

INTERNATIONAL EMISSIONS TRADING: EQUITY ISSUES IN THE SEARCH FOR MARKET-BASED SOLUTIONS TO GLOBAL ENVIRONMENTAL DEGRADATION

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1. INTRODUCTION

The difficulties encountered by traditional command-and-control (“CAC”) regulation¹ in effectively solving the environmental problems facing the United States and the planet have led to the development, over the last quarter century, of revolutionary market-based approaches.² These approaches advance

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¹ “Command-and-control” (CAC) is often used in the administrative law context to describe the proactive regulatory approach associated with the “second wave” of health, safety, and environmental regulation in this country beginning in the late 1960s. See Jonathan B. Wiener, Associate Professor, School of Law & School of the Environment, Duke University, Prepared Statement Before the Comm. on Governmental Affairs, United States Senate (Mar. 8, 1995), available in LEXIS, Legis Library, Cngtst File [hereinafter Wiener Statement]. Although the Chicago school has often decried this approach as paternalistic and disrespectful of private choice, CAC regulation has been justified as correcting for imperfect information in a free market system and facilitating the attainment of collective goals. See Cass R. Sunstein, *Administrative Substance*, 1991 DUKE L.J. 607, 609 & n.10, 622 (1991).

CAC techniques often employ nation-wide standards mandating specific technological requirements, e.g., “best available technology” or BAT. See *id.* at 627; Wiener Statement. There is some evidence, however, that the standards can be met by *any* technology, not just the “best available.” See Interview with Alan S. Miller, Executive Director, Center for Global Change, University of Maryland, in Phila., Pa. (Feb. 29, 1996) [hereinafter Miller Interview]; see also Curtis A. Moore, *The 1990 Clean Air Act Amendments: Silk Purse or Sow’s Ear?*, 2 DUKE ENVTL. L. & POL’Y F. 26, 41 (1992) (noting, in the context of the 1990 Amendments to Title IV of the Clean Air Act allowing sulfur dioxide (SO₂) sources to achieve reductions however they wish, that the mandated reductions could be met through the use of low-sulfur coals without implementation of highly efficient or less polluting technologies (footnote omitted)).

² See generally Sunstein, *supra* note 1, at 633-34 (discussing the tremendous potential for regulatory reform in the areas of environment and occupational

ambitious environmental regulatory objectives without deterring economic development. One such approach, emission allowance trading, is incorporated in the United States at the federal level through the 1990 Amendments to the Clean Air Act.³ These market-driven alternatives also benefit the private sector, spawning entrepreneurial ventures that theoretically operate to benefit industry, government, and the environment.⁴

On efficiency grounds, these new market-based approaches appear to satisfy both private and public interests in the quest to accommodate the dual needs of the natural environment and the economy.⁵ The theoretical promise of these programs also has led to justifiable excitement among those in the expanding field of international environmental law, who foresee immense possibilities for extending these market-based environmental concepts to the global arena.⁶ Given the movement towards democracy and privatization across Eastern Europe and South America, the current global political climate seems particularly ripe for the introduction of market-based incentives for curbing environmental degradation.⁷ Many Latin American countries lead the way, working toward market-based environmental regulation of greenhouse gas ("GHG") emissions via bilateral agreements with industrialized nations that are designed to promote sustainable

health and safety via a system of market-based incentives). For a recent version of the argument that command-and-control regulation has failed in the area of environmental regulation in the United States, and for an overview of the pros and cons of market-based alternatives, see Barton H. Thompson, Jr., *Foreword: The Search for Regulatory Alternatives*, 15 STAN. ENVTL. L.J. 8, 8-12, 17-20 (1996). For a review of successful efforts to employ market-based approaches in the United States, see discussion, *infra* Section 2.

³ See 42 U.S.C. § 7651 (Supp. II 1990). Another market-based approach to environmental regulation is the concept of effluent charges or emissions taxes. See C. SCHULTZE ET AL., SETTING NATIONAL PRIORITIES: THE 1973 BUDGET 368-73 (1972), reprinted in PETER S. MENELL & RICHARD B. STEWART, ENVIRONMENTAL LAW & POLICY 377, 377-78 (1994); 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, 109-10 (1992).

⁴ See *infra* notes 69-74 and accompanying text.

⁵ See discussion *infra* Section 4.1.

⁶ See Jeffrey L. Dunoff, *From Green to Global: Toward the Transformation of International Environmental Law*, 19 HARV. ENVTL. L. REV. 241, 254-55 (1995); Stewart & Wiener, *supra* note 3, at 103-09.

⁷ See Daniel J. Dudek et al., *Environmental Policy for Eastern Europe: Technology-Based Versus Market-Based Approaches*, 17 COLUM. J. ENVTL. L. 1, 1-4, 45-47 (1992).

development.⁸ Such a system would encourage investment by industrialized countries in the developing regions, spurring economic growth and the development of emissions reduction technology in return for tradeable credits towards mandatory global emissions limits.⁹

Proponents of such a system recognize the thorny questions that surround the practical development of market-based regulations. These issues include the difficulty of establishing an international institutional framework for developing, administering, and policing such a system.¹⁰ A global regulatory body could be resisted as a threat to national sovereignty.¹¹ Ideally, the institutional barriers to the development of an international system for emissions trading will be overcome given the interests at stake. The global phenomenon of environmental degradation increases the need for international coordination of remedial efforts, while making the issue more contentious.¹²

While acknowledging administrative questions, the proponents of market-based regulation ignore the equity issues involved in the implementation of such an ambitious regulatory system.¹³ Emis-

⁸ See Stephen Petricone et al., *Discussion White Paper: Joint Implementation*, compiled at the Hemispheric Energy Symposium, Washington, DC (Oct. 29-31, 1995) (on file with author) [hereinafter *White Paper*]. On sustainable development generally, see Udi Helman, *Sustainable Development: Strategies for Reconciling Environment and Economy in the Developing World*, WASH. Q., Autumn 1995, at 189. The concept of sustainable development calls for the reconciliation of economic and ecological objectives and policy in the pursuit of development goals. See *id.* Current development needs are not to be fulfilled without an eye to environmental health and safety concerns of future generations. Thus, sustainable development speaks both to international and intergenerational equity concerns. See THE WORLD COMMISSION ON ENVIRONMENT AND DEVELOPMENT, *OUR COMMON FUTURE* 8-9 (1987).

⁹ See Stewart & Wiener, *supra* note 3, at 105-06.

¹⁰ See Jonathan Green & Philippe Sands, *Establishing an International System for Trading Pollution Rights*, *Int'l Env't. Rep.* (BNA), at 80 (Feb. 12, 1992).

¹¹ See *id.*

¹² See *Developments in the Law - International Environmental Law*, 104 HARV. L. REV. 1484, 1492-94 (1991) [hereinafter *Developments*] (noting the failure of vague customary international law standards to reconcile the transboundary nature of international environmental degradation with the inflexible sovereign interests of the nation-state decision-makers).

¹³ See, e.g., Green & Sands, *supra* note 10 (The authors discuss the sovereignty question and many of the equity issues associated with developing an emissions trading regime that endows the right to pollute with legal recognition. For further development of these issues, see discussion *infra*

sions trading systems are premised on the controversial idea that pollution rights can be endowed with legal status as property and divided among nations and private industry. The equity problem also has an institutional element. Scholars and policymakers must determine what entity, under an international emissions trading scheme, will allocate initial entitlements to such rights and based on what criteria. Professor Jeffrey L. Dunoff identifies "the ability of a small minority of nations to set the international environmental agenda and effectively to determine the success or failure of multilateral environmental initiatives"¹⁴ as a problem hampering the movement towards "globalization" of international environmental policymaking. Given the obvious efficiency benefits, it is questionable whether a system of international emissions trading really creates an equal playing field, allowing each country with a stake to bargain effectively in order to promote its best economic and environmental interests.

This Comment examines the institutional and equitable feasibility of implementing an international system of emissions trading rights, focusing on the conceptual and practical problem of creating and allocating such rights to pollute. Section 2 examines the legal development of market-based approaches to environmental regulation in this country. Section 3 traces the development and application of Joint Implementation, which was intended as a threshold mechanism to facilitate the transition from domestic strategies for emissions trading to a global framework, in the wake of the 1995 Conference of the Parties to the Framework Convention on Climate Change in Berlin.¹⁵

Section 4.2. The authors, however, do not propose any potential solutions to the problem of distribution of pollution credits or of enforcement.). Other authors who do treat these questions more thoroughly either fail to choose a preferable system or conclude that international emissions trading is simply unfeasible on equitable grounds. See *infra* note 199 and accompanying text; cf. Lisa Heinzerling, *Selling Pollution, Forcing Democracy*, 14 STAN. ENVTL. L.J. 300, 343 (1995) (indicating the potential distributional concerns that would stem from the conclusion that pollution trading arguments fail on democracy grounds).

¹⁴ Dunoff, *supra* note 6, at 242.

¹⁵ See Daniel Bodansky, *The United Nations Framework Convention on Climate Change: A Commentary*, 18 YALE J. INT'L L. 451, 523 n.435 (1993) ("As the Indian delegation observed at INC 4 [the Fourth Conference of the Intergovernmental Negotiating Committee for a Framework Convention on Climate Change at Geneva, June 19-28, 1991], joint implementation is a halfway house to tradeable emissions rights.").

In Section 4, this background provides the context for evaluating the practicality of implementing such a scheme on a global level. This section first addresses the institutional concerns, often examined by the economists, academics, and legal practitioners, of a threat to national sovereignty. The focus of Section 4, however, is on the overlooked equity concerns presented by such a proposal. This analysis includes a dissection of the property and sovereignty implications of administering and policing a system of global emissions trading.

This Comment concludes that the development of a fully operational international market in emission allowances is feasible and desirable in light of recent developments in the area of international environmental cooperation. Nonetheless, equity concerns regarding the implications such a system presents for both the domestic and the international concepts of property rights have been ignored by economists, academics, and policymakers. In order for the ambitious goals enumerated by the parties to the Framework Convention on Climate Change to be met, this legal obstacle must be confronted and surmounted. If this challenge is met, there is no telling how far the riches of market-based environmental regulation could extend.

2. EMISSIONS TRADING IN THE UNITED STATES: THE LEGACY OF THE 1990 AMENDMENTS TO THE CLEAN AIR ACT

Emissions trading began to attract substantial scholarly and public attention with the issuance of the landmark U.S. Supreme Court decision in *Chevron U.S.A., Inc. v. Natural Resources Defense Council*¹⁶ and the subsequent passage of the 1990 Amendments

¹⁶ 467 U.S. 837 (1984). *Chevron* is renowned for its delineation of a two-step approach to substantive judicial review of a U.S. administrative agency action, an alternative to the concept of "hard-look" review. See *id.* at 842-43; *Motor Vehicle Mfrs. Ass'n of the United States v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29 (1983). "Hard-look" review is narrow in scope under the "arbitrary and capricious" standard of the Administrative Procedure Act ("APA"), 5 U.S.C.A. § 706(2)(A) governing rulemaking procedure. Under the "hard-look" standard, a regulation will be upheld if the agency has provided a solid rationale for its decision. See *State Farm*, 463 U.S. at 42-43. Under the *Chevron* two-step approach, a regulation will withstand judicial scrutiny if it follows the express mandate of organic legislation, or, should the meaning of the statute be ambiguous on a particular point at issue, if it constitutes a reasonable interpretation of that legislation. See *Chevron*, 467 U.S. at 842-843.

to the Clean Air Act.¹⁷ Yet, long before these events, the U.S. Environmental Protection Agency ("EPA") developed innovative incentive-based approaches to domestic environmental regulation. In fact, the EPA began experimenting with emissions trading programs in 1974,¹⁸ implementing offset, bubbling, netting, and banking strategies,¹⁹ in the search for an environmental regulatory technique that, unlike traditional CAC, would not pose a significant threat to development goals.²⁰

Conceptually, all four EPA strategies sought to reduce costs by transferring pollution control to the polluters themselves, allowing a plant flexibility in the management of its own emissions sources.²¹ In practice, this meant that, on the intra-facility level, emissions from one unit within a plant could increase pollution as long as net plant emissions decreased (called "bubbling and netting").²² During the 1980s, the offset strategy facilitated the continued development of new sources,²³ even in non-attainment areas,²⁴ by making such development contingent upon a decrease

¹⁷ 42 U.S.C. § 7651 (1990).

¹⁸ See Brennan Van Dyke, Note, *Emissions Trading to Reduce Acid Deposition*, 100 YALE L.J. 2707, 2707 (1991), and sources cited therein.

¹⁹ See *id.*; see also R. LIROFF, REFORMING AIR POLLUTION REGULATION: THE TOIL AND TROUBLE OF EPA'S BUBBLE (1986), reprinted in PETER S. MENELL & RICHARD B. STEWART, ENVIRONMENTAL LAW AND POLICY 388, 388-93 (1994).

²⁰ See MENELL & STEWART, *supra* note 20, at 387-88 (1994).

²¹ See Gary E. Marchant, *Freezing Carbon Dioxide Emissions: An Offset Policy for Slowing Global Warming*, 22 ENVTL. L. 623, 631 (1992); Van Dyke, *supra* note 19, at 2707.

²² See LIROFF, *supra* note 20, at 388-91. The concept of banking facilitates a bubbling or offset transaction by providing for a central ledger where credits are recorded and saved. These credits would then be available for trading within and between emissions sources. See *id.* at 391, 393.

²³ A "new source" is "any stationary source [building, structure, facility, or installation which emits or may emit any air pollutant], the construction of which is commenced after the publication of regulations . . . prescribing a standard of performance under this section which will be applicable to such source." 42 U.S.C. § 7411(a)(2)-(3).

²⁴ A non-attainment area is "any area that does not meet (or that contributes to ambient air quality in a nearby area that does not meet) the national primary or secondary ambient air quality standard for the pollutant." 42 U.S.C. § 7407(d)(1)(A)(i). Large cities like Los Angeles, New York and Philadelphia are generally classified as non-attainment areas. See MENELL & STEWART, *supra* note 21, at 347.

in existing source emissions.²⁵

It was not until 1984, however, that emissions trading came to national attention with Justice Stevens' majority opinion in *Chevron*.²⁶ Ironically, *Chevron*'s profound impact on administrative law and judicial review overshadowed the fact that the decision upheld as reasonable an EPA regulation which defined "stationary source" under the Clean Air Act according to an emissions trading concept whereby "all the pollution-emitting devices within the same industrial grouping [were to be treated] as though they were encased within a single 'bubble.'"²⁷ One commentator has noted that "[w]e tend to remember *Chevron* for its administrative law innovation, but to forget that it was precisely [the] EPA's determination to devise a market-based regulatory approach in the face of statutory ambivalence that opened this door."²⁸ Thus, stamped with official judicial approval, Congress proceeded to incorporate trading principles into existing environmental legislation with the passage of the 1990 Amendments to the Clean Air Act.²⁹

The 1990 Amendments differ from previous attempts at emissions trading because they specifically sets up a market system for trade in sulfur dioxide ("SO₂") allowances to reduce acid deposition to predetermined levels through three phases, culminating in the attainment of permanent limits (the "emissions cap") in the year 2010.³⁰ More importantly, however, the trading scheme envisioned by the 1990 Amendments no longer relied on a CAC system grounded in "best-available-control-technology" ("BACT") standards.³¹ This development was revolutionary in that it represented the U.S. government's first tangible attempt to reconcile the seemingly incompatible goals of preserving environ-

²⁵ See LIROFF, *supra* note 20, at 391.

²⁶ 467 U.S. 837.

²⁷ *Chevron*, 467 U.S. at 840.

²⁸ Wiener Statement, *supra* note 1.

²⁹ See 42 U.S.C. § 7651.

³⁰ See 42 U.S.C. §§ 7651b(a)(1), 7651c(a), 7651d(a); Van Dyke, *supra* note 19, at 2708-09, 2711.

³¹ See Van Dyke, *supra* note 19, at 2708 n.7. BACT standards are characteristic of CAC regulation in that they are imposed nation-wide, allowing little consideration for variations among facilities and geographic regions. They theoretically require polluters to reduce emissions as much as is technically and economically possible. See *id.* For a discussion of CAC regulation, see *supra* note 1 and accompanying text.

mental integrity, while promoting economic development. One commentator notes that "it is not necessarily optimal to reduce pollution by the greatest amount possible, no matter what the cost to society Market schemes allow society to choose which risks are acceptable."³²

With this philosophy in mind, Congress expressly mandated, for the first time in the history of environmental regulation, that cost-benefit concerns take ultimate precedence over some amorphous conception of the greater environmental good. In practical application, however, the most successful domestic programs employing trading schemes have employed a balance between CAC goals and market flexibility.³³

One unique feature of the 1990 Amendments is that they include a provision that establishes that tradeable emissions allowances are *not* equivalent to rights to pollute. Section 7651b(f) of the Clean Air Act now provides that "[a]n allowance allocated under this subchapter is a limited authorization to emit sulfur dioxide [and] does not constitute a property right."³⁴ By characterizing an emissions permit as a temporary and limited privilege, Congress effectively ensured that polluters would not receive a legally recognized property right to pollute. This appears to be a simple and expedient measure to implement on the domestic level to avoid the potentially devastating legal and political consequences of creating such a right.³⁵ The property

³² See Van Dyke, *supra* note 19, at 2708 n.7.

³³ See *id.* at 2709. One of the first proposed applications of trading was in the area of ozone non-attainment: the South Coast Air Quality Management District's ("SCAQMD") Regional Clean Air Incentives Market ("RECLAIM") program was announced in 1992 and went into effect January 1, 1994, after approval from the California Air Resources Board. See *California Air Board Approves "RECLAIM" Trading Program Created by SCAQMD*, UTIL. ENV'T REP., Mar. 18, 1994, at 3; Moore, *supra* note 1, at 40. The RECLAIM program illustrates the futility of providing for such flexibility in emissions reductions without the imposition of some relatively stringent requirements; in September 1995, SCAQMD approved new guidelines incorporating BACT processes into power plant emission requirements. See *SCAQMD Approves "BACT" Revisions that Systemize Plant Compliance*, UTIL. ENV'T REP., Sept. 15, 1995, at 7.

³⁴ 42 U.S.C. § 7651b(f); see Van Dyke, *supra* note 19, at 2708 n.10.

³⁵ *But see* Moore, *supra* note 1, at 40 (arguing that § 7651b(f) does characterize air pollution as a "right" for the first time). Moore's hypothesis that air pollution was given the status of a property right under the 1990 Amendments is directly contradicted by the very language of § 7651b(f). See *supra* note 35 and accompanying text.

question is not so easily dismissed, however, when the concept of emissions trading is applied on a bilateral or international level due to the multiplication of interests at stake and the many legal systems implicated.³⁶ Utilizing this basic groundwork for understanding emissions trading at the domestic level, this comment will address the the potentialities and problems, some realized and some hypothetical, of applying such a system on an international scale.

3. JOINT IMPLEMENTATION: TENTATIVE STEPS TOWARDS A GLOBAL TRADING REGIME

3.1. *The Rio Earth Summit and the FCCC*

1992 represented a major turning point in the evolution of international environmental law, witnessing the adoption of the United Nations Conference on Environment and Development Framework Convention on Climate Change ("FCCC")³⁷ and its concomitant signing during the Earth Summit at Rio.³⁸ Over one hundred countries thereby committed themselves to reducing global GHG emissions.³⁹ The stated objective of the FCCC is "to achieve . . . stabilization of greenhouse gas concentrations . . . at a level that would prevent dangerous anthropogenic interference with the climate system. Such a level should be achieved within a time-frame sufficient to allow ecosystems to adapt naturally . . . and to enable economic development to proceed in a sustainable

³⁶ See discussion *infra* Section 4.3.

³⁷ United Nations Conference on Environment and Development: Framework Convention on Climate Change, May 9, 1992, 31 I.L.M. 849 [hereinafter FCCC].

³⁸ On December 22, 1989, the General Assembly of the United Nations voted by Resolution 228 to accept Brazil's invitation to convene a conference on environment and development in Rio in 1992. See G.A. Res. 44/228, U.N. GAOR, 44th Sess., Supp. No. 49, at 151, U.N. Doc. A/44/49 (1989); LYNTON KEITH CALDWELL, *INTERNATIONAL ENVIRONMENTAL POLICY: EMERGENCE AND DIMENSIONS* 93 (2d ed. 1990); Christopher D. Stone, *Beyond Rio: "Insuring" Against Global Warming*, 86 AM. J. INT'L L. 445, 445 & n.1 (1992). The Assembly also established the Intergovernmental Negotiating Committee ("INC") to draft a Framework Convention on Climate Change to be signed at the conference. See *Protection of Global Climate for Present and Future Generations of Mankind*, G.A. Res. 45/212, U.N. GAOR, 45th Sess., Supp. No. 49A, at 147, U.N. Doc. A/45/49 (1990); Stone, *supra* at 445 & n.2.

³⁹ See *White Paper*, *supra* note 8.

manner.”⁴⁰

Article 4.2a of the FCCC provides the most significant impetus for the future implementation of market strategies in dealing with global climate change. It declares that the signatory Parties,

taking into account the difference in these Parties’ starting points and approaches, economic structures and resource bases, the need to maintain strong and sustainable economic growth, available technologies . . . , as well as the need for equitable and appropriate contributions by each of these Parties to the global effort[,] . . . may implement . . . policies and measures jointly with other Parties . . . in contributing to the achievement of the objective of the [FCCC].⁴¹

Thus, Joint Implementation (“JI”) was conceived as the first step towards global emissions trading strategies.⁴² Designed to incorporate market strategies in meeting the goals of the FCCC, JI facilitates cooperation in promoting reductions in GHG emissions by providing cost-effective and mutually beneficial options to all participants.⁴³ On the most rudimentary level, all JI initiatives involve investment by wealthier nations in emissions reduction strategies within developing nations, which theoretically results in a net decrease in global air pollution with the corresponding benefit of sustainable economic development.⁴⁴

3.2. *The Berlin Conference and the “No Credits” Compromise*

At the March-April 1995 First Conference of the Parties to the Framework Convention on Climate Change held in Berlin, Germany (“Berlin Conference” or “COP-1”), JI became the official consensus policy as “Activities Implemented Jointly” (“AIJ”).⁴⁵ Although JI may hypothetically include a program of awarding

⁴⁰ FCCC, *supra* note 38, at 849.

⁴¹ *Id.*

⁴² *See supra* note 16.

⁴³ *See White Paper, supra* note 8.

⁴⁴ *See id.*

⁴⁵ *See id.*

emissions reduction credits that would effectively produce a trading scheme, it also may simply take form by the establishment of “umbrella or joint targets that apply to a group of countries collectively ([or] creating ‘bubbles’).”⁴⁶ In other words, credits and trading are not necessary components of JI.⁴⁷ As a consequence, one of the two consensus decisions on AIJ reached by the participants in Berlin mandated that “[n]o credits shall accrue to any [p]arty as a result of greenhouse gas emissions reduced or sequestered during the pilot phase from activities implemented jointly.”⁴⁸ This so-called pilot phase is scheduled to remain in effect until December 31, 1999, and will include an annual review process to evaluate the possibility of an early transition to a more fully operational mode.⁴⁹

COP-1 saw to the formation of the subsidiary bodies of the FCCC, including the Ad Hoc Group on the Berlin Mandate (“AGBM”), the Subsidiary Body for Scientific and Technological Advice (“SBSTA”), the Ad Hoc Group on Article 13 (“AG13”), and the Subsidiary Body for Implementation (“SBI”). AGBM, developed to begin the process of assessing appropriate action to be taken after the year 2000, has proved itself to be the most active subsidiary body, meeting six times in the two years since the Berlin Conference.

One of the most important issues addressed by AGBM has been the strengthening of commitments in Article 4.2a of developed countries via the adoption of a legally-binding protocol.⁵⁰ The Second Conference of the Parties (“COP-2”), held in Geneva in July 1996, reflected the progress made via AGBM with the shift in position by the United States which now supports the legally-binding protocol to fulfill the lofty goals of the Berlin Mandate.⁵¹ The participants at Geneva concluded their Confer-

⁴⁶ Bodansky, *supra* note 16, at 520.

⁴⁷ See discussion of the political forces that led to this compromise in policy at the Berlin Conference *infra* Section 3.4.

⁴⁸ *White Paper*, *supra* note 8 (quoting the “Activities Implemented Jointly”).

⁴⁹ See *id.*

⁵⁰ See *Report of the Meetings of the Subsidiary Bodies of the UN Framework Convention on Climate Change*, EARTH NEGOTIATIONS BULL. (Int’l Inst. for Sustainable Dev., New York, NY.), Dec. 23, 1996 [hereinafter *Report of the Meetings*].

⁵¹ See *id.* This by no means indicates that the United States has adopted a position supporting a true crediting system before the year 2000. In fact, in a discussion regarding AIJ at the meetings of the subsidiary bodies of the

ence with the "Geneva Declaration," calling for legally-binding objectives and major reductions in GHGs.⁵² COP-2, however, brought out many of the ongoing debates on the desirability of legally-binding standards and the desirability of a full system of crediting under the FCCC.⁵³ As such, the parties anticipated the need for much work in the interim before the commencement of COP-3 in Kyoto, Japan, in December 1997.⁵⁴

Stephen Petricone of the United Nations Development Programme ("UNDP") in San Jose, Costa Rica, who worked extensively on JI efforts in Costa Rica observed that the "no credits" restriction imposed on the pilot phase translates into the most significant obstacle facing the further development of JI and of an international emissions market.⁵⁵ Petricone opines that it is naive to

[e]xpect[] this pilot phase to reveal whether there would be demand for JI in a post-pilot or operational phase Its [sic] kind of like a McDonald's that wants to test-market a hamburger, but does not want to invest in the meat until [it] knows there will be enough demand for it.⁵⁶

Despite the hesitancy of the initial steps towards international JI projects that are exacerbated by the restrictions of the pilot phase consensus policy, several JI programs have succeeded at national levels, including ones in which the United States played an

FCCC in Geneva in December 1996, the United States joined China in calling for language in the Secretariat's document on Uniform Reporting Format for AIJ rejecting credits for AIJ emissions reductions during the pilot phase. *See id.* The United States did feel, however, that the pilot phase should consider all issues of AIJ, including crediting. *See id.* Furthermore, at the same meeting, the United States came out strongly in favor of an international emissions trading program to be implemented after the expiration of the pilot phase. *See infra* notes 85-87, 226-29 and accompanying text.

⁵² *See id.*

⁵³ For further discussion, see *infra* Section 3.4.

⁵⁴ *See Report of the Meetings, supra* note 51. In 1997, the subsidiary bodies to the FCCC will meet on several more occasions in Bonn, Germany, before the convening of COP-3.

⁵⁵ Electronic Mail Interview with Stephen Petricone, United Nations Development Programme, San Jose, Costa Rica (Nov. 29, 1995) [hereinafter Petricone Interview].

⁵⁶ *Id.*

exceptional role.⁵⁷

The U.S. national JI program, United States Initiative on Joint Implementation ("USIJI"), began accepting project proposals in November 1994.⁵⁸ Seven projects were accepted from the first round of submissions on February 3, 1995,⁵⁹ including three from Costa Rica, which constituted the most projects from any single country.⁶⁰ Costa Rica initiated its own national JI program, termed the Oficina Costarricense de Implementacion Conjunta ("CROJI") in June 1994.⁶¹

USIJI announced the approval of eight more projects aimed at reducing GHGs in developing nations on December 19, 1995.⁶² On December 6, 1996, the USIJI Secretariat, co-chaired by the Department of Energy ("DOE") and the EPA, announced the seven projects accepted in the third round of submissions.⁶³ Thus far, the two main types of JI projects accepted are land use and energy initiatives.⁶⁴ The former includes forest preservation and reforestation proposals,⁶⁵ while the energy projects include

⁵⁷ "The U.S. effort on joint implementation began in October 1993 as part of the Clinton administration's Climate Change Action Plan, which outlines what the United States intends to do to meet its treaty commitments." *Greenhouse Gases: Seven Projects Accepted for Inclusion in U.S. Initiative on Joint Implementation*, INT'L ENV'T DAILY (BNA), Feb. 7, 1995, available in LEXIS, Envirn Library, Curnws File [hereinafter *Greenhouse Gases*].

⁵⁸ See *White Paper*, supra note 8.

⁵⁹ See *id.* For a sampling of some of the creative initiatives proposed by U.S. utility companies under USIJI see *GPU CEO Joins Energy Secretary O'Leary in Costa Rica*, PR NEWSWIRE, June 8, 1995, available in LEXIS, News Library, Curnws File; *Greenhouse Gases*, supra note 58; Peter Passell, *For Utilities, New Clean-Air Plan: A Swap May Lead to a Global Effort*, N.Y. TIMES, Nov. 18, 1994, at C1; *U.S. Energy Companies Join with Conservation Groups to Help Conserve Endangered Tropical Forest in Belize and Mitigate Greenhouse Gases*, PR NEWSWIRE, Nov. 1, 1995, available in LEXIS, News Library, Curnws File.

⁶⁰ See *Petricone Interview*, supra note 56.

⁶¹ See *White Paper*, supra note 8.

⁶² See *Worldview Climate Change: U.S. O.K.s More Joint Implementation Projects*, GREENWIRE, Dec. 21, 1995, available in WESTLAW, 12/21/95 APN-GR 23.

⁶³ See *id.*, GREENWIRE, Dec. 10, 1996, available in LEXIS, News Library, Curnws File; *Seven New Projects Were Chosen Under the Joint Implementation*, INSIDE ENERGY/WITH FED. LANDS, Dec. 16, 1996, available in LEXIS, News Library, Curnws File [hereinafter *Seven New Projects*].

⁶⁴ See *White Paper*, supra note 8.

⁶⁵ See *id.*

fuel switching or renewable energy programs which operate to reduce the use of carbon-based fuels and to increase energy efficiency.⁶⁶

3.3. *The Benefits and Obstacles to Effective Joint Implementation*

Understanding the theoretical benefits and problems with JI provides a powerful tool for appreciating the obstacles currently blocking achievement of a true international emissions trading program. As an initial matter, however, it must be re-emphasized that the pilot phase for international JI projects does *not* allow for emissions crediting.⁶⁷ Accordingly, the problems associated with the development of legal regimes appropriate for the allocation and administration of those unique rights to pollute are *not* at issue for JI at this point in time.

The perceived potential benefits for the investor or home country (most likely a wealthy industrialized nation) in JI projects include: (1) increases in cost-effective emissions mitigation options, including "the potential future value of the offsets if they become credits";⁶⁸ (2) provision of a "platform for business development activity";⁶⁹ (3) an opportunity for "[d]irect involvement in policy making";⁷⁰ and (4) significant public relations gains.⁷¹ The benefits for the host developing nation include the receipt of foreign capital, the "[t]ransfer of modern, clean efficient technologies," and the "[c]reation of local environmental and social benefits."⁷² A mutual benefit would be the "[e]xport of a clean commodity" from developing countries with a "natural

⁶⁶ See *id.* At least two-thirds of GHGs somehow relate to fossil fuel combustion. Fossil fuels cause most of the increase in carbon dioxide, which accounts for the most significant increase in radiative forcing (warming). See Alan S. Miller, *Symposium on Clinton's New Land Policies: Energy Policy from Nixon to Clinton: From Grand Provider to Market Facilitator*, 25 ENVTL. L. 715, 722 & n.64 (citing RADIATIVE FORCING OF CLIMATE CHANGE: THE 1994 REPORT OF THE SCIENTIFIC ASSESSMENT WORKING GROUP OF THE INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE ("IPCC") at 11, 18, 23.) Therefore, switching to non-carbon-based fuels will result in a net decrease in GHGs.

⁶⁷ For further discussion, see *supra* note 49 and accompanying text.

⁶⁸ *White Paper*, *supra* note 8.

⁶⁹ *Id.*

⁷⁰ *Id.*

⁷¹ See *id.*

⁷² *Id.*

comparative advantage in the production and export of greenhouse gas offsets.”⁷³

Perhaps most vexing of the existing obstacles to JI results from the lack of financing availability in connection with the “no credits” directive of the pilot phase.⁷⁴ There are other equally troublesome obstacles in the establishment of JI programs that signal problems to come in the struggle to develop a true trading regime. These hurdles include the perception among some in the private sector that acceptance procedures devised by governments for JI proposals are too burdensome or costly.⁷⁵ The lack of clear guidelines as to what constitutes a technically feasible JI project further complicates this obstacle.⁷⁶ In fact, many host countries entirely failed to produce JI project criteria or even to ratify the FCCC.⁷⁷ Some have noted the need for a verification mechanism and transparent methodology for measuring GHG benefits due to JI.⁷⁸ Another difficulty lies in transaction costs incurred when identifying potential projects and investors without development of a central registry like those used for banking strategies under the Clean Air Act.⁷⁹

Finally, many potential JI participants expressed “uncertainty regarding the future status of JI or value of credits.”⁸⁰ Some developing nations also fail to see the equity in JI proposals, claiming that such projects “shift[] the responsibility for action from rich to poor nations and encourage[] industrialized states — historically responsible for the bulk of [GHG] emissions — to

⁷³ *Id.*

⁷⁴ *See id.*

⁷⁵ *See id.*

⁷⁶ *See id.*

⁷⁷ *See id.*

⁷⁸ *See 1996 Year-end Update*, EARTH NEGOTIATIONS BULL. (Int’l Inst. for Sustainable Dev., New York, NY.), Jan. 13, 1997 (discussing participants’ observations at the UNEP Conference (“UNEP Conference”) on AIJ in San Jose, California in October 1996).

⁷⁹ *See supra* note 23 and accompanying text.

⁸⁰ *White Paper*, *supra* note 8. At the UNEP Conference, a number of the 100 participants drawn from governments, the private sector, and NGOs, “argued that the current lack of credits and uncertainty over their future availability is the main reason the private sector lacks enthusiasm for investing in AIJ projects.” *1996 Year-end Update*, *supra* note 79. Japan and the United States have responded to this lack of private sector enthusiasm by providing in-kind, non-monetary incentives for industry participation AIJ. *See id.*

continue polluting the atmosphere while hindering development in the South[ern hemisphere].⁸¹ Nations which have traditionally supported JI include the United States, Norway, the Netherlands, Germany, Canada, Costa Rica, Chile, and South Africa.⁸² JI's opposition from the developing world, however, includes China, the Philippines, Brazil, the OPEC nations, Malaysia, and India.⁸³

At AGBM-5 in Geneva in December 1996, the United States came out strongly in favor of international emissions trading among the Parties assuming a binding quantified emissions target, citing many of the obstacles facing the effective implementation of JI projects without a true crediting system.⁸⁴ The unofficial U.S. position paper from Geneva states that "[i]t is critical that provisions for international greenhouse gas emissions trading and joint implementation be included in the Kyoto agreement in order to meet the new commitments at the lowest cost."⁸⁵ Not

⁸¹ Leah Makabenta, *Environment: New North-South Rift Feared over Climate Change*, INTER PRESS SERVICE, Mar. 18, 1995, available in LEXIS, News Library, Curnws File. Some participants at the UNEP Conference expressed concerns that AIJ could (1) become a mechanism for the North to transfer responsibility for cutting GHGs to the South; (2) weaken technological innovation native to developing countries; and (3) "encourage the dumping of obsolete or socially and environmentally harmful technologies in recipient countries." *1996 Year-end Update*, supra note 79.

⁸² See Petricone Interview, supra note 56. Mexico slowly moved towards a pro-JI position in 1996, culminating in its selection as a host for a USIJI project selected in December 1996. See *Seven New Projects*, supra note 64; see also Edward A. Hoyt, *Credit Where Credit Is Due: Environmental and Energy Agencies Evaluate Carbon Emissions Credits*, BUSINESS MEXICO, May 1996, available in LEXIS, News Library, Curnws File (debating the pros and cons of Mexican participation in JI, and the potential for crediting).

⁸³ See Petricone Interview, supra note 56; Haig Simonian, *UN Conference on Climate Change: Opposing Theorists Go into Battle for the World*, FIN. TIMES, Mar. 28, 1995, at 8. In the wake of the Berlin Conference, the United States and India announced a "Common Agenda" under which, among other sustainable development objectives, the United States will help India reduce GHG emissions from electricity generation. See *U.S., India "Common Agenda" Project to Begin with Greenhouse Gas Reductions*, INT'L ENV'T DAILY (BNA), May 3, 1995, available in LEXIS, Envirn Library, Curnws File.

⁸⁴ See U.S. Dept. of State, *Climate Change: U.S. Non-Paper*, December 1996, at 5-7 [hereinafter *Non-Paper*]; *Administration to Stand Ground on Emissions Trading: U.S. Climate Proposals Find Little Support at Geneva Negotiations*, INSIDE E.P.A. WEEKLY REP., Dec. 20, 1996, at 1, 6 [hereinafter *Little Support*]; *Global Warming: U.S. Pushing for International Emissions Trading Program*, CLEAN AIR REP., Dec. 12, 1996, at 19-20.

⁸⁵ *Non-Paper*, supra note 85, at 5.

surprisingly, developing nations vigorously opposed this proposal, objecting that developed nations should take the first steps toward reduction of GHGs.⁸⁶ This dispute over the future success of JI without crediting indicates the existing conflict between wealthy and developing nations since the Berlin Conference. Additionally, it points towards potential obstacles to be encountered in the development of a true emissions trading regime.

3.4. *Emergent Conflict Between Industrialized and Developing Nations*

As procedural and substantive disagreements began to emerge at the beginning of the Berlin Conference,⁸⁷ several developing countries evinced a sense of indignation at the industrialized nations' approach to the resolution of the often conflicting goals of emissions reduction and sustainable development.⁸⁸ One participant noted, "[w]hen [industrialized nations] provide transfer[s] of technology to a poor country, the developed nations expect the world to allow them to carry out environment-damaging activities in their own countries."⁸⁹ Environmental issues carry political and social implications that render international cooperation all the more difficult. A few developing nations opposed to JI feel that it constitutes nothing more than an attempt by wealthier industrialized nations to ease their guilty

⁸⁶ See *Little Support*, *supra* note 85, at 6.

⁸⁷ During the first three days of the conference, developed and developing nations had trouble agreeing on voting procedures. Many developing countries, including China and India, endorsed a proposal, eventually incorporated into a Green Paper, of the Alliance of Small Island States ("AOSIS"). This proposal called for a different protocol which would have developed nations reduce CO₂ emissions to pre-1990 levels by the year 2000 (the FCCC calls for reductions to 1990 levels by 2000). See Ashraf Abdullah, 'No' to Further Pledges on Reduction of Greenhouse Gases, NEW STRAITS TIMES, Apr. 2, 1995, at 2 [hereinafter Abdullah, *Further Pledges*]; Ashraf Abdullah, *Resolutions on Global Warming Curbs May Fail*, NEW STRAITS TIMES, Apr. 1, 1995, at 23 [hereinafter *Resolutions*].

⁸⁸ See *Resolutions*, *supra* note 88.

⁸⁹ *Id.* (quoting Datuk Renji Sathiah, the Malaysian Ambassador to Belgium, the head of the Malaysian mission to the European Union, and the head of the Malaysian delegation to the Berlin Conference); see also Abdullah, *Further Pledges*, *supra* note 88 (quoting Lillia Bautista, Chairperson of the Group of 77, another coalition of small developing nations, as stating, "[w]e are disturbed with the fact that the developed countries are not doing their job at home and try to shut us up by offering to transfer their technology.").

conscience in furthering environmental degradation by temporarily subsidizing development in the Southern hemisphere.⁹⁰

The results of the Berlin Conference, although a success in the eyes of many industrialized countries, reflect to a great extent continuing points of contention between developed and developing nations.⁹¹ One commentator opines that developing countries actually possess greater bargaining power to further redistribution of wealth in environmental negotiations due to the anxiety of developed nations regarding global environmental health.⁹² Such enhanced bargaining capacity, however, fails to eliminate conflicts between the developed and developing world in the environmental arena.⁹³ The AIJ and the "no credits" provision in particular, represent an apparent victory on the part of those developing nations that rallied enough pressure to hinder consensus policy regarding significant steps towards actual emissions trading.⁹⁴

Certain non-governmental organizations ("NGOs") across the

⁹⁰ See *id.*

⁹¹ The most recent meetings of the subsidiary bodies of the FCCC highlight some of these tensions. AGBM-5 brought out conflict between the EU, on the one hand, and developing countries, on the other, regarding the choice of a mandatory or a more flexible menu approach in establishing common or coordinated policies and measures ("P&Ms"). In this context, the delegate from the Group of 77 and China, supported by a coalition of at least 20 other developing nations, referred directly to "concepts such as emission banking, emission permits and AIJ as attempts to stray from commitments [under the Berlin Mandate.]" *Report of the Meetings supra* note 51. The parties also debated the desirable form and scope of a protocol or other legal instrument. See *id.*

⁹² See Stone, *supra* note 39, at 472.

⁹³ See *id.*

⁹⁴ See Ramesh Jaura, *Environment: NGOs Disappointed at Berlin Climate Meet Mandate*, INTER PRESS SERVICE, Apr. 7, 1995, available in LEXIS, News Library, Curnws File; Haig Simonian, *US Is Left Exposed in Chill of Climate Talks*, FIN. TIMES, Apr. 7, 1995, at 9.

The response of participants at AGBM-5 in December 1996 to the use of emissions trading to achieve flexibility in meeting the objectives of Article 4.2a reflects these ongoing tensions. Norway, Canada, New Zealand and France were supportive of the idea; Australia noted that a trading regime would need to address equity concerns. See *infra* Section 4.3. The United States proposed banking or borrowing; Egypt predicted that borrowing might lead to delays in action; and Malaysia proposed a borrowing system where debtors pay interest that would be used to establish a fund to safeguard against the effect of climate change. See *Report of the Meetings, supra* note 51; see also *supra* notes 85-87 and accompanying text (discussing the rejection of the U.S. position in favor of emissions trading after 2000 by developing countries at AGBM-5).

globe focus public attention on international environmental issues through lobbying, media events, and protest. Some of these groups, including Greenpeace International, the German World Wide Fund for Nature ("WWF"), and the Climate Action Network ("CAN"), joined voices with developing nations in criticizing the "Berlin Mandate" as insufficient to meet the current global demand for action on climate change.⁹⁵ A few environmentalists actually staged a massive protest at the conclusion of the Berlin Conference.⁹⁶ It should be noted, however, that not all environmentalist organizations criticized the results of the Berlin Conference.⁹⁷ Furthermore, most environmentalists, particularly the Environmental Defense Fund ("EDF"), support JI efforts as environmentally and economically sound policy.⁹⁸

In the meantime, the reaction of trade industry coalitions within the United States to the Berlin Conference and its aftermath varied, but were largely critical of the limits placed on JI by the pilot phase restrictions.⁹⁹ A representative of one such coalition noted, for example, that "[t]he U.S. caved in and allowed this paper [AIJ] to be defined without credit, which is a major incentive for companies and countries to get involved."¹⁰⁰ Industry opinion also responded with criticism to

⁹⁵ See Jaura, *supra* note 95.

⁹⁶ See Ashraf Abdullah, *Protestors Storm Climate Meet*, NEW STRAITS TIMES, Apr. 9, 1995, at 8.

⁹⁷ See EDF *Cautiously Praises Progress Made at Berlin Climate Conference*, BUSINESS WIRE, Apr. 7, 1995, available in LEXIS, News Library, Curnws File [hereinafter EDF].

⁹⁸ See Susan Bruniga, *Climate Change: Companies Encouraged to Participate in Pilot Phase of Joint Implementation*, INT'L ENV'T DAILY (BNA), May 25, 1995, available in LEXIS, Envirn Library, Curnws File (quoting Annie Petsonk, EDF's international counsel, who noted that "'JI has tremendous potential for democracy building and improving the economies' of developing countries,"); EDF, *supra* note 98; Alice LeBlanc, *The Third Wave: Pollution Credit Trading*, ENVTL. ACTION, Jan. 1994, at 24; Passell, *supra* note 60, at C6.

⁹⁹ See *Climate Change: Coalition Protests Joint Implementation, Emissions Plans Drawn at Climate Meeting*, INT'L ENV'T DAILY (BNA), Apr. 14, 1995, available in LEXIS, Envirn Library, Curnws File [hereinafter *Coalition*].

¹⁰⁰ *Id.* (quoting Donald Rheem, a media representative for the Global Climate Coalition, a non-profit organization of business trade associations and private companies established to coordinate business participation in scientific and policy debate on global climate change); see also *Interview: How Utilities View Latest Climate Policy Moves*, GREENWIRE, Oct. 17, 1996, available in LEXIS, News Library, Curnws File (interviewing Dale Heydlauff, vice-president for environmental affairs at American Electric Power, chair of the

the concern of the developing nations that JI functions only as a mechanism for wealthy nations to make up for years of disregard for the global environment.¹⁰¹ The same representative commented that “if the treaty gets serious, and starts doing something about emissions — [developing countries are] not going to want to spend money to do cleanups. They want the [industrialized nations] to do it all.”¹⁰²

The industry supports its position by pointing to some evidence that developing nations will in fact be responsible for the most significant rise in emissions over the next fifteen years and that they therefore should respond accordingly by playing an equal role in JI programs.¹⁰³ Several members of the U.S. House of Representatives have also expressed skepticism as to the future involvement of developing nations in global efforts to reduce GHG emissions.¹⁰⁴

Unfortunately, the “no credits” provision significantly hinders industry incentive to get involved with JI projects.¹⁰⁵ Unless industry is satisfied that its investments will be supported by continuing participation by host developing countries, even after the pilot phase of JI is completed resulting in either credits or no credits, such industry will hesitate to supply funding for emissions reduction solutions.¹⁰⁶ “The extension of trading to firms as

Global Climate Change Subcommittee at the Edison Electric Institute, and co-chair of the Department of Energy’s Climate Change Program, regarding the U.S. position of commitment to undefined international emission trading programs in Geneva in July 1996). “The absence of clearly defined credit has a chilling effect on [electric utility] industry interest. . . . [Y]ou can certainly read into the [USII]’s criteria [for approving projects] that you would not qualify for credit if your motivation was profit.” *Id.*

¹⁰¹ See *Coalition*, *supra* note 100.

¹⁰² *Id.* (quoting Rheem).

¹⁰³ See Michael Dwyer, *Germany: Berlin Conference All Gas and No Substance, Says IEA*, AUSTL. FIN. REV., Apr. 28, 1995, available in LEXIS, News Library, Curnws File.

¹⁰⁴ See *Climate Change: House Panel Questions Wirth on U.S. Emission Reduction Commitments After 2000*, INT’L ENV’T DAILY (BNA), May 23, 1995, available in LEXIS, Envirn Library, Curnws File (discussing the concerns expressed by Representatives Dan Schaefer (R-Colo.), Frank Pallone (D-NJ), John Dingell (D-Mich), and Richard Burr (R-NC) of the House Subcommittee on Energy and Power, at a hearing on May 19, 1995, updating members on the results of the Berlin Conference).

¹⁰⁵ See Bruniga, *supra* note 99.

¹⁰⁶ For further discussion see *supra* notes 100-01 and accompanying text.

well as nations would increase substantially economic efficiency and stimulate environment-friendly technological innovation by creating a worldwide market in GHG limitation opportunities.¹⁰⁷ Thus, a well-functioning trading regime depends on industry participation. Furthermore, establishment of a true trading regime is imperative to ensure the participation of private parties in global efforts to hinder climate change.

Having sketched a brief history of the FCCC, JI, and the conflicts emerging thereunder as the Parties move toward the establishment of an international emissions trading program, this Comment now evaluates the economic and distributional implications of the implementation of a full-blown credits regime.

4. EXPANSION TO THE GLOBAL ARENA

4.1. *The Efficiency Argument for International Emissions Trading*¹⁰⁸

In its brief history under the Clean Air Act, emissions trading already has produced billions of dollars in cost savings.¹⁰⁹ Emissions trading facilitates the sharing of cleanup costs and benefits among multiple facilities by allowing one utility company to make extensive emissions cuts and thereby satisfy the cleanup requirements of another facility.¹¹⁰ Furthermore, market mechanisms provide incentive for facilities to develop innovative technologies for more cost-effective and significant emissions reductions.¹¹¹ The EPA began substituting market strategies for

¹⁰⁷ Stewart & Wiener, *supra* note 3, at 106.

¹⁰⁸ For an excellent overview of the benefits of implementation of market-based strategies in environmental regulation, see Wiener Statement, *supra* note 1.

¹⁰⁹ See *Implementation of the Acid Rain Program: Hearings on the Implementation of the Acid Rain Provisions of Title IV of the Clean Air Act Amendments Before the Subcomm. on Energy and Power of the House Comm. on Energy*, 103d Cong., 2nd Sess. (Oct. 5, 1994) (statement of Michael J. Walsh, Senior Economist, Board of Trade of the City of Chicago), available in LEXIS, Legis Library, Cngtst File [hereinafter Walsh Statement] (predicting that market-based approaches under the 1990 Amendments to the Clean Air Act will be a major success given EPA's estimate as of late 1994 that the annual nationwide cost of reaching the new emission standard under a CAC regime would be \$2-3 billion).

¹¹⁰ See *id.*

¹¹¹ See Marchant, *supra* note 22, at 630; Walsh Statement, *supra* note 110.

technology-based CAC regimes in the area of SO₂ regulation primarily to encourage industry initiative. Under CAC regimes, the technology chosen by the government effectively captured the market to the detriment of cleaner and cheaper technologies.¹¹²

Thus, market strategies theoretically encourage creativity in the structuring of new green technologies. The most efficient control technique varies from firm to firm; so, CAC is ultimately counterproductive on cost grounds because it is impossible for the government to gather enough information to choose the best method for each facility.¹¹³ Market-driven strategies also decentralize the regulatory process by effectively shifting these policy decisions from the public to the private sector, closer to centers of specialized and creative expertise.¹¹⁴ “[T]rading programs eliminate the need for centralized, national determinations of what technology is ‘available’ or feasibly available in the future.”¹¹⁵

Due to the potentially large advantages of market strategies in promoting environmental objectives, an expensive CAC regime to regulate climate change on the international level appears less viable. Petricone posits that, certainly in the area of greenhouse gas emissions,¹¹⁶ CAC regulation is obsolete.¹¹⁷ Furthermore, the potential economic savings from an international offset project are in the hundreds of billions of dollars per year for a fully operational global regime.¹¹⁸

In most developing countries, emissions limitations cost

¹¹² See Dunoff, *supra* note 6, at 253 (citing Daniel J. Dudek et al., *Technology-Based Approaches Versus Market-Based Approaches*, in GREENING INTERNATIONAL LAW 188 (Philippe Sands ed., 1994)).

¹¹³ See Wiener Statement, *supra* note 1. One commentator argues, based on the domestic experience under the 1990 Amendments to the Clean Air Act, that new technology will result only if the goals established for global GHG emission reductions are sufficiently stringent. See Miller Interview, *supra* note 1. “No new technology has been developed in response to the acid rain program because it proved to be so easily met.” *Id.*

¹¹⁴ See Marchant, *supra* note 22, at 630-31.

¹¹⁵ Sunstein, *supra* note 1, at 635. *But see* Heinzerling, *supra* note 13, at 304, 311-18 (arguing that, in the context of the 1990 Amendments to the Clean Air Act, “[t]he case for pollution trading programs . . . must rest where it began — with efficiency, not democracy”).

¹¹⁶ See discussion of the FCCC and the Berlin Conference *supra* Section 3.

¹¹⁷ See Petricone Interview, *supra* note 56.

¹¹⁸ See *id.*; Stewart & Wiener, *supra* note 3, at 106-08.

significantly less.¹¹⁹ Therefore, by allowing developed nations to invest in reductions elsewhere, the global cost is reduced.¹²⁰ Consequently, international emissions trading promotes sustainable development by providing “a more effective and efficient way to transfer capital and technology from [industrialized countries] to [developing countries], on a mutually voluntary basis, to the benefit of both.”¹²¹ Nonetheless, the institutional, administrative, distributional, and normative obstacles that stand in the way of a feasible international emissions trading regime are substantial and seemingly unavoidable.¹²² These challenges must be broken down to understand why and how such a regime can be equitably implemented.

4.2. *The National Sovereignty Challenge*

Questions on sovereignty grounds continue to surround the feasibility of international emissions trading.¹²³ These concerns motivate the objections from participating nations that perceive the establishment of institutions to implement an emissions trading regime as constituting a potential threat to their national sovereignty. Although such concerns are reasonable, they are generally misplaced. These fears result from the disparate concepts of property rights that plague the amorphous constitution of and remedy for global atmospheric pollution.¹²⁴

Environmental degradation is inherently global in scope. No invisible walls spontaneously materialize as counterparts to

¹¹⁹ See Stewart & Wiener, *supra* note 3, at 106-07; see also Green & Sands, *supra* note 10 (“[D]eveloping countries might be able to control more of their pollution more cheaply than the developed countries.”).

¹²⁰ See Green & Sands, *supra* note 10; Stewart & Wiener, *supra* note 3, at 106-07.

¹²¹ Stewart & Wiener, *supra* note 3, at 108.

¹²² See Dunoff, *supra* note 6, at 254-55, and sources cited therein. Petricone lists the following as the four main obstacles to a true international emissions market: (1) “[the] collective action dilemma in climate change negotiations,” see discussion of the conflicts at the Berlin Conference *supra* Sections 3.2.-3.4., (2) the “resistance to the mechanism among some developing countries that have a particularly strong voice in international negotiations,” see discussion *supra* Section 3; (3) “the potential complexity of designing the mechanism,” see discussion *infra* Section 4.3.2.; and (4) “lack of long-time experience with specific projects,” see discussion *supra* Section 3.

¹²³ See Green & Sands, *supra* note 10.

¹²⁴ See discussion *infra* Section 4.3.

national boundaries that can be drawn with relative ease either on land or at sea.¹²⁵ Accordingly, given that no one nation can be designated as the source of harmful emissions, climate change is a particularly appropriate subject through which to analyze the emerging concepts of international environmental law. As greenhouse gases remain in the atmosphere for a long period of time and migrate across the globe, the precise location of emissions reductions has little effect on the overall greenhouse effect.¹²⁶ The uniquely global characteristics of environmental degradation may also provide an explanation for the difficulties realized by transnational, non-state actors in developing and facilitating global cooperative solutions to such degradation.¹²⁷ It is important to briefly examine some international environmental law principles, largely rooted in traditional concepts of property and sovereignty, which were developed in an attempt to provide for the security of national sovereignty in the face of necessary and expedient transnational approaches to environmental degradation.¹²⁸

4.2.1. *The Vague Mandate of Principle 21: The Expanded Doctrine of Sic Utere.*

International environmental law as a discipline began to take shape in Stockholm, Sweden, at the 1972 United Nations Confer-

¹²⁵ See Stewart & Wiener, *supra* note 3, at 83 (describing the atmosphere as a "global commons").

¹²⁶ See Bodansky, *supra* note 16, at 520; see also Stewart & Wiener, *supra* note 3, at 104 n.73 (noting that GHG emissions do not present the same problems with "hot spots" as do many other toxic atmospheric pollutants, which might create excessive damage should they "bunch" in one location).

¹²⁷ A full survey and analysis of the various instruments that have ultimately led to the realization of JI and the potential for international emissions trading systems is impossible within the scope of this Comment. For an excellent overview of the development of international environmental law, see Dunoff, *supra* note 6, at 243-47. For the text of many seminal international environmental law instruments affecting greenhouse gas emission regulation prior to the adoption of the Framework Convention on Climate Change at Rio, see INTERNATIONAL ENVIRONMENTAL LAW: BASIC INSTRUMENTS AND REFERENCES (Edith Brown Weiss et al. eds., 1992) [hereinafter BASIC INSTRUMENTS].

¹²⁸ See generally *Developments*, *supra* note 12, at 1504-21 (noting the failure of customary international legal principles to prescribe liability standards for international environmental harms).

ence on the Human Environment (“Stockholm Conference”).¹²⁹ Although not binding as a whole,¹³⁰ the Stockholm Declaration on the Human Environment (“Stockholm Declaration”)¹³¹ greatly influenced the subsequent development of international environmental treaties. Moreover, Principle 21 of the Stockholm Declaration, generally considered to constitute customary international law,¹³² is expressly referred to in the preamble to the Framework Convention on Climate Change.¹³³ The United Nations Environment Programme (“UNEP”), the UN body responsible for coordinating environmental policy and action among the other UN bodies, particularly the United Nations Development Programme (“UNDP”), is also a product of the Stockholm Conference.¹³⁴ Unfortunately, the guidelines provided by Principle 21 and the Stockholm Declaration as a whole are vague at best; they do nothing more than recognize the elusive objective of maintaining state sovereignty in the face of environmental problems that defy ordinary principles of property and causation.¹³⁵

Principle 21, however, serves as the international law counter-

¹²⁹ One hundred thirteen states participated in the Stockholm Conference. See BASIC INSTRUMENTS, *supra* note 128, at 171.

¹³⁰ See *id.* at 172; see also Jeffrey L. Roelofs, *United States-Canada Air Quality Agreement: A Framework for Addressing Transboundary Air Pollution Problems*, 26 CORNELL INT’L L.J. 421, 431 (1993) (“An international agency can only give force to those international environmental principles that are directly incorporated into binding agreements or are accepted as customary international law.”) (citations omitted).

¹³¹ Stockholm Declaration, Declaration on the Human Environment Done at Stockholm on 16 June 1972, in *Report of the United Nations Conference on the Human Environment*, U.N. Doc. A/CONF.48/14/Rev.1, at 3 (1973), U.N. Doc. A/CONF.48/14, at 2-65, and Corr.1 (1972) [hereinafter Stockholm Declaration].

¹³² See BASIC INSTRUMENTS, *supra* note 128, at 172. On customary international law, see generally *Developments*, *supra* note 12, at 1504 (“A rule of customary international law develops when states follow a constant practice under the conviction that international law requires their conduct.”) (citations omitted).

¹³³ See FCCC, *supra* note 38, pmb1.

¹³⁴ See Dunoff, *supra* note 6, at 245-46; Institutional and Financial Arrangements for International Environmental Co-operation, G.A. Res. 2997, pts. I-II, 27 U.N. GAOR, 27th Sess., Supp. No. 30, at 43, U.N. Doc. A/8730 (1972).

¹³⁵ See *Developments*, *supra* note 12, at 1504-06; Roelofs, *supra* note 131, at 430-32.

part to the common law real property doctrine of *sic utere*.¹³⁶ Closely related to *sic utere* doctrine and Principle 21 is the "act-of-state" doctrine. As enunciated by the U.S. Supreme Court in *Underhill v. Hernandez*,¹³⁷ the act of state doctrine requires that "[e]very sovereign State is bound to respect the independence of every other sovereign State, and the courts of one country [cannot] sit in judgment on the acts of the government of another, done within its own territory."¹³⁸ These traditional concepts of property and sovereignty work to exclude those actors, whether individual persons or nations, which do not hold the territorial rights to real property.¹³⁹ Thus, it is nearly impossible to assign fault, or a legal remedy for such fault, in the realm of global environmental degradation where no one country officially holds the traditional exclusive property right to clean air.¹⁴⁰

Green and Sands¹⁴¹ equate the rights protected by Principle 21 with a State's sovereignty over its natural resources.¹⁴² In fact, the language of Principle 21, like the act-of-state doctrine, does nothing more than transfer the rights and responsibilities of *sic utere* from the individual property owner, within his or her own community, to the sovereignty of individual States in control of their natural resources, within the international community.¹⁴³

Indeed, the sovereignty question is not problematic in and of itself, as the main objective of international environmental law is

¹³⁶ See *Developments*, *supra* note 12, 1496-98. On *sic utere*, see generally BLACK'S LAW DICTIONARY 1380 (6th ed. 1990). "*Sic utere tuo ut alienum non laedas*. Common law maxim meaning that one should use his own property in such manner as not to injure that of another." *Id.*

¹³⁷ 168 U.S. 250 (1897).

¹³⁸ *Id.* at 252.

¹³⁹ See generally 4 MORRIS COHEN, PROPERTY AND SOVEREIGNTY 155 (1927) ("The essence of private property is always the right to exclude others.").

¹⁴⁰ See *Developments*, *supra* note 12, at 1498-1521.

¹⁴¹ Jonathan Green is an associate of Coudert Brothers; Philippe Sands is a director of the Centre for International Environmental Law, Kings College London. See Green & Sands, *supra* note 10.

¹⁴² See *id.*

¹⁴³ States have, in accordance with the Charter of the United Nations and the principles of international law, the sovereign right to exploit their own resources pursuant to their own environmental policies, and the responsibility to ensure that activities within their jurisdiction or control do not damage the environment of other States or of areas beyond the limits of national jurisdiction. See Stockholm Declaration, *supra* note 132, Principle 21.

to *encourage* States to enter into international agreements that somewhat restrict their sovereign right to develop natural resources.¹⁴⁴ Instead, the sovereignty question rests upon the larger dilemma of naming and administering the legal rules that should govern what appears to be a system of property rights in an area of regulation generally unsusceptible to such a regime.¹⁴⁵ Thus, the real international legal problem surrounding the creation of a global emissions trading regime concerns the extent to which a State can inalienably grant emissions rights to another State, or to a private person or corporation.¹⁴⁶

The establishment of an international system of emissions trading permits would require the legal recognition of a new sort of property right; the right to pollute.¹⁴⁷ Such legal status for emissions rights appears to conflict with existing principles of permanent sovereignty. Green and Sands posit a hypothetical case where an emissions permit trade by State A to a private person or corporation in another country could in principle be revoked in the name of permanent sovereignty over natural resources.¹⁴⁸ The same dilemma could emerge in the case of a trade between two States under international law, especially if parties to the FCCC were free to withdraw at will.¹⁴⁹ By this argument, the problem is insurmountable because it requires a transformation of the principles of customary international law that is unlikely to occur, at least not before the year 2000, the conclusion of the pilot phase of AIJ.¹⁵⁰

There lies another solution, however, in the recognition of an international property right in emissions reduction allowances, a right which would supersede certain principles of national sovereignty in the interest of promoting global environmental health. Approaching the sovereignty issue from this angle also determines

¹⁴⁴ See Green & Sands, *supra* note 10.

¹⁴⁵ See discussion *infra* Section 4.3.

¹⁴⁶ See Green & Sands, *supra* note 10.

¹⁴⁷ See *id.*

¹⁴⁸ See *id.*

¹⁴⁹ See *id.*

¹⁵⁰ The nature of customary international law is such that it can only be transformed through widespread international acceptance of a new standard for legal behavior. See *supra* note 133 and accompanying text. It seems highly unlikely that States will soon, or ever, abandon the ideal of sovereignty over their own natural resources.

which law, international or domestic, governs the rights and responsibilities of the independently sovereign trading partners when additional private parties are involved in an emissions allowance trade.

Traditionally, developing nations argued that international investment contracts between nations and private parties are not subject to public international law.¹⁵¹ However, international emissions trading cannot be governed solely by principles of private contract law due to the initial imposition of mandatory reduction goals by some greater governmental authority. Industrialized countries thus correctly argued that a trading regime must somehow be governed by public international law.¹⁵² If a trading regime is inherently premised on a new form of international property right, then it must also be subject to the rules of international law, agreed upon by all parties, both public and private. It is now crucial to identify the more complex equitable implications of the development of international property rights to pollute.

4.3. *The Real Dilemma — Distributional Concerns in the Allocation of Rights to Pollute Under an International Emissions Trading Regime*

4.3.1. *The Entitlement Question — the Allocation of Emissions Rights: Who Owns the Rights to Clean Air?*

Questions regarding who owns the right to clean air and, more importantly, who can buy the right to pollute it are largely a function of how such a right is defined and who the major parties are. This is why equity issues in connection with the creation of an emissions trading regime, which exist even under the domestic scheme, become far more complicated on the international level.¹⁵³ The determination of who can obtain rights to pollute or even the opportunity to pollute is connected intimately with the system for the distribution of those rights.¹⁵⁴ This system largely depends upon the economic and political status of the

¹⁵¹ See Green & Sands, *supra* note 10.

¹⁵² See *id.*

¹⁵³ See Dunoff, *supra* note 6, at 254-55.

¹⁵⁴ See discussion *infra* Section 4.3.1.2.

participant.¹⁵⁵ The inquiry is even more complicated on a global scale since what was once merely a two-sided issue — the rights of polluters versus those of society — expands exponentially.¹⁵⁶

Accordingly, the analysis of the legal matrix for international emissions trading must begin with a recognition of the type of entitlement with which emissions trading is concerned. “[A]ny ‘pollution trading’ system requires the creation of a new form of property — the rights to be traded.”¹⁵⁷ Until the right to pollute is recognized for what it is — *a property right* — questions regarding who should have access to that right are meaningless. Any comprehensive international market scheme to protect the global commons, particularly one designed to limit GHG emissions, must indicate how entitlements will be allocated and provide for enforcement.¹⁵⁸ This amounts to the establishment of a property regime to regulate the global commons.¹⁵⁹ Once emissions trading rights have been defined and regulated according to a property framework, efficiency and equity interests can be promoted indefinitely through international emissions trading.

4.3.1.1. *The Normative Implications of Commodifying the Right to Pollute*

Identifying emission allowances as rights available on the free market has immense normative consequences. Environmental health has unquantifiable qualities that render the valuation of a pollution allowance virtually impossible, especially under a practically non-existent legal regime.¹⁶⁰ In areas of environmental regulation, however, where the optimal level of pollution is

¹⁵⁵ See discussion regarding the relative bargaining power of developed and developing nations *infra* Section 4.3.1.2.

¹⁵⁶ See Dunoff, *supra* note 6, at 254-55; Stewart & Wiener, *supra* note 3, at 108-09.

¹⁵⁷ Dunoff, *supra* note 6, at 254.

¹⁵⁸ See Stewart & Wiener, *supra* note 3, at 84. For a discussion of potential methods of allocation and concerns over enforcement, see *infra* Sections 4.3.1.2.-4.3.2.

¹⁵⁹ See Stewart & Wiener, *supra* note 3, at 84.

¹⁶⁰ For the argument that certain relationships, including the relationship between an individual and the environment, constitute an element of “personhood” and are, therefore, inalienable and should not be commodified, see Margaret Jane Radin, *Market-Inalienability*, 100 HARV. L. REV. 1849, 1903-08 (1987).

not zero, such as GHG emissions,¹⁶¹ the prospect of commodifying environmental quality appears less offensive.¹⁶²

By transferring the commodification issue to the international arena, the already problematic alienability of environmental quality becomes far more complex. This is due to the rather intangible, unconfined nature of global environmental degradation.¹⁶³ Robert W. McGee and Walter E. Block,¹⁶⁴ who advocate the complete privatization of pollution trading rights and reject current proposals based on legislatively-imposed limits as "market socialism,"¹⁶⁵ have conceptualized the problem as one of mere administrative nuisance.¹⁶⁶ They argue that the "tragedy of the commons" and concomitant externality problems could be quickly eradicated through the implementation of a system of full private property rights in natural entities such as lakes, streams, and the air.¹⁶⁷ By assigning these entities to private owners, they would be far less subject to exploitation.¹⁶⁸ McGee and Block go as far as to posit that, "[w]hile it may not be politically feasible to privatize the Pacific Ocean in the near future, it is certainly possible to privatize smaller bodies of water."¹⁶⁹ Unfortunately for McGee and Block, this questionably idyllic vision of the planet, severed at every corner by imaginary barbed wire, is unimaginable on the international level.¹⁷⁰

¹⁶¹ The benefits of activities that produce GHGs include "the social product of farming and commerce." Stone, *supra* note 39, at 449-50.

¹⁶² In response to Radin's ideas regarding the inalienability of relationships like environmental health, see *supra* note 160, Sunstein argues that the commodification of harmful conduct through an emissions trading system could actually have desirable preference-shaping effects by shifting the entitlement to clean air from the polluter to the public. See Sunstein, *supra* note 1, at 636 n.113.

¹⁶³ See *Developments*, *supra* note 12, at 1492.

¹⁶⁴ Robert W. McGee is a Professor at the W. Paul Stillman School of Business, Seton Hall University, and Walter E. Block is a Professor of Economics at the College of the Holy Cross.

¹⁶⁵ See Robert W. McGee & Walter E. Block, *Pollution Trading Permits as a Form of Market Socialism and the Search for a Real Market Solution to Environmental Pollution*, 6 FORDHAM ENVTL. L.J. 51, 52 (1994).

¹⁶⁶ See *id.* at 63-64.

¹⁶⁷ See *id.*

¹⁶⁸ See *id.*

¹⁶⁹ *Id.* at 64.

¹⁷⁰ McGee and Block argue that "[i]t is clear that the solution to saving animals from extinction would be to privatize them" and that larger marine

By arguing that a property rights regime governed by traditional concepts of nuisance will effectively answer to all questions of environmental justice under a “true” market system,¹⁷¹ McGee and Block neglect to consider that these legal fictions do not even exist in most areas of the globe. The law as it now stands is not equipped to deal with global-scale pollution of contemporary scope and magnitude.¹⁷² Consequently, their vision is not only “politically infeasible,” but suffers from the same sense of U.S. capitalistic superiority, which provoked a harsh and resistant response from developing nations at the Berlin Conference.¹⁷³

Furthermore, in postulating a system of purely private property rights that govern all environmental degradation, McGee and Block far too quickly dismiss many issues traditionally associated with environmental harm, which are especially acute in the area of global pollution. These issues include: (1) difficulties with the traceability of harms; (2) disputes regarding the various rights of the parties involved in these “private property” disputes caused by disparate legal regimes and differing concepts of justice; and (3) the problem of transaction costs.¹⁷⁴

Although the market system envisioned by McGee and Block represents an extreme scenario that would not likely be favored by developing nations or even most industrialized countries, there are less drastic possibilities for implementing an international emissions trading regime. If the efficiency and equity benefits of trading are taken at face value and accepted as preferable to pure CAC approaches that are stymied by centralization and outdated technology, policymakers can move towards designing an effective trading regime.

Such a system would combine uniform transnational standards for emissions reduction with market mechanisms to facilitate the growth of innovative environmental technologies and sustainable development. One commentator has noted that the development

mammals could be privately “protected” by “fenc[ing] off some larger areas [of bodies of water], perhaps by laser or sonar technology, so that animals from one sector would not travel onto another.” *Id.* at 66.

¹⁷¹ See *id.* at 58 n.24.

¹⁷² See *Developments*, *supra* note 12, at 1520-21; Stone, *supra* note 39, at 466.

¹⁷³ See discussion *supra* Section 3.

¹⁷⁴ See McGee & Block, *supra* note 166, at 67-76.

of market-based incentive techniques in environmental regulation is simply intelligent reform that will render policy more effective and efficient.¹⁷⁵ Thus, the most important equity issue remaining is not how to eliminate all signs of CAC to establish a functioning international trading regime, but rather how to allocate initial emission allowances to ensure that industrialized and developing countries alike have equal access to the benefits to be gleaned from that emissions market.

4.3.1.2. *Access to the Right to Pollute*

The choice of system for distributing pollution rights affects the access of developed and developing nations with respect to the benefits of an international trading regime.¹⁷⁶ For example, under the 1990 Amendments to the Clean Air Act, SO₂ allowances are allocated initially by source, according to a ratio of such source's emissions to the source's historical levels of fuel consumption.¹⁷⁷ One advantage to this historic fuel consumption approach is that the available data is fairly accurate.¹⁷⁸ This scheme is considered more equitable than allocating emissions allowances based purely on historic emissions levels because the latter scheme was conceived as rewarding historically "dirty" sources with extra allowances.¹⁷⁹

It is conceivable that similar reasons might suggest a historic fuel consumption approach for allocation of permits on the international level. One commentator, however, firmly believes that "initial pollution rights should be distributed based upon [a] per-capita emissions basis, with more rights or titles going to developing countries so that they may be re-sold to high per-capita polluters."¹⁸⁰ The equitable and administrative problems with

¹⁷⁵ See Wiener Statement, *supra* note 1.

¹⁷⁶ For a thorough review of all the possibilities for initial allocation of allowances, see Green & Sands, *supra* note 10, and Stewart & Wiener, *supra* note 3, at 110.

¹⁷⁷ See 42 U.S.C. §§ 7651c(a), 7651d(a)-(c) (1990); Thomas E. Skilton, *GATT and the Environment in Conflict: The Tuna-Dolphin Dispute and the Quest for an International Conservation Strategy*, 26 CORNELL INT'L L.J. 455, 492 (1993); Van Dyke, *supra* note 19, at 2712 n.31.

¹⁷⁸ See Van Dyke, *supra* note 19, at 2712 n.31 (citing Telephone Interview with Nancy Kete, Office of Policy Analysis and Review, EPA (Nov. 9, 1989)).

¹⁷⁹ See *id.* at 2712.

¹⁸⁰ Petricone Interview, *supra* note 56.

this population-based scheme, however, have not been overlooked. These problems include the difficulty in evaluating historic emissions against projected emissions when per-capita emissions in the developing world are increasing quickly.¹⁸¹ There may also be political objections to an initial distribution of pollution rights on the basis of population.¹⁸² Such considerations militate in favor of implementation of the more readily administered historic fuel consumption approach.¹⁸³ It remains questionable whether this approach would penalize poorer developing countries that have only been more productive in recent years.

Under the Clean Air Act, once the initial distribution levels and allotments have been determined, “[the government] leaves the task of redistribution to the private market. The [1990 a]mendment also employs a zero-revenue auction to distribute a small portion of the allowances and a zero-revenue direct sale to ensure that a supply of allowances will be available to new sources.”¹⁸⁴ Some commentators believe that an auction system should also govern the *initial* allocation of emissions rights under an international system.¹⁸⁵ By this approach, distribution of pollution allowances would be purely a function of the free market, with rights available to the highest bidder.¹⁸⁶

On the domestic level, auctioning of allowances theoretically promotes efficiency and deters hoarding because polluters will purchase no more allowances than necessary.¹⁸⁷ Grandfathering systems, on the other hand, present efficiency problems because they facilitate trading only through standard sales. Such a system enables polluters to hoard allowances for fear that these allowances will be unavailable in the future.¹⁸⁸ Again, it seems question-

¹⁸¹ See *id.*

¹⁸² See Bodansky, *supra* note 16, at 522 n.434; Stone, *supra* note 39, at 463.

¹⁸³ See *supra* notes 177-79 and accompanying text.

¹⁸⁴ Van Dyke, *supra* note 19, at 2714; see also 42 U.S.C. § 7651o(c)(6), (d)(3) (“The proceeds of any sale . . . shall be transferred . . . on a pro rata basis to the owners or operators of the affected units from whom the allowances were withheld No proceeds of any sale under this subsection shall be . . . treated for any purpose as revenue to the United States”).

¹⁸⁵ See Interview with Daniel Janzen, Professor of Biology, University of Pennsylvania, Phila., Pa. (Nov. 29, 1995).

¹⁸⁶ See *id.*

¹⁸⁷ See Van Dyke, *supra* note 19, at 2714 n.45.

¹⁸⁸ See *id.* at 2716.

able whether, on the international level, an auction system would truly prevent hoarding by richer nations, motivated by economically irrational political considerations, to the disadvantage of poorer, less politically savvy developing nations. This situation cannot be compared with the functioning of an auction under the Clean Air Act because, on an international scale, all the players do not "start[] off on an even playing field."¹⁸⁹

Auctions also create significant administrative expenses. In the United States, the Clean Air Act provides the EPA with a safety valve by giving the EPA Administrator the option to "provide for the conduct of sales or auctions . . . by nongovernmental agencies, groups, or organizations,"¹⁹⁰ thus effectively transferring transaction costs to private entities participating in the auction. On the international level, it is unlikely that private participants will be willing to assume the related costs. Further, it is hard to imagine how the various governmental actors would determine how to distribute administrative costs among them.¹⁹¹ Furthermore, these costs might provide additional deterrents to full participation by poorer developing nations.¹⁹²

Nonetheless, auctions may be more equitable at the domestic level because society owns the entitlement to clean air; charging polluters to pollute simply facilitates business transactions between the polluter buyers and public sellers.¹⁹³ Thus, an auction functions to establish a much-needed market price for society's right to enjoy clean air.¹⁹⁴ By this account, one reason attributed to the rejection of an auction system as the governing rule for initial allocation under the Clean Air Act may have been because Congress did not like the possibility of recognizing the right to pollute as a fully tradeable property right.¹⁹⁵

Unfortunately, although an auction may function more fairly within the United States, the equity of this arrangement is not as apparent on the international level. Between nations, the question

¹⁸⁹ *Id.* at 2717.

¹⁹⁰ 42 U.S.C. § 7651o(f).

¹⁹¹ See discussion surrounding conflicts experienced at the Berlin Conference negotiations *supra* Sections 3.2.-3.4.

¹⁹² See *id.*

¹⁹³ See Van Dyke, *supra* note 19, at 2720.

¹⁹⁴ See *id.*

¹⁹⁵ See *supra* notes 35-36 and accompanying text.

of who owns the right to pollute is complicated by the necessity of determining *which nation* holds that entitlement.¹⁹⁶ It also is unlikely that an auction for initial allocation will guarantee sufficient access to participation in order to sustain an active trading market. This problem is due to disproportionate political bargaining power between rich and poor nations. Additionally, distributional justice is in conflict with the two competing goals of environmental health and economic prosperity.¹⁹⁷

The preceding analysis has led some scholars to dismiss international emissions trading entirely, maintaining that it is administratively and politically incredible. For example, one commentator believes that “permits to emit carbon would rapidly accumulate in the richest nations, while the developing world would soon be in a position of having to try and buy back permits from the richest nations in order to develop [T]he result could be very regressive.”¹⁹⁸

Although it seems hasty to altogether dismiss the possibility of a successful, functioning international emissions trading regime, the above analysis illustrates how an auction system, more equitable in a competitive *domestic* market, would serve only to further polarize North-South economic disparity on a global scale.¹⁹⁹ This scenario directly contravenes one of the objectives of international emissions trading, the transfer of wealth and technology from North to South.

Thus, once again, the consequences of endowing the right to pollute with full legal status emerge. Ironically, if all of humanity presumptively owns the right to clean air, then those nations with the least available funds and political influence to purchase those rights from society must be endowed initially with artificial power

¹⁹⁶ See Stewart & Wiener, *supra* note 3, at 84.

¹⁹⁷ See Stone, *supra* note 39, at 471.

¹⁹⁸ Marchant, *supra* note 22, at 642 (quoting Michael Grubb, *The Greenhouse Effect: Negotiating Targets*, 66 INT'L AFF. 67, 82(1990)). Marchant, an associate with Kirkland & Ellis, Washington, D.C., makes this assessment in the context of trading between nations and private entities, and does not totally dismiss the feasibility of trading uniquely between nations. However, he goes on to predict that due to the necessity for periodic renegotiation of national emission quotas, nations will hesitate to sell any of their emission rights to another country. This hesitancy, he claims, is rooted in the difficulty that nation will have in bargaining for the previous quota which endowed it with surplus rights. See *id.* at 642 n.60.

¹⁹⁹ See *supra* notes 197-98 and accompanying text.

to facilitate access to those rights.²⁰⁰ Some commentators have suggested a multifaceted approach under which the initial allocation formula would incorporate elements of historic emissions and fuel consumption, along with other factors specially designed to account for the needs of developing countries.²⁰¹ This approach comports with the principal of "additionality" first enunciated in the Stockholm Declaration.²⁰² Recommendations 107 and 109 of the Declaration establish as an aspirational goal that environmental problems and needs "should not affect the flow of assistance," and more importantly, that such assistance should be sufficient to meet the heightened environmental requirements of those developing nations.²⁰³

One commentator suggests that an equitable formula should include consideration of the relative wealth of the nation, requiring greater emissions reductions on the part of wealthier countries.²⁰⁴ Distribution would be regularly reevaluated based on changes in wealth to guard against an unfair advantage for developing nations experiencing spurts in economic growth.²⁰⁵ A system initially distributing additional entitlements to poorer nations is far more equitable because it evens the playing field by furthering the goals of additionality.

4.3.2. *The Institutional Question: Who Should Create, Administer, and Police Rights to Pollute Under An International Emissions Trading Regime?*²⁰⁶

The other necessary component in the construction of a new property regime in international emissions trading is the establishment of a central organization to distribute, administer, and police the market.²⁰⁷ The sovereignty issues attached to the develop-

²⁰⁰ See Skilton, *supra* note 178, at 492.

²⁰¹ See *id.*

²⁰² See CALDWELL, *supra* note 39, at 66.

²⁰³ See Stockholm Declaration, *supra* note 132, at 109.

²⁰⁴ See Skilton, *supra* note 178, at 493.

²⁰⁵ See *id.*

²⁰⁶ For a discussion of the potential problems surrounding the creation of an international institutional body for the administration of a global emissions market, see Green & Sands, *supra* note 10.

²⁰⁷ See *id.* The subsidiary bodies of the FCCC have had considerable trouble coming to a consensus on an appropriate body to administer the implementation of the FCCC, even in the absence of the additional concerns

ment of such a transnational body have already been evaluated, with the conclusion that general principles of international environmental law, in conjunction with the traditional concept of *sic utere*, provide for general protection of participants on that ground.²⁰⁸ Therefore, the fundamental questions become the technical feasibility and the desired scope of such an institution.

Many commentators believe that there must be some centralization of offset record-keeping,²⁰⁹ as well as a centralized enforcement mechanism.²¹⁰ Not only will net emissions need to be monitored, but the system will also necessitate, both on the national and international levels, a series of central registries.²¹¹ Most are optimistic that such a system could be fully operational and efficient.²¹² Presently, the only potential obstacle to the development of such a body would be the “no credits” restriction of the JI pilot phase, which by its very nature prohibits such a creation.²¹³

Of greater concern is the ability of this central body to effectively enforce the rules of such a regime, a concern more acute for developing nations whose diminished bargaining power might lead to their being “sold out” by corrupt regimes who would profit from underpriced allowance sales and then withdraw from trading.²¹⁴ Petricone questions whether equitable enforcement is possible on an international scale,²¹⁵ while others believe that a system of temporary leases would solve the dilemma.²¹⁶

raised by crediting. Most of the conflict has centered on the AG13's discussion of the appropriate role for a “multilateral consultative process” (“MCP”). See *Report of the Meetings*, *supra* note 51.

²⁰⁸ See discussion *supra* Section 4.2.

²⁰⁹ See discussion of the utilization of a central registry for the EPA's banking strategies in the United States *supra* note 23 and accompanying text; for discussion of banking and the “no credits” restriction under JI, see *supra* note 80 and accompanying text.

²¹⁰ See Green & Sands, *supra* note 10; Petricone Interview, *supra* note 56.

²¹¹ See Stewart & Wiener, *supra* note 3, at 108.

²¹² See *id.* (“The additional administrative cost of establishing such a global ‘green’ SEC should, however, be substantially less than the cost savings and other benefits obtained by trading, and might be funded through a nominal charge levied on trades.”).

²¹³ See discussion *supra* Section 3.2.

²¹⁴ See Stewart & Wiener, *supra* note 3, at 109.

²¹⁵ See Petricone Interview, *supra* note 56.

²¹⁶ See Stewart & Wiener, *supra* note 3, at 109.

Even those commentators who are skeptical about the enforceability of an international trading regime, however, believe that the bargaining power of developing countries is improving, especially in environmental forums.²¹⁷

The interests of developed and developing nations alike are best served by subjecting an international trading regime to the rules of public international law.²¹⁸ As such, the next logical step is to delegate significant administrative and enforcement responsibilities to an international environmental body.²¹⁹ The participation of developing countries is imperative to the successful implementation of a global emissions trading regime.²²⁰ If these nations flex their bargaining muscle accordingly, any transnational institution administering that system will function both efficiently and equitably.

5. CONCLUSION

The conceptual consensus reached by the parties to the FCCC in Berlin, and the progress towards fulfilling the objectives of the Berlin Mandate over the last two years, should be taken as a positive step forward in the quest to implement an international emissions trading regime. Although the resistance of many developing nations to the full realization of a credit system and the consequent restrictions for the pilot phase of JI may be seen as a setback, they should be viewed as a reassuring sign that the poorer nations of the former Third World are making themselves heard.²²¹ The fight against *global* atmospheric degradation is,

²¹⁷ See *supra* text accompanying note 93; see also Petricone Interview, *supra* note 56 (“[I]n multinational negotiations . . . northern delegations are larger . . . and often better prepared, but there are fewer of them compared to developing world delegations. . . . I think the trend is for the developing country delegations to become more sophisticated and better organized on these issues.”).

²¹⁸ See discussion *supra* Section 4.2.1.

²¹⁹ See Dunoff, *supra* note 6, at 269 (“[A] global environmental body representing the interests of all parties involved is needed to provide the collective good of efficacious international environmental law.”). Miller suggests that some of the accounting and compliance functions may be assumed by a central “bank” such as the Global Environment Facility (“GEF”), the financial mechanism of the FCCC, established by the World Bank, the UNDP and the UNEP in 1991. Miller Interview, *supra* note 1.

²²⁰ See *supra* notes 104-05 and accompanying text.

²²¹ See *supra* notes 93, 218 and accompanying text.

after all, a *global* endeavor.

This resistance to crediting also illustrates that the developing nations understand some of the dangers associated with the idea of endowing the right to pollute with legal significance. Industrialized nations must continue to provide information to policymakers from developing countries regarding the technological, economic, and equity advantages to be gleaned from trading regimes and the benefits of plugging private actors into the equation. Latin American countries, such as Costa Rica, which stand to benefit tremendously in economic terms, have demonstrated their enthusiasm for these projects and can provide invaluable information to other developing countries. If these efforts are successful, the goals of the pilot phase will be realized and the year 2000 will see global consensus on the transition to crediting of GHG emission rights.

From there, there are immense possibilities for the extension of market mechanisms to other areas of global environmental regulation. It is possible that climate change became the primary vehicle for experimentation because it is simpler to justify enforcement for international environmental problems that tangibly affect everyone.²²²

Certainly, there are other environmental issues that affect citizens across the globe. Some commentators have suggested that trading regimes would effectively address issues like protection of endangered plants and wildlife and the disposal of hazardous waste.²²³ As early as 1968, before the EPA began experimenting with emissions reduction allowances, one scholar was already proposing the creation of a pollution rights market to control water pollution.²²⁴ Nearly thirty years later, the international community is more than ready for the full implementation of market mechanisms to avert global environmental degradation.

²²² See, e.g., Petricone interview, *supra* note 56 (noting the extreme effects of climate change on agriculture). Petricone also states that “[t]rade in endangered species or hazardous waste just doesn’t have the same universal ‘quality of life’ or economic effects.” *Id.* This second assertion is open to debate. See David Sohn & Madeline Cohen, Note, *From Smokestacks to Species: Extending the Tradeable Permit Approach From Air Pollution to Habitat Conservation*, 15 STAN. ENVTL. L.J. 405 (1996), and sources cited therein.

²²³ See Skilton, *supra* note 178, at 491.

²²⁴ See J. Dales, *Pollution, Property and Prices*, in MENELL & STEWART, *supra* note 21, at 384-85.

The compromises reached by the parties to the FCCC at Berlin in March 1995 illustrate that both the industrialized and developing nations are ready to take the next step towards incorporating market mechanisms into the regulation of global climate change. Given the relatively brief history of international environmental law and of significant political attention to the severity of global environmental degradation, these efforts at cooperation in the area of emissions trading should be viewed as auspicious and a sign of things to come. Thus, global emissions trading should be actively pursued as the ultimate goal at the end of the "no credits" phase of JI.

On January 17, 1997, the Clinton Administration released the U.S. Draft Protocol Framework ("Draft Protocol") containing proposals for the "framework compilation" to be compiled by the AGBM Chair before AGBM-6.²²⁵ These documents have been drawn up in preparation for the adoption of a new legal instrument at COP-3 in Kyoto in December 1997, to guide GHG reduction efforts into the twenty-first century.²²⁶ Article 6 of this Draft Protocol calls unequivocally for the implementation of an international emissions trading program for those Parties with emissions budgets, in conjunction with Joint Implementation projects for those Parties without emissions budgets,²²⁷ in meeting the goals of the FCCC.²²⁸

²²⁵ See U.S. Dept. of State, U.S. Draft Protocol Framework, Jan. 17, 1997 [hereinafter Draft Protocol]; *U.S. Proposal Pushes Climate Change Issues to Next Level*, OXY-FUEL NEWS, Jan. 27, 1997, available in LEXIS, News Library, Curnws File [hereinafter *U.S. Proposal*].

²²⁶ See U.S. Proposal, *supra* note 226. The essential elements of the U.S. Draft Protocol Proposal are binding targets to limit and reduce GHGs among developed countries, a medium-term time frame (2010 to 2020), flexibility in implementation, and participation by developing countries. See Draft Protocol.

²²⁷ See Draft Protocol, *supra* note 226, at art. 7.

²²⁸ Article 6.1 of the Draft Protocol states:

An Annex A or Annex B Party that is in compliance with its obligations under Article 3 (Measurement and Reporting) and that has in place a national mechanism for certification and verification of trades, may transfer to, or receive from, any Annex A or Annex B Party, any of its tonnes of carbon equivalent emissions allowed for a budget period, for the purpose of meeting its obligations under Article 2 [Emissions Budgets, providing for banking and borrowing of emissions].

Draft Protocol *supra* note 226, art. 6.1. Article 6.2 states that a Party may authorize private industry, NGOs, individuals, or government agencies,

The Parties to the FCCC therefore must begin negotiations in 1997, in anticipation of the development of the groundwork for such an international emissions trading regime at Kyoto, (1) to ensure that developing nations initially will receive excess pollution credits in accordance with the concepts of additionality and of sustainable development, and (2) to facilitate broad-based decision-making regarding distribution and enforcement in a fully operational international emissions trading regime.

amongst others, to participate in trading. *See id.* art. 6.2.12