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Reconsidering the National Market in Solid Waste: Trade-Offs in Equity, Efficiency, Environmental Protection, and State Autonomy

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RECONSIDERING THE NATIONAL MARKET IN SOLID WASTE: TRADE-OFFS IN EQUITY, EFFICIENCY, ENVIRONMENTAL PROTECTION, AND STATE AUTONOMY

KIRSTEN ENGEL[†]

In this Article, Professor Engel examines the current national market in solid waste. First, pointing to empirical data, she notes the uneven distribution of solid waste among states which resulted from this national market and points to specific demographic, geographic and environmental differences between net waste importing and net waste exporting states. Second, she notes how the United States Supreme Court has helped create this national market by striking down state barriers to out-of-state solid waste. Third, she argues that although the states cannot erect barriers to out-of-state waste Congress can enable them to do so under its Commerce Clause powers. Based on this recognition, she examines policy alternatives in light of four values: economic efficiency, protection of human health and the environment, state autonomy, and equity. Finally, balancing these four values, Professor Engel proposes that Congress pass legislation modeled on the Low-Level Radioactive Waste Policy Act. This legislation would enable states to enter interstate compacts, which would be responsible for the disposal of solid waste within a multi-state alliance and would have the authority to exclude waste generated outside the alliance. More importantly, the legislation would ease many of the problems and preserve many of the benefits created by the current national market in solid waste.

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[†]. Associate Professor, Tulane Law School. Brown University, B.A. 1983; Northwestern University School of Law, J.D. 1986. I would like to thank Marjorie Kornhauser, John Stick, Michael Collins, Brooke Overby, Keith Werhan, Adeno Addis, Robert Kuehn, Robert Fischman, Anthony D'Amato, Oliver Houck, Scott Saleska, James Donovan, and Jonathan Turley for their helpful comments on earlier drafts. Special thanks are extended to Scott Saleska for the statistical analysis of the empirical data contained in this Article. I would also like to thank Diana McKearney, William Rohring, Kristopher Hall, and Ronald Bounds for their research assistance.

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I. INTRODUCTION

To the dismay of many state and local governments struggling to dispose of the truckloads of garbage shipped in from outside their borders, the landmark case of *Philadelphia v. New Jersey*¹ is enjoying a revival. In its last four terms, the United States Supreme Court affirmed that case's holding by sustaining four dormant commerce clause² challenges to state or local laws regulating interstate commerce in waste.³ Although persuasive arguments can be made that the holdings in these recent cases were improper,⁴ the Court has

1. 437 U.S. 617 (1978).

2. Although the Commerce Clause of the U.S. Constitution is an affirmative grant to Congress "[t]o regulate Commerce . . . among the several States," U.S. CONST. art. I, § 8, cl. 3, the Court long ago asserted that this same power prohibits states from unduly burdening interstate commerce even in the absence of congressional action. *Cooley v. Board of Wardens*, 53 U.S. (12 How.) 299, 319 (1852); *Gibbons v. Ogden*, 22 U.S. (9 Wheat) 1, 211 (1824).

3. *C & A Carbone v. Town of Clarkstown*, 114 S. Ct. 1677, 1684 (1994); *Oregon Waste Sys. v. Department of Env'tl. Quality*, 114 S. Ct. 1345, 1354-55 (1994); *Fort Gratiot Landfill v. Michigan Dep't of Natural Resources*, 112 S. Ct. 2019, 2023-24 (1992); *Chemical Waste Management, Inc. v. Hunt*, 112 S. Ct. 2009, 2012-13 (1992).

4. Under an exceedingly generous interpretation, the Court's role under the dormant commerce clause can be justified as necessary to prevent states from engaging in economic protectionism or imposing costs upon unrepresented out-of-state interests. See Julian N. Eule, *Laying the Dormant Commerce Clause to Rest*, 91 YALE L.J. 425, 437-43 (1982) (stating that the Court's role is to prevent state legislatures from imposing burdens upon unrepresented out-of-state interests); Donald H. Regan, *The Supreme Court and State Protectionism: Making Sense of the Dormant Commerce Clause*, 84 MICH. L. REV. 1091, 1092 (1986) (stating that the Court's role is to prevent purposeful protectionism); Mark Tushnet, *Rethinking the Dormant Commerce Clause*, 1979 WIS. L. REV. 125, 131 (stating that the Court's role is to prevent state legislatures from imposing burdens upon unrepresented out-of-state interests). However, where a state is restricting the national market in order to become more self-sufficient in the disposal of its own waste or to shield itself from becoming a national repository for other states' garbage, as several of the states arguably were in the recent cases before the Court, neither of these justifications for judicial review would seem applicable. Although the judicial role has also been justified as necessary to enforce the value of free trade, a role that would justify judicial review in the recent waste cases, see, e.g., Henry P. Monaghan, *The Supreme Court, 1974 Term—Foreword: Constitutional Common Law*, 89 HARV. L. REV. 1, 17 (1974), the Court's application of the "per se rule of invalidity" to strike down the facially discriminatory state laws at issue in the recent cases goes beyond the weak "undue burden" test established by the Court to enforce the free trade interest in *Pike v. Bruce Church*, 397 U.S. 137, 142 (1970).

given no sign that it might be willing to soften its tough stance against state market barriers.

Nevertheless, the Court's determination that the Constitution requires a national free market in solid waste disposal⁵ does not bind Congress. Congress could exercise its affirmative power under the Commerce Clause to authorize the very state regulations struck down by the Court as violative of the dormant commerce clause,⁶ and the Court would be obliged to uphold such an authorization.⁷ Yet while Congress has mandated state or regional self-sufficiency in the disposal of radioactive waste⁸ and has strongly encouraged it with respect to hazardous waste,⁹ it has enacted no comparable legislation for solid waste.

An analysis of recent data presented for the first time in this Article suggests Congress should promptly address this issue. This analysis points to inequities in the distribution of solid waste between states.¹⁰ For example, data on the current distribution of solid waste show that waste flows from the more urbanized to the more rural states, and that the rural receiving states have lower per capita income averages and higher amounts of air pollution than waste-exporting states. Consequently, the distribution of solid waste through a national market exhibits, on the state level, similarities to the distribution of hazardous waste disposal facilities on the community level.¹¹ In both cases, waste is distributed more often in areas with

5. Cf. *Tyler Pipe Indus. v. Washington State Dep't of Revenue*, 483 U.S. 232, 265 (1987) (Scalia, J., dissenting) (questioning the constitutional legitimacy of the nontextual dormant commerce clause); Martin H. Redish & Shane V. Nugent, *The Dormant Commerce Clause and the Constitutional Balance of Federalism*, 1987 DUKE L.J. 569, 582-85 (same).

6. See *Northeast Bancorp, Inc. v. Board of Governors*, 472 U.S. 159, 174 (1985); *Prudential Ins. Co. v. Benjamin*, 328 U.S. 408, 430-31 (1946); see also *infra* text accompanying notes 98-102.

7. See, e.g., *C & A Carbone*, 114 S. Ct. at 1692 (O'Connor, J. concurring).

8. See Low-Level Radioactive Waste Disposal Act Amendments of 1985, Pub. L. No. 99-240, 99 Stat. 1842 (codified as amended in scattered sections of 42 U.S.C.); see also *infra* notes 265-83 and accompanying text.

9. Superfund Amendments and Reauthorization Act of 1986, 42 U.S.C. § 9604(c)(9) (1988).

10. See *infra* notes 56-66 and accompanying text; see also Appendix, Table 1.

11. Recent studies demonstrate that hazardous waste and other environmentally noxious facilities are disproportionately located in communities in which the residents are poor and belong to a racial minority. See U.S. GENERAL ACCOUNTING OFFICE, SITING OF HAZARDOUS WASTE LANDFILLS AND THEIR CORRELATION WITH RACIAL AND ECONOMIC STATUS OF SURROUNDING COMMUNITIES 1-2 (1983); COMMISSION FOR RACIAL JUSTICE, UNITED CHURCH OF CHRIST, TOXIC WASTE AND RACE IN THE UNITED STATES 13 (1987); ENVIRONMENTAL EQUITY WORKGROUP, U.S. ENVTL. PROTECTION

relatively poorer populations—areas that already are disproportionately saddled with other pollution burdens.¹²

This Article attempts to shape the parameters of future deliberations concerning the wisdom of congressional authorization of state barriers to interstate commerce in municipal solid waste. Preferring efficiency, free trade advocates would resist congressional abandonment of the national market in waste currently enforced by the courts.¹³ Consideration of the interstate waste trade in the legislative arena, however, opens up the possibility of promoting values other than free trade and with which free trade arguably conflicts. Consequently, even if the distribution of solid waste is economically more efficient under a national market, lawmakers may still prefer the imposition of state barriers on the national market if they find such barriers promote other, higher-ranked values.¹⁴ For example, the European Court of Justice recently upheld, on environmental grounds, a Belgian ban on the importation of solid waste from other European Community nations.¹⁵ Prior to authorizing similar

AGENCY, EPA 230-R-92-008, ENVIRONMENTAL EQUITY: REDUCING RISK FOR ALL COMMUNITIES 11-16 (1992).

12. In contrast to the findings made by the environmental justice movement concerning the siting of hazardous waste disposal facilities, the interstate transport of waste tends to flow from states with high minority populations to states with low minority populations. See *infra* text accompanying notes 61-62 and Appendix, Table 1. The academic literature spawned by the environmental justice movement tends to downplay race as the determining factor in the location of environmentally noxious facilities, however, and instead emphasizes the socioeconomic factors that drive the siting of such facilities in poor neighborhoods that are, or will become, populated by racial minorities. See ROBERT D. BULLARD, *DUMPING IN DIXIE: RACE, CLASS, AND ENVIRONMENTAL QUALITY* *passim* (1990); Vicki Been, *Locally Undesirable Land Uses in Minority Neighborhoods: Disproportionate Siting or Market Dynamics?*, 103 YALE L.J. 1383, 1385 (1994); Luke W. Cole, *Empowerment as the Key to Environmental Protection: The Need for Environmental Poverty Law*, 19 ECOLOGY L.Q. 619, 633-34 (1992); Richard J. Lazarus, *Pursuing "Environmental Justice": The Distributional Effects Of Environmental Protection*, 87 NW. U. L. REV. 787, 796 (1993); A. Dan Tarlock, *Environmental Protection: The Potential Misfit Between Equity and Efficiency*, 63 U. COLO. L. REV. 871, 872 (1992). This characterization is more consistent with the interstate distribution of solid waste.

13. See, e.g., Richard B. Stewart, *International Trade and Environment: Lessons From the Federal Experience*, 49 WASH. & LEE L. REV. 1329, 1338 (1991) ("Free trade in wastes should promote joint welfare for reasons similar to those that justify free trade in ordinary goods and services.").

14. See JOE B. STEVENS, *THE ECONOMICS OF COLLECTIVE CHOICE* 42 (1993) ("[T]he simplest answer to why Pareto efficiency isn't necessarily 'good' is that society may care, and indeed care greatly, about who benefits—and conversely, who does not benefit—when a good or service is produced and consumed.").

15. Case C-2/90, *Commission v. Belgium*, 1 C.M.L.R. 365, 397 (1993) ("The principle that environmental damage should as a priority be rectified at source—a principle laid down by Article 130r(2) EEC for action by the Community relating to the environ-

action by states within the United States, however, Congress and the public must understand the social values relevant to the manner in which solid waste is distributed and how different schemes for distributing waste either promote or hinder these values. Thus, the primary purpose of this Article is to provide such an understanding and thereby fill an existing gap in the current dialogue over congressional modification of the national solid waste market. A secondary purpose of this Article is to go a step beyond an analysis of the distributive schemes currently dominating the legislative agenda and to propose an alternative framework that allows Congress to balance the competing values implicated in any decision to regulate or not to regulate interstate commerce in solid waste.

A congressional decision to retain or alter the national market implicates four primary values: economic efficiency, protection of human health and the environment, state autonomy, and equity. Because none of the values is subject to a single definition or characterized by a single approach, it is necessary to break each down further and to analyze how the mechanism for distributing waste affects each. As this Article will show, the interpretation given to each criterion will affect whether it will be furthered by a given option for distributing waste. This Article concludes that considerable trade-offs accompany either a choice to retain the national market or to modify the market through the authorization of state import or export barriers.

While both policy options entail significant concessions, Congress is not limited to these two distributive schemes. Congress could instead adopt a compromise position that authorizes states to enter regional interstate compacts for the disposal of solid waste and thereby avoid the extreme trade-offs inherent in either the national market or state barrier approach. Congress used regional interstate compacts to solve the bitter interstate bickering over the distribution of the disposal of low-level radioactive waste,¹⁶ and the same approach would be effective in addressing the similar problems dominating the disposal of solid waste. Moreover, the regional interstate compact approach satisfies, at least to some degree, each of the values represented by the relevant criteria. Disposal of solid waste on a regional basis would preserve greater efficiency in the disposal of waste and, accordingly, market-facilitated approaches to

ment—means that it is for each region, commune or other local entity to take appropriate measures to receive, process and dispose of its own waste.”).

16. See *infra* text accompanying notes 265-84.

environmental protection, than would state waste import barriers. In addition, the regional approach would reduce the interstate inequities that result when some states are unfairly forced to shoulder fiscal and health burdens disproportionate to the volumes of solid waste they generate. For the same reasons that the regional compact approach furthers the value of equity, it also furthers the values inherent in state autonomy and the traditional and ethical approaches to environmental protection.

Part II of the Article discusses why solid waste is shipped for disposal in interstate commerce and why and how states are currently attempting to regulate or tax the disposal of out-of-state waste within their borders.¹⁷ Part III examines the four criteria by which the option to retain or change the status quo of solid waste distribution should be evaluated.¹⁸ Part IV applies these four criteria to four options for congressional action: Do nothing; authorize state waste import bans; authorize compensatory or unlimited discriminatory surcharges upon out-of-state waste; or authorize flow control laws. Part IV also discusses the trade-offs involved in adopting any one of the four options.¹⁹ Part V proposes a compromise solution, namely, Congress's authorization of regional interstate compacts with the authority to exclude waste generated in nonmember states.²⁰ Finally, the appendix compares various demographic, geographic, and economic statistics of net solid waste-importing and waste-exporting states and their state trading partners.²¹ The appendix also portrays the trade-offs that result from congressional adoption of any of the options for the distribution of waste discussed in this Article.²²

II. BACKGROUND

A. *The What, Where, and Why of Interstate Commerce in Solid Waste*

The generation of solid waste in the United States has increased steadily and shows no sign of abating. The 87.8 million tons generated in 1960 increased to 195.7 million tons in 1990 and is

17. See *infra* notes 23-97 and accompanying text.

18. See *infra* notes 98-251 and accompanying text.

19. See *infra* notes 252-263 and accompanying text.

20. See *infra* notes 264-297 and accompanying text.

21. See *infra* Appendix, Tables 1, 2, and 3.

22. See *infra* Appendix, Table 4.

expected to reach a total of 222 million tons by the year 2000.²³ Municipal solid waste consists of ordinary household garbage; commercial solid wastes from restaurants, motels, stores, schools, hospitals, and other businesses; and nonhazardous industrial wastes.²⁴ Despite its innocuous label, municipal solid waste often contains toxic materials. For instance, many household products—such as household cleaners, automotive products, paint thinners, and pesticides—contain toxic constituents that would force their regulation as hazardous wastes were they generated by industry.²⁵ Some of the most common products found in municipal solid waste are also the most hazardous: Appliance batteries, fluorescent light bulbs, and thermometers contain mercury; steel-can solder and car batteries contain lead.²⁶

Most municipal solid wastes are disposed of in landfills, though increasingly larger portions are recycled or incinerated.²⁷ Groundwater contamination from toxic "leachate," the rainwater that seeps through landfills,²⁸ presents the primary environmental threat from solid waste landfills. Federal environmental regulations now

23. OFFICE OF SOLID WASTE, U.S. ENVTL. PROTECTION AGENCY, EPA/530-R-92-019, CHARACTERIZATION OF MUNICIPAL SOLID WASTE IN THE UNITED STATES: 1992 UPDATE ES-3 (July 1992).

24. See 40 C.F.R. §§ 60.51a, 257.2 (1993).

25. Solid Waste Disposal Facility Criteria, 53 Fed. Reg. 33,314, 33,318 (1988) (to be codified at 40 C.F.R. pts. 257, 258). Under federal law, municipal solid wastes are a subset of the universe of solid wastes regulated under Subtitle D of the Resource Conservation and Recovery Act (RCRA), 42 U.S.C. §§ 6941-6949a (1988). Subtitle C of RCRA, 42 U.S.C. §§ 6921-6939b (1988), defines and regulates hazardous wastes that consist of specifically listed wastes or wastes that exhibit the characteristics of flammability, corrosiveness, reactivity, or toxicity. 42 U.S.C. § 6921 (1988); 40 C.F.R. §§ 261.20-261.24 (1993). Only hazardous wastes generated by commercial industry in amounts greater than 100 kilograms per month are subject to the extremely stringent Subtitle C "cradle to grave" treatment, storage, and disposal regulations. 42 U.S.C. § 6921(d) (1988); 40 C.F.R. § 261 (1993).

26. S. REP. No. 301, 102d Cong., 2d Sess. at 4-5 (1992). Both mercury and lead are contaminants that, if present in sufficiently high concentrations, render a waste hazardous under EPA regulations. See 40 C.F.R. § 261.24 (1993).

27. In 1990, 66.6% of all municipal solid waste was disposed of in landfills, while 15.2% was disposed of in incinerators that produced energy as a byproduct (also known as "energy recovery facilities") and 14.9% was recycled. U.S. ENVTL. PROTECTION AGENCY, *supra* note 23, at 3-2 (Table 24).

28. While the leachate from municipal solid waste disposal facilities is less toxic than that from hazardous waste disposal facilities, the threat of contamination is still significant because the volume produced is so much greater. ROBERT V. PERCIVAL ET AL., ENVIRONMENTAL REGULATION: LAW, SCIENCE, AND POLICY 203-04 (1992).

govern municipal solid waste landfills,²⁹ although a history of neglect has resulted in twenty percent of the nation's most toxic Superfund sites being former municipal landfills.³⁰ Nevertheless, despite the many hazardous products that are disposed of in municipal landfills, these regulations are significantly less stringent than those applicable to hazardous waste landfills.³¹ The primary environmental threat from incinerators is toxic air pollutants.³² Air pollution regulations govern municipal incinerators, and the toxic ash they generate is now regulated as a hazardous waste.³³ In addition to the ever-present environmental risks, the noise and truck traffic that accompany disposal operations render municipal waste disposal facilities akin to public nuisances.³⁴

29. See 40 C.F.R. §§ 257-258 (1993). Prior to federal regulation, solid waste landfills were subject to state regulation. However, the quality and comprehensiveness of state regulation varied widely. See Solid Waste Disposal Facility Criteria, 56 Fed. Reg. 50,928, 50,993-50,994 (1991) (to be codified at 40 C.F.R. pts. 257, 258).

30. Twenty-two percent of the 850 sites on the Superfund National Priorities List in 1986 were formerly municipal solid waste landfills. Solid Waste Disposal Facility Criteria, 53 Fed. Reg. 33,314, 33,319 (1988) (to be codified at 40 C.F.R. pts. 257-58). According to an EPA survey reported in 1988, more than 25% of those landfills with ground-water monitoring systems were reported to be in violation of state environmental regulations. *Id.*

31. Solid Waste Disposal Facility Criteria, 53 Fed. Reg. 33,318 (1988) (to be codified at 40 C.F.R. pts. 257, 258). EPA regulations establish standards for the siting, design, operation, closure, and financial assurance of municipal landfills. A few of the items on which the municipal standards are less stringent than the hazardous waste landfills are the presence of an exemption for small landfills (receiving less than 20 tons per day and located in low rainfall areas), the option of placing ground-water monitoring receptors up to 150 feet from a landfill (thus allowing 150 feet of ground-water contamination), and the "grandfathering" of the poor design and location aspects of existing facilities. Perhaps most importantly, several of the municipal regulations are self-implementing, or effective without regulatory oversight. See 40 C.F.R. §§ 258.1-258.7 (providing for self-implementation of design, ground-water monitoring, and other criteria in states lacking federal approval); Solid Waste Disposal Facility Criteria, 56 Fed. Reg. 50,978, 50,993-94 (1991) (to be codified at 40 C.F.R. pts. 257, 258) (explaining self-implementing requirements); see also Kirsten Engel, *Environmental Standards as Regulatory Common Law: Toward Consistency in Solid Waste Regulation*, 21 N.M. L. REV. 13, 13 n.5 (1990) (noting that the self-implementing nature of EPA's municipal solid waste landfill regulations make them less stringent than the agency's hazardous waste regulations).

32. See 40 C.F.R. §§ 60.50a-60.59a (1993) (stating standards of performance for air emissions from municipal waste combustors).

33. *City of Chicago v. Environmental Defense Fund*, 114 S. Ct. 1588, 1591 (1994) (holding that ash generated by waste-to-energy facilities must be disposed of at permitted hazardous waste disposal facilities if found sufficiently toxic under EPA's hazardous waste toxicity characteristic).

34. See, e.g., Margaret A. Walls & Barbara L. Marcus, *Should Congress Allow States to Restrict Waste Imports?*, RESOURCES, Winter 1993, at 7.

According to recent estimates, states presently export an estimated 15 million tons of municipal solid waste for disposal in other states. Between 1990 and 1992, interstate shipment of waste grew by 4 million tons—an increase of twenty-five percent.³⁵ Although all states except Hawaii engage in interstate commerce in waste, approximately half of the states are either net waste exporters or net waste importers.³⁶ The exports and imports of the remaining states cancel each other out so that they are neither net waste importers nor net waste exporters. The largest waste exporters are New York and New Jersey. In 1992, the net exports of these two states exceeded 6 million tons, or thirty-four percent of the total quantity of waste that travels in interstate commerce.³⁷ In the same year, the net imports of solid waste by Pennsylvania, Ohio, Indiana, Illinois, and Virginia each exceeded one million tons.³⁸

Waste moves in interstate commerce for several reasons. The first reason is cost. The nation's largest waste-exporting states spend far less disposing of waste out-of-state than they would disposing of the waste in-state.³⁹ Because the technological costs of waste disposal are relatively fixed, lower tipping fees⁴⁰ in out-of-state disposal facilities are mostly attributable to external factors such as real estate values⁴¹ and the facility's environmental controls.⁴² Lax

35. *Id.* Thus, although the amount of solid waste exported is still a fraction of the total amount of waste generated—approximately 13%—the amount is rapidly increasing.

36. According to a recent report, 16 states are net municipal solid waste importers, 12 states (including the District of Columbia) are net exporters, and 23 states are neither net importers nor net exporters. Edward Repa, *Interstate Movement of Solid Waste—1992 Update*, WASTE AGE MAGAZINE, Special Report 1993, tbl. ("State Imports and Exports of Municipal Solid Waste (1992)").

37. *Id.* This figure excludes the amount of waste both states ship to Ontario, Canada.

38. *Id.*

39. JAMES E. MCCARTHY, CONGRESSIONAL RESEARCH SERVICE, CRS ISSUE BRIEF: SOLID WASTE: RCRA REAUTHORIZATION ISSUES IN THE 103D CONGRESS 8 (Updated July 7, 1993) (stating that disposal costs range from \$11 to \$12 per ton in parts of the Midwest and Southwest, to more than \$100 a ton in the Northeast, and that waste can be transported long distances for as little as \$50 per ton); Walls & Marcus, *supra* note 34, at 7 (observing that even with transportation costs, it remains cheaper for New Yorkers to dispose of solid waste in Indiana, where the tipping fee is around \$21 per ton, as opposed to \$150 per ton at New York's Fresh Kills landfill).

40. Tipping fees are the fees charged for the disposal of waste by owners and operators of municipal waste incinerators and landfills. See, e.g., *C & A Carbone v. Town of Clarkstown*, 114 S. Ct. 1677, 1680 (1994).

41. "In midwestern states, the greater availability and lower cost of land" significantly lower the costs of landfill use. Walls & Marcus, *supra* note 34, at 7.

42. See, e.g., S. REP. No. 301, 102d Cong., 2d Sess. 74 (1992) ("One of the reasons that long distance waste transport is economical is because many importing landfills currently operate without controls—unlined and without groundwater monitors—which keeps their

environmental controls are particularly important: According to a congressional report, if landfills that currently accept out-of-state waste were replaced by facilities with state-of-the-art environmental controls, the tipping costs would increase five times or more.⁴³

Second, waste may be transported for disposal in interstate commerce because of a lack of available landfill space in the state in which it is generated. The Environmental Protection Agency (EPA) estimates that of the 6,000 municipal landfills operating in 1986, seventy-five percent will be closed by the year 2002.⁴⁴ These landfills will close either because they have reached capacity⁴⁵ or because they are unable to meet more stringent environmental standards.⁴⁶ Only a small percentage of the landfills that close will be replaced.⁴⁷ Failure to site new facilities is generally attributed to the "not in my backyard," or NIMBY, syndrome.⁴⁸ Although often

disposal costs low."); *Transportation and Hazardous Materials Municipal Solid Waste Flow Control, Hearing Before the Subcomm. on Transportation and Hazardous Materials, House Comm. on Energy and Commerce*, 104th Cong., 2d Sess. (1993) (Statement of P. L. Warner, Minnesota Pollution Control Agency) (testifying that landfills located outside Minnesota have artificially low tipping fees because they do not provide for environmental protection or future cleanup costs to the same extent as facilities located within the state).

43. S. REP. No. 301, 102d Cong., 2d Sess. 74 (1992).

44. *Interstate Transport of Solid Waste: Hearings Before the Subcomm. on Transportation and Hazardous Materials of the Comm. on Energy and Commerce*, 102d Cong., 1st Sess. 80 (1991) [hereinafter *Interstate Transportation of Solid Waste*] (Statement of Don R. Clay, Assistant Administrator for Solid Waste and Emergency Response, U.S. EPA); see also S. REP. No. 301, 102d Cong., 2d Sess. 5 (1992) ("[O]ver 80 percent of the landfills that were operating in 1988 will close in the next 20 years."). But see Jeff Bailey, *Waste of a Sort; Curbside Recycling Comforts the Soul, But Benefits are Scant; Myths Help Fuel Programs That Turn Out to Cost More Than They Deliver; Legacy of the Garbage Barge*, WALL ST. J. Jan. 19, 1995, at A1, A8 (pointing to EPA research that suggests policy makers have overstated the so-called "landfill crisis").

45. See, e.g., 56 Fed. Reg. 50,978, 50,980 (1991) (indicating that 45% of solid waste landfills were expected to have reached capacity by 1991).

46. See Linda E. Christensen & Sean Murphy, *The Future of Landfills*, 27 MD. BAR J. 8, 10 (1994).

47. Margaret A. Walls & David Edelstein, *Dirty Words: Regional Conflicts in the Interstate Transport of Municipal Solid Waste* 11 (1992) (manuscript on file with author) (stating that between 1986 and 1991, 130 landfills in New York closed while only 18 were opened or expanded; over that same period, 22 landfills were closed in Indiana and 15 new ones were opened).

48. See NATIONAL SOLID WASTES MANAGEMENT ASS'N, SPECIAL REPORT: INTERSTATE MOVEMENT OF MUNICIPAL SOLID WASTE 2 (Feb. 1992) (stating that NIMBYism is one major reason some areas have inadequate disposal capacity); MCCARTHY, *supra* note 39, at 8 (explaining methods by which states with adequate disposal capacity are trying to prevent others from using it); Edward Walsh et al., *Backyards, NIMBYs, and Incinerator Sitings: Implications for Social Movement Theory*, 40 SOC. PROB. 25, 27 (1993). Due to required engineering aspects of all landfills, the failure to site new facilities has little to do with geographic location. See, e.g., 56 Fed. Reg.

derided, the NIMBY syndrome is in fact a complex phenomenon. While some studies claim that NIMBY is motivated by selfishness and fear,⁴⁹ others contend that it is driven by considerations of equity⁵⁰ or genuine concerns over risks to community health ignored by the political process.⁵¹ Whatever the cause, those who block the siting of new facilities will eventually "free ride" off of the landfill space remaining in other states.⁵²

Finally, waste may be shipped in interstate commerce simply for convenience. An out-of-state facility is often located closer to the waste generation site than an in-state facility.⁵³ Because several major metropolitan areas are located on borders, movement of waste out-of-state may simply be the most convenient option for the residents of those areas.⁵⁴ Recently, there has been a trend toward

51,009 (1991) (required landfill liner "designed to be protective in all locations, including poor locations"). Although the new municipal solid waste landfill regulations contain location restrictions, they are minimal. Landfills must meet specific requirements to be located near airports, floodplains, wetlands, and unstable areas. See 40 C.F.R. § 258.10-15 (1993).

49. Scholars are sharply divided over whether the NIMBY syndrome constitutes social irresponsibility or reasonable concern for genuine risks to community health and welfare. Several condemn the NIMBY syndrome as selfish and costly to society, even if it is a rational response to feelings of community powerlessness. See DAVID MORELL & CHRISTOPHER MAGORIAN, *SITING HAZARDOUS WASTE FACILITIES: LOCAL OPPOSITION AND THE MYTH OF PREEMPTION* 7 (1982); CHARLES PILLER, *THE FAIL-SAFE SOCIETY: COMMUNITY DEFIANCE AND THE END OF AMERICAN TECHNOLOGICAL OPTIMISM* 16-36 (1991); Orlando E. Delogu, "NIMBY" is a National Environmental Problem, 35 S.D. L. REV. 198, 207-08 (1990).

50. See Robert D. Benford et al., *In Whose Backyard?: Concern About Siting a Nuclear Waste Facility*, 63 SOC. INQUIRY 30, 44 (1993) (arguing that strength of individual opposition to a proposed facility siting depends upon the amount of personal benefits the individual stands to gain); Denis J. Brion, *An Essay on LULU, NIMBY, and the Problem of Distributive Justice*, 15 ENV'T AFF. 437, 471-78 (1988) (explaining the nature of a neighbor's land in elements and measure of value).

51. See Daniel J. Fiorino, *Environmental Risk and Democratic Process: A Critical Review*, 14 COLUM. J. ENVTL. L. 501, 517 (1989); see also Michael E. Kraft & Bruce B. Clary, *Citizen Participation and the NIMBY Syndrome: Public Response to Radioactive Waste Disposal*, 44 W. POL. Q. 299, 324 (1991) (proposing that government share further information regarding the risks of nuclear waste and local repository sitings to encourage public participation in siting decisions).

52. Walls & Edelstein, *supra* note 47, at 10-11 (stating that because administrative, legal, time, and public hearing costs are sustained by the host community, shipping waste for disposal to other states or other communities successfully results in avoiding these costs).

53. S. Rep. 301, 102d Cong., 2d Sess. 73-74 (1992).

54. A few of the cities that utilize out-of-state facilities in part for this reason are New York, Philadelphia, Washington, Chicago, St. Louis, Kansas City, and El Paso. Memorandum from James E. McCarthy et al., Environmental and Natural Resources Policy Division, to Senate Env't. and Public Works Comm. 2 (July 12, 1990) (on file with

the regionalization of waste disposal that may lead to the use of one state's landfill or waste-to-energy facility by residents in contiguous states.⁵⁵

B. Statistics Characterizing Net Waste-Importing and Waste-Exporting States

Solid waste is primarily exported from states in the northeast to states in the midwest.⁵⁶ In addition, there is anecdotal evidence that waste is exported from northeastern states to western states such as New Mexico.⁵⁷ Population density often distinguishes waste-exporter and waste-importer states. A statistical analysis of the top ten net importer states and the top ten net exporter states, together with their waste trade partner states (not including Washington, D.C.),⁵⁸ demonstrates that, on average, waste importers have a

author).

55. NATIONAL SOLID WASTES MANAGEMENT ASS'N, *supra* note 48, at 2.

56. For example, five of the nation's top 10 net municipal solid waste-exporting states are located in the northeast, while 5 of the top 10 net waste-importing states are located in the midwest. New York and New Jersey export over a third of the municipal solid waste that moves in interstate commerce. *See infra* Appendix, Table 2. The data in Table 2 was compiled from the following sources: U.S. DEP'T OF COMMERCE, BUREAU OF THE CENSUS, STATISTICAL ABSTRACT OF THE UNITED STATES 1993 28-29, 30-31, 217, 468, 471 (13th ed. 1993) (giving the following information by state: population per square mile, land area, total resident population, resident population by race, income per capita, percent of resident population below the poverty level); U.S. ENVTL. PROTECTION AGENCY, CHARACTERIZATION OF MUNICIPAL SOLID WASTE IN THE UNITED STATES: 1992 UPDATE 5 (1992) (estimating that the average amount of municipal solid waste generated daily per person in the United States was 4.3 lbs. in 1990); U.S. ENVTL. PROTECTION AGENCY, 1991 TOXIC RELEASE INVENTORY (1991) (listing total amount of releases of toxic chemicals to air and water by state); Repa, *supra* note 36 (describing net imports and exports of municipal solid waste in millions of tons per year by state).

57. Elizabeth Hudson, *Proposed Landfill Incenses New Mexico Town: Residents Fear East Coast Garbage Will Bury Serenity and Spectacular Scenery*, WASH. POST, May 31, 1989, at A3 (identifying a small New Mexico town as the proposed site of the nation's largest landfill receiving waste from East Coast cities); *see also Interstate Transportation of Solid Waste*, *supra* note 44, at 299 (1991) (statement of Allen Hershkowitz, Senior Scientist at Natural Resources Defense Council) ("New Mexico and other southwestern states seem particularly vulnerable to unprecedented mega-landfill schemes . . ."); *id.* at 18 (statement of Hon. Dave McCurdy, Congressman from Oklahoma) (asserting that Oklahoma is a target of proposals to build large landfills for the purpose of importing out-of-state waste).

58. There are a total of 16 net importing and 12 net exporting states. Because the amounts of waste imported and exported from the net importing and exporting states below the top 10 were small, the comparison of importers to exporters was limited to only the top 10 net importers and net exporters. The top 10 net importing states and the amount of waste they imported in 1992 in millions of tons are: Pennsylvania (3.3); Illinois (1.8); Ohio (1.5); Indiana (1.4); Virginia (1.4); West Virginia (0.8); Oregon (0.6); Kansas (0.5); New Hampshire (0.3); and Wisconsin (0.3). The top 10 net exporting states

population density of 173 persons per square mile less than their export partners.⁵⁹ Differences in waste density after trade show a similar trend, with waste density in importer states about 50 tons per square mile less than in waste-exporter states.⁶⁰

Waste also moves in interstate commerce from states with higher resident per capita incomes to states with lower resident per capita incomes. On average, the annual per capita income of residents in waste-importer states is \$1,170 less than in exporter states.⁶¹ Poverty levels may also be slightly greater in waste-importer states relative to exporters, but the difference is not statistically significant.⁶² Interestingly, given the more rural nature of waste-importing states, waste importers also appear to suffer greater environmental burdens in other forms as well, at least in terms of the amount of air pollution and possibly the amount of water pollution.⁶³

Finally, in contrast to what might be expected from the conventional wisdom on environmental inequities,⁶⁴ this analysis does not provide any evidence that racial minorities endure a greater solid waste burden, at least when statistics are aggregated at the state level.

(including the District of Columbia) and the amount of waste they exported during 1992 in millions of tons are: New York (3.7); New Jersey (2.6); Missouri (1.1); Washington (0.6); District of Columbia (0.6); Rhode Island (0.5); Texas (0.1); Michigan (0.1); Massachusetts (0.1); and Idaho (0.1). The table showing 114 state-to-state pairs of importer and exporter states constitutes a comparison between each of the 10 net importer and the 10 net exporter states and each of its importer or exporter state partners. With a few exceptions, the partner state was itself a net importing or net exporting state. See *infra* Appendix, Table 2.

59. See *infra* Appendix, Table 1. Data shown on Table 1 were compiled from the data shown on Tables 2 and 3.

60. See *infra* Appendix, Table 1. This statistic is based upon the admittedly unrealistic assumption that the waste disposed of in a state is distributed evenly across the entire land mass. The distribution of waste is, of course, concentrated in discrete disposal facilities which are themselves distributed in an unequal fashion across the landscape. Nevertheless, considering that there are no data available on the actual distribution of waste disposal facilities, this statistic, together with the statistic on average population density, provides the closest indication we have that waste flows in interstate commerce from smaller, more densely populated states to larger, more sparsely populated states.

61. See *infra* Appendix, Table 1.

62. See *infra* Appendix, Table 1.

63. See *infra* Appendix, Table 1. The difference in water pollution was not quite statistically significant at the 95% confidence level. The source of this data is the Toxic Release Inventory (TRI), a database administered by the Environmental Protection Agency and mandated by the Emergency Planning and Community Right to Know Act, 42 U.S.C. § 11001-11050 (1988). TRI data shows total releases of toxic chemicals to environmental media—including air, water, and soil—by state. 42 U.S.C. § 11023(g) (1988).

64. See *supra* note 11.

In fact, waste-importer states had a significantly lower percentage of minorities than waste exporters (about three percentage points less).⁶⁵

These findings show that municipal solid waste transported in interstate commerce seeks the path of least resistance, flowing toward more rural states where the resident income levels are comparatively lower than the state in which the waste originated and where the resident population is already burdened with comparatively higher levels of air pollution. These nationwide findings are similar to the statewide findings made with respect to the placement of solid and hazardous waste landfills, except as to the role concentrations of racial minorities play in placement. Studies show that these facilities are disproportionately located in poorer and more rural neighborhoods.⁶⁶

C. *The Fate of State Barriers to Interstate Commerce in Waste Under the Dormant Commerce Clause*

1. The Impact of *Philadelphia v. New Jersey*

Since 1978, the fate of state barriers to interstate commerce in waste has been governed by the Court's pronouncements in *Philadelphia v. New Jersey*.⁶⁷ Prior to 1978, state regulation of interstate commerce in articles noxious to human health (disease-infested rags, livestock, and alcoholic beverages) was considered immune to Commerce Clause scrutiny under the so-called "quarantine exemption."⁶⁸ In *Philadelphia v. New Jersey*, the Court distinguished garbage from such articles on the basis that, unlike the solid waste banned from New Jersey's landfills, the articles at issue in the quarantine cases endangered human health through their very movement, intrastate as well as interstate.⁶⁹ The Court's about-face seems to have been based not on this dubious distinction,⁷⁰ but on

65. See *infra* Appendix, Table 1.

66. See *supra* note 12.

67. 437 U.S. 617 (1978).

68. See, e.g., *Asbell v. Kansas*, 209 U.S. 251 (1908) (diseased livestock); *Reid v. Colorado*, 187 U.S. 137 (1902) (diseased livestock); *Bowman v. Chicago & Northwestern Ry. Co.*, 125 U.S. 465 (1888) (alcoholic beverages).

69. *Philadelphia*, 437 U.S. at 628-29.

70. The Court's distinction in *Philadelphia* between solid waste, which it held to be subject to the dormant commerce clause, and the noxious items at issue in the quarantine cases, which it held exempt from the dormant commerce clause, is as questionable now as it was then. New Jersey's law applied to "putrescible materials," which are certainly as noxious as the alcoholic beverages successfully banned from interstate commerce under the quarantine exception. *Id.* at 619 n.2. Since *Philadelphia*, the Court has extended the

the view that a national market in waste disposal options was necessary to address the problem, shared by all states, of the dwindling supply of landfill space. According to the Court, only by assuring the availability of a national market for unused space could any state be secure, now or in the future, from the hazards associated with a lack of safe disposal options.⁷¹

Juxtaposed against these insurance-like advantages of the national market in waste disposal, however, are the distinct advantages of state regulatory barriers to interstate commerce in solid waste. Prior to the Supreme Court's dormant commerce clause waste decisions, states implemented three types of barriers to interstate commerce: import bans on out-of-state waste, discriminatory surcharges on out-of-state waste, and flow control laws.⁷² Each type of regulation was designed to give a locality greater control over waste management, by reducing the volume of waste imported from outside the state, by requiring compensation for disposal costs attributable to out-of-state wastes, or by channeling waste generated in-state to locally designated disposal facilities.

Nevertheless, because the Court found that these laws incorporate a facial discrimination against interstate commerce, they each fell victim to the Court's strict scrutiny test. Under this test, facially discriminatory laws are "virtually per se" invalid.⁷³ States may rebut this presumption only by demonstrating the absence of a non-

dormant commerce clause to state regulation of hazardous waste, thus eliminating any viable distinction between the articles once subject to the quarantine exception and those now subject to the dormant commerce clause. See *Chemical Waste Management, Inc. v. Hunt*, 112 S. Ct. 2009, 2012-13 n.3 (1992).

71. *Philadelphia*, 437 U.S. at 629.

72. See Bruce J. Parker, *Federal/State Issues Under RCRA* (National Solid Waste Management Association), Jan. 1992, at 1-14. (compiling state laws excluding, limiting, or burdening the importation of out-of-state waste); Walls & Marcus, *supra* note 34, at 7-8.

73. *Philadelphia*, 437 U.S. at 624 ("[W]here simple economic perfectionism is effected by state legislation, a virtual per se rule of invalidity has been erected."). In contrast, under the test announced in *Pike v. Bruce Church*, 397 U.S. 137 (1970), when the statute is found to be neutral on its face, the law will be upheld unless it imposes an undue burden upon interstate commerce that is "clearly excessive" in relation to its local benefits. *Id.* at 142. The determination that statutes which facially discriminate should be distinguished for Commerce Clause purposes from statutes which are facially neutral originated in *Welton v. Missouri*, 91 U.S. 275, 282-83 (1875) (invalidating a regulation requiring only out-of-state salesmen to obtain a license to sell goods in Missouri). See Vincent Blasi, *Constitutional Limitations on the Powers of States to Regulate the Movement of Goods in Interstate Commerce*, in *COURTS AND FREE MARKETS* 174, 180 (Terrance Sandalow & Eric Stein eds., 1982) ("The anti-discrimination principle . . . has been the one constant element in all of the doctrinal reformulations that have been undertaken since [*Welton*].").

discriminatory alternative to attain the state's objective.⁷⁴ As with most facially discriminatory laws,⁷⁵ states have had trouble demonstrating a lack of alternatives to facial discrimination against interstate commerce in waste.⁷⁶ Thus, excepting the question whether the Court's holdings apply to state barriers that affect only public disposal facilities,⁷⁷ the invalidity of state barriers to interstate commerce in waste affecting private operators is now settled.

74. *Oregon Waste Sys. v. Department of Envtl. Quality*, 114 S. Ct. 1345, 1352 (1994). Outside the waste cases, the Court has sometimes articulated the standard slightly less stringently. See, e.g., *New Energy Co. v. Limbach*, 486 U.S. 269, 274 (1988) (holding that a state law that clearly discriminates against interstate commerce is unconstitutional "unless the discrimination is demonstrably justified by a valid factor unrelated to economic protectionism").

75. In only one case was the state able to rebut the presumption against facially discriminatory statutes. See *Maine v. Taylor*, 477 U.S. 131, 148-151 (1986) (finding that Maine baitfish are free of diseases of baitfish captured outside the state, thus justifying Maine's import ban upon out-of-state baitfish); Michael E. Smith, *State Discrimination Against Interstate Commerce*, 74 CAL. L. REV. 1203, 1204 (1986) ("The nub of the matter is that discriminatory regulations are almost invariably invalid, whereas nondiscriminatory regulations are much more likely to survive.").

76. See *infra* notes 78-97 and accompanying text.

77. Under the market participant exception to the dormant commerce clause, benefits created by the state through public funding are generally exempt from the dormant commerce clause. See e.g., *Reeves, Inc. v. Stake*, 447 U.S. 429, 440 (1980) (holding that state preference for in-state cement purchasers does not violate dormant commerce clause where state manufactures and sells the cement); *Hughes v. Alexandria Scrap Co.*, 426 U.S. 794, 809-10 (1976) (holding that state auto-scrap purchasing scheme giving preference to in-state scrap dealers does not violate dormant commerce clause where state merely participates in the market as a purchaser). Although the Supreme Court has expressly side-stepped the issue of whether a state can restrict to state residents access to publicly-owned landfills, see *Philadelphia*, 437 U.S. at 627 n.6, several courts have applied the doctrine to exempt state restrictions upon access to publicly-owned landfills by out-of-staters, see *Swin Resource Sys., Inc. v. Lycoming County*, 883 F.2d 245, 250 (3d Cir. 1989), *cert. denied*, 493 U.S. 1077 (1990); *Lefrancois v. Rhode Island*, 669 F. Supp. 1204, 1209 (D.R.I. 1987); *Shayne Bros., Inc. v. District of Columbia*, 592 F. Supp. 1128, 1134 (D.D.C. 1984); *County Comm'rs of Charles County v. Stevens*, 473 A.2d 12, 21 (Md. App. 1984). Banking on the validity of this exception with respect to discrimination against out-of-state waste, Maine has announced that it "will no longer approve applications for commercial solid waste [disposal] facilities." Catherine Wilt, *Interstate-Waste Battle Rages*, *RECYCLING TODAY*, Sept. 1991, at 68. On the market participant doctrine generally, see Dan T. Coenen, *Untangling the Market-Participant Exemption to the Dormant Commerce Clause*, 88 MICH. L. REV. 395 (1989). For the specific application of the market participant doctrine to waste disposal, see David Pomper, Comment, *Recycling Philadelphia v. New Jersey: The Dormant Commerce Clause, Postindustrial "Natural" Resources, and the Solid Waste Crisis*, 137 U. PA. L. REV. 1309, 1312-28 (1989).

2. A Compendium of Now-Illegal State Barriers

(a) Import Bans

Import bans allow a state to preserve its landfill space for its own residents, thereby delaying the day when a new facility must be sited. Import bans also make it easier for state officials to plan for local disposal needs and may even reduce community resistance to the siting of new disposal facilities.⁷⁸ The Court recently affirmed its holding in *Philadelphia v. New Jersey*, though, that import bans violate the dormant commerce clause. In *Fort Gratiot Sanitary Landfill, Inc. v. Michigan Dep't of Natural Resources*,⁷⁹ Michigan attempted to distinguish its import ban from New Jersey's by arguing that the ban was necessary to the state's efforts to plan adequately for the safe disposal of future waste within its counties and hence was not enacted for the purposes of economic protectionism.⁸⁰ The Court refused to find that this state interest was sufficient to overcome the presumption against the law based upon its facial discrimination, holding instead that the state could achieve the same objectives through nondiscriminatory means. For example, the state could simply limit the total amount of waste disposed of at a given landfill in a given year.⁸¹

(b) Discriminatory Surcharges

Regulations imposing discriminatory surcharges on the disposal of out-of-state waste may either serve as a substitute for an import ban or may merely compensate the state for any additional costs associated with the disposal of out-of-state waste.⁸² In *Chemical*

78. See *infra* notes 144-49 and accompanying text.

79. 112 S. Ct. 2019 (1992).

80. *Id.* at 2026.

81. *Id.* at 2026-27. If the state's objective was to be self-sufficient in the disposal of its own waste, however, the Court's holding would be wrong. The option of reducing the flow of *all* waste into the state's landfills, including waste generated in-state, could result in barring the in-state disposal of some wastes generated in-state if the state's landfills had insufficient capacity for both the waste generated in-state as well as that generated out-of-state.

82. Yet a third type of discriminatory surcharge requires that the tipping fee charged upon all out-of-state waste be equal to the difference between the disposal fees nearest the point of generation and that at the place of disposal. Such a fee eliminates the economic advantages of shipping waste to cheaper disposal facilities out-of-state. In *Government Suppliers Consolidating Serv., Inc. v. Bayh*, 753 F. Supp. 739 (S.D. Ind. 1990), an Indiana law enacting this scheme was struck down on dormant commerce clause grounds. *Id.* at

Waste Management, Inc. v. Hunt,⁸³ the Court struck down a discriminatory surcharge on hazardous wastes generated out-of-state, despite Alabama's argument that it was necessary both to reduce the volume of waste disposed of in-state and to compensate the state for the costs of disposing of out-of-state wastes.⁸⁴ In rejecting these arguments, the Court held that the former did not justify discriminating between waste generated in-state and out-of-state⁸⁵ and that the state had failed to demonstrate how its discriminatory fee constituted a compensatory tax.⁸⁶

In *Oregon Waste Systems v. Department of Environmental Quality*,⁸⁷ a recent dormant commerce clause challenge to a discriminatory surcharge, Oregon did attempt to correlate the higher fees it applied to solid waste generated out-of-state to a nonresident's fair share of the general tax revenues contributed by Oregon residents to the disposal of waste within the state.⁸⁸ The State argued that without the ability to impose a discriminatory fee, its resident taxpayers would effectively subsidize the disposal of out-of-state waste.⁸⁹ The Court summarily rejected this argument, holding that even if the surcharge was roughly the equivalent of the in-state tax burden, disposing of wastes and accumulating income for tax purposes were too dissimilar to justify the state's discriminatory surcharge under the "compensatory tax doctrine's" exception to the prohibition upon discrimination against interstate commerce.⁹⁰

(c) Flow Control Laws

Finally, prior to its invalidation in *C & A Carbone, Inc. v. Town of Clarkstown*,⁹¹ the flow control law was a popular type of state barrier to interstate transport of waste.⁹² Flow control laws are

779-80.

83. 112 S. Ct. 2009 (1992).

84. *Id.* at 2013-14.

85. *Id.* at 2014-15.

86. *Id.* at 2016 n.9.

87. 114 S. Ct. 1345 (1994).

88. *Id.* at 1351-53.

89. *Id.* at 1353.

90. *Id.* at 1353-54.

91. 114 S. Ct. 1677 (1994).

92. A year before the Court's decision in *C & A Carbone*, 26 states expressly granted localities or state agencies the authority to implement flow control laws. Bruce Parker, *Recent Federal Court Decisions Overturn "Flow Control" Ordinances*, WASTE AGE, Apr. 1993, at 115. At the turn of the century, the Supreme Court upheld what were essentially flow control ordinances. See *Gardner v. Michigan*, 199 U.S. 325, 334-35 (1905); *California Reduction Co. v. Sanitary Reduction Works*, 199 U.S. 306, 325 (1905).

essentially the opposite of import bans. Rather than keeping out waste generated out-of-state, flow control laws keep in waste generated in-state. Specifically, flow control laws require that all waste generated within a locality be sent to a designated facility for handling, recycling, treatment, or disposal.⁹³ These laws enable cities and towns to obtain contracts for waste disposal services by assuring a single operator a minimum of tipping fees.⁹⁴ This assurance can also enable a locality to finance the construction of its own disposal or recycling facility.⁹⁵ In *C & A Carbone*, the Court held that the flow control law at issue was facially discriminatory, despite the locality's argument that because the law discriminated against all solid waste recyclers other than the contractor operating the designated facility—including other recyclers located within the town—the law was actually facially neutral.⁹⁶ Stating that the locality's financial objectives could be achieved through nondiscriminatory means, the Court struck down the law as a violation of the dormant commerce clause.⁹⁷

III. VALUES RELEVANT TO THE DISTRIBUTION OF SOLID WASTE

Congress can reverse the above decisions through the exercise of its affirmative grant of power under the Commerce Clause.⁹⁸ Indeed, the Court's authority to scrutinize state laws under the "dormant" commerce clause is sometimes justified as merely affirming the choices Congress would have made had it exercised its Commerce

93. WILLIAM L. KOVACS & MARTHA E. PELLEGRINI, RESOURCE RECOVERY REPORT, FLOW CONTROL: THE CONTINUING CONFLICT BETWEEN FREE COMPETITION AND MONOPOLY PUBLIC SERVICE 4 (1992); Parker, *supra* note 92, at 115.

94. KOVACS & PELLEGRINI, *supra* note 93, at 5 ("The guaranteed volume of solid waste and/or recyclables ensures that the designated facility will be able to produce for sale a certain amount of energy and/or recyclable materials, or fill its constructed disposal capacity [thereby guaranteeing the long-term financial viability of the facility].").

95. *C & A Carbone*, 114 S. Ct. at 1680 (noting that the flow control ordinance guaranteed a private operator sufficient profit that the operators agreed to sell the solid waste transfer facility constructed through use of the fees back to the town for \$1 after operating the station for five years); *id.* at 1684 ("[A]s the most candid of *amici* and even Clarkstown admit, the flow control ordinance is a financing measure.").

96. *Id.* at 1683. But cf. *id.* at 1689, 1691 (O'Connor, J., concurring) (stating that because "garbage sorting monopoly is achieved at the expense of all competitors, be they local or nonlocal," law is facially neutral; law still invalid because it imposes an excessive burden upon interstate commerce).

97. *Id.* at 1684.

98. U.S. CONST. art I, § 8, cl. 3.

Clause power.⁹⁹ Under the doctrine of *Prudential Insurance Co. v. Benjamin*,¹⁰⁰ Congress's Commerce Clause authority includes the power to authorize state regulation of interstate commerce that would otherwise violate the dormant commerce clause.¹⁰¹ Consequently, Congress could specifically authorize state regulation of interstate commerce in waste through state flow control laws, import bans, or discriminatory surcharges.

However, whether Congress should abandon the national free market mechanism currently enforced through the Court's dormant commerce clause jurisprudence in favor of state regulation of the market is not easily answered. Both the national market and the various alternatives authorizing states to restrict that market aid certain goals and values at the expense of others. The following discussion suggests four criteria according to which Congress could decide whether to alter the status quo: economic efficiency, protection of human health and the environment, state autonomy, and equity. To illustrate the relevance of each criterion to such a decision,

99. One argument for the Court's authority under the dormant commerce clause is that congressional failure to regulate implies that Congress intended to leave that particular type of interstate commerce unregulated. See *Welton v. Missouri*, 91 U.S. 275, 282 (1875); Daniel A. Farber, *State Regulation and the Dormant Commerce Clause*, 3 CONST. COMM. 395, 412 (1986); Redish & Nugent, *supra* note 5, at 588.

100. 328 U.S. 408 (1946).

101. *Id.* at 438-40; see also *Northeast Bancorp, Inc. v. Board of Governors of the Fed. Reserve Sys.*, 472 U.S. 159, 174 (1985) (noting that Congress's enactment of the Bank Holding Company Act prevents attack on state regulation of bank acquisitions by out-of-state companies pursuant to the Commerce Clause). The *Prudential* doctrine appears to have originated in the case of *Pennsylvania v. Wheeling & Belmont Bridge Co.*, 59 U.S. (18 How.) 421 (1855), in which Congress authorized the construction of a bridge connecting Pennsylvania and what is now West Virginia even though the Court had previously held that the bridge obstructed interstate commerce. It should be noted that the doctrine applies only to the Commerce Clause. Consequently, Congress's power to authorize regulations that would otherwise violate the dormant commerce clause does not extend to state discrimination against out-of-state citizens in violation of the Equal Protection Clause of the Fourteenth Amendment, or the Privileges and Immunities Clause of Article IV, § 2. LAURENCE H. TRIBE, *AMERICAN CONSTITUTIONAL LAW* 525 (2d ed. 1988). Thus, for example, it is not clear whether the Equal Protection Clause would bar Congress from authorizing states to tax out-of-state bottling companies at a higher rate than in-state bottling companies in order to slow the flow of discarded bottles into their landfills. See *Metropolitan Life Ins. v. Ward*, 470 U.S. 869, 880-82 (1985) (holding that state law taxing foreign insurance companies at higher rates than domestic insurance companies in order to promote domestic businesses violates Equal Protection Clause). Similarly, it is not clear that the Privileges and Immunities Clause would allow Congress to authorize a state to charge a nonresident visitor more to dispose of her trash than it charges its own residents. For the distinction between the Commerce Clause and Privileges and Immunities Clause, see Jonathan D. Varat, *State "Citizenship" and Interstate Equality*, 48 U. CHI. L. REV. 487, 499-501 (1981).

the following section discusses whether the given criterion favors retaining the national market or favors restricting the market through the use of an import ban.¹⁰²

A. Economic Efficiency

If Congress were to follow the dominant intellectual approach to the analysis of pollution and public health problems, its first priority would be to institute an economically efficient mechanism for distributing waste.¹⁰³ Under this approach, environmental quality

102. The import ban is used here as a representative example of regulatory restrictions. Part IV will separately examine each of the types of state regulation at issue in the recent dormant commerce clause cases for how they fare under each of the four criteria. See *infra* notes 252-63 and accompanying text.

Although the following discussion frames the issue in terms of the trade-offs inherent in retaining the national market in solid waste versus authorizing states to regulate the national market, much of the discussion is relevant to the threshold issue of the trade-offs inherent in distributing waste according to a market mechanism as opposed to a nonmarket mechanism. In the absence of the market, lawmakers could determine the location of waste disposal according to any of a number of different mechanisms, including democratic decision making or even a lottery.

Many of the advantages of state regulation of the market discussed in the following sections of this Article are arguments against use of the market *per se* as a waste-distributing mechanism. Use of the market to distribute waste can be criticized for ignoring market failures, for "commodifying" matters involving health, for unfairly distributing health risks according to existing inequalities in wealth, and for failing to impose incentives that would implement the ecological imperative of reduced waste generation. Similarly, many of the advantages of a national market are also advantages to retaining the market as society's preferred mechanism for distributing waste. For instance, assuming an absence of market failures, a market in the distribution of waste is generally considered more efficient than nonmarket mechanisms.

Although an in-depth comparison of market and nonmarket mechanisms for the distribution of waste is beyond the scope of this Article, in comparing the trade-offs inherent in distributing waste according to a national market as opposed to a state-restricted market, this Article nevertheless indicates the most important considerations that would be at stake in such a comparison.

103. See The Clean Air Act Amendments of 1990, 42 U.S.C. §§ 7651(a)-7651(e) (Supp. V 1993) (establishing system of marketable permits for the emission of sulfur dioxide); WILLIAM F. BAXTER, PEOPLE OR PENGUINS: THE CASE FOR OPTIMAL POLLUTION 15-34 (1974) (arguing that environmental problems are economic problems, and better insight can be gained by the application of economic analysis); Thomas O. McGarity, *Media-Quality, Technology, and Cost-Benefit Balancing Strategies for Health and Environmental Regulation*, 46 L. & CONTEMP. PROBS. 159, 166 (1983) ("The weltanschauung of the policy-oriented economist has come to dominate the intellectual analysis of the pollution control and worker health policy problems."); see also ROBERT DORFMAN & NANCY S. DORFMAN, ECONOMICS OF THE ENVIRONMENT: SELECTED READINGS (1977) (analyzing the competing tasks of economists to protect the environment and to uphold the flow of useful goods and services); DOUGLAS C. NORTH & ROGER L. MILLER, THE ECONOMICS OF PUBLIC ISSUES 173-76 (1983) (noting the failures of the Clean Air Act addressed by market mechanisms); RICHARD STEWART & JAMES E. KRIER, ENVIRONMENTAL LAW

is like any other commodity on which Americans spend their money, and thus it should be measured according to consumers' willingness to pay.¹⁰⁴ The efficiency criterion favors the mechanism for distributing waste that results in the exploitation of economic resources "in such a manner as to maximize human satisfaction, as measured by consumer willingness to pay for goods and services."¹⁰⁵

Arriving at the best mechanism for achieving economic efficiency is more difficult than defining the concept. Markets are only one mechanism for achieving efficiency.¹⁰⁶ The efficiency of a given market depends on the conditions under which the market operates.¹⁰⁷ Among other requirements, perfect markets demand that consumers and producers have perfect information, that there be no transaction costs, and that the consumption and production decisions of one individual not affect those of any other through nonmarket mechanisms (i.e., they must affect them in ways mediated by the market).¹⁰⁸ This latter requirement demands that there be no externalities. Given the rarity of perfect markets, it is often more

AND POLICY (1978) (presenting an economic framework in which to view environmental problems as conflicting claims on natural resources).

104. McGarity, *supra* note 103, at 180.

105. RICHARD POSNER, *ECONOMIC ANALYSIS OF LAW* 10 (2d ed. 1977). More generally, efficiency refers to the relationship between the aggregate costs and benefits of a given situation, or "the size of the pie." In layman's terms, an efficient allocation is one that makes the size of the pie bigger. The most widely accepted definition of efficiency is that of Pareto optimality, the state of equilibrium where there is no change that would make at least one person better off and no one else worse off. A. MITCHELL POLINSKY, *AN INTRODUCTION TO LAW AND ECONOMICS* 7 n.4 (2d ed. 1989). In contrast, "equity," discussed *infra* notes 188-251 and accompanying text, usually refers to how the pie is to be divided. Traditionally, the two concerns have not mixed; efficiency concerns have been viewed as the domain of economists and equity concerns the domain of legislators. See A. MYRICK FREEMAN ET AL., *THE ECONOMICS OF ENVIRONMENTAL POLICY* 80-81 (1973). This Article calls for consideration of both equity and efficiency, mirroring the trend over the last decade toward increased overlap between the two disciplines. See Michael Enbar, *Equity in the Social Sciences*, in *EQUITY ISSUES IN RADIOACTIVE WASTE MANAGEMENT* 4 (Roger E. Kasperson ed., 1983).

106. Under the assumption that resources are shifted according to voluntary transactions, it is a fair bet that the shift results in a net increase in efficiency since the transaction would not have occurred if both parties did not think it would make them better off. POSNER, *supra* note 105, at 11.

107. EDITH STOKEY & RICHARD ZECKHAUSER, *A PRIMER FOR POLICY ANALYSIS* 292 (1978) ("[I]ndividual choices yield an impressive result if the market satisfies the ideal conditions that are required to make it perfectly competitive. A Pareto optimal outcome, an outcome that is efficient, will automatically be generated.").

108. *Id.* at 293-94.

efficient to resort to nonmarket mechanisms or combinations of nonmarket and market mechanisms.¹⁰⁹

Assuming that the current national market operates under ideal conditions, retention of the unregulated national market would be more efficient than allowing states to impose barriers to the free flow of waste. Were Congress to authorize waste import bans, for example, the result could be fifty separate markets for the disposal of waste. Because nation-sized markets allow for regionalization of waste disposal,¹¹⁰ they are inherently more efficient than state-sized markets. Regionalization will reduce disposal costs by allowing disposal companies to take advantage of economies of scale and comparative advantage. By building a larger facility that accepts more waste, the disposal company can spread its fixed costs—construction, operation, and closure of a facility—over larger revenues.¹¹¹ Although distribution of waste through a national market increases transportation costs, waste can be transported cheaply over moderate distances.¹¹²

109. ALLEN BUCHANAN, *ETHICS, EFFICIENCY, AND THE MARKET* 15 (1985) (arguing that the efficiency argument for the free market is based upon the assumption that actual markets sufficiently approximate ideal markets so as to make them preferable to alternatives to a nonmarket system); Guido Calabresi, *The Pointlessness of Pareto: Carrying Coase Further*, 100 YALE L.J. 1211, 1214 (1991) ("[N]either market nor nonmarket forms of organization are primary; rather, they are two approaches which interrelate in oddly symmetrical ways as (a) people seek to find the most efficient (least costly) way of structuring their relationships . . ."); see also POSNER, *supra* note 105, at 271 (arguing that the concept of market failure should be balanced by one of government failure).

110. For present purposes, regionalization refers to the collection of waste from a large area encompassing parts of several states and disposing of it at a single facility located in one state.

111. For instance, when EPA modified its Regulatory Impact Analysis on the costs of environmental standards for municipal solid waste landfills to account for an assumed increase in regionalization of waste disposal, the predicted costs of complying with the regulations fell significantly. 53 Fed. Reg. 50987 (1988); see also *id.* ("Landfill size is a key factor in determining the cost per ton, with larger landfills benefiting significantly from economies of scale."); *id.* at 81 (statement of Don R. Clay, Assistant Administrator of Solid Waste and Emergency Response, U.S. EPA) (arguing that disposal of waste in out-of-state facilities will become increasingly prevalent as new, larger landfills and waste combustors replace older and smaller facilities in order to capitalize on economies of scale); Stewart, *supra* note 13, at 1338 (arguing that free trade in wastes should promote joint welfare through the achievement of economies of scale in disposal techniques). Some economists are opposed to federal legislation requiring state self-sufficiency in waste disposal because it will make the construction of such large regional facilities less feasible. See Walls & Marcus, *supra* note 34, at 11 (arguing that restrictions on waste imports could halt construction of large, state-of-the-art facilities that serve a large number of communities).

112. See Walls & Marcus, *supra* note 34, at 7. The pollution resulting from the transportation of solid waste must also be factored into the costs of the national market,

However, the assumption that waste is distributed according to ideal market conditions disintegrates under closer scrutiny. There are numerous costs associated with waste disposal that are potentially external to those covered by the tipping fees charged by private waste disposal operators. These externalities include the administrative and legal costs related to the siting, permitting, and monitoring of disposal facilities; decreases in property values; health problems resulting from environmental contamination; natural resource losses; and the nuisance costs related to the traffic congestion and odors emanating from a disposal site.¹¹³ Finally, some have argued that residents living in communities in which a dump site is located experience "stigma" or "demoralization" costs.¹¹⁴

The administrative and legal costs may be incurred at the state¹¹⁵ or local level, or both. Local governments, however, will sustain the bulk of the costs. For instance, local governments must select or approve the selection of a facility and process all requisite permits and zoning variances.¹¹⁶ Local governments also shoulder

however. Such pollution will decrease the efficiency of the regionalization of the national market.

113. David Littell, *The Omission of Materials Separation Requirements from Air Standards for Municipal Waste Incinerators: EPA's Commitment to Recycling Up in Flames*, 15 HARV. ENVTL. L. REV. 601, 619 (1991) (arguing that municipal waste incinerators impose externalities upon the residents of the surrounding community); Walls & Marcus, *supra* note 34, at 9; Mary Beth Arnett, Comment, *Down in the Dumps and Wasted: The Need Determination in the Wisconsin Landfill Siting Process*, 1987 WISC. L. REV. 543, 545 n.12 ("The socioeconomic costs of landfill siting include diminished property values, reduced community tax base, nuisance concerns such as odors, noise, and increased traffic on local roads, and in some cases, the stigma of being a regional dumping ground.").

114. See Arnett, *supra* note 113, at 545 n.12; see also R. George Wright, *Hazardous Waste Disposal and the Problems of Stigmatic and Racial Injury*, 23 ARIZ. ST. L.J. 777, 785 (1991) ("Being, or being perceived as, the region or nation's 'dumping ground' is thus a very real, if quite intangible, sort of injury . . . properly . . . referred to as stigmatic in character.").

115. Most states and territories impose some set of environmental standards for municipal solid waste landfills. 53 Fed. Reg. 33,320 (1988); Robert Steuteville, *The State of Garbage in America*, BIOCYCLE, Apr. 1990, at 34. Moreover, the new federal environmental regulations for municipal solid waste disposal facilities place the responsibility for compliance on state authorities. See 40 C.F.R. §§ 257-258 (1993); *supra* notes 29-31. Finally, in the event of later contamination triggering a Superfund cleanup action, the state may be liable for part of these costs should the potentially responsible parties not cover the full costs. 42 U.S.C. § 9604(c)(3) (1988) (providing for federal cleanup action conditioned upon state agreement to assure future maintenance costs and 10% of the costs of cleanup).

116. See, e.g., 53 PA. STAT. ANN. § 4000.511 (1994) (establishing municipal waste planning and siting legislation); WIS. STAT. ANN. § 144.445 (1991-1992) (establishing local siting committee staffed by local municipal officials); see also William D. Preston & Thomas M. DeRose, *The 1988 Solid Waste Management Act—Facing Up To The*

the losses resulting from drops in property values related to waste disposal,¹¹⁷ because lower property values mean fewer tax dollars. This could affect the ability of the locality to fund certain services such as schools, hospitals, and social programs. A particularly noxious waste disposal facility may also chase away new or current businesses and residents, further affecting the tax base.

Some of the above costs should or can sometimes be internalized in the costs of waste disposal. For example, new federal regulations for municipal solid waste landfills should reduce the magnitude of natural resource losses and health harm attributable to environmental contamination.¹¹⁸ Common law liability is always available to compensate for health and property damage resulting from environmental contamination.¹¹⁹ Furthermore, state and local regulatory costs associated with permitting and siting a facility may be internalized in the waste disposal market by way of fees imposed upon waste generators or the private owners and operators of the waste disposal facilities themselves. Finally, some community costs may be internalized by the "host fees," or offers of compensation, sometimes paid by private disposal operators to communities who agree to host a waste disposal facility. Private waste companies currently use host fees to overcome the NIMBY syndrome by offering to finance local improvements, such as schools or public buildings, or by giving the locality a percentage of the tipping fee on all waste disposed of at the site.¹²⁰

Caution is warranted, however, in assuming the effectiveness of any of these mechanisms in internalizing the externalities of waste disposal. First, the internalization of costs through government

"Garbage" Component of Florida's Burgeoning Growth, 16 FLA. ST. L. REV. 598, 606-08 (1988) (describing Florida legislation that imposes significant responsibilities for solid waste management on local governments).

117. See, e.g., 56 Fed. Reg. 50,978, 50,986 (1991) (EPA finding that "ground-water contamination [from municipal landfills] has, in some communities, resulted in decreased property values").

118. See *supra* notes 29-30.

119. See W. PAGE KEETON ET AL., PROSSER & KEETON ON THE LAW OF TORTS §§ 86-91, at 616-54 (5th ed. 1984) (discussing the law of public and private nuisance); see also PERCIVAL ET AL., *supra* note 28, at 133 ("Common law liability has been the principal alternative to government regulation for protecting the environment.").

120. NATIONAL SOLID WASTE MANAGEMENT ASS'N, *supra* note 48, at 2; Lyle S. Raymond, Jr. et al., *Winning When You Have Lost: Cutting Your Losses with Host Community Benefits* (Cornell Waste Management Institute 1993); Clifford W. Scherer & Napoleon K. Juanillo, Jr., *Public Opinion About Proposed Host Community Benefits* (First U.S. Conference on Municipal Solid Waste Management 1990); Walls & Marcus, *supra* note 34, at 10.

regulation, such as the new federal landfill standards, depends upon an effective enforcement mechanism. Widespread noncompliance with other environmental laws¹²¹ suggests that enforcement of solid waste disposal laws could be a problem. Second, the tort system imposes high transaction costs and contains numerous biases—e.g., the need for a direct causal link between the contamination and the injury—that work against the private victims of dispersed public risks such as contamination from solid waste disposal.¹²² Third, although some states do fund their waste disposal out of user and permitting fees,¹²³ many of the nation's largest waste-importing states do not.¹²⁴ Fourth, host fees vary widely according to the bargaining

121. See Marianne Lavelle, *Environmental Vise: Law, Compliance*, NAT'L L.J., Aug. 30, 1993, at S1 (reporting that more than two-thirds of the 200 corporate general counsels responding to a 1993 survey conceded that, at some point during the past year, their businesses had operated in violation of federal or state environmental laws); Marianne Lavelle, *More Lawyers Expect to Urge Their Clients to Examine Compliance*, NAT'L L.J., Mar. 16, 1992, at S6 (reporting that 37.4% of the 257 corporate general counsels surveyed stated that their corporations had never conducted an environmental self-audit and 16% stated that they have altered their procedures for conducting environmental self-audits for fear that the violations they find may be used against them); see also Robert R. Kuehn, *Remedying The Unequal Enforcement of Environmental Laws*, 9 ST. JOHNS J. LEGAL COMMENT. 625, 625-26 (1994).

122. N. William Hines, *Nor Any Drop to Drink: Public Regulation of Water Quality*, 52 IOWA L. REV. 186, 196-201 (1966) (discussing barriers to use of tort law by victims of pollution); Neil K. Komesar, *Injuries and Institutions: Tort Reform, Tort Theory, and Beyond*, 65 N.Y.U. L. REV. 23, 48-50 (1990) (arguing that because the effects of environmental harms are usually widely dispersed, they seldom give rise to environmental torts or attorney's fees); McGarity, *supra* note 103, at 173-79 (arguing that requirement of establishing a causal link between injury and exposure, together with transaction costs barriers to filing suit, render tort system an ineffective substitute for the ideal market paradigm). But cf. Troyen A. Brennan, *Environmental Torts*, 46 VAND. L. REV. 1, 17 (1993) (arguing that this analysis ignores heterogeneity of environmental paradigms, some of which are conducive to tort litigation). See generally Clayton P. Gillette & James E. Krier, *Risks, Courts, and Agencies*, 138 U. PA. L. REV. 1027, 1045-60 (1990) (comparing access bias that works against private plaintiff seeking recovery for environmental harm with process bias that works against producers of public risks).

123. For example, Louisiana funds most of the state costs attributable to solid waste disposal in this manner. Telephone Interview with Daryl Serio, Financial Officer, Louisiana Department of Environmental Quality (Aug. 1, 1994). On the increasing propensity of state and local governments to fund public programs through user fees, see THOMAS R. DYE, *AMERICAN FEDERALISM: COMPETITION AMONG GOVERNMENTS* 71-72 (1990).

124. In an amicus brief filed in *Oregon Waste Sys. v. Department of Env'tl. Quality*, 114 S. Ct. 1345 (1994), 14 states, seven of which are net importing states and two of which—Pennsylvania and Indiana—are among the nation's top five net importers, see Repa, *supra* note 36, stated that they fund at least part of the regulatory costs of waste disposal out of general tax revenues. Brief of the States of Indiana, Arkansas, Florida, Maine, Mississippi, Montana, Ohio, Oklahoma, South Carolina, South Dakota, Wisconsin and Wyoming, and the Commonwealths of Kentucky and Pennsylvania, as Amicus Curiae

power of the community.¹²⁵ There is no assurance, therefore, that such fees will internalize all of the community's costs.

In the absence of effective mechanisms to internalize costs, the current distribution of waste under the national market cannot be assumed to be efficient. In fact, given sufficiently large externalities, a system of state barriers could be more efficient than the national market. This would be the case if the cost savings attributable to the externalities discussed above were responsible for all interstate waste trade. Although this is improbable, the presence of significant externalities removes the presumption of efficiency.

Without the aid of a perfectly functioning market, an economist might attempt to determine the relative efficiency of the national market vis-a-vis state import bans according to the tool of cost-benefit analysis.¹²⁶ The purpose of cost-benefit analysis is to point decision makers to forms of government intervention in the market that either overcome market failures or result in direct allocations of resources where no market exists.¹²⁷ Under cost-benefit analysis, a decision maker makes the policy choice that produces the greatest net social benefit.¹²⁸ Where the benefit-to-cost ratio of a particular policy choice is maximized and benefits exceed costs, government regulation is efficient under the Kaldor-Hicks criterion, even if not under the Pareto criterion.¹²⁹

in Support of Respondents at 1-2, *Oregon Waste Sys.* (Nos. 93-70, 93-108).

125. See, e.g., Jeff Bailey, *Economics of Trash: Some Big Waste Firms Pay Some Tiny Towns Little for Dump Sites, What Localities Get Depends on Their Bargaining Skill, and Fees Vary Widely*, WALL ST. J., Dec. 3, 1991, at A1 (noting that depending on locality's bargaining skills, host fees paid by commercial disposal companies can vary from a total fee of about \$25,000 to an annual fee of \$10 million); Allan R. Gold, *Wanted, Land for Dump Sites; Benefits Offered*, N.Y. TIMES, July 20, 1990, at B4.

126. See STEVENS, *supra* note 14, at 305-08 (arguing that cost-benefit analysis may be used to determine the efficiency of a policy alternative where markets are imperfect due to externalities, because cost-benefit analysis incorporates positive externalities as benefits and negative externalities as costs). In the past, Congress has required that federal agencies engage in cost-benefit analysis prior to commencing projects with significant environmental effects or promulgating regulations with significant costs to the economy. See National Environmental Policy Act, 42 U.S.C. § 4332(2)(B) (1988); E.O. 12291, 3 C.F.R. 127 (1981).

127. PETER S. MENELL & RICHARD B. STEWART, ENVIRONMENTAL LAW AND POLICY 82, 83 (1994).

128. STOKEY & ZECKHAUSER, *supra* note 107, at 137.

129. Under the Kaldor-Hicks criterion, a change is efficient if the benefit it causes one person creates a net gain sufficient to allow that person to compensate those injured by the change, regardless of whether those injured are ever actually compensated. McGarity, *supra* note 103, at 166-67. Under the Pareto criterion of efficiency, a change is preferred if at least one person would be made better off and no one would be made worse off. See

A detailed cost-benefit analysis is, of course, beyond the scope of the present Article. Nevertheless, we can translate the basic underlying theory of cost-benefit analysis into a common sense rule of rational economic choice: Society should choose between distributing waste in a national market or in fifty state-sized markets based upon which has the greatest potential to maximize social welfare. It should be noted that the object of this inquiry is not to determine the most welfare-maximizing mechanism for the disposal of waste (which may well be something very different than either its distribution through the national market or according to state import bans), but only to compare these two options for controlling its distribution for eventual disposal.¹³⁰ In addition the distinction between the two options that dictates the result of this comparison is the ultimate location for that portion of the total volume of waste generated in the United States that is disposed of out-of-state under the national market option. The only relevant difference between the national market and the state-sized market option for our immediate purposes, therefore, is that, under the state-sized market option, this volume of waste will be disposed of within the state in which it was generated, while it will be disposed of out-of-state under the national market option.

For several reasons, one can argue that waste will be disposed of more cheaply when distributed according to the national free market than under a scheme allowing states to impose obstacles to the free flow of waste. First, because waste-importing states have lower population densities,¹³¹ the consumer costs of waste disposal should be lower when waste is distributed in the national market. Consumer waste disposal costs will reflect real estate and siting costs, both of which should be lower in a more sparsely-populated state due to the comparative lack of competition for landfill sites. Population density could also affect the magnitude of the public and private health costs

supra note 105.

130. This comparison thus does not engage in the difficult ethical and valuations debates surrounding cost-benefit analysis. See, e.g., Herman B. Leonard & Richard J. Zeckhauser, *Cost-Benefit Analysis Applied to Risks: Its Philosophy and Legitimacy*, in *VALUES AT RISK* 42 (Douglas Maclean ed., 1986); McGarity, *supra* note 103, at 199. For a closer examination of the problems raised by using "willingness to pay" (otherwise known as the "offer-asking" problem) to determine value in cost-benefit analysis, see Mark Kelman, *Consumption Theory, Production Theory, and Ideology in the Coase Theorem*, 52 S. CAL. L. REV. 669, 682 (1978-79); Duncan Kennedy, *Cost-Benefit Analysis of Entitlement Problems: A Critique*, 33 STAN. L. REV. 387, 401-10 (1981).

131. See *infra* Appendix, Table 1.

resulting from landfill disposal simply because fewer persons will be harmed in the event of environmental contamination.¹³²

The lower per capita incomes of residents of waste-importing states should also render the costs of disposing of wastes under a national market mechanism lower than those incurred under the state import ban approach.¹³³ Because this assures the lowest losses in terms of wages, it is cheaper for society overall if whatever health harm results from exported waste harms those with the lowest incomes.¹³⁴ This same rule should apply with respect to drops in property values attributable to location near a waste disposal site. Assuming property values correlate with income, the national market option channels losses in property values to states where property values are already lower.

Losses attributable to contaminated natural resources may be the most difficult to compare, though a strong argument can be made that

132. The assumption that lower population density will lower total waste disposal costs rests upon a few important assumptions which, though they appear reasonable, could be rebutted upon the collection of more data. First, this assumes that total volumes of waste imported are not so large as to cause the importing state to build proportionately more landfills (or other types of waste disposal facilities) than the exporting state. For example, were the volumes of waste imported to require the importing locality to site two landfills instead of one, the cost reductions attributable to exporting waste to lower population density states would be lost. The siting of two landfills in a locality with a low population density would more closely approximate the tax losses and potential health costs of one landfill sited in a high density locality. However, the fact that the importing states also have lower waste per square mile ratios than exporting states, *see infra* Appendix, Table 1, appears to indicate that the cost reductions from lower population densities is not lost as the result of importation of greater volumes of waste. Importing states have lower waste-per-square-mile ratios both before and after the volumes of waste they import is taken into account.

The second assumption is that the distribution of the population in exporting and importing states is roughly the same. For instance, regardless of lower statewide population densities, the costs of waste disposal would not be lowered as a result of disposing of waste in low population density importing states if the population of the exporting state is concentrated in a small area of the state (one large city, for example) while the population of the importing state is spread evenly throughout the state's territory. In such a case, the costs of waste disposal in the importing state would be higher despite the importing state's lower overall population density because disposal facilities could not be sited away from populated areas.

133. *See infra* Appendix, Table 1.

134. This latter judgment was used by a former World Bank economist to justify his recommendation that developed countries such as the United States ship their toxic waste to developing nations for disposal. *Let Them Eat Pollution*, *ECONOMIST*, Feb. 8, 1992, at 66 (quoting a memorandum by Lawrence Summers stating that "a given amount of health-impairing pollution should be done in the country with the lowest cost, which will be the country with the lowest wages. I think the economic logic behind dumping a load of toxic waste in the lowest-wage country is impeccable . . .").

they too will be lower under the national market option. Due to the opportunities to regionalize, the national market option should lead to the construction of fewer disposal facilities and thus to the devotion of fewer natural resources to waste disposal. Furthermore (and more controversially), if "willingness to pay" is used to measure the resulting resource losses, the lower incomes of the local population in importing states could lower the "value" of these resources.¹³⁵

An extremely rough estimate of the relative costs of the two options, therefore, demonstrates that the national market approach should result in lower total social costs attributable to waste disposal than the state import ban approach. Because the benefits of either option should be the reciprocal of their costs, the benefits of either distribution should be proportionately the same as their costs. Consequently, although the presence of externalities means that the national market is not, in and of itself, an efficient mechanism for the distribution of waste, *as compared to state import barriers*, the national market is probably a more efficient mechanism for the distribution of the nation's total waste disposal costs.

It must be emphasized that important unknowns may affect the relative costs of the two options. For example, considering that a state acquires the reputation of being the dumping ground for other states' waste, the national market option entails costs to importing states attributable to lost business opportunities and citizen demoralization. These costs are not obviously relevant under the state import ban option because each state must dispose of its own wastes. Furthermore, we know very little about the cumulative environmental effects of disposing of large volumes of waste in a given ecosystem. If the marginal costs of natural resource damages attributable to waste disposal increase after reaching some specified threshold, the concentration of large volumes of waste in one area under the national market option could impose higher costs than would spreading out the disposal of waste across fifty states. Finally, all of the costs of the state import ban model may be overstated if, despite the opportunity, not all states impose barriers to the impor-

135. This rests upon the assumption that the local population's lower *ability* to pay is manifested in the method used to measure the value of the natural resources. This may depend upon the method used. See R.G. CUMMINS ET AL., *VALUING ENVIRONMENTAL GOODS: AN ASSESSMENT OF THE CONTINGENT VALUATION METHOD* (1986) (arguing that where survey techniques are used, respondents may strategically overstate their real willingness to pay). The willingness-to-pay concept is controversial because it assumes that environmental benefits are things that citizens must purchase, rather than that citizens have an entitlement to a pristine environment that polluters must purchase.

tation of out-of-state waste. Some states may value the business of waste disposal operators and the host fees communities received from them above the environmental and health benefits of excluding out-of-state waste. If several states declined to enact waste import bans, a hybrid of the national market could develop that would temper the inefficiency of the state import ban alternative.

B. *Protection of Human Health and the Environment*

A second relevant criterion is the protection of human health and the environment, which must be considered separately from economic efficiency. Although environmental law draws heavily from economic analysis,¹³⁶ a distinct strain of environmental theory rejects capping environmental protection at what is allocatively "efficient."¹³⁷ This strain derives from an ethical perspective on environmentalism that calls for respect for the inherent rights of the nonhuman natural world and the values to be found in it,¹³⁸ as well as skepticism that we know enough to predict when our impacts upon ecological and human health will exceed "efficient" levels.¹³⁹

136. See, e.g., MENELL & STEWART, *supra* note 127, at 44-81.

137. See, e.g., Clean Water Act, 33 U.S.C. § 1251(a)(1) (1988) (establishing a virtually cost-oblivious goal "that the discharge of pollutants into the navigable waters be eliminated by 1985"); Clean Air Act, 42 U.S.C. § 7408 (1988) (specifying cost-oblivious health-based standards for ambient air pollutants); *Union Elec. Co. v. EPA* 427 U.S. 246, 265 (1976) (stating that the EPA is not required to consider economic feasibility of Clean Air Act requirements where state has chosen to force technology); *Lead Indus. Ass'n v. EPA*, 647 F.2d 1130, 1150 (D.C. Cir.) (holding that EPA Administrator may not consider economic and technological feasibility in setting air quality standards), *cert. denied*, 449 U.S. 1042 (1980). For instance, an ecologically based rejection of an efficiency cap might require that groundwater contamination from a landfill should be cleaned up even if it would be cheaper to society to provide the few persons residing near the landfill with bottled water.

138. See, e.g., Endangered Species Act of 1973, 16 U.S.C. §§ 1531-44 (1988 & Supp. V 1993); EARTHBOUND: NEW INTRODUCTORY ESSAYS IN ENVIRONMENTAL ETHICS (T. Regan ed., 1984); ALDO LEOPOLD, A SAND COUNTY ALMANAC AND SKETCHES HERE AND THERE 201-06 (1949); G. P. MARSH, THE EARTH AS MODIFIED BY HUMAN ACTION (1874); RODERICK F. NASH, THE RIGHTS OF NATURE: A HISTORY OF ENVIRONMENTAL ETHICS (1989); HOLMES ROLSTON III, ENVIRONMENTAL ETHICS (1988); Christopher Stone, *Should Trees Have Standing? Toward Legal Rights for Natural Objects*, 45 S. CAL. L. REV. 450 (1972).

139. See *Weyerhaeuser Co. v. Costle*, 590 F.2d 1011, 1041 n.41 (D.C. Cir. 1978) (arguing that the Clean Water Act demonstrates Congress had doubts that "we have both adequate information about the effects of pollution to set an optimal test, and adequate political and administrative flexibility to keep polluters at that level once we allow any pollution to go untreated"); McGarity, *supra* note 103, at 180-91 (exploring the defects of the market paradigm as applied to pollution problems); see also Oliver A. Houck, *Of BATs, Birds and B-A-T: The Convergent Evolution of Environmental Law*, 63 MISS. L.J. 403, 411-17 (1994) (relating failure of science to predict thresholds below which there is no biological harm

Environmentalism supports at least three separately identifiable definitions of and approaches to the environmental problems surrounding waste disposal. Under the traditional "end of the pipe" approach, the problem presented by waste disposal is that of finding environmentally safe means of disposing of whatever waste is produced. Accordingly, the distribution of waste is relevant only insofar as it affects the likelihood of greater environmental contamination from waste disposal. Under the newly emerging alternative approach, the environmental problem presented by waste disposal is the existence of the waste itself. Under this perspective, the distribution of waste matters to the extent that it effects waste reduction. Finally, the perspective of environmental ethics posits that whether waste is disposed of close to or far from home is relevant to whether humans are living within nature's bounds. The following discussion examines how these perspectives may be interpreted to call for quite different mechanisms for the distribution of waste.

1. The Traditional Approach: Creating More Capacity

Most federal pollution control laws attempt to minimize the adverse environmental impacts of pollution after the pollution has already been created, rather than to prevent the creation of pollution in the first place. Historically, Congress's approach to the problem of solid waste is no exception, being almost entirely related to the safe management and disposal of waste through compliance with more environmentally protective standards.¹⁴⁰ Under this traditional approach, the mechanism for distributing waste is relevant only

or harm to human health to ineffective regulatory approaches to pollution control). The vastness of what we do not know is illustrated by the aftermath of the 1989 *Exxon Valdez* oil spill. After spending \$100 million and conducting more than 100 studies, scientists are still unsure of the spill's effects upon the ecosystem of Alaska's Prince William Sound. Wesley Loy, *Dredging for Lessons from the Tragedy in Prince William Sound*, WASH. POST., Feb. 15, 1993, at A3. For a discussion of the conflicts between the economic and the more ethical bases of environmental law, see Mark Sagoff, *The Principles of Federal Pollution Control Law*, 71 MINN. L. REV. 19, 79 (1986); Mark Sagoff, *We Have Met the Enemy and He is Us or Conflict and Contradiction in Environmental Law*, 12 ENVTL. L. 283, 290-315 (1982).

140. See Subtitle C of RCRA, 42 U.S.C. §§ 6921-6939 (1988) (specifying a cradle-to-grave system for tracking and disposing of hazardous waste after waste has already been generated); Subtitle D of RCRA, 42 U.S.C. § 6949(a) (1988) (specifying a similar approach with respect to nonhazardous solid waste). There are exceptions, of course. In the 1984 amendments to RCRA, Congress added a requirement that hazardous waste treatment, storage, and disposal facilities obtain a certification from generators that they have in place a program to reduce the amount and toxicity of waste to the degree "economically practicable." 42 U.S.C. § 6925(h) (1988).

insofar as it affects whether waste is disposed of according to environmental standards or is instead disposed of illegally or at facilities operating without the requisite controls. In analyzing the advantages and disadvantages of employing national or state-sized markets for distributing waste according to the traditional environmentalist approach, predictions based upon short and long term disposal trends are helpful.

While presenting some trade-offs, the traditional approach favors distribution according to the national market in the short term, and according to state-sized markets in the long term. At the present time, solid waste disposal capacity is subject to severe shortages in certain regions of the country, especially the Northeast.¹⁴¹ The opportunity for the Northeast to export its waste to another state avoids the environmental contamination from illegal dumping that could occur in the absence of such an option.¹⁴² Consequently, because needed disposal capacity may now be available only in other states, in the short term the traditional approach favors retaining the national market so that this capacity may be utilized.

Yet because the ultimate solution to the environmental problem of waste disposal under the traditional approach is greater waste disposal capacity, in the long term this approach could be interpreted to support state restrictions upon the flow of waste. The very opportunity to export one's waste for disposal elsewhere arguably eliminates all incentives to create new disposal capacity or to reduce the rate of waste generation.¹⁴³ For residents of exporting states, interstate transport of waste allows wholesale avoidance of the

141. MCCARTHY, *supra* note 39, at 8.

142. While there is some evidence that this very opportunity also makes possible the disposal of waste in substandard facilities and facilities operating in-states with weak regulatory staffs, *see supra* note 121, the problem of contamination from substandard facilities can be more directly addressed through strengthened environmental controls than through restrictions upon the national market in waste disposal. This should be provided by the new federal standards for municipal solid waste disposal facilities under Subtitle D of RCRA. *See supra* text accompanying notes 29-31. Indeed, restrictions on waste imports will do little to stop the contamination from these facilities other than perhaps causing a few to go out of business. It is likely that they would continue to contaminate the environment even if they accepted only waste generated within their state. On the other hand, elimination of the safety valve of out-of-state export would cause an immediate crisis for states with insufficient waste disposal capacity.

143. *See, e.g., Interstate Transportation of Solid Waste, supra* note 44, at 21 (statement of Hon. Ben Erdreich, Congressman from Alabama) (arguing that current practice of shipping waste across state lines solves the immediate problem of waste disposal, but delays long-term planning for disposal capacity).

problem, while for the residents of importing states,¹⁴⁴ the devotion of available capacity to out-of-state trash only exacerbates the NIMBY reaction to proposals to site new facilities.¹⁴⁵ The result is a gradual decrease in overall waste disposal capacity as older facilities close and are not replaced by new facilities or waste reduction initiatives.

Economic analysis supports adoption of state restrictions on interstate commerce in waste as a solution to the problem of inadequate waste-disposal capacity. Under free-market conditions, one state's landfill can be regarded as a quasi-public good¹⁴⁶ because it cannot be supplied to the citizens of one state without also being supplied to the citizens of other states. According to standard economic analysis, the market will undersupply public goods because consumers will pay nothing for the good, knowing that they can free-ride others' purchase of it, and because producers will lack an incentive to produce the good when they cannot cover the costs of production due to the number of nonpaying consumers.¹⁴⁷ If out-of-state residents are substituted for "consumers" and in-state residents are substituted for "producers" (due to the costs they expend in authorizing the siting of a landfill, even where the landfill is privately owned and operated), the public-goods analysis explains the existing lack of landfill capacity under national free-market conditions.

144. While this is the conventional wisdom, it could be argued that it is refuted by New Jersey's experience. Although the second largest net waste exporter in the nation, New Jersey also has the second highest rate of trash recycling of any state and is actively siting new disposal facilities. See Robert Steuteville, *1994 Nationwide Survey: The State of Garbage in America*, BIOCYCLE, Apr. 1994, at 48. However, because these efforts are the result of the higher projected price of continued reliance upon out-of-state disposal options, New Jersey might not undertake such actions if disposal in-state were not expected to be cheaper.

145. *Interstate Transportation of Solid Waste*, *supra* note 44, at 156 (statement of E. Dennis Muchnicki, Chief, Environmental Enforcement Section, Ohio Office of Attorney General) (predicting that state citizens will block siting of disposal facility unless they are assured that no out-of-state waste will be accepted).

146. A public good is any good that cannot be supplied to one person without at the same time enabling large numbers of people to enjoy the good because it is impractical to exclude their use. See WILLIAM J. BAUMOL & WALLACE E. OATES, *ECONOMICS, ENVIRONMENTAL POLICY AND THE QUALITY OF LIFE* 75 (1979); see also STOKEY & ZECKHAUSER, *supra* note 107, at 306-07 (1978) (listing the three attributes of public goods as nonprovision (or extreme underprovision), nonrivalry (one person's consumption does not reduce another's consumption), and nonexcludability (impossibility of excluding noncontributors)). Classic examples of public goods are national defense, lighthouses, highways, and the court system. MENELL & STEWART, *supra* note 127, at 54.

147. MENELL & STEWART, *supra* note 127, at 54-55.

Economic analysis also supports state access barriers as a solution to the capacity problem because they would give landfills the characteristic of excludability that they currently lack. It must be noted, however, that this is not the only solution to the public-goods dilemma. Other ways to overcome this barrier to siting new facilities include governmental provision of landfills¹⁴⁸ and requirements that the disposal facility itself compensate the local community for its added costs. This option is closest to the increasingly prevalent practice whereby waste disposal facilities offer communities compensation or "host fees" in exchange for the communities' agreement to site a facility.¹⁴⁹

2. The Pollution Prevention Approach: Reducing Waste Generation

One of the most significant developments in environmental law is the recent emphasis on preventing the generation of pollution, as opposed to simply controlling the environmental effects of pollution after it has been generated.¹⁵⁰ While the traditional approach was born out of the assumption that technology could be developed that would prevent health and environmental harm from pollution,¹⁵¹ this new emphasis stems from a realization that this assumption is often false and that technology is not always capable of eliminating pollution risks once pollution has been created. As far as waste is concerned, reducing waste by reducing its generation¹⁵² and channeling as much waste as possible back into the production cycle through recycling has a double benefit. Not only does it reduce environmental contamination from waste disposal, but it conserves raw materials and natural resources—trees, oil, unspoiled land—that

148. *Id.* at 69-70 (arguing that government provision of good will solve the public-goods problem). If the Supreme Court agrees with several lower court holdings that public ownership exempts a state from the dormant commerce clause, this option will have the same effect as that of eliminating the characteristic of nonexcludability.

149. See *infra* notes 246-51 and accompanying text.

150. See Pollution Prevention Act of 1990, 42 U.S.C. §§ 13101-09 (Supp. V 1993).

151. Clean Air Act, 42 U.S.C. § 7409(b) (1988); H.R. REP. No. 294, 95th Cong., 1st Sess. 110 (1977), reprinted in 1977 U.S.C.C.A.N. 1077, 1188.

152. One environmental group estimates that 30 to 50% of the waste now being transported across state boundaries could be reduced or recycled, thereby significantly lessening the need to export waste. *Interstate Transportation of Solid Waste*, *supra* note 44, at 297 (statement of Allen Herskowitz, Natural Resources Defense Council). The rate of generation of waste is higher among Americans than among the citizens of any other nation. MCCARTHY, *supra* note 39, at 2. The per capita generation of municipal solid waste in the United States is double that of Japan and the nations of the European Community. *Id.*

would otherwise be consumed both in the manufacture of products later discarded as waste, and in the waste disposal process itself.

Distribution of waste may affect pollution prevention through its impact on measures undertaken to reduce waste generation or to recycle wastes. Some experts believe that cheap opportunities for waste export frustrate waste reduction efforts.¹⁵³ These experts believe creation of more capacity simply encourages the generation of more waste. Although currently lacking in evidentiary support,¹⁵⁴ this view is supported by regulatory regimes as varied as those employed to end the sexual exploitation of children or the poaching of endangered species, each of which seeks to eliminate these offending practices by outlawing the products they produce (child pornography¹⁵⁵ and the hides, horns, or claws of rare animals¹⁵⁶).

Although the pollution-prevention approach would, like the traditional approach, favor state import barriers in the long term, it would go one step further and mandate a distributive policy for

153. See, e.g., *Interstate Transportation of Solid Waste*, *supra* note 44, at 300 (statement of Allen Hershkowitz, Natural Resources Defense Council) (arguing that the low-cost option of exporting municipal solid waste has allowed localities, states, and private interests to avoid or delay implementing waste reduction or recycling programs or upgrading disposal facilities with state-of-the-art technology); *id.* at 47 (statement of Velma Smith, Friends of the Earth) (arguing that interstate movement of garbage "functions as a major disincentive to waste reduction"); *id.* at 17 (Statement of Hon. Doug Bereuter, Congressman from Nebraska) (arguing that unregulated interstate transport of waste sends a message that "it is acceptable to continue to generate enormous amounts of trash"); see also Michael Heiman, *From 'Not in My Backyard' to 'Not in Anybody's Backyard': Grass Roots Challenge to Hazardous Waste Facility Siting*, 56 APA J., Summer 1990, at 359 (arguing that by blocking the siting of waste disposal facilities, citizens force industry to reevaluate production processes that produce toxic wastes in the first place).

154. There exists a dearth of studies demonstrating that the scarcity of traditional disposal options in landfills or incinerators leads to the generation of less waste. There is, however, considerable anecdotal evidence that the scarcity of disposal options leads to recycling. See, e.g., Amy Pyle, *Pilot Program Will Find Recycling Is Already Up and Flying*, L.A. TIMES, June 26, 1989, § 2, at 6 (quoting a resident as stating, "I'm opposed to the Lopez landfill continually staying here, but I realize we have to put our garbage somewhere. My answer right now is to recycle as much as we can."); Faye Rice, *Where Will We Put All That Garbage?*, FORTUNE, Apr. 11, 1988, at 96 ("When 65-year old Milly Zantow heard that space was running out at the town dump in North Freedom, Wisconsin, she cashed in an insurance policy and set up her own recycling center . . .").

155. See Child Pornography Act, 18 U.S.C. § 2252(a)(2) (1988 & Supp. V 1993) (prohibiting, *inter alia*, the receipt of child pornography through the United States mails).

156. See Endangered Species Act, 16 U.S.C. § 1538 (1988) (prohibiting the taking of any endangered species not permitted by the Secretary of Interior or Commerce); Convention on International Trade in Endangered Species of Wild Fauna and Flora, 12 I.L.M. 1085 (1973) (conditioning the importation and exportation of specimens of endangered or threatened species on the presentation of a permit attesting that shipment will not be detrimental to survival of species).

recyclable waste products. Although the pollution-prevention approach would favor a reduction in the waste generated, once waste is in fact generated, the approach would favor reuse of the waste to conserve raw materials. The pollution-prevention approach would favor a national market for recyclable waste. In order to be competitive with raw materials, recyclables must be available to industries nationwide. Recycling advocates believe that a national market is critical to the success of recycling because of the current lack of industries capable of reprocessing discarded items or using discarded items as substitutes for virgin materials.¹⁵⁷

3. The Perspective of Environmental Ethics

Yet a third approach to environmental protection stresses humanity's moral obligations to sustain and protect the natural world and all forms of life. Under this perspective, western civilization has concentrated on "interhuman ethics"—ways in which persons morally relate to other persons—to the exclusion of environmental ethics, or ways in which persons morally relate to the earth and to other forms of life.¹⁵⁸ For some, humanity's moral responsibility to the natural world springs from the inherent rights of natural objects,¹⁵⁹ while for others it derives from an anthropocentric recognition that human

157. See, e.g., *Interstate Transportation of Solid Waste*, *supra* note 44, at 301 (statement of Allen Hershkowitz, Natural Resources Defense Council); *id.* at 82-83 (statement of Don R. Clay, EPA). Until just recently, the market for recycled materials suffered from an oversupply of collected, recyclable material (glass, newspaper, and aluminum cans) and an undersupply of companies, such as paper mills, with the equipment necessary to either use recycled materials as substitutes for raw materials or to turn recyclable materials into usable materials for other industries. See Nicole Achs, *All Dressed Up and Nowhere to Go*, AM. CITY & COUNTY, Nov. 1991, at 26-35; Cheryl L. McAdams, *Recycling: Social Evangelism? or Viable Business?* WASTE AGE, Apr. 1994, at 188; Lisa Rabasca, *Recycling in 1993: Ebbs & Flows*, WASTE AGE, Dec. 1993, at 69-70. Recent developments, however, such as a 1993 executive order requiring federal agencies to purchase paper with 20% recycled fiber, have led to a recent escalation in the price of recyclable materials. See John Holusha, *Recycled Material is Finding a New Lucrative Market*, N.Y. TIMES, Oct. 8, 1994, at A1. This recent trend does not detract from the importance of a national market for the continued viability of recycling.

158. Holmes Rolston III, *Rights and Responsibilities on the Home Planet*, 18 YALE J. INT'L L. 251, 252 (1993).

159. See *Sierra Club v. Morton*, 405 U.S. 727, 741 (1972) (Douglas, J., dissenting); TOM REGAN, *THE CASE FOR ANIMAL RIGHTS* 25 (1983); see also PETER SINGER, *ANIMAL LIBERATION* *passim* (2d ed. 1990) (arguing that traditional human behavior unjustly oppresses animals); CHRISTOPHER D. STONE, *SHOULD TREES HAVE STANDING?* 9 (1974) ("I am quite seriously proposing that we give legal rights to forests, oceans, rivers and other so-called 'natural objects' in the environment—indeed, to the natural environment as a whole.").

survival depends upon all species' survival.¹⁶⁰ For still others, ecological history compels this responsibility by demonstrating that humans are members and citizens of the biotic community rather than its conquerors.¹⁶¹

Integral to the ethical perspective is the need to regain a concrete connection with the land so that the satisfaction of human needs does not exceed the regenerative capacity of the ecosystem.¹⁶² As a consequence, the literature of environmental philosophy stresses lifestyles in which people live off the land or are in some way made acutely aware of their reliance on nature and their need to live within its bounds.¹⁶³ Here environmental ethicists join ranks with progressive economists, who argue that the globalizing tendencies of neoclassical economics destroy the integrity of both biotic and human communities by placing economic decisions in the hands of persons who are not members of the community affected by those decisions and who will not suffer the consequences of the environmental harm that they engender.¹⁶⁴ These economists believe that greater

160. Rolston, *supra* note 158, at 259 ("Humans depend on air flow, water cycles, sunshine, photosynthesis, nitrogen-fixation, decomposition bacteria, fungi, the ozone layer, food chains, insect pollination, soils, earthworms, climates, and genetic materials."); *id.* at 252 ("If humans are to be true to our species' epithet, 'the wise species' must behave with appropriate respect for life. Such behavior necessarily will involve interhuman ethics.").

161. ALDO LEOPOLD, *A SAND COUNTY ALMANAC AND SKETCHES HERE AND THERE* 204-05 (1968).

162. See LEOPOLD, *supra* note 161 at 214-24 (preservation of the biologic integrity of the ecosystem cannot exist outside a land ethic that consists primarily of humanity undertaking the responsibility for ensuring the regenerative capacity of the land by refraining from perpetrating violent changes to the ecosystem that exceed its capacity to recover). The ethical imperative of living within the natural limits of the ecosystem is reflected in the call for "sustainable development" by developing nations. See WORLD COMMISSION ON ENVIRONMENT AND DEVELOPMENT, *OUR COMMON FUTURE* 57 (1987) ("If needs are to be met on a sustainable basis the Earth's natural resource base must be conserved and enhanced . . . Land use in agriculture and forestry should be based on a scientific assessment of the land capacity, and the annual depletion of topsoil, fish stock, or forest resources must not exceed the rate of regeneration.").

163. LEOPOLD, *supra* note 161, at 6 ("There are two spiritual dangers in not owning a farm. One is the danger of supposing that breakfast comes from the grocery, and the other that heat comes from the furnace."). Perhaps the most eloquent descriptions of this lifestyle are given by the poet, essayist, and philosopher Wendell Berry. See, e.g., WENDELL BERRY, *HOME ECONOMICS* 72 (1987) (describing living within the limits of nature as "living within the Great Economy, under the necessity of making our little human economy within it, according to its terms, the smaller wheel turning in sympathy with the greater").

164. See, e.g., HERMAN E. DALY & JOHN B. COBB, JR., *FOR THE COMMON GOOD* 173 (2d ed. 1994).

economic self-sufficiency at the community level (i.e., the state and local level) would solve the problem.¹⁶⁵

Environmental philosophy's emphasis on reducing the impacts of one's everyday decisions to the carrying capacity of one's immediate environment is consistent with limiting the distribution of waste to state-sized markets. The freedom to ship one's waste to other states, as permitted by the national market, is the freedom to live beyond the carrying capacity of the earth and hence signals disrespect for nature and the endangerment of the human race. If people are required to dispose of their waste at home, they are more likely to reduce their waste-generating habits because they will suffer the adverse effects of the disposal.¹⁶⁶ Furthermore, even if they themselves do not experience the adverse effects, persons within their community will. Psychologically, it is no doubt easier to harm anonymous individuals than those with whom one shares a common history or realm of experience.

The differing theories regarding the priorities of environmental protection therefore result in a hybrid approach to the optimal distribution of solid waste. All theories converge in support of state waste barriers for at least nonrecyclable waste, though they do so for different reasons. According to the traditional, "end-of-the-pipe" approach, state barriers will ease the siting of new facilities and

165. *Id.* at 174.

166. This point underlies one congressional representative's suggestion during a House hearing that state import bans would set in motion the "cultural revolution" necessary to force Americans to reduce the amount of trash they generate:

MR. LUKEN: But every time I revisit this . . . the idea always becomes appealing of saying everybody take care of their own trash, their own garbage.

Let them take care of it whatever way they can, and that is why I suggested this cultural revolution, that it is not the constitutional right of every American to dump garbage on the curb and forget about it and let somebody else take care of it. That might be true of every community.

MR. LEVENSON: We certainly could require States or the communities within States to manage their own [municipal solid waste]. It will not happen overnight

.....

MR. LUKEN: But if they know they have got to take care of it, it is going to happen sooner than if they can just ship it to Ohio.

MR. LEVENSON: Right.

MR. LUKEN: Or New Mexico.

MR. LEVENSON: We have to help them do that with much better information.

MR. LUKEN: Or Colorado.

*Municipal Solid Waste Disposal Crisis, Hearings Before the Subcomm. on Transportation and Hazardous Materials of the Committee on Energy and Commerce on H.R. 2099 and H.R. 2723, 101st Cong., 1st Sess. 55 (1989) [hereinafter *Municipal Solid Waste Disposal Crisis*].*

thereby relieve the current shortages in disposal options. The perspective of environmental ethics suggests that state barriers will foster attitudes and practices that are more respectful toward the earth. Finally, under the pollution-prevention approach, state barriers should lead to less waste. For recyclable materials, however, the pollution-prevention approach would strongly favor a national market.

C. State Autonomy

In light of Congress's propensity to federalize environmental law,¹⁶⁷ the suggestion that Congress consider enhancing state autonomy may appear mistaken, or, at best, naive. Nevertheless, despite this propensity and the general demise of state autonomy,¹⁶⁸ state autonomy still plays an important role in environmental policy in an instrumental sense, if in no other. First, Congress's implementation of national environmental objectives often depends on state cooperation. Second, the status of states in our constitutional system imposes limitations upon how Congress may go about enlisting states to achieve national objectives.

The value of enhancing state authority over environmental policy is supported by all the traditional rationales for state governments—greater government sensitivity to citizen needs, increased opportunity for citizen involvement in democratic processes,

167. Federal laws now touch upon nearly all aspects of natural resources conservation, pollution control, and chemical emergency response. *See, e.g.*, Federal Insecticide, Fungicide, and Rodenticide Act, 7 U.S.C. §§ 136-1364 (1988); Toxic Substances Control Act, 15 U.S.C. §§ 2601-2671 (1988 & Supp. V 1993); Multiple-Use Sustained-Yield Act, 16 U.S.C. §§ 528-531 (1988); Coastal Zone Management Act, 16 U.S.C. §§ 1451-1464 (1988 & Supp. V 1993); Endangered Species Act, 16 U.S.C. §§ 1531-1544 (1988 & Supp. V 1993); Forest and Rangeland Resources Act, 16 U.S.C. §§ 1600-1687 (1988 & Supp. V 1993); Occupational Safety and Health Act, 29 U.S.C. §§ 651-678 (1988 & Supp. V 1993); Surface Mining Control and Reclamation Act, 30 U.S.C. §§ 1201-1328 (1988 & Supp. V 1993); Clean Water Act, 33 U.S.C. §§ 1251-1387 (1988 & Supp. V 1993); Ocean Dumping Ban Act, 33 U.S.C. §§ 1401-1445 (1988 & Supp. V 1993); Oil Pollution Act of 1990, 33 U.S.C. §§ 2701-2761 (Supp. 1994); Safe Drinking Water Act, 42 U.S.C. §§ 300f-300j-26 (1988); National Environmental Policy Act, 42 U.S.C. §§ 4321-4361 (1988); Solid Waste Disposal Act, 42 U.S.C. §§ 6901-6992K (1988 & Supp. V 1993); Clean Air Act, 42 U.S.C. §§ 7401-7642 (1988 & Supp. V 1993); Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S.C. §§ 9601-9675 (1988 & Supp. V 1993); Emergency Planning and Community Right-to-Know Act, 42 U.S.C. §§ 11001-11050 (1988); Pollution Prevention Act of 1990, 42 U.S.C. §§ 13101-13109 (Supp. V 1993); Federal Land Policy and Management Act, 43 U.S.C. §§ 1701-1784 (1988 & Supp. V 1993).

168. *See Garcia v. San Antonio Metro. Transit Auth.*, 469 U.S. 528, 531 (1985) (striking down municipal transit authority's exemption from federal wage and hour laws). *But cf.* *New York v. United States*, 112 S. Ct. 2408 (1992), discussed *infra* notes 184-87 and accompanying text.

and greater government innovation.¹⁶⁹ In addition, however, the diversity of the environment itself and the benefits of that diversity for our economic, social, aesthetic, and political norms and institutions¹⁷⁰ render decentralized decisionmaking especially important in environmental matters. Since the 1970s, however, the driving force behind environmental regulation has been the federal government. Aside from a few statutes that preempt nonidentical state laws,¹⁷¹ the major federal pollution laws establish national standards that function as "floors" below which state standards are preempted.¹⁷² Commentators are now reexamining some of the

169. See *Gregory v. Ashcroft*, 501 U.S. 452, 457-58 (1991); see also Michael W. McConnell, *Federalism: Evaluating the Founders' Design*, 54 U. CHI. L. REV. 1484, 1493-1500 (1987) (reviewing RAOUL BERGER, *FEDERALISM: THE FOUNDERS' DESIGN* (1987)) (arguing that the three important advantages of decentralized decisionmaking are responsiveness to diverse interests and preferences; prevention of the destructive competition for the benefits provided by government; and innovation and competition in government); Deborah Jones Merritt, *The Guarantee Clause and State Autonomy: Federalism for a Third Century*, 88 COLUM. L. REV. 1, 3-10 (1988) (arguing that the advantages of our federal system include the ability of independent state governments to check the oppressive power of a strong central government and the capacity of states to serve as well-springs of political force, drawing citizens into the political process, providing political and cultural diversity, and providing laboratories for new social and economic programs). California's environmental laws provide excellent examples of the above-described benefits of decision-making at the state level. California, which the Clean Air Act specifically allows to implement more stringent vehicle emission standards than the federal government, has required that by 1998 2% of each car manufacturer's new vehicle fleet sold in California must be zero-emission vehicles (electric cars); this increases to 10% by 2003. See CAL. HEALTH & SAFETY CODE § 44001 (West 1995). Pursuant to the petition by several northeastern states, EPA is proposing to require that all states within the Ozone Transport Region comply with the 2% zero-emission requirement. 59 Fed. Reg. 48,664 (1994) (to be codified at 40 C.F.R. pt. 85 (proposed Sept. 22, 1994)). California law also requires that chemicals that may cause cancer be accompanied by a "clear and reasonable" warning. CAL. HEALTH & SAFETY CODE §§ 25249.5-25249.13 (West 1992). There is no comparable federal labelling requirement.

170. See Richard B. Stewart, *The Development of Administrative and Quasi-Constitutional Law in Judicial Review of Environmental Decisionmaking: Lessons from the Clean Air Act*, 62 IOWA L. REV. 713, 750 (1977).

171. Congress has chosen federal preemption only in the infrequent case of federal environmental statutes that regulate nationally distributed products. See, e.g., Federal Insecticide, Fungicide, and Rodenticide Act, 7 U.S.C. § 136v (1988) (preempting state standards for labelling and packaging pesticides); Toxic Substances Control Act, 15 U.S.C. § 2617 (1988) (providing for administrative preemption of state standards for the testing, manufacture, distribution, or use of toxic chemicals); Clean Air Act, 42 U.S.C. § 7543 (1988 & Supp. V 1993) (preempting state standards for emissions from new motor vehicles and vehicle engines).

172. See, e.g., Resource Conservation and Recovery Act, 42 U.S.C. § 6926 (1988) (providing that states may administer federal program under their own laws so long as the state program is equivalent and not inconsistent with the federal program); Clean Air Act, 42 U.S.C. § 7410 (1988 & Supp. V 1993) (setting forth minimum requirements for state

traditional rationales for uniform federal regulation, including the assumption that decentralized state decisionmaking inevitably leads to a "race to the bottom" as each state competes for industry.¹⁷³

Notwithstanding this debate, national uniform standards have not freed Congress of the need to defer to state autonomy. As the federal government recognizes, states must assist in the implementation of federal programs.¹⁷⁴ Unless states can be convinced to implement the federal program through the "carrot" of federal funding,¹⁷⁵ implementation is left to the federal government itself. In an era of dwindling federal agency budgets, this is not always a practical alternative.¹⁷⁶ Consequently, regardless of the relevance of the more generic arguments for state autonomy, practical limitations on federal resources require deference to state autonomy in order to implement national environmental objectives. The greater the infeasibility of federal administration of the government program (for example, where the sheer number of regulated entities is large), the greater the degree of autonomy accorded the state in the program's implementation.¹⁷⁷

plan to meet primary and secondary national ambient air quality standards).

173. See Richard Revesz, *Rethinking the "Race to the Bottom,"* 67 N.Y.U. L. REV. 1210, 1224-27 (1993) (explaining how race-to-the-bottom rationale explains major portions of the Clean Air Act); see also *id.* at 1233-44 (arguing that the race to the bottom rationale lacks a sound theoretical foundation because states that seek to maximize their social welfare will not legislate environmental standards that are suboptimal); Richard B. Stewart, *Pyramids of Sacrifice? Problems of Federalism in Mandating State Implementation of National Environmental Policy*, 86 YALE L.J. 1196, 1211-12 (1977) (explaining that uniform federal environmental regulations help to prevent a "race to the bottom" in state regulation); Stewart, *supra* note 170, at 747 (explaining why states would fail to choose an economically desirable nondegradation policy absent federal requirements).

174. See PERCIVAL ET AL., *supra* note 28, at 196 (noting that "the major federal statutes are structured in important ways to preserve state autonomy even at the price of weakening their implementation").

175. See, e.g., 33 U.S.C. § 1383 (1988) (providing water pollution control revolving loan funds for state implementation of source management programs); 42 U.S.C. § 6948 (1988) (providing federal financial assistance for state solid waste planning); 42 U.S.C. § 7506(c) (1988 & Supp. V 1993) (permitting EPA Administrator to prohibit the disbursement of federal highway funds to states that fail to implement plan for nonattainment areas as required by the Clean Air Act).

176. Federal grant programs are notorious for quickly drying up, leaving the states with little incentive to implement a federal program other than to prevent the federal government from doing so. See PERCIVAL ET AL., *supra* note 28, at 119 ("While EPA has the authority to withdraw a delegation of program authority to any state that is not meeting federal standards, the agency has little incentive to do so since it would add to EPA's responsibilities without providing additional resources to implement them."); Stewart, *supra* note 173, at 1250.

177. For example, state programs implementing the federal standards for underground petroleum storage tanks are subject to regulatory requirements. See 40 C.F.R. § 281

Congressional authorization of state barriers to interstate commerce in waste would, at the very least, enhance state and local regulatory autonomy over the implementation of federal standards for the disposal of solid waste. Here it is necessary to be more specific about how state autonomy is being defined, because state autonomy can be conceptualized in more than one way. For instance, state autonomy is often thought to raise questions of the relationship between states as sovereigns vis-a-vis the national government.¹⁷⁸ The national market does not threaten this conception of state autonomy. Although states have no control over the volumes of waste disposed of within their borders, their choices are not dictated by the national government. A second definition of state autonomy, however, encompasses the state's authority to protect the environment within its borders and to control the demands on the state treasury.¹⁷⁹ Under this definition, Congress's decision to allow states to impose import barriers directly implicates the authority of a state to impose barriers to the distribution of waste. State officials complain that the inability to discriminate against out-of-state waste hampers their efforts to minimize waste generation and to plan for long-term disposal capacity,¹⁸⁰ complicates environmental enfor-

(1993). In contrast to the requirements applicable to state programs for administering the permitting of hazardous waste disposal facilities, *see* 40 C.F.R. § 271 (1993), the requirements applicable to state programs for administering the standards for underground storage tanks are less rigorous. While it would be extremely difficult for the EPA to administer a state program that could apply to a thousand or more underground tanks, it is plausible that the agency could administer a state program for the permitting of at most several dozen hazardous waste disposal facilities.

178. *See e.g.*, *Garcia v. San Antonio Metro. Transit Auth.*, 469 U.S. 528, 529-50 (1985).

179. This definition is similar to that argued by one scholar to be the true meaning of the Guarantee Clause of the Constitution. Deborah Jones Merritt, *The Guarantee Clause and State Autonomy: Federalism for a Third Century*, 88 COLUM. L. REV. 1, 22, 36-70 (1988) (arguing that the most obvious meaning of the Guarantee Clause is that the federal government promises to secure to each state the autonomy necessary to maintain a republican form of government; state autonomy protected by the Guarantee Clause includes the right to establish eligibility to vote for state offices, control over the structure and mechanics of state government, the establishment of qualifications for state offices, and the setting of wages for state employees).

180. *See, e.g.*, *Impact of Federal Solid Waste Legislation: Hearing Before the Subcomm. on Transp. and Hazardous Materials*, 102d Cong., 1st Sess. 342 (1991) (statement of Arthur A. Davis, Secretary, Pennsylvania Department of Environmental Resources) (arguing that out-of-state waste undermines state and county planning process by making the number of sites needed uncertain and that visibility of out-of-state waste issue diverts staff and management time from recycling and design standards).

cement efforts,¹⁸¹ and diverts state resources from more pressing regulatory problems.¹⁸²

In addition, the status of states in our constitutional structure imposes limitations upon Congress's ability to use the states to fulfill national objectives. This aspect of state autonomy—state autonomy as a limitation upon the methods employed in the pursuit of national goals—could be effective if Congress's authorization of state barriers to solid waste incorporated provisions requiring that states exercise their sovereign powers, rather than simply authorizing access barriers or discriminatory surcharges.¹⁸³ In *New York v. United States*,¹⁸⁴ the Court struck down a provision of a federal law forcing states to choose between siting (or joining a regional state compact that has sited) a low-level radioactive waste disposal facility or taking title to all low-level radioactive waste generated within its borders. Either choice would, according to the Court, “‘commandeer’ state governments into the service of federal regulatory purposes.”¹⁸⁵ By requiring states to become liable for generators’ damages or by requiring states to implement federal legislation, Congress was regulating the states. This violated the structure of our constitutional government, which, in order to preserve the authority of states, allows only for the national government to act directly upon the citizens.¹⁸⁶ Nevertheless, the Court in *New York v. United States* indicated that

181. See, e.g., *Impact of Federal Solid Waste Legislation: Hearing before the Subcomm. on Environment and Employment of the House Comm. on Small Business*, 102d Cong., 1st Sess. 84 (1991) (statement of Mary Sue Terry, Attorney General of Virginia) (contending that disposal operator's ability to raise Commerce Clause issues complicates routine environmental enforcement suits and that inability to control flow of out-of-state waste hampers long range solid waste planning); *Interstate Transportation of Solid Waste: Hearings Before the Subcomm. on Transp. and Hazardous Materials, Comm. on Energy and Commerce*, 102d Cong., 1st Sess. 46 (1991) (statement of Hon. Thomas C. Sawyer) (indicating unregulated interstate shipments of waste contribute to failures to detect potentially hazardous, illegal waste shipments).

182. *But cf. id.* at 202-08 (statement of David S. Bailey, Senior Scientist, Environmental Defense Fund) (arguing that state inability to control solid waste flow is problematic because states use lack of control to justify their failure to address in-state waste disposal issues).

183. *New York v. United States*, 112 S. Ct. 2408, 2427-29 (1992); see also *Federal Energy Regulatory Comm'n v. Mississippi*, 456 U.S. 742, 787 (1982) (O'Connor, J., concurring in the judgment in part and dissenting in part) (arguing that federal regulation requiring substantial state government participation may violate federalism notions in the Constitution); *Hodel v. Virginia Surface Mining & Reclamation Ass'n*, 452 U.S. 264, 288 (1981) (upholding federal regulation of strip mining as not violative of state sovereignty).

184. 112 S. Ct. 2408 (1992).

185. *Id.* at 2428.

186. *Id.* at 2421.

congressional authorization of state surcharges on and access barriers to waste generated out-of-state would not pose a Tenth Amendment problem because any resulting burdens of such a law will fall "on those who generate waste and find no outlet for its disposal, rather than on the State as a sovereign."¹⁸⁷ Consequently, the Tenth Amendment allows Congress to authorize state access barriers and surcharges upon out-of-state waste, but not to impose mandatory regulatory obligations upon exporting or importing states.

In sum, should a national solution to the problem of interstate transportation of solid waste demand the expenditure of resources, Congress's solution, for both practical and Tenth Amendment reasons, must allow for a minimum of state autonomy.

D. Equity or Fairness

To many critics of the interstate waste trade, the primary value at stake is not economic efficiency, environmental protection, or state autonomy, but equity. These critics charge that it is unfair that communities in some states can dump their trash in communities located in other states, potentially turning recipient states into national dumping grounds.¹⁸⁸ Consequently, any congressional decision over how waste should be distributed must incorporate considerations of equity, or fairness. Equity is subject to several definitions, some of which condemn the national market as a means of distributing waste and some of which do not. The following section discusses whether the unrestricted national waste market would be considered more or less fair than a market restricted by state regulation as evaluated under four interpretations of justice or fairness:¹⁸⁹ utilitarianism, Aristotle's principle of proportional equality,

187. *Id.* at 2427 (referring to provisions of Low-Level Radioactive Waste Policy Act Amendments of 1985 authorizing sited states in regional compacts to impose compensatory and penalty surcharges upon, and to ultimately deny access to, the disposal of waste generated within states that fail to comply with Act's siting deadlines).

188. See, e.g., *Oregon Waste Sys. v. Department of Env'tl. Quality*, 112 S. Ct. 1345, 1357 (Rehnquist, J., dissenting); see also Janet C. Pancoast & Leonidas W. Payne, *Hazardous Waste in Interstate Commerce: Triumph of Law over Logic*, 20 *ECOLOGICAL L.Q.* 817, 825-28 (1993) (noting that "a number of states believe they are serving as dumping grounds for other states" with respect to hazardous waste disposal).

189. For excellent analyses of the fairness of a similar distribution problem, see Vicki Been, *What's Fairness Got to Do with It? Environmental Justice and the Siting of Locally Undesirable Land Uses*, 78 *CORNELL L. REV.* 1001 (1993) (discussing fairness in the distribution of locally unwanted land uses); Michael Enbar, *Equity in the Social Sciences*, in *EQUITY ISSUES IN RADIOACTIVE WASTE MANAGEMENT* 3 (Roger E. Kasperson ed., 1983) (analyzing fairness in the distribution of radioactive waste sites); Michael B. Gerrard,

an extension of John Rawls's "difference principle," and the theory of compensatory justice.¹⁹⁰

1. Utilitarianism

Under classical utilitarianism's "principle of utility," social institutions serve just purposes when they maximize utility for the greatest number of persons.¹⁹¹ "Utility" has been described as happiness¹⁹² or as preference satisfaction.¹⁹³ The principle of utility holds that if a change maximizes the total utility for society as a whole, the change should be made even if the utility of some individuals decreases.¹⁹⁴ Act utilitarianism uses the principle of utility (the greatest good for the greatest number) to choose between various actions.¹⁹⁵ Rule utilitarianism, on the other hand, applies the principle of utility to choose between various rules or practices that will guide future social actions.¹⁹⁶

An attempt to apply the principle of utility to the problem of interstate commerce in waste reveals why act utilitarianism has fallen into disrepute: It is impossible to determine the greatest utility without having a means to compare varying levels of satisfaction among different individuals.¹⁹⁷ We may assume that at least some residents of net waste-importing states would be satisfied if Congress authorized state import bans and dissatisfied if Congress did nothing,

Fear and Loathing in the Siting of Hazardous and Radioactive Waste Facilities: A Comprehensive Approach to a Misperceived Crisis, 68 TUL. L. REV. 1047, 1122-32 (1994) (discussing fairness in the distribution of hazardous and radioactive waste disposal facilities).

190. This is by no means intended to be an exhaustive list of criteria by which the fairness of the distribution of waste can be analyzed. For instance, the following does not discuss theories based upon a conception of freedom from environmental harm as a human right because of the difficulty in applying such theories to waste disposal where everyone generates at least some waste. See, e.g., Dinah Shelton, *Human Rights, Environmental Rights, and the Right to Environment*, 28 STAN. J. INT'L L. 103 (1991) (suggesting that a "right" to a healthy environment is developing in international law). See generally Symposium, *Earth Rights and Responsibilities: Human Rights and Environmental Protection*, 18 YALE J. INT'L L. 215 (1993) (surveying the interrelation of human rights and environmental concerns).

191. JEREMY BENTHAM, AN INTRODUCTION TO THE PRINCIPLES OF MORALS AND LEGISLATION 34-35 (Mary Warwick ed., Meridian Books 1962) (1789).

192. *Id.*

193. For a discussion of the distinction between happiness and preference satisfaction, see PETER S. WENZ, ENVIRONMENTAL JUSTICE 160-61 (1988).

194. JEFFRIE G. MURPHY & JULES L. COLEMAN, THE PHILOSOPHY OF LAW 76 (1984).

195. *Id.* at 106 n.9.

196. See *id.* at 76-77.

197. See H. PEYTON YOUNG, EQUITY IN THEORY AND PRACTICE 10 (1994).

leaving the national market in place. Similarly, it is safe to assume that residents of net waste-exporting states would rank their preferences in precisely the reverse order. But without knowledge of how much each resident of importing and exporting states is satisfied or dissatisfied by the two options, it is impossible to go beyond this point to predict which alternative would achieve the greatest good for the greatest number of people. Resident satisfaction may be consistent with the extent to which the resident's state imports or exports waste, with residents of major net importing states the most dissatisfied and those of major net exporting states the most satisfied with the national market. If this were the case, residents of major net importing states would despise the national market while residents of a minor net exporting state may merely dislike the state import ban. However, this may not be the case. Resident satisfaction may be shaped by a multitude of other factors, such as the population's prior experiences with waste disposal facilities, the importance of waste disposal operations to the state or local economy, and the size of any host fees collected by the communities in which facilities are located. All of these factors make it impossible to predict, based only upon statistics showing which states are net waste importers or exporters, whether the national market or the imposition of state barriers maximizes social satisfaction.

We are in no better position to predict the outcome of the application of rule utilitarianism. On the one hand, a rule utilitarian might decide that total societal satisfaction is maximized when everyone has the right to ship waste for disposal out-of-state, regardless of whether it is exercised or not. Support for such a rule might be found in the majority opinion in *Philadelphia v. New Jersey*, in which Justice Stewart indicated that the national market in waste disposal functioned as a sort of insurance scheme on landfill space and might work to the future benefit of even those states that currently imported waste.¹⁹⁸ On the other hand, a rule utilitarian might decide that total societal happiness is maximized when people are assured that the residents of some states will *not* be made to accept the waste generated in other states. Without knowledge of the utility function of residents of each state, we have no way of knowing which rule would best maximize societal satisfaction.

198. 437 U.S. 617, 629 (1978).

2. Proportional Equality

Aristotle maintained that there are two kinds of justice: distributive justice and compensatory justice. Distributive justice is exercised by the legislator in allotting honor, wealth, property, and "other divisible assets of the community," while compensatory or corrective justice is exercised by the judge in settling disputes.¹⁹⁹ Aristotle proposed a theory of distributive justice based on proportional equality.²⁰⁰ Proportional equality demands that the legislator distribute shares of honor, wealth, and community goods according to each person's share of merit or desert, however defined.²⁰¹ With respect to solid waste, the issue is not the size of the individual's share of social goods, but rather the size of the individual's share of environmental "bads"—solid waste. It makes sense to distribute solid waste, or, more accurately, the burdens of waste generation, according to the amount of benefits received from waste production.²⁰² The benefits of waste generation are generally the benefits of our consumer-oriented economy (e.g., food packaging that preserves the freshness of the contents or saves time in preparation), in addition to the benefits received by the state or locality as a result of the waste disposal operation itself (e.g., host fees, jobs). The burdens of waste generation are those that accompany the disposal of waste—increased health risks, increased regulatory costs, property and natural resource losses, and potential demoralization costs. According to Aristotle's

199. ARISTOTLE, *NICOMACHEAN ETHICS* 267 (Harrison Rackham trans., 1982).

200. *Id.* at 273. As Aristotle described it,

[t]he just in this sense is therefore the proportionate, and the unjust is that which violates proportion. The unjust may therefore be either too much or too little; and this is what we find in fact, for when injustice is done, the doer has too much and the sufferer too little of the good in question.

Id.; see also PETER WESTEN, *SPEAKING OF EQUALITY* 54-56 (1990) (outlining the six steps of Aristotle's analysis of the relationship between justice and proportional equality); YOUNG, *supra* note 197, at 9 (recognizing Aristotle's equity principle as a theory of justice "which states that goods should be divided in proportion to each claimant's contribution").

201. ARISTOTLE, *supra* note 199, at 269 ("All are agreed that justice in distributions must be based on desert of some sort, although they do not all mean the same sort of desert; democrats make the criterion free birth; those of oligarchical sympathies wealth . . ."); see also WESTEN, *supra* note 200, at 56-57 (pointing out Aristotle's recognition of the different standards for measuring merit).

202. Roger E. Kasperson & Barry L. Rubin, *Siting a Radioactive Waste Repository: What Role for Equity?* in *EQUITY ISSUES IN RADIOACTIVE WASTE MANAGEMENT*, *supra* note 105, at 127-32 (noting that the benefits of radioactive waste are those resulting from the generation of electricity while the burdens are those related to the disposal of radioactive waste).

conception of proportional equality, each person's share of waste generation burdens should be in proportion to each person's share of waste generation benefits.²⁰³

There are at least two potential distributions of waste that would achieve proportional equality in the distribution of the burdens and benefits of waste production. Under the first, a person's waste burdens are deemed proportional to her waste benefits when the total amount of burden she sustains is equal to the total amount of benefit she receives as a result of her consumer purchasing decisions and consumptive habits. An individual's benefits and burdens are proportional, in other words, when they reflect the individual's consumptive patterns. The following discussion will refer to this method of measuring proportional equality as "benefit/burden concordance."²⁰⁴ Under the second distribution, each person receives equal shares of the nation's total waste burden and equal shares of the nation's total waste benefits, or the total amount of benefits derived from waste by society as a whole. The following discussion will refer to this distribution as "benefit/burden equalization."²⁰⁵ Under the "benefit/burden equalization" formula, proportional equality reflects interpersonal equality. There is no relationship between the individual's own purchasing decisions and her share of the burdens and benefits. Instead, the goal is for the individual to receive no more and no less of society's waste burdens and benefits than anyone else.

(a) Benefit/Burden Concordance

Only the state import ban option will assure achievement of the proportional equality demanded by the benefit/burden concordance principle. Under this definition of proportional equality, each individual's share of benefits will be in proportion to that of every other and so too will be each individual's share of burdens. If it is

203. The principle that the risks of physical harm from collective social endeavors should be distributed equally is held by many political philosophers. See GEORGE KLOSKO, *THE PRINCIPLE OF FAIRNESS AND POLITICAL OBLIGATION* 34 (1992) (arguing that each individual ought to take his or her equal share of the burdens associated with the benefits of cooperative activities); Richard L. Abel, *A Socialist Approach to Risk*, 41 MD. L. REV. 695, 710-11 (1982) (arguing that "those risks we collectively choose to encounter ought to be shared equally").

204. Roger E. Kasperson et al., *Confronting Equity in Radioactive Waste Management: Modest Proposals for a Socially Just and Acceptable Program*, in EQUITY ISSUES IN RADIOACTIVE WASTE MANAGEMENT, *supra* note 105, at 335 (applying benefit/burden concordance principle to distribution of radioactive waste).

205. *Id.*

assumed that the state import ban option will lead to all waste being disposed of in the state in which it is generated, each state's residents will experience both the burdens and the benefits of the waste they collectively produce as a result of their consumptive habits. Thus, on the state level, state import bans achieve proportionality between the burdens and benefits of waste generation. In all cases, the benefits of waste generation to each state's citizens will be commensurate with the burdens from waste disposal. It is immaterial what the sizes of those benefits and burdens are. The important point is that the two are correlated: If state residents produce more waste, their benefits go up, but so too will their burdens. Similarly, if state residents produce less waste, their benefits go down, but so too will their burdens.

By contrast, the national market option is inimical to the type of proportional equality demanded by the concordance principle. Under the national market, residents can increase their benefits by making consumptive decisions that produce more waste, but lower the amount of burdens that otherwise correspond to that amount of benefit by exporting excess waste. Similarly, when waste is distributed through a national market, the residents of net-importing states may end up with greater burdens than those for which they would otherwise be responsible, given their consumptive decisions. Either way, the principle of proportionality is destroyed. Only where a state's waste imports happen to equal its waste exports will the national market achieve proportional equality according to the concordance principle. According to the benefit/burden concordance principle of equality, therefore, the national market is generally an inequitable mechanism for distributing waste, and the state import ban is generally an equitable mechanism.

(b) Benefit/Burden Equalization

(i) *The Relativity of the Burdens of Increased Volumes of Waste*

Using the "burden equalization" principle instead of the concordance principle, the fairness of the two options for distributing waste is not quite so readily determined. The analysis falls victim to an inherent problem with Aristotle's principle: the difficulty of determining how to account for differences between things that could

affect the magnitude of the burden or benefit bestowed.²⁰⁶ With respect to waste, the problem manifests itself when one attempts to compare the burden and benefit of the distribution of a particular volume of waste between states that differ in ways that could affect the magnitude of those burdens and benefits. This comparison is necessary because that principle demands that we determine whether the waste volumes requiring disposal in various states as a result of the functioning of a particular waste-distributing mechanism result in equal or unequal shares of burdens.

Assuming that waste-importing and waste-exporting states were similar in all respects relevant to the burden of waste disposal, this measurement problem would not matter. Furthermore, this assumption leads to the assumption that only the state import ban approach would equalize the benefits and burdens of waste disposal.

To see this, we can compare the average per capita "waste burden" of the residents of each state under both the national market and the state import ban option to arrive at a rough measure by which to compare certain costs associated with waste disposal, such as the magnitude of each resident's share of the state's regulatory costs. Under the state import ban approach, the per capita "waste burden" of all state residents will be equal. Assuming each person generates four pounds of garbage a day, the per capita waste burden will simply be four pounds per person per day, or 0.73 tons per year.²⁰⁷ Under this same assumption, the national free market option will yield unequal shares of burdens. Within waste-exporting states, the per capita burden will drop, while within waste-importing states, the per capita levels will rise. For example, after volumes of waste imported and exported are taken into consideration, the per capita waste burden of residents in New Jersey drops from 0.73 to 0.40 tons per

206. Hans Kelsen noted:

If the individuals A and B are equal, the rights to be allotted to them must be equal too. However, there are in nature no two individuals who are really equal, since there is always a difference as to age, sex, race, health, wealth, and so forth. . . . The decisive question as to social equality is: Which differences are irrelevant? To this question Aristotle's mathematical formula of distributive justice has no answer.

HANS KELSEN, *Aristotle's Doctrine of Justice*, in WHAT IS JUSTICE? JUSTICE, LAW, AND POLITICS IN THE MIRROR OF SCIENCE 127 (1957); see also W. VON LEYDEN, ARISTOTLE ON EQUALITY AND JUSTICE 26-29 (1985) (explaining attempts to justify notions of equality in systems with extreme diversity).

207. See *supra* note 56.

year, while the per capita waste burden in West Virginia rises from 0.73 to 1.17 tons per year.²⁰⁸

Waste-importing and waste-exporting states, differ, however, in a few key measures. For instance, waste-importing states are generally larger and have lower population densities. Similarly, even after waste imports and exports are taken into account, waste-importing states have lower average amounts of waste requiring disposal per square mile of land than do waste-exporting states. Furthermore, the populations of importing and exporting states also differ as to average income levels²⁰⁹ and the magnitude of pollution burdens other than waste disposal.²¹⁰ Arguably, each of these differences is relevant to determining whether the burden of 1.17 tons of waste per capita really constitutes a greater burden than 0.40 tons of waste per person. The following section explores how each of these differences could be argued to render more equal the differing per capita waste burdens resulting from distributing waste through the national market and render less equal the otherwise identical per capita waste burdens distributed by the state import ban approach.²¹¹

208. See *infra* Appendix, Table 3. Of course, these "burden" figures must be reduced by any benefits the state receives from the business of disposing of waste. The unpredictability of such benefits, however, makes them difficult to factor into the analysis with any certainty. See *infra* notes 246-51 and accompanying text.

209. See *infra* Appendix, Table 1.

210. See *infra* Appendix, Table 1.

211. The following omits any consideration of differences in individuals that could affect the degree of harm an individual sustains as a result of the health risks from waste disposal. For physiological reasons, some population subgroups—for example, asthmatics, pregnant women, and young children—are more susceptible to health harm from lower levels of exposure to toxic chemicals. See, e.g., Environmental Protection Agency, *National Primary and Secondary Ambient Air Quality Standards for Lead*, 43 Fed. Reg. 46,246, 46,252 (1978) (concluding that young children are at particular risk from lead exposure because of greater physiological sensitivity and greater physical exposure). Furthermore, even where physiological differences are missing, persons vary in their aversion to environmental risks. For example, it is well known that one's culture and beliefs can influence their reaction to a given health risk. See STEPHEN BREYER, *BREAKING THE VICIOUS CIRCLE: TOWARD EFFECTIVE RISK REGULATION* 16 (1993); MARY DOUGLAS & AARON WILDAVSKY, *RISK AND CULTURE* 14 (1982) ("[E]ach culture, each set of shared values and supporting social institutions, is biased toward highlighting certain risks and downplaying others"); Paul Slovic, *Perception of Risk*, 236 *SCIENCE* 280, 283 (1987). It has also been shown that people who work or live in industries or communities with higher risks are often more accepting of health risks. See, e.g., Gerrard, *supra* note 189, at 1149-50 (describing local cultures in the United States that are strongly accepting of the hazardous and radioactive waste facilities that form the basis of their economy). Nevertheless, these differences are relevant to the present analysis only if they manifest themselves as differences between importing and exporting states. There is no particular

(ii) *Factors Influencing the Equality of Waste Burden*

(1) Population and Waste Density

The health and regulatory costs of waste disposal should vary with the population and waste density of the state. Population density will dictate how near or far from populated areas a disposal facility can be placed. This will affect the magnitude of public expenditures on health risks, the costs of siting a facility, and the total volume of waste generated by the state's population alone. Waste density gauges both the total amount of waste requiring disposal in the state and the area over which it can be spread. Persons living in states with lower waste densities are statistically less likely to live near a waste disposal facility than persons living in states with high waste densities.²¹²

Data on state imports and exports demonstrate that waste flows from states with higher population densities to states with lower population densities.²¹³ The data also show that, even after the volumes of waste exported are taken into account, waste-importing states have lower waste densities than waste-exporting states.²¹⁴ If these differences are considered, it could be argued that, rather than

reason to believe that individuals living in waste-importing states will, as a general rule, be more or less susceptible to health risks than persons living in waste-exporting states.

212. The statistical nature of this assumption must be stressed. Although the lack of data on the actual distribution of waste disposal facilities leaves no choice but to resort to such an assumption, it is important to recognize that the probabilities of an individual living near a waste disposal facility can vary widely according to a host of other factors. Studies have shown that persons living in a predominantly poor and minority area are more likely to live nearby polluting land uses, including solid waste disposal facilities. For studies of the disproportionate siting of solid waste disposal facilities, see Robert D. Bullard, *Solid Waste and the Houston Black Community*, 53 SOC. INQUIRY 273 (1983) (concluding that solid waste disposal facilities in Houston are located disproportionately in minority neighborhoods); Robert D. Bullard & Beverly Hendrix Wright, *The Politics of Pollution: Implications for the Black Community*, 47 PHYLON 71, 76 (1986) (noting that six of Houston's eight garbage incinerators and all five of the City's landfills are located in African-American neighborhoods). For studies of the disproportionate siting of hazardous waste disposal facilities and other polluting land uses, see U.S. GEN. ACCOUNTING OFFICE, SITING OF HAZARDOUS WASTE LANDFILLS AND THEIR CORRELATION WITH RACIAL AND ECONOMIC STATUS OF SURROUNDING COMMUNITIES (1983); UNITED CHURCH OF CHRIST COMM'N FOR RACIAL JUSTICE, TOXIC WASTE AND RACE IN THE UNITED STATES (1987); U.S. ENVIRONMENTAL PROTECTION AGENCY, REPORT ON ENVIRONMENTAL EQUITY (1992); BULLARD, *supra* note 12 at 1-6.

213. See *infra* Appendix, Table 1.

214. See *infra* Appendix, Table 1.

being equal between the residents of waste-importing and waste-exporting states, under the state import ban approach, the per capita waste burden of importing states is actually *lower*. Similarly, these data could also be used to argue that the per capita waste burdens of waste-importing and waste-exporting state residents under the national market approach are less unequal than the per capita waste burden figures actually show. This has a measure of common sense behind it as well. Although Montana may be a net waste-importing state, having only 5.7 persons per square mile, Montana has the luxury to site its landfills away from people; Massachusetts, a net waste-exporting state with nearly 6,000 persons per square mile, does not.²¹⁵

In response to this argument, however, it could be claimed that an individual is entitled to whatever benefits flow from the demographic and geographic characteristics of the individual's state of residence. Thus, the fact that one's state of residence has a low population density and a large land area and, hence, lower health and financial costs associated with waste disposal, should not be employed to mitigate the individual costs from increased waste. Popular conceptions of the basis of individual entitlements to be free of pollution risks are often based on the idea that a person is entitled to limit his or her share of pollution harm to that present in the locality in which the individual lives.²¹⁶ But justification for this entitlement is difficult to discern. If one's place of residence is determined through happenstance, as by birth, its characteristics that affect individual health risk from pollution would seem to be, much like natural talents, "arbitrary from a moral point of view."²¹⁷

215. See *infra* Appendix, Table 3.

216. See, e.g., *Interstate Transportation of Solid Waste*, *supra* note 44, at 38 (statement of Hon. Wayne Owens, Congressman from Utah) ("The people of Utah don't want everybody else's refuse and there is very strong revulsion. We don't mind taking care of our share of our own waste, but we want, Mr. Chairman, to be able to control our own destiny."); *Interstate Transportation of Solid Waste Part II, Hearing Before the Subcomm. on Antitrust, Impact of Deregulation, and Ecology, of the House Comm. on Small Business*, 102d Cong., 1st Sess. 34 (1991) (statement of Marie Burleson, Club 3000) (stating with respect to interstate waste shipments to her rural Ohio town from populated East Coast cities, "[j]ust because we live in a rural area does not mean that we have less rights than those who live in cities").

217. JOHN RAWLS, *A THEORY OF JUSTICE* 15 (1971) (arguing that a conception of justice should nullify the accidents of natural endowments and social circumstance as bases for political and economic advantage because they are undeserved and hence "arbitrary from a moral point of view"). But cf. ROBERT NOZICK, *ANARCHY, STATE AND UTOPIA* 213-31 (1974) (arguing that ignoring natural talents denigrates a person's autonomy, enslaves the better endowed to the lesser endowed, and rests upon the erroneous premise

It can perhaps be argued that one is entitled to the lower risks of one's place of residence when sacrifices are made to settle there. Suppose a person willingly moves from a densely populated state with greater job and cultural opportunities to one with less of these opportunities, in order to take advantage of the greater environmental amenities of the second state, including lower probability of harm from waste disposal. Regarding as "fair" the exportation of waste from the densely populated state to the less densely populated state because it "evens up" the per capita waste burdens of residents in the two states justifies depriving this person of the benefits of her sacrifices in moving away from the high-density state. This latter argument assumes, however, that people usually control their destinations when they move. Data on interstate migration demonstrate, however, that in perhaps a third or more of the total cases of interstate migration, the persons moving had little or no control over their destinations. In these cases, job transfers or family reasons compelled the moves.²¹⁸ Consequently, it is better to consider factors concerning location when determining equality in the distribution of the burdens of waste disposed. Those factors lessen the resulting equalities in per capita waste levels under the state import ban approach. At the same time, the factors lessen the inequalities in per capita waste levels resulting from the national market approach.

(2) Per Capita Income

Low income levels arguably increase the individual burdens attributable to waste disposal. Lower income levels make it more difficult for an individual to move away from a locality to avoid a health hazard. Localities where the residents' incomes are low will have less money to spend on measures such as monitoring a waste disposal facility or providing services should contamination occur. Currently, the average per capita incomes in waste-importing states

that all entitlements must be deserved).

218. LARRY LONG, *MIGRATION AND RESIDENTIAL MOBILITY IN THE UNITED STATES* 235-36 (1988). Data gathered from the Census Bureau's Annual Housing Surveys of 1979, 1980, and 1981 shows that approximately 22% of household interstate relocations between 1979 and 1981 were due to job transfers, and 8.6% were for the purpose of moving closer to relatives. *Id.* In neither the situation of job transfers nor moves to be near family does the individual have much choice over his or her location. Only 6% of those surveyed reported that they moved because of a change of climate. *Id.*

are lower than those in waste-exporting states.²¹⁹ This factor supports the argument that, despite the lower population and waste densities of waste-importing states, the inequality in income between importer and exporter states renders the residents of importer and exporter states just as bad off under the national market approach.

(3) Burdens From the Production Process

A comparison of the relative burdens resulting from different mechanisms for distributing waste might need to take into consideration the distribution of health and financial burdens resulting from the production process. For example, the conclusion that individuals in waste-importing states have higher burdens associated with waste disposal arguably would be undermined if it were also found that they have lower burdens associated with other forms of pollution.

Suppose there are several paper mills in State X, each of which discharges dioxin-contaminated wastewater into the State's rivers and streams and particulates into the air, but that there are no paper mills in State Y. Suppose also that there are several solid waste disposal facilities in State Y, but none in State X. Finally, suppose that the paper produced in X's paper mill is distributed and purchased in both State X and State Y, but that, once it is discarded, it ends up in State Y's landfills. While only the residents of State Y face the hazards and regulatory costs of the disposal of paper, they are free of other hazards associated with paper production, such as dioxin-contaminated water and particulate-polluted air. If the distribution of the burdens of the production process are considered along with the burdens of waste disposal, the residents of State Y may not shoulder greater burdens than the residents of State X. While the residents of Y alone shoulder the burdens of waste disposal, they share none of the burdens of producing paper. The example suggests that focusing solely on the burdens of waste disposal fails to give a true picture of the burdens to which a given state's population might be subject. While examination of per capita waste burdens alone demonstrates that only the state import ban approach equalizes the burdens of waste disposal, perhaps if other factors—such as the pollution burdens from the production process—were taken into account, the national

219. See *infra* Appendix, Table 1.

market approach may also equalize the burdens between waste-importing and exporting states.

This argument may be countered statistic by statistic. For example, available data on air pollution emissions by state indicate that waste-importing states on average have higher emissions of air pollution than waste-exporting states.²²⁰ This shows that the distribution of air pollution tends to track the distribution of solid waste that travels in interstate commerce and thus should not disturb the conclusions reached with regard to waste alone. On the other hand, it is not clear that this is the case with respect to water pollution,²²¹ and thus the statistic-to-statistic approach does not go very far toward resolving the issue. A similar fact-based approach might suggest that waste disposal facilities bring fewer benefits to a community than a polluting production facility, and thus higher waste disposal burdens are not offset by lower production facility pollution burdens. In comparison to the hundreds of jobs that might be created by a manufacturer, waste disposal facilities create comparatively few jobs.²²²

Even if such statistics eliminate the argument that the distribution of production burdens offsets the distribution of waste disposal burdens, the real threat of the production burden argument is that it points to the potential irrelevance of conclusions regarding the distribution of waste burdens alone. Even if waste-importing states sustain higher burdens from waste disposal, perhaps waste-exporting states sustain higher burdens attributable to poorer education, child care, or police protection. The list of relevant social burdens whose distribution could be considered is endless.

There is no wholly satisfactory reply to the so-called "aggregation objection,"²²³ other than that it can cripple any attempt to ensure the fair distribution of a particular harm.²²⁴ A pragmatist would exclude consideration of the distribution of all burdens that do not

220. See *infra* Appendix, Table 1.

221. See *infra* Appendix, Table 1 (showing that distribution of water pollution between waste-importing and waste-exporting states is not statistically significant).

222. See Gerrard, *supra* note 189, at 1147 (noting that off-site hazardous and radioactive waste disposal facilities create few jobs and giving samples of hazardous waste incinerators that employed 94 and 104 people respectively).

223. See Been, *supra* note 189, at 1024 ("The aggregation objection asks why the burden of [a particular social harm] should be viewed in isolation, without giving consideration to other burdens and benefits that neighborhoods suffer and enjoy."); see also BRUCE A. ACKERMAN, *SOCIAL JUSTICE IN THE LIBERAL STATE* 242-46 (1980) (further explaining the aggregation in reference to a complex society).

224. See Been, *supra* note 189, at 1025.

directly enlarge or shrink the burdens of waste disposal in order to at least pin down the relative distribution of the burdens of waste, while others might abandon the whole enterprise of trying to measure equity according to a benefit/burden equalization principle.

(4) Potential Environmental Offsetting Benefits of Increased Waste Volumes

As the recent rash of flow control ordinances demonstrates,²²⁵ a greater volume of waste is not always ultimately undesirable.²²⁶ Increased volumes of waste can make larger waste disposal or processing operations economically feasible. Because such benefits arguably offset some of the burdens of larger per capita waste levels, they should be taken into consideration when assessing the distribution of burdens between waste-importing and waste-exporting states. Newer, larger facilities tend to have better environmental compliance records and hence pose lower health and regulatory enforcement costs.²²⁷ Although these facilities could bring greater health and environmental harm should contamination occur,²²⁸ they should also have greater financial means to insure against such risks. The presence of interested insurers adds a second layer of oversight of the facility's environmental integrity as well as providing a source of compensation that might not be available to smaller facilities.²²⁹ Furthermore, because larger facilities can take advantage of economies of scale, they should reduce the costs of waste disposal to residents in waste-importing states. Finally, many private waste disposal operators pay the communities "host fees" in order to offset the environmental, health, and nuisance costs of their facilities.

225. See NATIONAL SOLID WASTES MANAGEMENT ASS'N, *supra* note 48, at 7.

226. See *C & A Carbone, Inc. v. Town of Clarkstown*, 114 S. Ct. 1677, 1680 (1994); KOVACS & PELLEGRINI, *supra* note 93, at 115.

227. See *Interstate Transportation of Solid Waste, Hearing Before the Subcomm. on Antitrust, Impact of Deregulation, and Privatization of the Comm. on Small Business*, 101st Cong., 1st Sess. 232 (1989) (comments by Waste Management, Inc.) ("The modern landfill is typically much larger with state of the art management controls designed to virtually eliminate the environmental problems historically associated with municipal landfills."). See also *Municipal Solid Waste Disposal Crisis*, *supra* note 166, at 235 (statement of W. Allen Moore, President, National Solid Wastes Management Association) (predicting newer, state-of-the-art facilities serving larger waste generation areas will be more environmentally protective in design and operation).

228. *Id.* at 320 (statement of Velma Smith, Friends of the Earth).

229. See 40 C.F.R. §§ 258.70-.74 (1993) (requiring all municipal solid waste landfills to have financial assurance).

Nevertheless there is a major catch to the ability of the importing state to reap these benefits.²³⁰ Under free market conditions, the NIMBY syndrome is accentuated because the state or locality cannot keep the benefits of the waste disposal facility. Residents who would host a facility for their exclusive use are less willing to host a facility that will be used by nonresidents. Building new facilities at the present time is therefore extremely difficult. Moreover, the amount of host fees offered and whether they are offered at all vary widely.²³¹ Thus, although these benefits exist, because they are unreliable it would be inaccurate to assume that they are always available to offset the larger per capita waste burdens of residents of waste-importing states.

(iii) *Application of Factor*

The impact of such factors on the burdens of waste disposal is too indeterminate to allow any accurate prediction as to whether the distribution of waste according to the national market or according to state import bans will lead to an equalization of the benefits and burdens of waste disposal between waste-importing and waste-exporting states. Looking only at per capita waste burdens, the state import ban approach appears to equalize the burdens of waste disposal, while the national market approach appears to render these burdens unequal. However, if differences in population and average waste density between waste-importing and waste-exporting states are taken into account, this conclusion becomes harder to support. The distribution of waste and population densities tends to make distribution of waste burdens under the national free market more equal, and the distribution of waste burdens according to state-sized markets less equal. Although the lower incomes of waste-importing states could return us to the conclusion that the state import ban approach is more equitable, inclusion of other factors, such as the distribution of the burdens of the production process (as well as other societal burdens), could undermine this conclusion again. Regardless of whether one considers the potential offsetting beneficial effect of increased waste volumes on the possibility of building safer disposal facilities in waste-importing states, the exercise of weighing burdens and benefits of waste disposal, at least at this stage of data analysis, is far too speculative to make any clear predictions as to the

230. See *infra* notes 245-50 and accompanying text.

231. See *supra* note 125 and accompanying text. For a full discussion of host fees and possible objections to them, see *infra* notes 246-51 and accompanying text.

equalization of the distribution of waste burdens under the state import ban and national market approaches.

3. Rawls's Difference Principle

An alternative approach to evaluating the fairness of the mechanism by which waste is distributed is suggested by John Rawls's difference principle. In an effort to articulate basic rules that would constitute a just structure of society superior to that called for by utilitarianism, John Rawls constructed a theory of social justice consisting of two principles.²³² Although Rawls intended for his theory of justice, including the two principles, to apply only to the basic structure of society and not to distributions of particular goods or services,²³³ it has proved so useful in determining the fairness of distributions that it is frequently employed to critique the justice of policy choices.²³⁴ Thus the following must be read with the caveat that it is an extension of Rawls's original theory.

Under Rawls's first principle, the Principle of Greatest Equal Liberty, each person is entitled to "an equal right to the most extensive total system of equal basic liberties compatible with a similar system of liberty for all."²³⁵ Some have argued that freedom from risk "is one of the most basic of liberties."²³⁶ Others have argued, however, that because both the freedom from risks produced by others and the right to impose risks upon others could be considered basic liberties, Rawls's first principle is internally inconsis-

232. RAWLS, *supra* note 217, at 15, 60. Rawls defines the basic structure of society to include the political constitution and major economic and social arrangements. *Id.* at 7. Rawls includes competitive markets among the examples given. Other examples are the legal protection of freedom of thought and liberty of conscience, private ownership of the means of production, and the family. *Id.*

233. *Id.* at 87-88. He wrote:

It is a mistake to focus attention on the varying relative positions of individuals and to require that every change, considered as a single transaction viewed in isolation, be in itself just. It is the arrangement of the basic structure which is to be judged, and judged from a general point of view.

Id.

234. See MARY R. ENGLISH, SITING LOW-LEVEL RADIOACTIVE WASTE DISPOSAL FACILITIES 132-35 (1992) (applying Rawls's conception of procedural justice to the process of selecting a site for a low-level radioactive waste disposal facility); SUSAN MOLLER OKIN, JUSTICE, GENDER AND THE FAMILY 101-09 (1989) (employing Rawls's Original Position to frame an account of justice between men and women in the family); Been, *supra* note 189, at 1048 (using Rawls's difference principle in the micro sense, though conceding that this was not the sense in which Rawls intended it to be used).

235. RAWLS, *supra* note 217, at 302.

236. See Abel, *supra* note 203, at 711.

tent.²³⁷ Although the liberty to be free of out-of-state waste and the liberty to dispose of one's waste in another state can perhaps be distinguished from the liberty to be free of risk and the liberty to impose risk, the force of this critique, as well as the greater applicability of Rawls's second principle to interstate waste issues, warrants limiting this discussion to Rawls's second principle.

Under Rawls's second principle, any social or economic inequality in the basic structure of society must be arranged so that it works to the benefit of the least advantaged.²³⁸ Rawls does not require that inequalities be eliminated, but only that they be arranged to benefit a representative of society's lowest class,²³⁹ or the "lowest representative" person.²⁴⁰ This person represents the average person in society's worst-off class of persons. Although the difference principle most naturally applies to the creation of new jobs to which economic rewards are attached, the principle applies by definition to any basic feature of society that results in unequal shares of primary social goods such as income and wealth.²⁴¹ Because the distribution of waste disposal affects income and wealth, Rawls's principle can be applied to the question of how society should distribute the solid waste it generates.

Where the distribution of solid waste is concerned, our potential lowest representative person is actually two persons, both of whom are easily identified. The first is a member of the lowest class of persons in a net-importer state. If the importation of waste causes no changes other than an increase in the importing state's waste load, this first person would be made worse off in an unrestricted market and would be no better off than she was initially in a restricted market. In contrast, our other lowest representative person, a

237. See Joel Feinberg, *Justice, Fairness and Rationality*, 81 YALE L.J. 1004, 1019-20 (1972) (describing how applying a general principle can lead to a judgment counter to a firmly held conviction); Christopher H. Schroeder, *Rights Against Risks*, 86 COLUM. L. REV. 495, 539 (1986) (arguing Rawls's liberty principle is satisfied by granting individuals an absolute right to pursue any risk-creating activity as well as an absolute right to be free of risk).

238. RAWLS, *supra* note 217, at 302 (1971) ("Social and economic inequalities are to be arranged so that they are both: (a) to the greatest benefit of the least advantaged, consistent with the just savings principle, and (b) attached to offices and positions open to all under conditions of fair equality of opportunity.").

239. *Id.* at 95.

240. *Id.* at 98.

241. T.M. Scanlon, *Rawls' Theory of Justice*, in READING RAWLS 169, 192 (Norman Daniels ed., 1975). Rawls defines primary social goods as "rights and liberties, powers and opportunities, income and wealth," or more generally, "things that every rational man is presumed to want." RAWLS, *supra* note 217, at 62.

resident of a net-exporter state, would react in precisely the opposite manner to the choice between a restricted and an unrestricted market. Living in a more densely populated state, this second individual suffers from a greater likelihood of residing near a waste disposal facility prior to the occurrence of any waste exportation. She will, therefore, be made better off in an unrestricted market where in-state waste can be exported. Her lot will not change in a restricted market.

Assuming static conditions where waste exportation and importation simply shifts waste from one state to another, according to Rawls's difference principle, neither a restricted nor an unrestricted market is any more just than the other. While both render a class of lowest representative persons better off, they do so only by making another class of lowest representative persons *worse* off. Rawls's difference principle will find one distributive scheme more just than another only where the scheme has the capacity to make at least one class of lowest representative persons better off *without* making another lowest representative class worse off.

Between the two alternatives of a restricted and an unrestricted market, the restricted market has a better chance of fulfilling this condition. Assuming that residents of all states will reduce the waste they generate and be more amenable to the siting of any new facilities that are necessary, thereby reducing the need for new facilities but ensuring that the ones needed will be built, the restricted market should improve the lot of the lowest representative person regardless of whether she resides in a net waste-importer state or a net waste-exporter state. If the welfare of the lowest representative person in both waste-importing and waste-exporting states is thereby improved, Rawls's difference principle would find the restricted market more just than the unrestricted market.²⁴²

4. Compensatory Justice

The above principles of justice were each applied to assess the fairness to importing and exporting states of the physical distribution of waste resulting from the national market and state access barriers. Under the general conception of compensatory justice, however, inequalities resulting from the physical distribution of waste can be

242. While it is true that the unrestricted market should also result in fewer disposal facilities overall as a result of the regionalization of waste disposal, there is no guarantee that all of the facilities that must be built will not be built in the net waste-importer states, thereby failing to improve the welfare of the lowest representative of the waste-importer state.

eliminated through the payment of financial compensation or in-kind benefits.²⁴³ Compensatory justice, a fundamental conception of justice emphasized by Aristotle,²⁴⁴ is institutionalized in all the world's legal systems and forms the basis for private lawsuits.²⁴⁵

It could be argued that the requirements of compensatory justice are currently being met under free market conditions through the increasingly common practice of private solid waste operators disbursing "host fees" to communities that agree to the siting of a disposal facility.²⁴⁶ Several states have incorporated mechanisms for channeling compensation to host communities into their siting process for solid waste facilities.²⁴⁷

243. See JOEL FEINBERG, *DOING AND DESERVING* 93 (1970). He wrote that, [t]he principle that unpleasant, onerous, and hazardous jobs deserve economic compensation, unlike the claim that superior ability deserves economic reward, is an equalitarian one, for it says only that deprivations for which there is no good reason should be compensated to the point where the deprived one is again brought back to a position of equality with his fellows.

Id.; see also WOJCIECH SADURSKI, *GIVING DESERT ITS DO: SOCIAL JUSTICE AND LEGAL THEORY* 144 (1985) (maintaining that such compensation should be designed to rectify "injustice resulting from a disequilibrium of benefits and burdens").

244. See ARISTOTLE, *supra* note 199, at 273-79 (describing the principle of corrective justice).

245. See Richard Posner, *The Concept of Corrective Justice in Recent Theories of Tort Law*, 10 J. LEG. STUD. 187 (1981); Ernest J. Weinrib, *Corrective Justice*, 77 IOWA L. REV. 403 (1992) (invoking Aristotle's conception of corrective justice to support a formalist framework for private law); see also Anthony D'Amato & Kirsten Engel, *State Responsibility for the Exportation of Nuclear Power Technology*, 74 VA. L. REV. 1011, 1047 (1988) (pronouncing the pervasiveness of compensatory justice and its requirement that the injuring person owes financial compensation to the injured party).

246. See *supra* note 125.

247. See ARK. CODE ANN. § 8-6-1504 (Michie 1993) (providing that compensation to community may be used to rebut presumption against permitting or construction of a high impact solid waste management facility within 12 miles of existing facility); CONN. GEN. STAT. § 22a-285g (1992) (authorizing municipal committee to negotiate with applicant for municipal incinerator over compensation to be given community hosting ash disposal area for adverse economic effects resulting from ash residue disposal area, noise, odors, increased traffic, police and fire protection, site monitoring; compensation shall not be less than \$5 per ton of ash disposed); KY. REV. STAT. ANN. § 147A.031 (Michie/Bobbs-Merrill 1992) (providing that state agency shall develop procedures for resolving conflicts associated with multijurisdictional municipal solid waste management facilities including host community compensation); 1993 ME. LEGIS. SERV. § 310 (West) (authorizing host municipality to negotiate benefits relating to siting of solid waste disposal facilities); WIS. STAT. § 144.445 (1991-92) (providing for compensation to persons for certain economic impacts from solid or hazardous waste facility subject to arbitration). Several states also provide for compensation for the siting of hazardous waste disposal facilities. See, e.g., GA. CODE ANN. § 12-8-39 (1992); MASS. GEN. LAWS ANN. ch. 21D, § 12 (West 1992); OHIO REV. CODE ANN. § 3734.25 (Anderson 1992); R.I. GEN. LAWS § 23-19.7-7 (1989).

There are several potential objections to the "host fee" concept, some of which reject the notion that money can or should be used to compensate for increased health risks. A moral objection to host fees is the argument that compensation allows for the "commodification" of health. Often communities offered compensation for the siting of a waste disposal facility view the offers as bribes.²⁴⁸ Under this objection, it is argued that, just as we do not allow persons to sell limbs or kidneys, we should not allow them to risk their health for the compensation offered by solid waste disposal companies.²⁴⁹

Under a second objection, it is accepted that financial compensation can make up for increased health risks, but it is argued that the target community's lack of information concerning the health risks from waste disposal will result in agreements for compensation that do not compensate the community for the full costs of waste disposal²⁵⁰ or the costs to future generations.²⁵¹ A third related objection is that an agreement between the disposal facility and the community is unlikely to cover the full costs of waste disposal. Because host fees are merely agreements between the local com-

248. See Lawrence S. Bacow & James R. Milkey, *Overcoming Local Opposition to Hazardous Waste Facilities: The Massachusetts Approach*, 6 HARV. ENVTL. L. REV. 265, 276-77 (1982) (noting that offers of compensation have occasionally increased opposition to hazardous waste facilities when perceived of as a bribe); Edward Patrick Boyle, Note, *It's Not Easy Bein' Green: The Psychology of Racism, Environmental Discrimination, and the Argument for Modernizing Equal Protection Analysis*, 46 VAND. L. REV. 937, 974-77 (1993) ("Communities with depressed economies are more easily persuaded to accept a facility proposal that promises to provide badly needed employment and economic development to the area"; this system is unfair because developer rarely informs community of health risks from the facility); Rachel Godsil, Note, *Remedying Environmental Racism*, 90 MICH. L. REV. 394, 408 (1991) ("[M]any . . . activists . . . reject the incentives approach as extortion and compensation as 'blood money.'"); Naikang Tsao, Note, *Ameliorating Environmental Racism: A Citizens' Guide to Combatting the Discriminatory Siting of Toxic Waste Dumps*, 67 N.Y.U. L. REV. 366, 374 (1992) ("In the context of hazardous waste dump sites, these government deals are particularly objectionable because they are, in effect, trading economic benefits for the residents' health and safety.").

249. See Been, *supra* note 189, at 1040-46; see also Abel, *supra* note 203, at 714-15 (arguing that the principle that risk of physical harm should be distributed equally is supported by our refusal to allow individuals to sell body parts or their right to be protected from bodily injury).

250. See Been, *supra* note 189, at 1041 ("One ground for concern [with compensation] is that information imperfections often will prevent the neighborhood from accurately assessing the losses it will suffer.").

251. See *id.* at 1041; Harold P. Green, *Legal Aspects of Intergenerational Equity Issues*, in EQUITY ISSUES IN RADIOACTIVE WASTE MANAGEMENT 190, 191 (Roger E. Kasperson ed., 1983) (arguing that because funds are not available to compensate future generation for its losses, intergenerational equity issues where the present generation benefits at the expense of the future generations pose the most difficult problems).

munity and the waste operator, essentially for the purpose of obtaining the locality's consent to the siting of the facility, they are unlikely to cover the increased regulatory costs associated with the disposal of additional volumes of waste from out-of-state.

If this discussion demonstrates that host fees are a potential, though at present not fully reliable means of meeting the requirements of compensatory justice, it also demonstrates that the alleged defects in the compensatory scheme can be cured without abandoning the national market. For example, states can currently deal with the problem of inequalities in bargaining power through regulation of the negotiation process or review of the resulting agreements. State authority to restrict the current national market is thus unnecessary to address this objection. State authority to regulate interstate commerce is relevant only to the third objection to host fees—that they will not fully compensate communities for the additional costs of waste disposal from waste generated out-of-state. Congress, however, could authorize states to impose discriminatory fees on out-of-state waste, thereby allowing states and communities to be fully compensated for the volumes of waste they receive from out-of-state.

Because compensation will be more readily available where waste disposal companies make the largest profits, and the problems with compensation can be addressed without curtailing the size of the market, retention of the national market is probably more consistent than a state import ban with the ideal of compensatory justice. However, to the extent state restrictions are themselves ways of channeling compensation to a community (surcharges, for example), such restrictions would be consistent with the notion of compensatory justice.

IV. OPTIONS FOR CONGRESSIONAL ACTION AND THEIR TRADE-OFFS

The above discussion described the values that are relevant to the distribution of waste in a democratic society and, in the process, analyzed how different distributive schemes either support or oppose each value. These values include not only economic efficiency, the value purported to be advanced by the Court's dormant commerce clause jurisprudence, but also equity, environmental protection, and state autonomy. The following section applies the conclusions reached in the above analysis to demonstrate that each of the options for congressional action (or inaction) currently dominating the legislative agenda—doing nothing, authorizing state import bans,

authorizing discriminatory surcharges, and authorizing flow control laws—entails considerable trade-offs among the values discussed in part III.²⁵² This part thus completes this Article's primary objective: to provide an understanding of the implications of the current options for managing the distribution of the nation's solid waste.

A. Do Nothing: Retain the Unrestricted National Market

It is uncertain whether Congress will enact legislation modifying the national market in solid waste disposal. Although Congress has recently expressed interest in legislation authorizing state barriers to the interstate waste trade, this interest is juxtaposed against a long history of relative indifference.²⁵³ Lack of action by Congress, whether it be purposeful or merely the result of inertia, would mean that waste will continue to be distributed according to a national free market mechanism. This option would simply affirm the trade-offs currently enforced by the Court under the dormant commerce clause. To recap the above discussion, the unrestricted national market

252. The trade-offs discussed in the following sections are illustrated in Table 4 of the Appendix.

253. Recently, several bills authorizing state restrictions upon the interstate waste trade have made headway in Congress. In October of 1994, separate bills representing somewhat different approaches passed the House and Senate. H.R. 4779, 103d Cong., 2d Sess. (1994) (prohibiting a landfill or incinerator from receiving out-of-state waste for disposal in the absence of an explicit written authorization from the affected local government); S. 2345, 103d Cong., 2d Sess. (1994) (authorizing state governors to cap the disposal of out-of-state waste to 1993 levels and to phase in reductions in the permissible amount of out-of-state waste disposed of within the state in addition to having the authority to prohibit the disposal of out-of-state waste upon the request of an affected local government). Prior to these two bills, one bill authorizing state waste import barriers passed the Senate in 1992. S. 2877, 102d Cong., 2d Sess. (1992). This recent activity is against a backdrop of legislative efforts that produced little action. The other interstate waste trade bills are: S. 439, 103d Cong., 1st Sess. (1993) (permitting governors to limit disposal of out-of-state municipal and industrial waste); S. 1873, 103d Cong., 2d Sess. (1993) (same); H.R. 1076, 103d Cong., 1st Sess. (1993) (same); H.R. 2848, 103d Cong., 1st Sess. (1993) (same); H.R. 963, 103d Cong., 1st Sess. (1993) (same); H.R. 599, 103d Cong., 1st Sess. (1993) (authorizing interstate compacts); H.R. 1357, 103d Cong., 2d Sess. (1994) (authorizing flow control laws); H.R. 4643, 103d Cong., 2d Sess. (1994) (same); S. 1634, 103d Cong., 2d Sess. (1994) (same); S. 2227, 103d Cong., 2d Sess. (1994) (same); H.R. 4662, 103d Cong., 2d Sess. (1994) (same); S. 2877, 102d Cong., 2d Sess. (1992) (authorizing state import bans); H.R. 3865, 102d Cong., 1st Sess. (1992) (same); S. 153, 102d Cong., 1st Sess. (1992) (authorizing states to regulate solid waste in interstate commerce, including collecting fees); H.R. 2380, 102d Cong., 1st Sess. (1992) (authorizing discriminatory fees upon out-of-state waste); S. 2384, 102d Cong., 2d Sess. (1992) (prohibiting out-of-state waste disposal without local government authorization); H.R. 4561, 101st Cong., 2d Sess. (1991) (authorizing state import bans); S. 1754, 101st Cong., 2d Sess. (1991) (same); S. 1585, 101st Cong., 1st Sess. (1991) (authorizing interstate compacts); H.R. 2723, 101st Cong., 1st Sess. (1989) (same).

enshrines economic efficiency, but it could only be considered fair under the theory of compensatory justice; indeed, it is fair under this theory of justice only if the market generates sufficiently high "host fees" to compensate communities hosting a disposal facility that accepts out-of-state waste. Under the more egalitarian conceptions of justice, however, in particular the benefit/burden concordance version of Aristotle's equality principle and Rawls's difference principle, the national market is a decidedly unfair means of distributing waste. The unrestricted national market may be favored under the pollution prevention approach to environmental protection (because it is necessary for a viable market in recyclables), but it will be disfavored by the traditional capacity-creation approach to environmental protection, as well as by the approach that follows from a more ethical outlook on humans' relationship with nature. Finally, the national market in waste is antithetical to state autonomy.

B. Authorize State Waste Import Bans

The substantial growth in the number of net waste-importing states means that federal legislation authorizing state barriers to interstate commerce in waste is now politically viable.²⁵⁴ Were Congress to allow states to regulate interstate commerce in waste, the most intrusive form of state regulation it could authorize would be import bans on out-of-state waste. Judging from the number of bills introduced in Congress proposing import bans,²⁵⁵ this appears to be the favored approach.²⁵⁶ Congressional authorization of import bans

254. At the present time, the number of senators and representatives from net waste-importing states exceed the number of senators and representatives from net waste-exporting states by 10 and one respectively. See MONITOR LEADERSHIP DIRECTORIES, INC., 19 CONGRESSIONAL YELLOW BOOK (1994); Repa, *supra* note 36. It must be recognized, however, that this tally makes political action on legislation authorizing state waste barriers a realistic political option only if it is assumed that all congressional representatives from net waste-importing states will favor such legislation and that the congressional representatives from the 27 states that are neither net importers nor net exporters will not oppose the legislation. Because there are benefits accompanying waste disposal, it may not be accurate to assume that representatives from all net waste-importing states will support such legislation. Also, this does not take into consideration the influence of key congressional committee leaders or the outcome of any "logrolling" or other vote-trading that may occur in the process of enacting legislation.

255. See *supra* note 253.

256. The only bill to pass either house of Congress, S. 2877, 102d Cong., 2d Sess. (1992), authorized state governors to ban the importation of out-of-state waste if requested to do so by local governments. The latest bill to emerge from the Senate, S. 2345, 103d Cong., 2d Sess. (1993), softens the blow of the import ban approach to waste exporters by lowering the amount by which a state may export waste over a several year period. For

would legalize the New Jersey and Michigan laws struck down in *Philadelphia v. New Jersey* and *Fort Gratiot Sanitary Landfill* on dormant commerce clause grounds.

State import bans present trade-offs almost exactly opposite from those presented by the unrestricted market. Although import bans are fair according to the egalitarian principles of justice found in Aristotle's benefit/burden concordance principle and Rawls's difference principle, they are decidedly inefficient. Of all the options considered here, the state import ban option comes closest to embodying the ethical perspective on the environment.²⁵⁷ Furthermore, although import bans may suppress the NIMBY syndrome, clearing the way for the siting of new facilities and thereby fulfilling the traditional approach to environmental protection, because they may block waste reduction efforts by constricting the market for recycled materials, they will not satisfy the requirements of the newer, pollution-prevention approach to environmental protection. This latter trade-off could be addressed by excepting recycled materials from the authorization to impose import bans.²⁵⁸ Finally, because import bans should better enable states to plan for their waste disposal needs and eliminate the drain on state finances attributable to out-of-state waste, they strongly favor state autonomy.

C. Authorize State Discriminatory Surcharges

Yet a third option would be to allow states to impose one of two types of discriminatory surcharges on out-of-state waste. Where a surcharge is unrestricted, the amount is not limited to the additional costs of disposing of out-of-state waste;²⁵⁹ authorization for such

instance, a governor may unilaterally ban out-of-state waste from any state exporting more than 3.5 million tons in 1995, but in 1999 may ban waste from any state exporting more than 1 million tons. S. 2345, 103d Cong., 2d Sess. § 4011(a)(3)(A) (1993).

257. Compensatory justice is not applicable when evaluating the import ban option because there is nothing to compensate.

258. See, e.g., S. 2877, 102d Cong., 2d Sess. § 2(d)(4)(c) (1992) (exempting from its authorization of state import bans "any metal, pipe, glass, plastic, paper, textile, or other material that has been separated or otherwise diverted from municipal waste and has been transported into the State for the purpose of recycling or reclamation").

259. Several bills introduced in Congress authorized states to impose surcharges upon out-of-state waste and did not limit such fees to the recovery of additional costs expended by the state for the disposal of out-of-state waste. See, e.g., H.R. 2380, 102d Cong., 1st Sess. (1991) (authorizing states to impose discriminatory surcharges upon the treatment and disposal of out-of-state waste, but requiring that any fee collected be used for recycling and waste management programs); H.R. 3865, 102d Cong., 1st Sess. (1991) (authorizing escalating schedule of discriminatory fees upon out-of-state waste tied to state's satisfaction of solid waste management planning obligations).

surcharges would have legalized the higher fee charged by Alabama for the disposal of hazardous waste generated out-of-state and struck down on dormant commerce clause grounds in *Chemical Waste Management, Inc. v. Hunt*.²⁶⁰ Depending on implementation, unrestricted discriminatory surcharges could pose much the same trade-offs as state access barriers. Because there is no ceiling on the fee, a state can set a fee so high that it would effectively halt the flow of out-of-state waste in the same manner as a waste import ban.

A compensatory surcharge merely compensates the state for the additional, unrecovered costs associated with the disposal of out-of-state waste. Congress's authorization of compensatory surcharges would legalize the discriminatory fee struck down in *Oregon Waste Systems v. Department of Environmental Quality*.²⁶¹ Compensatory surcharges represent something of a middle ground between the trade-offs required under the unrestricted national market and those accompanying import bans. By internalizing many of the externalities attributable to disposing of out-of-state waste, a compensatory fee renders the national market in waste truly efficient. Furthermore, although they do not make it any easier for states to plan for future capacity needs, because discriminatory surcharges eliminate the additional financial burden of out-of-state waste, they modestly further state autonomy. Finally, discriminatory surcharges fully satisfy the criteria of compensatory justice.

D. Authorize State Flow Control Laws

A fourth type of state restriction is the flow control law. Congressional authorization of state prohibitions on the disposal of waste at other than locally designated facilities would legalize the flow control law recently struck down in *C & A Carbone v. Town of*

260. 112 S. Ct. 2009, 2017 (1992) (holding that the surcharge on out-of-state waste does not survive the appropriate scrutiny applicable to discrimination against interstate commerce).

261. 114 S. Ct. 1345, 1355 (1994). This is assuming that Oregon's fee was only compensatory. The Court indicated that it was skeptical of whether or not the difference between the fee charged in-state and out-of-state waste could be attributed entirely to the costs of waste disposal paid by state residents through general tax revenues. *Id.* at 1353 ("[Whether] intrastate commerce pays its share of the costs underlying the surcharge through general taxation . . . is difficult to determine, as '[general] tax payments are . . . [often] lost in the general revenues.'"). But see Interoffice Memorandum from Steve Greenwood, Oregon Department of Environmental Quality, to Solid Waste Advisory Committee (Oct. 10, 1990) (showing detailed analysis of the costs attributable to Oregon as a result of accepting out-of-state waste for disposal).

Clarkstown.²⁶² Flow control laws present similar, though not identical, trade-offs to those of import bans. Like import bans, flow control laws would be condemned on efficiency grounds; they raise the costs of waste disposal by prohibiting waste generated within a state or locality from being disposed of at lower cost facilities outside the state or locality. On the other hand, because flow control laws enable localities to finance waste disposal facilities through buy-back arrangements with the chosen disposal facility,²⁶³ they are strongly favored by both the state autonomy criteria and traditional approaches to environmental protection. Finally, although flow control laws can result in greater burdens for the enacting locality (through higher costs of waste disposal and possibly higher health risks), because these burdens are voluntarily undertaken by the locality itself, equitable principles of distributive justice are inapplicable, at least insofar as they are discussed in this Article.

V. PROPOSED SOLUTION: AUTHORIZATION OF REGIONAL INTERSTATE COMPACTS

The above discussion demonstrates that both the national free market and the regulatory approaches pursued by states present significant trade-offs between competing values relevant to a fair, efficient, and workable scheme for distributing the nation's total waste burden. Accordingly, if Congress limits itself to these choices, to the extent a congressional member's decisions *are* influenced by the values inherent in the criteria discussed, which option he or she chooses will be the result of the weight placed upon each of the competing criteria as filtered through the political process of majority rule.²⁶⁴ A member of Congress who ranks economic efficiency highest among the four criteria, for example, will cast her vote in a manner designed to thwart proposals to allow states to control the distribution of waste through import bans, flow control laws, or discriminatory surcharges. A member of Congress who values either state autonomy over efficiency or equity or egalitarian definitions of justice over efficiency will cast her vote in a manner that supports state restrictions.

262. 114 S. Ct. 1677, 1680 (1994).

263. See *id.* at 1680 (declaring that the purpose of flow control regulation was to finance the construction of a waste transfer station, but because the regulation deprives competitors of local market access, it violates the Commerce Clause).

264. For the influence of collective action problems upon political outcomes, see MANCUR OLSON, *THE LOGIC OF COLLECTIVE ACTION* (1971).

Rather than adopting any of the options discussed above, Congress should enact a compromise solution modeled after its legislation for the distribution of low-level radioactive waste.²⁶⁵ As others have noted, the Low-Level Radioactive Waste Policy Act of 1980 (LLRWPA)²⁶⁶ was a response to some of the same problems that now afflict the disposal of solid waste and thus constitutes an appropriate model for solid waste.²⁶⁷ If certain changes are made to the low-level radioactive waste model, regional interstate compacts can satisfy all the criteria discussed in part III at least partially, even if not to the full extent possible.

Like the current solid waste situation in many regions of the nation, prior to the passage of the LLRWPA, the nation faced an imminent crisis of adequate disposal capacity for low-level radioactive waste.²⁶⁸ Even more dramatically than in the solid waste situation, only disposal facilities in a few states accepted low-level waste from all fifty states prior to LLRWPA's passage.²⁶⁹ Finally, as with the economics of solid waste disposal, it was not deemed economically efficient for states to be completely self-sufficient in the disposal of low-level radioactive waste.²⁷⁰ In addressing the problems presented by the disposal of low-level waste, therefore, Congress confronted the same problems of equity and lack of capacity resulting from the national free market disposal of waste, as well as the problem of

265. Low-level radioactive wastes are those generated by commercial nuclear power plants, research institutions, and hospitals. ENGLISH, *supra* note 234, at 2-3.

266. Pub. L. No. 96-573, 94 Stat. 3347 (1980) (codified in scattered sections of 42 U.S.C.), amended by Pub. L. No. 99-240, 99 Stat. 1842 (1985) (codified in scattered sections of 42 U.S.C.).

267. ENGLISH, *supra* note 234, at xii ("Low-level waste disposal is in some respects a harbinger of things to come for hazardous and solid waste disposal, which have already posed their own intractable difficulties."). For a detailed analysis of the political environment that gave birth to the LLRWPA as well as the success and failures of the regional compact approach, see SCOTT SALESKA, PUBLIC CITIZEN CRITICAL MASS ENERGY PROJECT, NUCLEAR LEGACY VII-15 to -22 (1989).

268. In 1980, the year Congress passed the LLRWPA, only three disposal facilities existed in the United States that could dispose of low-level radioactive waste. See Dan M. Berkovitz, *Waste Wars: Did Congress "Nuke" State Sovereignty in the Low-Level Radioactive Waste Policy Amendments Act of 1980?*, 11 HARV. ENVTL. L. REV. 441-43 (1987); ENGLISH, *supra* note 234, at 6-7. Furthermore, temporary closures and safety problems at the Nevada and Washington sites in 1979 threatened to leave all states reliant upon a single disposal site in South Carolina. ENGLISH, *supra* note 234, at 6.

269. Prior to the Act's passage, only three states with low-level radioactive waste disposal facilities—Washington, South Carolina, and Nevada—accepted the low-level radioactive wastes generated in all 50 states. Berkovitz, *supra* note 268, at 441-42.

270. See ENGLISH, *supra* note 234, at 1.

inefficiency in waste disposal, that would occur if the national market in solid waste were simply abandoned.

Congress's solution to this trade-off was to require state responsibility for the disposal of low-level waste generated within the state's territory,²⁷¹ and encourage the formation of regional interstate compacts that would be jointly responsible for the disposal of waste within their multi-state regions.²⁷² Congress expressly noted that low-level radioactive waste is most safely and efficiently disposed of on a regional basis.²⁷³ Upon congressional ratification of a compact, the LLRWPA provided that compact states could exclude low-level waste generated in states that are not members of the compact.²⁷⁴ States are not required to join regional compacts, but states that fail to do so are not expressly authorized to exclude out-of-state low-level waste, and 1985 amendments to the LLRWPA and its legislative history suggest that Congress did not intend an implicit authorization.²⁷⁵ Consequently, any attempt by a state not

271. 94 Stat. 3347, 3348 (1980) ("It is the policy of the Federal Government that (A) [E]ach state is responsible for providing . . . either within or without the State for the dispersal of low-level radioactive waste generated within its borders.").

272. The Constitution permits states to form compacts to solve common problems. U.S. CONST. art I, § 10, cl. 3. First used primarily to settle interstate boundary disputes, interstate compacts have also been used to create interstate commissions to control navigation on common waterways; provide for allocation of a common river for irrigation purposes; give penal authority to adjacent states to seal loopholes for criminal defendants; resolve the responsibility for state debt; conserve natural resources, such as fisheries, whose habitats span two states; and prevent multiple state taxation of property. See FREDERICK L. ZIMMERMAN & MITCHELL WENDELL, *THE INTERSTATE COMPACT SINCE 1925* 3-29 (1951); Felix Frankfurter & James Landis, *The Compact Clause of the Constitution—A Study in Interstate Adjustments*, 34 YALE L.J. 685, 696-708 (1925); Note, *Congressional Supervision of Interstate Compacts*, 75 YALE L.J. 1416, 1422-29 (1966). The Constitution expressly conditions the authority to enter into compacts on the consent of Congress, although at one time the Court implied that compacts not encroaching upon federal power need not obtain congressional consent. *Virginia v. Tennessee*, 148 U.S. 503, 517-18 (1893). Congress has also consented in advance to the formation of compacts. See, e.g., Weeks Act of 1911, 16 U.S.C. § 552 (1988) (authorizing in advance state compacts for the purpose of protecting forests); see also ZIMMERMAN & WENDELL, *supra*, at 58-71 (describing federal participation in the compacting process).

273. See § 4, 94 Stat. at 3348; see also ENGLISH, *supra* note 234, at 1 (arguing that LLRWPA constituted a compromise between the competing values of equity and efficiency).

274. Congress required that each compact contain a provision allowing Congress an opportunity to withdraw its consent every five years after the compact has taken effect. See 42 U.S.C.A. § 2021d(d) (West Supp. 1994).

275. Although the 1980 Act did not define a "compact," the 1985 Amendments specifically added a definition of "compact," stating that the term "means a compact entered into by two or more States." 42 U.S.C. § 2021b(4) (1988). Under both the 1980 Act and the 1985 amendments, only states in "compacts" are authorized to exclude low-

a member of a compact to exclude out-of-state waste would be invalid under the dormant commerce clause.

When Congress amended the LLRWPA in 1985, it inserted a series of financial and access incentives for nonsited states keyed to their compliance with milestones in the development of new low-level waste disposal capacity.²⁷⁶ Although six compacts had been ratified, the new compacts' failures actually to site new low-level disposal capacity made these measures necessary.²⁷⁷ Congress authorized generators to continue disposing of their low-level waste at facilities in states outside their regional compact, but allowed sited states to impose surcharges and access restrictions on out-of-state waste that became progressively more stringent with the passage of time.²⁷⁸ The surcharges included both compensatory surcharges, which the host state could retain to pay for regulatory and other costs attributed to low-level waste disposal, and penalty surcharges, which were to be rebated to the state or compact region for the development of new facilities if the originating state succeeded in meeting its deadlines, or retained by the Department of Energy if it did not.²⁷⁹ Upon the expiration of this first set of deadlines, sited states were authorized to ban the disposal of waste generated in noncomplying states.²⁸⁰ Prior to the provision's being struck down on Tenth Amendment grounds in *New York v. United States*,²⁸¹ the LLRWPA also required that noncomplying states take title to and possession of all low-level radioactive wastes generated within their borders.²⁸² At present, the LLRWPA has generated ten interstate compacts (nine of which have received Congress's consent), including all but ten states and territories.²⁸³

level waste generated in states outside the region. See 94 Stat. 3348 (1980); 42 U.S.C. § 2021e (1988); see also H.R. REP. 314(I), 99th Cong., 2d Sess. 22 (1985), reprinted in 1985 U.S.C.C.A.N. 2975, 2985 (stating that states that do not join regional compacts are not considered to be a "compact" under proposed amendments to the 1980 Act or under the 1980 Act itself).

276. 42 U.S.C. § 2021e (1988).

277. H.R. REP. 314(I), 99th Cong., 1st Sess. 13-15 (1985), reprinted in 1985 U.S.C.C.A.N. 2975, 2976-78.

278. 42 U.S.C. § 2021e(d)(1) (1988).

279. *Id.* § 2021e(d).

280. *Id.* § 2021e(e)(2)(B) (allowing regional disposal facilities to deny access to waste generated by noncompact regions or non-member states if they are 12 months late in complying with a particular deadline).

281. 112 S. Ct. 2408 (1992).

282. *New York v. United States*, 112 S. Ct. at 2416.

283. *Four Low-Level Waste Sites Selected By Regional Compacts Could Open by 1998*, 25 *Env'tl. Rep.* (BNA) 1832 (1995). The ten unaffiliated states and territories are: New York, Texas, Massachusetts, Michigan, New Hampshire, Puerto Rico, Rhode Island,

Congress need not precisely duplicate the LLRWPA, but should adopt legislation similar to this Act to govern state responsibility for the disposal of municipal solid waste.²⁸⁴ Under such legislation, Congress could expressly authorize states that enter into regional state compacts to prohibit the disposal of solid waste generated in non-member states. In order to give states time to form compacts and create the disposal capacity necessary to achieve compact self-sufficiency in waste disposal, Congress could duplicate the approach adopted by the LLRWPA of 1985 and allow states accepting out-of-state waste to charge graduated surcharges over a several-year period, at the end of which the states would be permitted to ban the importation of solid waste generated outside the region.

Depending upon its implementation by the states, the regional interstate compact approach has the potential to satisfy, at least partially, all of the relevant criteria for congressional consideration outlined in part III. Regional compacts thus present a viable solution for those uncomfortable with the extreme trade-offs resulting from either retaining the national market or authorizing state restrictions such as import bans. Regional compacts may also present a viable political compromise if Congress finds itself split between proposals to retain or alter the status quo.

Although regional compacts do not maximize efficiency, they retain efficiency as a value in the disposal of waste. While restricting disposal of solid waste to state-sized markets is arguably inefficient, markets that are the size of two or more states should be sufficiently large to allow for the construction of facilities large enough to capitalize on economies of scale. Regional waste disposal has the further advantage of retaining the natural interstate "wastesheds" that have developed under the unrestricted national market.²⁸⁵ The

Vermont, the District of Columbia, and Maine. *Id.* at 1833. Congress did something similar to the LLRWPA, though not quite as sweeping (or draconian), with respect to interstate commerce in hazardous waste. Under the 1986 Amendments to the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), states are required to demonstrate that they, or a state with which they have an interstate agreement, have sufficient capacity for the disposal of all hazardous waste expected to be generated within the state during the next 20 years. 42 U.S.C. §9604(c)(9) (1988). As a penalty for failure to provide such assurance, Congress directed that no Superfund cleanup action take place in noncomplying states. *Id.*

284. At least three of the bills introduced so far in Congress would have authorized states to enter regional interstate compacts for the disposal of solid waste and allowed such compacts to exclude waste generated in unaffiliated states. See H.R. 599, 103d Cong., 1st Sess. (1993); S. 1585, 101st Cong., 1st Sess. (1989); H.R. 2723, 101st Cong., 1st Sess. (1989).

285. See *supra* note 53.

regional compact approach also satisfies, at least to some degree, each of the definitions of distributive justice discussed in part III. Assuming that the prospect of excluding waste generated outside the compact region makes it easier to site new disposal facilities by stifling the NIMBY syndrome somewhat, regional compacts will satisfy Rawls's difference principle. Consequently, even if a compact decides to site just one new facility and the state in which the representative lowest person resides is chosen as the facility's host, this person will still be better off under the interstate compact approach than he was under the unrestricted national market. The regional compact approach arguably meets both versions of Aristotle's equality principle. The region's total waste disposal burden will be proportionate to the region's total waste disposal benefits. Consequently, the regional compact approach satisfies the benefit/burden concordance principle at the regional level, rather than at the state level.

Furthermore, the compact approach comes closer than any of the options discussed in part IV to meeting the burden/benefit equalization principle for two reasons. First, the demographic and other characteristics that affect the magnitude of the burden of waste disposal tend not to vary significantly between states in a given region.²⁸⁶ Second, states within compacts can agree to take turns hosting disposal facilities²⁸⁷ or agree to some arrangement whereby each state hosts the same number of facilities as each of the other compact states. Because the burden of waste disposal is substantially similar among all compact states and all states receive equal shares of the total waste burden of all compact states combined, under either arrangement the distribution of waste within a compact area should approximate the benefit/burden equalization demanded by the second version of Aristotle's equality principle.²⁸⁸

286. See *infra* Appendix, Table 3 (noting rough similarities between population densities of northeastern states, east north central states, west north central states, east south central states, west south central states, and western states).

287. At least one of the compacts established pursuant to the LLRWPA provides that state members shall take turns hosting a regional facility. See Omnibus Low-Level Radioactive Waste Interstate Compact Consent Act, Pub. L. No. 99-240, 99 Stat. 1859, 1877 (1985) ("Any party state which becomes a host state in which a regional facility is operated shall not be designated by the Compact Commission as a host state for an additional regional facility until each party state has fulfilled its obligation . . . to have a regional facility operated within its borders.").

288. Compacts themselves would differ in the total amount of waste that would be distributed for disposal among their member states. Benefit/burden equalization would not be satisfied, therefore, on an intercompact level. This criticism of the compact approach is discussed *infra* note 297 and accompanying text.

When states dispose of waste generated either in other compact states or, during the transition period, in unaffiliated states, the dictates of compensatory justice can also be satisfied by the requirements applicable to regional compacts. First, Congress could require that states currently accepting out-of-state waste receive a compensatory surcharge while compact sites must still accept waste generated in unaffiliated states. Second, states entering into solid waste disposal compacts could duplicate the approach of several of the low-level waste compacts in allowing the compact state or states that receive waste from other compact states to charge a compensatory fee to cover the additional costs to the state from hosting the facility.²⁸⁹

The regional interstate compact approach arguably satisfies all approaches to environmental protection. Because of the large size of the potential market for recycled materials afforded by a regional interstate compact, the compact approach should satisfy the pollution prevention approach to environmental protection. Furthermore, because the regional compact approach is consistent with the concept of economically self-sufficient bioregions that span distinct ecosystems within the United States—an idea widely discussed in environmental ethics literature²⁹⁰—the compact option arguably furthers the agenda of environmental ethics.

Assuming that the siting of new facilities will be made easier as a result of compacts' ability to exclude waste generated in unaffiliated states, regional compacts are in accord with the traditional approach to environmental protection. It should be noted that the experience under the LLRWPA does not necessarily support such predictions. Although four low-level waste sites were recently selected, the siting process was an extremely lengthy and drawn-out process.²⁹¹ It is not

289. See Omnibus Low-Level Radioactive Waste Interstate Compact Consent Act, Pub. L. No. 99-240, 99 Stat. 1859, 1877 (1985) (allowing host state to impose additional fees upon users of the regional disposal facilities located within their state which "shall provide the host state with sufficient revenue to cover any costs associated with such facilities").

290. See e.g., Kirkpatrick Sale, *Bioregionalism—A New Way to Treat the Land*, 14 *ECOLOGIST* 165, 167 (1984) (the economy sustained by a bioregion is based "on the most elemental and most elegant principle of the natural world, that of self-sufficiency"); Peter Berg, *What is Bioregionalism?*, 8 *THE TRUMPETER J. OF ECOSOPHY* 6, 6 (1991) (describing bioregionalism as encompassing "living-in-place" which is defined as "following the necessities and pleasures of life as they are uniquely presented by a particular site, and evolving ways to ensure long term occupancy of that site.").

291. Telephone Interview with Terry Plummer, National Low-Level Waste Program, United States Department of Energy (Sept. 9, 1994). Four states and regional compacts recently announced the siting of four separate low-level waste disposal facilities. *Four*

clear that the experience with low-level waste is necessarily a good indication of what will happen if the compact approach is adopted for solid waste, however. For low-level waste, no more than one facility need be sited for all states within a compact, and that one facility may satisfy the compact area's disposal needs for several decades.²⁹² Consequently, the stakes over which state will be the first to host a low-level disposal facility are extremely high. This has bogged down negotiations between states and made it difficult for the chosen host state to obtain the agreement of a community within the state to locate a facility.²⁹³ Solid waste, in contrast, is generated in far larger quantities and thus will necessitate the siting of more than one facility per compact. This should mean that negotiations between states in solid waste compacts will not carry such high stakes. Furthermore, solid waste is less hazardous than highly radioactive low-level waste.²⁹⁴ On the basis of potential health harm, therefore, community resistance to the siting of a solid waste disposal facility should be less intense.

Finally, although states would have less autonomy over waste disposal within their states under the regional compact option than they would if Congress authorized state import or export bans, they would have significantly more autonomy than they presently have under the unrestricted national market.²⁹⁵ By joining a regional compact, states obviously surrender a good degree of autonomy. They surrender autonomy both to the other states within their compact as well as to Congress, since compacts require congressional ratification. Nevertheless, states do retain the power to choose whether to join a compact in the first place.²⁹⁶ If Congress essentially duplicates its approach under the LLRWPA, states would not be required to join regional compacts, but could continue to handle their

Low-Level Waste Sites Selected By Regional Compacts Could Open By 1998, 25 *Env'tl. Rep. (BNA)* 1832 (1995). The four state or regional compacts are the Southeast Compact, the Southeastern Compact, the Central Compact, and Texas. *Id.*

292. *Id.*

293. *Id.*; see also ENGLISH, *supra* note 234, at 118-27 (noting that Southeast Compact had trouble selecting a host state and then that the chosen host state, North Carolina, had trouble finding a locality that would agree to site a low-level waste disposal facility).

294. See ENGLISH, *supra* note 234, at 2-3 (discussing safety and disposal requirements for low-level radioactive wastes).

295. The regional compact approach adopted in the LLRWPA was actually suggested to Congress by the National Governors' Association. SALESKA, *supra* note 267, at VII-15.

296. It is doubtful that Congress could require states to join regional compacts. Such a requirement would appear to regulate "states as states" and thus violate the Tenth Amendment. *New York v. United States*, 112 S. Ct. 2408, 2429 (1992).

waste as they have been doing under the national free market. In order to preserve the incentive for states to join compacts, Congress would likely not allow states who fail to join compacts to exclude out-of-state waste. If states join compacts, their autonomy is compromised, though not extinguished. States preserve a measure of control over waste disposal within their state through their ability to negotiate with other states over the compact legislation and the procedures for choosing host states for the region's solid waste disposal facilities. Thus, while not gaining physical control over waste volumes disposed of within their territories, states do at least gain some measure of procedural control over how that volume is decided. Furthermore, the regional compact approach can alleviate some of the problems states have with the national free market, such as the inability to plan for future waste disposal capacity and the inability to charge the discriminatory fees necessary to ensure that the general tax revenues used to fund waste disposal are fully refunded.

Several objections to the interstate compact approach merit discussion. The first might be one of equity. Arguably, regional compacts merely duplicate the inequities that would result were each state allowed to enact an import ban, only the inequities now exist on a regional, rather than a state, level. A northeastern state will still have a higher waste disposal burden than a western state, for example, regardless of whether it is in a compact, since its co-compact members will all be states with high population and waste densities. This inequity could be mitigated by allowing states to enter into compacts with states outside their geographic region, such as a compact between New York, New Jersey, New Mexico, and Utah. One low-level radioactive waste compact is decidedly *unregional*. Known as the Texas Compact, this compact includes Texas, Maine, Vermont, and Utah.²⁹⁷ While this would seem to eliminate the criticism that compacts mirror the inequities of the current distribution of waste, it may reduce the degree to which the compact approach satisfies some of the criteria values. For example, non-regional compacts will be less efficient than regional compacts because waste must be hauled longer distances. Furthermore, nonregional

297. LOW-LEVEL RADIOACTIVE WASTE FORUM, *supra* note 283, at 14-15. Texas has agreed to be the host state for the Texas Compact. The Texas Compact is the one compact still awaiting congressional consent. *Id.* Nothing in the LLRWPA bars states in different regions from joining together in a compact. Thus, when Congress debates the ratification of the Texas Compact, it will have to decide whether compacts composed of states from different regions are consistent with the efficiency purposes underlying the interstate compact approach.

compacts may be considered contrary to the ethical approach toward the environment because persons are unlikely to feel as great a responsibility toward the health of more distant ecosystems. Nevertheless, the nonregional compact option promotes some equity advantages, and should be included as an option on at least an experimental basis.

A second objection might be that regional interstate compacts do nothing to reduce the total volume of waste produced and thus are unsatisfactory from the perspective of pollution prevention even if they do facilitate market-based approaches toward the disposal of recycled materials. While the regional interstate compact approach does nothing to reduce waste generation—other than retaining the national market conditions thought to be important to a viable market in recycled materials—neither does any of the other options currently before Congress for controlling the distribution of waste. To meet this objection, Congress could impose certain conditions upon ratification of interstate compacts in order to give greater incentives to states to implement waste reduction initiatives. For example, Congress could refuse to ratify compacts that did not provide for the reduction of waste in compact states by twenty-five percent or withdraw its consent from compacts that failed to meet their waste reduction goals.

VI. CONCLUSION

Data compiled in this Article demonstrates that the current national market mechanism for distributing solid waste results in some states, mostly rural and poorer ones, becoming net waste importers and other states, mostly those that are urban and wealthier, becoming net waste exporters. Congress has the authority to reverse this trend through the exercise of its affirmative power under the Commerce Clause. If Congress decides to limit its choices to retaining the national market or authorizing states to impose the restrictions they are currently barred from passing under the dormant commerce clause—import bans, flow control laws, and discriminatory surcharges—any action Congress takes (or does not take) will involve significant trade-offs between the competing values of economic efficiency, equity, environmental protection, and state autonomy. As might be expected, the largest trade-off is that between economic efficiency on the one hand and state autonomy and equity on the other.

Congress can avoid these extreme trade-offs, and perhaps a political stalemate as well, by adopting a compromise solution

authorizing the formation of regional interstate compacts. Such compacts would be responsible for the disposal of solid waste within a multistate alliance and would have the authority to exclude waste generated outside the alliance. While not dispensing with the efficiency of the national market, the interstate compact option recognizes a democratic society's need to satisfy the competing values of equity, environmental protection, and state autonomy when constructing a fair and workable scheme to distribute the disposal burdens of the nation's solid waste.

APPENDIX

TABLE 1

AVERAGE DIFFERENCES BETWEEN WASTE IMPORTERS AND EXPORTERS (BASED ON ANALYSIS OF 114 IMPORTER — EXPORTER PAIRS OF STATES)*

Statistic	Average Difference (95% Confidence Interval) (importers minus exporters)			Percentage of Importers with More of the Statistic
Population Density (persons per square mile)**	-173.25	(-231.66	-114.84)	34
Municipal Solid Waste Density (tons per square mile)***	-49.22	(-80.21	-18.22)	46
Municipal Solid Waster Per Capita (tons per year)***	.14	(.11	.18)	80
Percentage Minority Population (Black and Hispanic) (%)**	-3.08	-4.89	-1.18)	36
Per Capita Income (\$ per year)**	\$-1,171.20	(\$-1,682.91	\$-659.12)	31
Percentage Below Poverty Level (%)**	.69	(.08	1.46)	53
Air Pollution (TRI Data) (million pounds per year)****	13.08	(3.95	22.22)	65
Water Pollution (TRI Data) (million pounds per year)****	2.65	(-.13	5.43)	63

* The data in this Table were compiled from a comparison of the top 10 net waste importing states and the top 10 net waste exporting states and their waste trade partner states (not including Washington, D.C.). This Table shows the average difference between importers and exporters with respect to each of the demographic and other statistics listed in the far left column. The average differences were derived by subtracting the statistic corresponding to the exporting state from that corresponding to the importing state for each of the 114 combinations of importer-exporter partners and then performing a t-test on this difference to determine 95% confidence intervals.

** U.S. DEPT. OF COMMERCE, BUREAU OF THE CENSUS, STATISTICAL ABSTRACT OF THE UNITED STATES 1993 29, 30, 217, 468, 471 (13th ed. 1993) (giving the following information by state: population per square mile, land area, total resident population, resident population by race, income per capita, percent of resident population with incomes below the poverty level).

*** Data are currently unavailable on the exact volumes of waste disposed of in each state. Consequently, the municipal solid waste density for each state was calculated by multiplying the state's population by 0.73 tons (the estimated amount of waste generated per person per year), subtracting or adding the amount of a state's net waste imports or net exports and dividing the resulting number of the state's land area. The municipal solid waste per capita for each state was calculated by multiplying the state's population by 0.73 tons per year, subtracting or adding the state's net waste imports or exports and dividing the resulting number by the state's population. U.S. ENVIRONMENTAL PROTECTION AGENCY, CHARACTERIZATION OF MUNICIPAL SOLID WASTE IN THE UNITED STATES: 1990 UPDATE (1990) (estimating that the average of municipal solid waste generated daily per person in the United States in 1990 is 4.0 lbs.); Edward Repa, *Interstate Movement of Solid Waste — 1992 Update*, WASTE AGE MAGAZINE (Special Report: 1993) (net imports and exports of municipal solid waste in millions of tons by state).

**** U.S. ENVIRONMENTAL PROTECTION AGENCY, 1991 TOXIC RELEASE INVENTORY (1991) (total amount of specified toxic chemical releases to air and water by state in pounds during 1991).

TABLE 2*
TOP 10 NET EXPORTER AND NET IMPORTER STATES AND THEIR
STATE TRADING PARTNERS

Net Exporter	Net Exports (mill. of tons)	Importer Partners
1. New York	3.7	CT, DE, FL, GA, IL, IN, KY, ME, MD, MA, MI, MO, OH, PA, VT, VA, WV
2. New Jersey	2.6	DE, IL, IN, KY, MD, MI, NY, OH, PA, VA, WV
3. Missouri	1.1	AR, IL, IO, KA, KY, TN
4. Washington	0.6	OR
5. District of Columbia	0.6	MD, OH, PA, VA
6. Rhode Island	0.5	CT, ME, MA, NH, OH
7. Texas	0.1	AR, LA, NM, OK
8. Michigan	0.1	IL, IN, OH, WI
9. Massachusetts	0.1	CT, DE, IL, IN, ME, NH, NY, OH, RI
10. Idaho	0.1	MT, UT, WA

Net Importer	Net Imports (mill. of tons)	Exporter Partners
1. Pennsylvania	3.3	CT, DE, DC, MD, NJ, NY, OH, ON, VA, WV
2. Illinois	1.8	AR, CT, FL, IN, IO, KY, MD, MA, MI, MN, MO, NJ, NY, OH, PA, TN, VA, WI
3. Ohio	1.5	CA, CT, DE, DC, IL, IN, KY, ME, MD, MA, MI, MN, NH, NJ, NY, ONT, PA, RI, TN, VA, WV, WI
4. Indiana	1.4	CT, IL, KY, MA, MI, NJ, NY, OH, ONT, PA
5. Virginia	1.4	DC, MD, NJ, NY, PA
6. West Virginia	0.8	KY, NJ, NY, OH, PA
7. Oregon	0.6	AK, NV, WA
8. Kansas	0.5	OK, MO
9. New Hampshire	0.3	ME, MA, RI, VT
10. Wisconsin	0.3	IL, IN, IO, KA, KY, MD, MI, MN

* Edward Repa, *Interstate Movement of Solid Waste 1992 Update*, WASTE AGE MAG. (Special Report: 1993).

TABLE 3

NET IMPORTS AND EXPORTS OF MUNICIPAL SOLID WASTE AND DEMOGRAPHIC DATA BY STATE

UNITED STATES	M.S.W. NET (I-E) X 1 Million	M.S.W. IMPORTS X 1 Million	M.S.W. EXPORTS X 1 Million	LAND (Sq. Miles)	POP. X 1,000	POP. MLE	PER SQ. MI. BEFORE (E) TONS	M.S.W. PER SQ. MI. AFTER (E) TONS	M.S.W. PER CAPITA BEFORE (E) TONS	M.S.W. PER CAPITA AFTER (E) TONS	WHITE	BLACK	Hispanic	% POP. OF MINORITIES	% BELOW POV. LEVEL	PER CAPITA INCOME	TR. AIR POLL. (MIL. Lbs.)	TR. WATER POLL. (MIL. Lbs.)
(92) *	(92) *	(92) *	(92) *	(92) *	(92) *	(92) *	(92) *	(92) *	(92) *	(92) *	(92) *	(92) *	(92) *	(92) *	(92) *	(92) *	(92) *	(92) *
Northeast																		
New England	0.00	0.10	0.05	30,965	1,235,000	40,000	29.20	29.20	0.73	0.73	1,208,000	5,000	7,000	1.00	10.80	\$12,957	14.00	0.80
Maine	0.30	0.40	0.10	8,969	1,111,000	123,800	90.40	121.90	0.73	1.00	1,087,000	7,000	11,000	1.60	6.40	\$15,959	5.30	0.04
New Hampshire	0.00	0.05	0.05	9,249	570,000	61,600	45.00	45.00	0.73	0.73	555,000	2,000	4,000	1.10	9.90	\$15,527	0.90	0.04
Vermont	-0.10	0.70	0.80	7,738	598,000	765,300	536.60	545.90	0.73	0.73	5,405,000	300,000	288,000	9.80	8.90	\$17,224	16.80	0.40
Massachusetts	-0.50	0.05	0.55	1,045	1,005,000	961,800	702.10	723.60	0.73	0.63	81,469	39,000	45,000	8.40	9.60	\$14,981	4.40	0.10
Rhode Island	0.20	0.30	0.05	4,845	328,100	677,200	494.40	533.60	0.73	0.79	285,900	274,000	213,000	14.80	6.80	\$20,189	16.30	3.00
Middle Atlantic																		
New York	-3.70	0.10	3.80	47,224	18,119,000	383,700	280.10	201.70	0.73	0.53	13,385,000	285,900	221,400	28.20	13.00	\$16,501	64.70	1.70
New Jersey	-2.60	0.00	2.60	7,419	7,789,000	1,049,900	766.40	416.00	0.73	0.40	6,130,000	1,037,000	740,000	23.00	7.60	\$18,714	22.10	0.50
Pennsylvania	3.30	4.30	1.00	44,820	12,009,000	267,500	195.60	269.20	0.73	1.00	10,520,000	1,090,000	332,000	11.10	11.10	\$14,068	66.80	1.20
Midwest																		
East North Central	1.50	1.80	0.30	40,953	11,016,000	269,000	196.40	233.00	0.73	0.87	9,522,000	1,155,000	140,000	11.90	12.50	\$13,461	100.20	6.10
Ohio	1.40	1.80	0.40	35,870	5,662,000	157,800	115.20	154.30	0.73	0.98	5,021,000	432,000	99,000	9.60	10.70	\$13,149	96.40	1.70
Indiana	1.80	3.40	1.60	55,593	11,631,000	209,200	152.70	185.10	0.73	0.88	8,953,000	1,694,000	904,000	22.70	11.90	\$15,201	81.70	6.40
Illinois	-0.10	0.05	0.20	56,809	9,437,000	166,100	121.30	119.50	0.73	0.72	7,756,000	1,292,000	202,000	16.10	13.10	\$14,154	70.50	0.90
Michigan	0.30	0.40	0.10	54,314	5,007,000	92,200	67.30	72.90	0.73	0.79	4,513,000	245,000	93,000	6.90	10.70	\$13,276	37.10	0.70
West North Central																		
Minnesota	0.00	0.05	0.05	79,617	4,480,000	56,300	41.10	41.10	0.73	0.73	4,130,000	95,000	54,000	3.40	10.20	\$14,389	39.40	0.80
Iowa	0.10	0.20	0.05	55,875	2,812,000	50,300	36.70	38.50	0.73	0.77	2,683,000	48,000	33,000	2.90	11.30	\$12,422	35.10	2.00
Missouri	-1.10	0.05	1.20	68,898	5,193,000	75,400	55.00	39.10	0.73	0.52	4,486,000	548,000	62,000	11.90	13.30	\$12,989	35.00	1.20
North Dakota	0.00	0.05	0.05	68,994	636,000	9,200	55.00	55.00	0.73	0.73	604,000	4,000	5,000	1.40	14.40	\$11,051	1.80	0.08
South Dakota	0.00	0.05	0.05	75,896	711,000	9,400	55.00	55.00	0.73	0.73	638,000	3,000	5,000	1.10	15.90	\$10,661	2.60	0.01
Nebraska	0.00	0.05	0.05	76,878	1,606,000	20,900	22.50	22.50	0.73	0.73	1,481,000	57,000	37,000	6.30	11.10	\$12,452	14.80	0.40
Kansas	0.50	0.60	0.05	81,823	2,523,000	30,800	22.50	22.50	0.73	0.93	2,232,000	143,000	94,000	9.60	11.50	\$13,300	27.90	0.90
South																		
South Atlantic	0.00	0.20	0.20	1,955	639,000	352,500	257.30	257.30	0.73	0.73	555,000	112,000	160,000	19.20	8.70	\$15,584	5.90	0.30
Delaware	0.00	0.05	0.05	9,775	490,000	502,100	366.50	366.50	0.73	0.73	399,400	119,000	125,000	27.50	8.30	\$17,750	11.60	0.70
Maryland	-0.60	0.00	0.60	61,008	3,890,000	9,649,500	7048.70	0.00	0.73	0.95	180,000	400,000	33,000	71.30	16.90	\$18,381	67.30	2.30
Dist. of Col.	1.40	1.50	0.10	39,598	637,000	161,000	117.60	152.90	0.73	0.95	4,792,000	116,000	160,000	21.40	10.20	\$15,713	67.30	2.30
Virginia	0.20	0.90	0.10	24,087	1,812,000	75,200	54.90	88.10	0.73	1.17	1,726,000	56,000	8,000	3.60	19.70	\$10,520	27.10	1.40
W. Virginia	0.00	0.05	0.05	48,218	684,300	140,500	140.50	140.50	0.73	0.73	500,300	145,600	77,000	22.40	13.00	\$12,885	83.60	0.80
No. Carolina	0.10	0.05	0.05	30,111	3,603,000	119,700	85.10	85.10	0.73	0.73	2,497,000	100,000	31,000	29.70	15.40	\$11,597	61.90	1.20
So. Carolina	0.00	0.05	0.05	37,319	675,100	116,600	85.10	85.10	0.73	0.73	4,660,000	174,000	109,000	28.70	14.70	\$13,631	58.00	1.20
Georgia	0.00	0.05	0.05	55,997	1,348,000	269,500	182.30	182.30	0.73	0.73	1,074,900	176,000	157,400	25.80	12.70	\$14,898	38.20	3.10
Florida	0.00	0.05	0.05	55,997	1,348,000	269,500	182.30	182.30	0.73	0.73	1,074,900	176,000	157,400	25.80	12.70	\$14,898	38.20	3.10

UNITED STATES	MSW. NET (L-E) X 1 Million TONS	MSW. IMPORTS X 1 Million TONS	MSW. EXPORTS X 1 Million TONS	LAND (Sq. Miles)	POP. X 1,000	POP. PER SQ. MILE	MSW. PER SQ. M. BEFORE (L) TONS	MSW. PER SQ. M. AFTER (E) TONS	MSW. PER CAPITA AFTER (E) TONS	MSW. PER CAPITA BEFORE (L-E) TONS	WHITE	BLACK	HISPANIC	% POP. OF MINORITIES	% BELOW POV. LEVEL	PER CAPITA INCOME	TRI-M POV. (Mill. Lbs.)	TRI-WATER POV. (Mill. Lbs.)	
	(92) *	(92) *	(92) *	(92) *	(92) *	(92) *	(90) **	(90) **	(90) **	(90) **	(90) **	(90) **	(90) **	(90) **	(90) **	(90) **	(90) **	(90) **	(90) **
East South Central																			
Kentucky	0.10	0.30	0.20	39,732	3,755,000	94.50	69.00	71.50	0.73	0.76	3,392.00	263.00	22.00	7.70	19.00	\$11,153	38.60	0.70	
Tennessee	0.00	0.05	0.05	41,219	5,024,000	121.90	89.00	89.00	0.73	0.73	4,048.00	778.00	33.00	16.60	15.70	\$12,255	139.60	3.60	
Alabama	0.00	0.05	0.05	50,750	4,136,000	81.50			0.73		2,976.00	1,021.00	25.00	25.30	18.30	\$11,486	99.20	4.30	
Mississippi	0.00	0.05	0.05	46,914	2,614,000	55.70			0.73		1,633.00	915.00	16.00	35.60	25.20	\$9,648	56.00	2.20	
West South Central																			
Arkansas	0.00	0.05	0.05	52,075	2,399,000	46.10	33.60	33.60	0.73	0.73	1,945.00	374.00	20.00	16.80	19.10	\$10,520	31.40	2.40	
Louisiana	0.00	0.05	0.05	43,566	4,287,000	98.40	71.80	71.80	0.73	0.73	2,839.00	1,299.00	93.00	33.00	23.60	\$10,635	98.80	161.30	
Oklahoma	0.00	0.05	0.05	68,679	3,212,000	46.80	34.10	34.10	0.73	0.73	2,584.00	234.00	86.00	10.20	16.70	\$11,893	23.80	0.50	
Texas	-0.10	0.05	0.20	261,914	17,656,000	67.40	49.20	49.20	0.73	0.99	12,775.00	2,022.00	434.00	37.50	18.10	\$12,904	168.90	2.90	
West																			
Mountain																			
Montana	0.10	0.05	0.00	145,556	824,000	5.70	4.10	4.80	0.73	0.85	741.00	2.00	12.00	1.80	16.10	\$11,213	2.40	0.10	
Idaho	-0.10	0.00	0.05	82,251	1,067,000	12.90	9.40	8.20	0.73	0.64	950.00	3.00	53.00	5.60	13.30	\$11,457	6.10	0.10	
Wyoming	0.00	0.05	0.05	97,105	466,000	4.80			0.73		427.00	4.00	26.00	6.40	11.90	\$12,511	2.90	0.10	
Colorado	-0.10	0.00	0.05	107,179	3,470,000	33.50			0.73		2,905.00	133.00	424.00	16.10	11.70	\$14,821	6.10	0.20	
New Mexico	0.20	0.40	0.20	121,364	1,581,000	13.00	9.50	11.20	0.73	0.86	1,466.00	30.00	579.00	40.20	20.60	\$11,246	2.30	0.01	
Arizona	0.00	0.05	0.05	113,642	3,832,000	33.70			0.73		2,963.00	111.00	688.00	20.90	15.70	\$13,461	9.50	0.03	
Utah	0.00	0.05	0.05	82,168	1,813,000	22.10	16.10	16.10	0.73	0.73	1,616.00	12.00	83.00	5.60	11.40	\$11,029	74.50	0.10	
Nevada	0.00	0.05	0.05	109,806	1,327,000	12.10	8.80	8.80	0.73	0.73	1,013.00	79.00	124.00	16.90	10.20	\$15,214	1.00	0.00	
Pacific																			
Washington	-0.60	0.10	0.70	66,581	5,136,000	77.10	56.30	47.30	0.73	0.61	4,309.00	150.00	215.00	7.50	10.90	\$14,923	26.10	4.40	
Oregon	0.60	0.70	0.05	96,002	2,977,000	31.00	22.60	28.90	0.73	0.93	2,637.00	46.00	113.00	5.60	12.40	\$13,418	17.50	0.40	
California	0.00	0.05	0.05	155,973	30,867,000	197.90	144.50	144.50	0.73	0.73	20,524.00	2,209.00	7,688.00	33.30	12.50	\$16,409	67.30	10.20	
Alaska	-0.10	0.00	0.05	570,374	587,000	1.00	0.80	0.80	0.73	0.73	415.00	22.00	18.00	7.30	9.00	\$17,610	13.20	4.80	
Hawaii	0.00	0.00	0.00	6,423	1,160,000	180.50			0.73		370.00	27.00	81.00	9.70	8.30	\$15,770	0.60	0.02	

* Edward Repa, Interstate Movement Of Solid Waste -- 1992 Update, WASTE AGE MAG. (Special Report: 1993) (net imports and exports of municipal solid waste in millions of tons by state).

** U.S. DEPT. OF COMMERCE, BUREAU OF THE CENSUS, STATISTICAL ABSTRACT OF THE UNITED STATES 1993 29, 30, 33, 217, 468, 471 (13th ed. 1993) (giving the following information by state: population per square mile, land area, total resident population, resident population by race, income per capita, percent of resident population with incomes below the poverty level).

*** These numbers were derived assuming each person generates 4.0 lbs. of municipal solid waste per day. At this rate of generation, each person generates 0.73 tons of municipal solid waste per year. Accordingly, the Table expresses volumes of waste generation in tons. U.S. ENVIRONMENTAL PROTECTION AGENCY, CHARACTERIZATION OF MUNICIPAL SOLID WASTE IN THE UNITED STATES: 1990 UPDATE (1990) (estimating that the average amount of municipal solid waste generated daily per person in the United States is 4.0 lbs.)

**** U.S. ENVIRONMENTAL PROTECTION AGENCY, 1991 TOXIC RELEASE INVENTORY (1991) (total amount of specified toxic chemical releases to air and water by state in pounds during 1991).

TABLE 4
COMPARISON OF CONGRESSIONAL OPTIONS ACCORDING TO RELEVANT VALUES

Policy Options	Economic Efficiency	Equity, or Fairness			Environmental Protection			State Autonomy
		Utilitarianism	Benefit/Burden	Rawls' Dif. Principle	Compensatory Justice	Trad'l Approach; New Capacity	Poll. Prev. Env't'l Approach Ethics	
Unrestricted Nat'l Market	°	?	?	?	°	°	°	
Import Ban		?	?	•	NA	•	•	•
Import Ban Minus Recyclables		?	•	•	NA	•	•	•
Discrim.								
Surcharge (Unlimited)		?		•	°	•	•	•
Discrim.								
Surcharge (Compensatory)	•	?	?	?	•	°	°	°
Flow Control		NA	NA	NA	NA	•	•	•
Flow Control Minus Recyclables		NA	NA	NA	NA	•	•	•
Regional Interstate								
Compacts	•	?	•	•	•	•	°	°

- Value strongly supported by policy option.
- ° Value weakly supported by policy option.
- ? Unclear whether value supported or opposed by policy option without further detailed analysis.
- NA Values not applicable.
- Blank Value not supported by policy option.