowledging that "significant, long-lasting environmental results" could be achieved on a much wider scale by "shifting the curve toward better performance,"[54] EPA is now actively designing a "performance track" akin to EMS pilots in EPA's New England region and states such as Oregon, New Jersey, and elsewhere.[55] In general, the regional and state efforts leverage the development of EMS-based approaches such as ISO 14001 to encourage the adoption of environmental stewardship practices. Although compliance-focused in nature, the initiatives are designed to provide alternative options to the existing regulatory system, which while controlling serious pollution does little to encourage or reward environmental stewardship and pollution prevention. Some, such as Oregon's Green Permits Program, also are intended to address environmental issues that can not be adequately addressed by solely regulatory means.

If successful, EPA may soon adopt a two-tiered "performance track" program that would create incentives to give regulated operators with good compliance records and robust environmental management systems (EMSs) the flexibility to do more to improve environmental results. The first tier would operate much the way programs such as EPA New England's StarTrack or New Jersey's SilverTrack do by offering incentives such as flexible permitting or reduced discretionary inspections, but through a more streamline nationwide process. The second tier is likely to encompass a reinvigorated level of experimentation presenting true environmental leaders with an opportunity to innovate environmental management on a broader scale, while giving EPA a test bed for refining environmental performance standards that reflect today's practices.

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52. OFFICE OF THE ADMINISTRATOR, U.S. ENVIRONMENTAL PROTECTION AGENCY, EPA NO. 100-R-99-006, Aiming for Excellence: Actions to Encourage Stewardship and Accelerate Environmental Progress, Report of the EPA Innovations Task Force (1999) <http://www.epa.gov/ooaujpag/taskforce/report99/index.html.> [hereinafter AIMING FOR EXCELLENCE].

53. *See id.*

54. *Id.*

55. G. Meyer, *Move Away From Command and Control*, ENVTL. MGMT. REPT. FORUM, Jan. 2000, at 12-13.

Congress also is active again in a bipartisan effort to understand and support a more modern approach to environmental management and has created draft legislation to serve as a progressive platform for discussion.[56] These efforts are underscored by the publication of a new Aspen Institute report that endorses the development and use of performance-based approaches that, if implemented, would move the environmental management framework further toward a system based on the use of EMSs, environmental performance standards, and audited environmental results.[57]

Statutory environmental requirements can and should be translated into environmental performance standards that reflect emissions, releases, or transfers off-site. Measuring, reporting, and knowing the environmental performance levels of an operation in near real-time is what the regulator and public want and need to know. Overall, if a performance track is put in place, it would produce more complete and accurate information than the current right-to-know laws, while allowing environmental managers to determine their own best technical and business approach to meeting enforceable environmental standards.

## CONCLUSION

As a result of compliance enforcement, insurance risk and liability, as well as other economic and community factors, the incentive to manage the environmental aspects of a particular industry are much more internal than in the past. Obviously, without the advent of environmental laws and the existence of liability for damage or injuries resulting from environmental negligence and polluting behavior, the need to manage the environment would not have evolved either. Now that an international standard for environmental management has been established, and performance reporting standards are not far off, we must harness the emergence of new systems management to ensure that environmental management keeps pace with the complexity and change of the new global economy.

There is reason to act now. First, endless restructuring in the domestic and global economies is causing companies to change their operations, their products, and their corporate and financial configuration as a matter of course. Second, sufficient groundwork and test cases have been established in the United States. and the European Union to provide a basis from which to draw

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56. Second Generation of Environmental Improvement Act of 1999 (*discussion draft*) 106th Congress; *See also* D. KNOPMAN & E. FLEISCHNER, PROGRESSIVE POLICY INSTITUTE, SECOND GENERATION OF ENVIRONMENTAL STEWARDSHIP: IMPROVE ENVIRONMENTAL RESULTS AND BROADEN CIVIC ENGAGEMENT (1999).

57. *See* ASPEN INSTITUTE SERIES ON THE ENVIRONMENT IN THE 21ST CENTURY, *supra* note 34.

out the elements needed to make a more global environmental performance framework operational. Finally, a common system is needed to be consistent with economic and management developments worldwide.

The increasing worldwide demand for lifestyles similar to those of the consuming nations, and the economic growth and environmental pressures that accompany it, suggests step change, rather than gradualism, is necessary. Economic growth in the next twenty years will not resemble the economic growth that occurred when the pollution control system in the United States and Europe was adopted in the 1960s and 1970s. Corporations do not resemble and do not behave now as they did then. This fact, and the determinant realities of the equity markets, indicate that environmental professionals must adapt their knowledge and skills for identifying, preventing, and controlling environmental impacts. Environmental professionals should anticipate growth, as informed by the changeover of capital, and match the verisimilitude realities of the new economy. A more globally constituted framework of interactive environmental and information management systems is the only way that our economies will fairly compete and still complement one another's ability to protect and restore ecological balance.

Although we may lack political agreement, we have the technology. We have the ability to create a more global performance-based environmental management framework that incorporates comparable and verifiable environmental standards and information systems (both voluntary and mandated as in international agreements). A growing understanding of what environmental sustainability means for both consuming and developing nations drives this opportunity. If we ignore that possibility meeting our needs now, we certainly put at risk the ability of future generations to meet their own needs. Therefore, Environmental professionals, policy makers, and consumers, must work even harder to close the gap between older regulatory systems and new environmental management systems; between environmental protection methods used by consuming nations and developing ones; between inflexible but strong environmental laws and voluntary agreements; and between self-limiting parochial interests of one country and the ecological well being of all. There is no utopian remedy or perfected end state, but more universal approaches can and should be developed.