

An American Werewolf in London: Applying the Lessons of Superfund to Great Britain

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I. INTRODUCTION

Financial liability for remediation of polluted sites has been a matter of widespread public debate, legislation, and litigation in the United States for many years.¹ Terms such as “leaking landfill” and “Superfund” are broadly recognized by the American public, and the retroactive strict liability of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) has become a familiar feature of the American legal landscape. This state of affairs is in stark contrast to that in Great Britain. To date, the British legal system has done very little to address the problem of financing remediation projects. While this lack of movement can in part be traced to an apathetic British public,² such attitudes are changing.³ Plainly some changes in the British system will have to occur, if only to satisfy obligations under European Union (EU)⁴ directives.⁵ This Article proposes

1. The 1978 discovery of the improper disposal of chemical wastes and the resulting contamination of Love Canal, New York, was “a national media event that crystallized a festering problem in terms that provoked an emotional response from the public.” ROBERT V. PERCIVAL ET AL., *ENVIRONMENTAL REGULATION: LAW, SCIENCE, AND POLICY* 288 (1992). In response, Congress passed the primary federal statute regulating the cleanup of existing waste sites, the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA or Superfund), Pub. L. No. 96-510, 94 Stat. 2767 (1980), amended by Superfund Amendments and Reauthorization Act of 1986 (SARA), Pub. L. No. 99-499, 100 Stat. 1613 (1986) (codified as amended at 42 U.S.C. §§ 9601-9657 (1982 & Supp. IV 1992)).

2. The House of Commons Environment Committee (HC Committee) quoted a consultant observing, “The UK public seems remarkably undisturbed by the prospect of living on or close to a polluted site It is notable that the ‘environmental lobby’ in the UK has not made an issue of old chemical dump sites next door to, or even under, houses.” H.C. ENV’T COMM., *TOXIC WASTE*, 2D REPORT, H.C. 22, Sess. 1988-89, at lxix [hereinafter HC, *TOXIC WASTE*]. In one case involving the destruction of a house by a migrating landfill gas explosion, the HC Committee characterized the peculiarly unconcerned reaction of local authorities as “a general lack of awareness [that was] a symptom of the . . . low status of waste management.” *Id.* at xxix-xxx.

3. In particular, Friends of the Earth (FoE) has become quite active in pressing the government for greater public involvement in environmental affairs. See, e.g., *EC Directive Not Being Implemented*, *FoE Says*, 16 Int’l Env’t Rep. (BNA) 238, 238 (Mar. 24, 1993) (reporting organization’s formal complaint to EU Commission charging British government with “incorrect implementation of [the] Council Directive . . . on the freedom of access to information on the environment”); see also *Environmental Group Outlines Package of Measures to Address Waste Management*, 16 Int’l Env’t Rep. (BNA) 263, 263 (Apr. 7, 1993). Industry has also demonstrated increasing concern over environmental deterioration. See *Group Proposes Major Changes in Assessing Pollution Liability*, 15 Int’l Env’t Rep. (BNA) 264, 265 (May 6, 1992) (“One principal concern is the [Loss Prevention Council’s] belief that industrial pollution in the United Kingdom ‘is becoming much worse.’”).

4. Since the Maastricht Treaty entered into force, there has been a move to replace the term “European Community” (EC) with “European Union” (EU). See *Foreign Affairs Council: GATT, Enlargement and Turkey on November 8-9 Agenda*, European Report, Nov. 6, 1993, available in LEXIS,

a comprehensive program for waste site remediation that applies lessons of the U.S. experience, along with potential EU obligations, to the existing statutory and common law framework in Great Britain.

Concern for public health, or, more broadly, the environment clearly drives initiatives to clean up waste sites. A brief consideration of what lurks in the shadows, however, reveals a panoply of interrelated and often conflicting goals. One commentator observes that, depending on circumstances, the goal of current U.S. law might be

- to clean up hazardous waste sites quickly and efficiently so that they do not pose a significant risk to health and the environment;
- to punish retroactively those who in the past dumped toxic chemicals;
- to create economic incentives to deter others in the future from releasing chemicals into the environment;
- to reassure communities that their health will be protected;
- to protect resources such as groundwater for future use;
- to restore waste sites to pristine condition; or
- to enforce state and local decisions on the appropriate level of cleanup.⁶

Other goals could include minimizing the cost to taxpayers, creating the most easily administered program, and maximizing the effect of scarce cleanup dollars.

Any attempt to remedy past harms must address causes as well as effects to avoid a never-ending cycle of pollution and remediation. Therefore, deterrence of future pollution is as important as restoration of the environment in the debate on waste site remediation.⁷ Yet the concurrent pursuit of deterrence and remediation goals is far from straightforward; measures strongly advancing one objective may just as thoroughly defeat the other. For example, a government-funded program to restore environmental damage promotes timely remediation. However, dispersing the attendant financial burden through the public purse eliminates any deterrent effect on individual actors. Conversely, a liability system that emphasizes deterrence through financial accountability might avoid this trap, but without some provision for unidentifiable or insolvent polluters, such a system would leave many sites unremediated. In addition, the change in traditional liability rules that would be required to enforce such accountability would divert substantial resources from

Eurcom Library, ECNews File (noting "unspoken agreement between the [member] countries that the old Community should make way for the European Union"). Here, the more current term European Union will be used except in historical references and quotations.

5. For a discussion of the evolution and mechanics of the application of EU environmental law to member states, particularly in the area of waste management, see generally Patrick E. Thieffry & Peter E. Nahmias, *The European Community's Regulation and Control of Waste and the Adoption of Civil Liability*, 14 HASTINGS INT'L & COMP. L. REV. 949 (1991).

6. E. Donald Elliott, *Superfund: EPA Success, National Debacle?*, NAT. RESOURCES & ENV'T, Winter 1992, at 11, 13.

7. See Philip T. Cummings, *NEPA to CERCLA: Completing the Circle*, ENVTL. F., Nov.-Dec. 1990, at 11, 11 (claiming that "main purpose of CERCLA is to make spills or dumping of hazardous substances less likely through liability").

cleanup to litigation.⁸ The design of a program to redress waste site pollution is thus complicated by a need to balance deterrence and remediation goals.

While the debate on environmental restoration often centers on deterrence and remediation, concerns for public participation are also important. Indeed, the need "to reassure communities that their health will be protected" and "to enforce state and local decisions on the appropriate level of cleanup"⁹ primarily reflects democratic ideals and only indirectly supports deterrence and remediation goals.

All of this is germane to the British situation. Although little concrete evidence is available, many factors suggest the existence of a tremendous number of problem waste sites. Yet the law on waste site remediation liability is currently in a state of flux in the United Kingdom; Parliament believes that current British law is inadequate to face the challenge of these newly discovered hazards. In addition, recent activity in Brussels demonstrates that forthcoming EU legislation could dramatically change the nature of the waste management business in the near future.

After outlining the landfill contamination problem in the United Kingdom (Part II), this Article traces the evolution of the law governing financial responsibility for the remediation of polluted sites. It focuses on landfill sites whose operations met the standards of their time, rather than "illegal dumping,"¹⁰ which entails a range of separate issues. This discussion of the British system addresses both older common law remedies (Part III) and attempts at statutory reform (Part IV). After identifying EU requirements that the British are likely to face and U.S. lessons that they should not ignore (Part V), the Article proposes a program for waste site remediation in the United Kingdom (Part VI).¹¹

II. LANDFILL CONTAMINATION IN THE UNITED KINGDOM

The United Kingdom indisputably has a problem with contaminated sites. One consultant has estimated that as much as US\$37.5 billion could be required to clean up British sites.¹² Yet perhaps the most often reported fact

8. See *infra* notes 307-310 and accompanying text for a discussion of the litigation costs associated with CERCLA.

9. Elliott, *supra* note 6, at 13.

10. Or, in British, "fly-tipping . . . a most pernicious crime." DEP'T OF THE ENV'T, THE GOVERNMENT'S REPLY TO THE 2D REP. FROM THE ENV'T COMM.: TOXIC WASTE, 1989, CMND 679, at 8 [hereinafter DOE, TOXIC WASTE].

11. This Article uses the following geopolitical designations: "Great Britain" is "the geographical name of that island of the British Isles which comprises England, Scotland, and Wales." "United Kingdom" is the Union of Great Britain and Northern Ireland. England and Wales "form an administrative entity"; some of the data reported here are specific to that entity. *United Kingdom of Great Britain and Northern Ireland*, 1992-93 STATESMAN'S Y.B. 1314 (Brian Hunter ed., 129th ed. 1992) [hereinafter STATESMAN'S Y.B.].

12. *DoE Attacked for 'Burying' Reports on Contaminated Land, Dropping Register*, 16 Int'l Env't Rep. (BNA) 652, 653 (Sept. 8, 1993) [hereinafter *DoE Attacked*] (citing DoE-commissioned study estimating British cleanup costs at US\$11.25-\$37.5 billion).

about the British waste management industry is how few facts regarding the industry are known.¹³ For example, virtually no information is available on the financial stability and the business character of private landfill owners. Nevertheless, substantial indirect evidence supports a presumption of significant landfill contamination. Section A below outlines an inadequate and misdirected British regulatory regime that has shaped the modern industry. Through a comparison of waste disposal statistics with those of the United States, where more is known about the damage inflicted by past practices, Section B illustrates the potential perils of waste mismanagement in Great Britain.

A. *The Regulatory System*

British common law has imposed negligible liability for waste site contamination.¹⁴ Where a tort system does little to reallocate costs, polluters have few incentives to modify their behavior. As a result, common law principles have had little impact on Britain's waste management industry.

The British regulatory system, on the other hand, has influenced waste operations, particularly since the passage of the Control of Pollution Act 1974 (COPA 1974),¹⁵ which has provided the bulk of legal controls on landfill management to date.¹⁶ Regardless of the magnitude of this impact in general terms, certain aspects of licensing requirements, operating standards, and agency morale suggest that many existing sites are environmental hazards.

1. *Licensing Requirements*

Waste site licensing requirements have done nothing to prevent technically or financially unqualified parties from opening and operating landfills. COPA

13. See, e.g., H.C. ENV'T COMM., THE EC DRAFT DIRECTIVE ON THE LANDFILL OF WASTE, 7TH REPORT, H.C. 263, Sess. 1990-91, at xviii-xix ("[W]e have generally been appalled at the poor standard and patchy coverage of the statistics on landfill[s]," including information on "site location, size, age, type, throughput, ownership, and management and monitoring regimes.") [hereinafter HC, DRAFT DIRECTIVE]; *Comprehensive Registers Lacking at Most Municipal Authorities, FoE Charges*, 16 Int'l Env't Rep. (BNA) 624, 624 (Aug. 25, 1993) ("[Of 339 local] authorities responding to a request for information on contaminated land, 34 percent had no information, 44 percent had 'some' information, and 22 percent were unable to answer the question."). Despite the HC Committee's disgruntlement and the local authorities' continuing non-performance, the central government is not very concerned with the general lack of information and "sees little to be gained from putting these lists together, unless there were further attempts to extend the list into a complete national record of all potentially contaminated sites." DEP'T OF THE ENV'T, THE GOVERNMENT'S RESPONSE TO THE 1ST REP. FROM THE HOUSE OF COMMONS SELECT COMM. ON THE ENV'T: CONTAMINATED LAND, 1990, CMND 1161, at 4 [hereinafter DOE, CONTAMINATED LAND]. A compromise intended to address the DoE's concerns by registering "contaminative uses" rather than actual pollution" not only limits the utility of the studies, but has been attacked by developers as "arbitrary and unfairly damaging to property values." Marina Wheeler, *The EC Piece of the Contaminated Land Jigsaw*, 136 SOLIC. J. 580, 580 (1992).

14. See *infra* part III.

15. Control of Pollution Act, 1974, ch. 40 (COPA 1974); see *infra* text accompanying notes 128, 131-137.

16. HC, DRAFT DIRECTIVE, *supra* note 13, at xix.

1974 states that "it shall be the duty of the authority not to reject the application [for a landfill license] unless the authority is satisfied that its rejection is necessary for the purpose of preventing pollution of water or danger to public health."¹⁷ Although this provision could be read as giving licensing authorities broad discretion, it has been interpreted as requiring the local authority to approve a permit application unless it finds fault with the proposed physical location of the landfill.¹⁸ Indeed, this provision purportedly put beyond the reach of licensing authorities any inquiry into an applicant's criminal record, let alone its technical capabilities or financial stability.¹⁹

The Environmental Protection Act 1990 (EPA 1990)²⁰ used virtually the same language as COPA 1974, but it added the condition that the authority may satisfy itself "that the applicant is a fit and proper person."²¹ "Fit and proper person" is defined in terms of past offenses, technical capabilities, and financial stability,²² the first two of which may be further defined by the Secretary of State.²³ But the statute does not similarly provide for further guidance on financial requirements, defined only as "adequate to discharge the obligations arising from the license."²⁴ The exact obligations under current law remain unclear, but to date they have not been extensive. Although EPA 1990 does impose new licensing requirements backed by the threat of site closure, they amount to nothing more concrete than mandatory consultation with the National Rivers Authority (NRA)²⁵ and initial site inspection by the local authority, which has also been given the right to demand further information.²⁶ Nothing in the act indicates that these provisions create a more vigorous standard of financial stability.

However, the current activity of the European Union concerning civil liability for environmental damage²⁷ has already brought greater emphasis on the financial component of "fit and proper."²⁸ Inevitably, many "legitimate" waste disposal operators will not have sufficient financial backing to satisfy

17. COPA 1974 § 5(3).

18. DoE, TOXIC WASTE, *supra* note 10, at 7. Further, according to COPA 1974, an applicant was required to obtain planning commission permission, where applicable, before applying to the waste licensing authority. Such permission provided a presumption of validity that made it even more difficult for the local authority to refuse permit applications. *See* COPA 1974 § 5(2)-(3).

19. DoE, TOXIC WASTE, *supra* note 10, at 7-8.

20. Environmental Protection Act, 1990, ch. 43 (EPA 1990); *see infra* part IV.B.1.

21. EPA 1990 § 36(3).

22. *Id.* § 74.

23. *Id.* § 74(6).

24. *Id.* § 74(3)(c).

25. The National Rivers Authority was established in 1989 to monitor and manage water resources and water pollution. *See infra* parts IV.B.2-3.

26. EPA 1990 § 39.

27. *See infra* part V.A.

28. HC, DRAFT DIRECTIVE, *supra* note 13, at xxxvi; *see also* *New Regime for Waste Licensing to Be Introduced in April 1993*, 15 Int'l Env't Rep. (BNA) 556, 556 (Aug. 26, 1992) (quoting British Environment Minister MacLean explaining that "fit and proper" test will be used to examine financial strength of applicants "in case anything goes wrong and corrective action is required").

the new requirements.²⁹ Moreover, as the following section demonstrates, many of these same operators have none of the technical expertise that could rescue them from the expenses to come.

2. Operating Standards

Just as lax permit requirements have not barred underqualified operators from opening facilities, operating standards applied to those facilities have not prevented environmental contamination. As a result, operators lacking in expertise often easily meet the technical requirements of their licenses. In some locales, license restrictions have gone no further than to require that "disposals be carried out 'to the satisfaction of the Waste Disposal Authority.'"³⁰ Even where local authorities are conscientious and adequately staffed,³¹ standard "dilute and disperse" operating procedures present a clear risk of groundwater contamination.³² Indeed, there is a decided lack of emphasis on groundwater protection,³³ which is at the heart of much U.S. legislation.³⁴

In addition, the definition of offense under COPA 1974, which refers to the "deposit [of] controlled waste on any land,"³⁵ has been interpreted to mean the actual act of deposition.³⁶ In other words, local authorities consider their hands tied unless they witness the actual unlawful deposit of wastes. The House of Commons Environment Committee found that "[i]ntimidation of

29. One study suggests that as many as 80% of landfill sites will "no longer exist as they currently stand" under more burdensome landfill closure requirements. HC, DRAFT DIRECTIVE, *supra* note 13, at xx.

30. HC, TOXIC WASTE, *supra* note 2, at xxxix.

31. See *infra* notes 39-71 and accompanying text for a discussion of the varying levels of staffing and capabilities of local authorities.

32. The British expect their landfills to release leachate (a chemical soup of waste liquids, groundwater, and rainwater) after "biodegradation and attenuation processes have reduced them to acceptable concentrations." HC, DRAFT DIRECTIVE, *supra* note 13, at xx n.4. This is in sharp contrast to the U.S. conception of containment, which is intended to prevent just such releases. While the House of Commons Environment Committee was "not convinced that dilute and disperse is an acceptable principle upon which to base waste management," HC, TOXIC WASTE, *supra* note 2, at xxviii, it also viewed the U.S. approach as "basically long-term storage," part of a larger system "some aspects of [which] cannot be justified on scientific grounds." *Id.* at xxix; see also DOE, TOXIC WASTE, *supra* note 10, at 5 ("Entombment landfill is no more than long term storage. . . . It is far better to deal with our waste now . . .").

33. This is not to say that there is no evidence of a problem with groundwater contamination. The Water Authorities Association reported that "large numbers of landfill sites . . . cause local contamination of the groundwater," and, once such contamination has occurred, "it is rarely possible to rehabilitate the resource." HC, TOXIC WASTE, *supra* note 2, at xxix. Similarly, a consultant stated, with respect to groundwater pollution, "Essentially if we look for it in an urban or industrialised area, and indeed in some rural areas, we will find it." *Id.* app. at 571 (submission of Clayton Bostock Hill & Rigby Ltd.).

34. See, e.g., HOUSE COMM. ON INTERSTATE AND FOREIGN COMMERCE, COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION AND LIABILITY ACT OF 1980, H. REP. NO. 1016(I), 96th Cong., 2d Sess. 19-20 (1980), reprinted in 1980 U.S.C.C.A.N. 6119, 6122 [hereinafter INTERSTATE AND FOREIGN COMMERCE COMM. REPORT].

35. COPA 1974 § 3(1)(a).

36. HC, TOXIC WASTE, *supra* note 2, at xlii.

Inspectors to keep off a site when unloading takes place is not unknown."³⁷ Even where Waste Disposal Authorities (WDA) hope to prosecute, they often report difficulty in convincing the local authority solicitors to proceed.³⁸

3. Agency Efficacy

Inconsistency and lack of enthusiasm in agency action also present a persistent problem. At the local level, there is no "typical" Waste Disposal Authority. The offices vary from "literally a man and a dog . . . [to] authorities which have a team of multi-disciplinary staff."³⁹ Agency activity varies to such an extent that disposal market distortion occurs where tightly regulated districts abut those with a less active WDA.⁴⁰ In other words, sites in some districts are so strictly regulated, with resulting expenses so high relative to those in neighboring jurisdictions, that noticeable shifts in patronage have occurred. The decade long failure of nearly seventy percent of all local WDAs to submit waste disposal plans to the Secretary of State as required by COPA 1974 provides further evidence of a lack of organization at the local level.⁴¹

The dual role of some local authorities as operators and regulators compounds the problem of agency inefficiency. A significant number of sites — between fifteen and twenty-five percent — are owned by local governments.⁴² Some "regulators" have been found to be "particularly lax in dealing with the sites which they themselves operate."⁴³

On the national level, Her Majesty's Inspectorate of Pollution (HMIP) is charged with reporting on the performance of the local WDAs.⁴⁴ HMIP was formed in 1987 as a combination of the former Industrial Air Pollution Inspectorate, Radiochemical Inspectorate, and Hazardous Waste Inspectorate, and is a part of the DoE.⁴⁵ Despite its broad range of responsibilities, HMIP is primarily known for its understaffing and low morale,⁴⁶ and has been accused of being "captured" by industry.⁴⁷ Outside of its monitoring reports,

37. *Id.*

38. *Id.*

39. *Id.* at xli (citing studies by Institute of Wastes Management).

40. *Id.* at xl.

41. HC, DRAFT DIRECTIVE, *supra* note 13, at xix; *see* COPA 1974 § 2 (requiring preparation and revision of waste disposal plans).

42. HC, DRAFT DIRECTIVE, *supra* note 13, at xviii.

43. HC, TOXIC WASTE, *supra* note 2, at xli (quoting Her Majesty's Inspectorate of Pollution (HMIP)); *see infra* part IV.B.1.a.

44. DOE, TOXIC WASTE, *supra* note 10, at 5.

45. DAVID HUGHES, ENVIRONMENTAL LAW 61 (2d ed. 1992).

46. *Id.* at 62; *see also* HC, TOXIC WASTE, *supra* note 2, at xlii-xliiii; *Environment Unit Criticized for Effort to Prepare Business for Pollution Controls*, 14 Int'l Env't Rep. (BNA) 232, 232 (Apr. 24, 1991).

47. *See* HUGHES, *supra* note 45, at 62.

HMIP has had little impact on waste management.⁴⁸ Although EPA 1990 *could* result in a larger regulatory role for HMIP,⁴⁹ such a change will be resisted by the DoE, which is perfectly satisfied with the status quo.⁵⁰

B. *Waste Disposal Statistics*

The regulatory shortcomings outlined above — lax licensing and operating standards and agency inefficiency — hint that landfill contamination poses an environmental problem in the United Kingdom. A brief comparison of UK waste generation statistics to those from the United States, where much more is known about the potential costs of remediation,⁵¹ confirms that fear.⁵² Consider the following data:

Population Density and Waste Generated Relative to Landmass⁵³

	Population		Municipal Waste		Industrial Waste	
	(1000s)	(/km ²)	(k-tonnes)	(t/km ²)	(k-tonnes)	(t/km ²)
UK	56,900 ⁵⁴	235	35,000 ⁵⁵	145	50,000 ⁵⁶	207
England & Wales	48,968 ⁵⁷	324	17,700 ⁵⁶	117	N/A	—
U.S.	249,200 ⁵⁴	27	208,800 ⁵⁶	23	760,000 ⁵⁶	83

These data show that population density in the United Kingdom is

48. In 1987-88, 342 pollution complaints to HMIP resulted in two prosecutions; in 1988-89, HMIP pursued 40 prosecutions, none of which involved waste disposal. *Id.*

49. *See id.*

50. The DoE has stated that it is “unaware of any comparable body in other Western countries which issues regular reports on just how legislation has been applied. It is a reasonable assumption that much more is known publicly [sic] about the achieved standards of waste management in the UK than in most other countries.” DOE, TOXIC WASTE, *supra* note 10, at 5. In addition, critics have skeptically viewed recently announced plans to form a new “Environment Agency” by combining HMIP, the National Rivers Authority, and the local WDAs as budget-cutting rather than enforcement-enhancing measures. *Government Announces Intention to Create New Environment Agency After 1995*, 16 Int’l Env’t Rep. (BNA) 898, 899 (Dec. 1, 1993) (quoting FoE campaigns director Andrew Lees).

51. *See infra* part V.B.

52. This comparison is useful because of the lack of information available on British landfills, *see supra* note 13, and is valid because of the parallel industrial development of the United Kingdom and the United States, *see* DAVID VOGEL, NATIONAL STYLES OF REGULATION: ENVIRONMENTAL POLICY IN GREAT BRITAIN AND THE UNITED STATES 226 (1986) (noting earlier industrial development in Great Britain relative to United States). In addition, the structure of the waste management industry with respect to private versus public sector owners/operators is similar in both countries. DOE, TOXIC WASTE, *supra* note 10, at 4. In contrast, waste disposal on the continent is predominantly a public sector activity. *Id.*

53. The area figures used in these calculations are as follows: 151,000 km² for England and Wales, STATESMAN’S Y.B., *supra* note 11, at 1314; 242,000 km² for the United Kingdom, OECD, THE STATE OF THE ENVIRONMENT 96 (1991) [hereinafter OECD, STATE OF THE ENVIRONMENT]; and 9,167,000 km² for the United States, *id.*

54. OECD, ENVIRONMENTAL INDICATORS: A PRELIMINARY SET 65 (1991) [hereinafter OECD, PRELIMINARY SET]. Figures are for 1990.

55. *Id.* at 74. The magnitude of this number relative to the figure given for England and Wales indicates the definitional problems that affect this data.

56. *Id.* at 45. Figures are per annum for the late 1980’s.

57. STATESMAN’S Y.B., *supra* note 11, at 1314. The population given is for 1991.

approximately ten times greater, and its waste generation per unit land mass from 2.5 to 6 times greater, than those of the United States.⁵⁸ A significant majority of the waste produced in the United Kingdom is disposed of to land. Recent estimates range from nearly eighty percent for hazardous wastes⁵⁹ to eighty-eight percent for municipal solid waste.⁶⁰ This has resulted in, by one estimate, over three thousand operational and six thousand "completed" landfill sites.⁶¹ Some of these sites clearly "would be regarded as 'problem sites' requiring urgent action in . . . the USA."⁶² At the same time, an estimated half of all new building occurs on "recycled" land,⁶³ much of which is not subject to adequate environmental assessment prior to redevelopment.⁶⁴

Regardless of recordkeeping discrepancies that render detailed comparisons impossible,⁶⁵ the magnitude of the landfill contamination problem in the United States bodes ill for the United Kingdom. The exact impact in the United States is a matter of great debate, but by all accounts ranges from very large to mind-boggling. Some recent estimates of the aggregate cost of all U.S. Environmental Protection Agency (EPA) programs for environmental cleanup exceed \$1 trillion,⁶⁶ or more than \$100,000 for every square kilometer of U.S. landmass. The British face potentially staggering landfill cleanup costs as well.

In sum, the regulatory structure of waste management in Great Britain has allowed industry to evolve to a point where a large number of participating businesses are financially unstable, technically unqualified, and generally unknown quantities, both to local regulatory authorities and to national overseers. Waste management standards, where applied at all, have presumably allowed the pollution of groundwater through a "dilute and

58. As an aside, the rates of public land protection (i.e., scientific reserves, national parks, natural monuments, nature reserves, and protected landscapes) in the United States (8.6%) and the United Kingdom (10.6%) were so close in 1989 as to be indistinguishable. OECD, STATE OF THE ENVIRONMENT, *supra* note 53, at 101.

59. HC, TOXIC WASTE, *supra* note 2, app. at 66 (submission of Water Authorities Association).

60. HC, DRAFT DIRECTIVE, *supra* note 13, at xvii tbl. 1.

61. *Id.* at xviii. More recent reports place the number of locations falling under the broader classification "contaminated sites" at up to 100,000. *DoE Attacked*, *supra* note 12, at 652.

62. HC, TOXIC WASTE, *supra* note 2, app. at 561 (submission of Clayton Bostock Hill & Rigby Ltd.).

63. *Id.* app. at 562.

64. *Cf. DoE Attacked*, *supra* note 12, at 653 (noting resistance to use of "contaminated land registers" as means of assessment specifically because of "the high level of urbanization, industrialization, and home ownership").

65. The OECD cautions that its data should be interpreted with the understanding that national definitions of waste categories, which vary considerably, were used in preparing its publication. OECD, PRELIMINARY SET, *supra* note 54, at 44. In particular, the U.S. figures for industrial waste include "wastewaters managed in land-based operations." *Id.* at 73; *cf. supra* note 55. However, the over-inclusiveness of the U.S. data reinforces the point of this section that potential British problems with leaking landfills are most likely at least as bad as known U.S. problems.

66. *See* THOMAS W. CHURCH & ROBERT T. NAKAMURA, CLEANING UP THE MESS: IMPLEMENTATION STRATEGIES IN SUPERFUND 3 (1993).

disperse" regime.⁶⁷ These "requirements" are further relaxed in as many as one-quarter of all landfills where the regulator itself owns the site.⁶⁸ In addition, the "low status of waste management"⁶⁹ has resulted in widely varying local enforcement and a deeply demoralized national watchdog. All of this has occurred in an industrialized society where even a cursory survey of waste statistics indicates a potential for trouble.

III. COMMON LAW REMEDIES

Despite government pronouncements to the contrary,⁷⁰ British common law affords little opportunity to redress environmental harms. In particular, it has established no liability rules that might induce private firms to "police" waste disposal sites, even in the face of gross agency neglect.⁷¹ The classic common law tort is exemplified by a motorist running down a pedestrian, or a thoughtless landowner who has erected a dam on his property and thereby flooded his neighbor's land. Such cases, where both the perpetrator and the victim are easily identified and limited in number, fall neatly into a one-plaintiff, one-defendant pattern. The basic nature of the harm — and often even the cause of the harm — is well established, and remedies are easily administered in the form of damages and injunctions. The common law courts developed in this setting, and the rules they developed address such cases efficiently.

Issues of waste site remediation rarely fit into so neat a pattern. The discovery of harm may occur years after the precipitating act. Indeed, the issue of whether a remediable harm has even occurred may be hotly contested. Defendants may or may not be known or knowable; conclusively determining the group of all potential plaintiffs likewise may be impossible. In addition, the technical complexity of appropriate remedies is often far beyond the competence of courts. To some extent, the British Parliament has addressed these shortcomings in statutes supplanting or augmenting common law actions. Still, regardless of its limitations, the common law remains important in areas not covered by statutes.⁷²

67. See *supra* note 32 and accompanying text.

68. See *supra* notes 42-43 and accompanying text.

69. HC, TOXIC WASTE, *supra* note 2, at xxx.

70. See, e.g., *Minister Hits Out at 'Over-Archiving' Green Paper on Green Liability*, EC ENERGY MONTHLY, Oct. 21, 1993, available in LEXIS, Eurcom Library, ECNews File [hereinafter *Minister Hits Out*] (reporting UK Environment Minister's assertion that "UK had a broadly correct framework for civil liability in place").

71. See *Industry 'Ill-Prepared' for System to Regulate Waste*, *Business Official Says*, 15 Int'l Env't Rep. (BNA) 240, 240 (Apr. 22, 1992) [hereinafter *Industry 'Ill-Prepared'*] ("The duty of care is not a new concept, . . . [b]ut waste is a totally new context."); HC, TOXIC WASTE, *supra* note 2, at lxi (noting that "less than five percent of all customers . . . mainly the major waste generators and particularly, but not exclusively, those of American parentage" actually "checked" the waste facilities they used); cf. *supra* part II.A.3.

72. Allen & Overy, *Environmental Liabilities: The Lender's Perspective* 26 (1991) (unpublished advisory memorandum on file with author).

Common law environmental liabilities have been loosely grouped under three categories: negligence, nuisance, and the rule in *Rylands v. Fletcher*.⁷³

A. *Negligence*

Negligence is "the failure to exercise that care which the circumstances demand."⁷⁴ Proof of negligence for environmental harms requires a claimant to demonstrate (1) that the polluter owed him a duty of care; (2) that the polluter breached the standard of care imposed by that duty; (3) that the damage that occurred was in fact caused by the breach of the duty; and (4) that it was a reasonably foreseeable consequence of the breach.⁷⁵ Because of the difficulty of establishing each of these elements, negligence is the least useful legal action in environmental litigation.⁷⁶

Although a landowner's duty of care to others extends beyond a duty to neighboring landowners,⁷⁷ most negligence cases involving harm to land are brought by the owners of impaired adjacent property. In such cases, courts have found "a measured duty of care by occupiers to remove or reduce hazards to their neighbours."⁷⁸ While this duty applies regardless of whether the hazard is natural or man-made,⁷⁹ in practice it has often been reduced to nil.⁸⁰

Even where a duty of care is established, it can be impossible to establish a breach of the standard of care, now defined as "an *unreasonable* failure to achieve the standard of care required by law."⁸¹ In determining this standard, courts may take into account the cost and difficulty of avoiding the harm, as well as the importance of the activity that gives rise to the harm.⁸² Perhaps most damaging to environmental claims, courts allow defendants to

73. See *Cambridge Water Co. v. Eastern Counties Leather plc*, [1994] 1 All E.R. 53, 63 (H.L.). Although *Cambridge Water* was analyzed in terms of the traditional categories of negligence, nuisance, and the rule of *Rylands v. Fletcher*, the Law Lords explicitly questioned the wisdom of the distinctions among the three groupings. See *id.* at 76 (asserting that "a more coherent body of common law principles [would result if *Rylands v. Fletcher*] were to be regarded essentially as an extension of the law of nuisance"); *id.* at 71-72 (implying that law on damages for nuisance has been evolving towards that on negligence for past sixty years); see also 34 LORD HAILSHAM OF ST. MARYLEBONE, HALSBURY'S LAWS OF ENGLAND ¶ 29 n.1 (4th ed. 1980) [hereinafter 34 HALSBURY'S LAWS].

74. 34 HALSBURY'S LAWS, *supra* note 73, ¶ 1 (footnote omitted).

75. HUGHES, *supra* note 45, at 44.

76. *Id.* at 44-45.

77. See, e.g., *Bolton v. Stone*, [1951] 1 All E.R. 1078 (H.L.) (stating in dicta that "the occupier of a cricket ground owes a duty of care to persons on an adjacent highway or on neighbouring property who may be in the way of balls driven out of the ground") (Lord Normand, concurring); see also HUGHES, *supra* note 45, at 27 (noting that action for injury to passer-by on highway due to defective abutting premises should lie in negligence).

78. *Goldman v. Hargrave*, [1966] 2 All E.R. 989, 995 (P.C.) (appeal taken from Austl.).

79. *Id.*

80. See, e.g., *Stephens v. Anglian Water Authority*, [1987] 1 W.L.R. 1381 (C.A.) (holding that landowners have right to extract water on their own property, with no duty of care to neighbors, even where subsidence resulting from extraction damages neighbor's property).

81. HUGHES, *supra* note 45, at 44 (emphasis added).

82. 34 HALSBURY'S LAWS, *supra* note 73, ¶ 11.

avoid liability if they complied with what were at the time standard practices,⁸³ particularly if those practices satisfied relevant contemporary regulations.⁸⁴ Thus negligence law not only frequently fails to supply financial resources for remediation, it also usually provides no incentive to waste site owners to improve their operating standards. Given the relatively recent application of environmental controls to waste management sites, many potentially dangerous sites are exempt from negligence liability because they operated in accordance with the lax standards of the day.⁸⁵

Further, even after finding liability, courts often do not award adequate damages to finance substantial remediation. The current rule on damages, stated in *Dominion Mosaics and Tile v. Trafalgar Trucking*,⁸⁶ distinguishes between commercial and residential property. In cases involving property that did not "consist of business or income-earning premises," only the diminution in the market value of the property resulting from the tort is awarded. This sum is often less than the cost of restoring the property to its original condition.⁸⁷ Thus, since most affected properties are non-commercial, a "license to pollute" is available at a cost that is at most equal to the original value of the damaged property. The license is even cheaper where homeowners are unable, financially or otherwise, to bring suit to collect the "license fee." As a result, with regard to residential properties, this rule on damages serves the purposes of deterrence and remediation poorly.

In contrast, "[w]here business premises are concerned, the need to carry on the business and to mitigate the loss of earnings is an important factor."⁸⁸ As a result, damages are determined by a "reinstatement" standard, under which the owner of the damaged property is compensated for his lost profits.⁸⁹ Even under the reinstatement standard, however, the courts' emphasis on financial factors again indicates that violators will in most cases have the option of purchasing a relatively inexpensive license to pollute. For instance, where less expensive methods of redress are available (e.g., in the case of groundwater contamination, replacing well water with a public or bottled source), the courts are likely to order such a remedy, and then only

83. *Id.*

84. *See, e.g., Budden v. BP Oil Ltd.*, 124 Sol. J. 376 (1992) (C.A.) (holding that, for injuries attributed to air pollution, defendants "could not be held to be negligent and failing in their duty . . . in complying with the requirements prescribed by the secretary of state and approved by Parliament"). Defenses relying on standard practices or regulatory compliance (or both) are based on the foreseeability requirement of negligence. A person operating under standard practices and/or within regulatory limits is presumed to have little chance of "foreseeing" harm resulting from those activities.

85. To this day, landfills are developed without an explicit design life that would give some indication of "how long they are expected to remain safe and/or when they will cease to be a hazard." HC, TOXIC WASTE, *supra* note 2, app. at 571 (submission of Clayton Bostock Hill & Rigby Ltd.). Thus, even current design standards do not establish a standard of care regarding the life span of landfills.

86. [1990] 2 All E.R. 247 (C.A.) (finding liability where defendant's negligent demolition activities caused fire that destroyed plaintiff's place of business).

87. *Id.* at 249.

88. *Id.*

89. *Id.*

for the party bringing suit, even when other parties may be affected. In one case in which a "cheap fix" was not available, the court went so far as to state in dicta that, were the defendant liable for remediating the contaminated groundwater on the plaintiff's property, the defendant "would have no right that I am aware of to enter [other adjacent properties not owned by the plaintiff] and purify . . . the aquifer there."⁹⁰ In other words, comprehensive remediation was beyond reach of the court; had liability been found, "reinstatement" would have been limited to the particular plaintiff.⁹¹ Courts often ignore not only the interests of possible unrepresented parties, but also potential future site uses and the intrinsic value of a safe environment, which might otherwise call for remediation.

In general, the courts' limitation of remedies in these actions to monetary recovery, combined with procedural restrictions on class actions in Great Britain, results in repetitive litigation specific to each parcel of property, even where the sources of pollution are discrete and identifiable.⁹² Not only does this approach increase transaction costs by requiring extensive litigation, but it also ignores the economies of scale that may be realized through integrated remediation projects. In addition to thwarting environmental remediation goals, the reinstatement standard, as currently applied, provides little deterrence to polluters, who are aware that time is on their side in extended litigation⁹³ that most often results in the remedy cheapest to them.

In sum, the negligence rule serves both remediation and deterrence goals poorly. Besides the one-plaintiff, one-defendant bias of the common law,

90. *Cambridge Water Co. v. Eastern Counties Leather plc* (Q.B.), reported in *Case Law Analysis: Strict Liability for Environmental Law: The Deficiencies of the Common Law*, 4 J. ENVTL. L. 81, 101 (1992) [hereinafter *Cambridge Water Case Law Analysis*], upheld, [1994] 1 All E.R. 53 (H.L.). The plaintiff was in the business of supplying water to approximately 275,000 people in the Cambridge area. The aquifer at issue, prior to discovery of the contamination, provided on average 1.27 million gallons of water per day, or approximately one-eighth of the plaintiff's total supply. *Cambridge Water Case Law Analysis*, *supra*, at 81-82.

91. *Cambridge Water Case Law Analysis*, *supra* note 90, at 104-05. For the purposes of review on appeal, the court outlined two possible remedies it would consider if liability were imposed. These included an air stripper specific to the plaintiff's operations (i.e., not for general remedial purposes), which was rejected for technical reasons, and reimbursement for the cost of locating and building another extraction facility upstream from the contamination. *Id.*

92. Under the Rules of the Supreme Court 1965, O.15, r.12, reprinted as amended in 1 THE SUPREME COURT PRACTICE 1988, at 208 (Sir Jack I.H. Jacob et al. eds., 8th ed. 1988), British courts recognize a right of "representative action" that is much more limited in scope than its U.S. counterpart. In particular, representative actions are "not available to a number of different individuals where the relief sought is damages." *Electrical, Electronic, Telecommunication and Plumbing Union v. Times Newspapers*, [1980] Q.B. 585, 601. Although this limitation arguably still allows suits for injunctive relief requiring site remediation, no such suits could be identified. *Cf. Medcalf v. R. Strawbridge, Ltd.*, [1937] 2 K.B. 102 (enjoining destructive use of road in representative action brought by frontagers of road); see also *Environment Minister Criticizes EC Paper on Civil Liability for Environmental Damage*, 16 Int'l Env't Rep. (BNA) 774, 774 (Oct. 20, 1993) [hereinafter *Environment Minister Criticizes EC Paper*] (citing government finding that "industry and insurers are particularly concerned that the power to prosecute claims for damage to the broader environment should not be extended to [interest groups] as guardians of the environment").

93. For example, the *Cambridge Water* litigation lasted ten years from the cessation of operations due to pollution to the case's final disposition on appeal. *Cambridge Water Co.*, [1994] 1 All E.R. at 66 (H.L.).

difficulties arise in establishing causation, duty of care, and damages.

B. *Nuisance*

The doctrine of nuisance is more closely tied to real property interests than the negligence rule, and it is more likely to involve injuries arising from continuing conditions rather than single events.⁹⁴ While these features suggest that nuisance claims may address waste site contamination more effectively than negligence claims, other aspects of nuisance law have prevented such a result. Establishing liability for nuisance requires, first, an unlawful act, defined as “the interference by act or omission with a person’s use or enjoyment of land or some right over or in connection with land,”⁹⁵ and, second, actual or presumed damage.⁹⁶

Common law nuisances are divided into public nuisances, which “affect[] the reasonable comfort and convenience of a class of Her Majesty’s subjects,”⁹⁷ and private nuisances, which affect only particular individuals. Put another way, a public nuisance “is so widespread in its range . . . that it would not be reasonable to expect one person to take proceedings on his own responsibility to put a stop to it, but that it should be taken on the responsibility of the community at large.”⁹⁸ Once a landowner becomes aware of the existence of a public nuisance on his property, “it is his duty to abate it, or to endeavour to abate it, even though he is entirely innocent of either causing the nuisance or of allowing it to continue.”⁹⁹ At common law, a private party may bring a public nuisance claim only if he can show that he “has suffered some particular, foreseeable and substantial damage over and above that sustained by the public at large.”¹⁰⁰ This restriction, along with the concept of social harm inherent in public nuisance, has prompted the codification of most pollution-related public nuisance claims as statutory nuisances, which are discussed further below. The codification of public nuisances is particularly prevalent in the regulated waste industry.¹⁰¹

Private nuisance claims, on the other hand, are complicated by the defenses of prescriptive right and statutory authority, which are not recognized

94. *But see* *British Celanese Ltd. v. A.H. Hunt (Capacitors) Ltd.*, [1969] 1 W.L.R. 959 (Q.B.) (finding liability in nuisance from single incident of metal foil carried by wind from defendant’s property and damaging nearby electrical equipment).

95. 34 HALSBURY’S LAWS, *supra* note 73, ¶ 309.

96. *Id.*

97. HUGHES, *supra* note 45, at 25.

98. *Attorney General v. P.Y.A. Quarries Ltd.*, [1957] 2 Q.B. 169, 191 (Crim. App.) (Denning, L.J., concurring).

99. *Job Edwards, Ltd. v. Proprietors of Birmingham Navigations*, [1924] 1 K.B. 341, 350 (Crim. App.). In fact, courts have recognized that the person threatened with injury due to *private* nuisance may have “the exceptional right to enter upon the land on which the nuisance exists and to do what is necessary to abate it” because “in some cases . . . the law [does] not afford any other remedy.” *Id.*

100. 34 HALSBURY’S LAWS, *supra* note 73, ¶ 370 (footnote omitted).

101. *See generally infra* part IV.B.i.c.

against public nuisance actions.¹⁰² A prescriptive right is created where “the nuisance complained of has . . . been actionable or preventable by the plaintiff,” who nevertheless has failed to take appropriate action for a prescribed amount of time, currently twenty years in Great Britain.¹⁰³ The prescriptive right defense, however, is inapplicable in cases “where the pollution was unknown to and unsuspected by the plaintiff.”¹⁰⁴ Its use is even more limited because a polluter’s prescriptive right does not start tolling when the damaging use begins, but when environmental damage actually occurs.¹⁰⁵

On the other hand, the defense of statutory authority disposes of many nuisance claims arising from waste management practices, which have a long history of government regulation. Where a nuisance claim targets conduct authorized by a statute, this defense subjects the claim to a rule of standard (i.e., negligence-based), rather than strict, liability.¹⁰⁶ In other words, a claim of private nuisance faced with a defense of statutory authority is only as strong as the same claim based on negligence, already found to be inadequate.¹⁰⁷ Again, neither restoration nor deterrence is served by a system that fails to hold polluters financially responsible.

C. Rylands v. Fletcher

*Rylands v. Fletcher*¹⁰⁸ pronounced a standard of strict liability — that is, liability imposed even without a finding of negligence on the part of the defendant. The original rule has been repeated in perhaps more British cases on torts associated with land than any other passage:

[T]he person who for his own purposes brings on his lands and collects and keeps there anything likely to do mischief if it escapes, must keep it in at his peril, and, if he does not do so, is *prima facie* answerable for all the damage which is the natural consequence of its escape. . . . [T]he neighbour, who has brought something on his own property which was not naturally there . . . which he knows to be mischievous if it gets on his neighbour’s,

102. 34 HALSBURY’S LAWS, *supra* note 73, ¶ 375.

103. *Id.* ¶ 376; *cf.* Halsey v. Esso Petroleum Co., [1961] 1 W.L.R. 683, 696 (Q.B.) (denying defense of prescriptive right because nuisance “ha[d] not continued for anything approaching 20 years”).

104. Scott-Whitehead v. National Coal Bd., 53 P. & C.R. 263 (Q.B. 1987).

105. *Id.*

106. In other words, where Parliament “has authorized . . . an undertaking or works, that carries with it an authority to do what is authorised with immunity from any action based on nuisance.” Such “undertakings” might still be subject to a claim of negligence, here defined as a lack of “reasonable regard and care for the interests of other persons.” *Allen v. Gulf Oil Refining Ltd.*, [1981] 1 All E.R. 353, 356 (H.L.).

107. See *supra* note 84 and accompanying text. Indeed, *Cambridge Water* suggests that the law of nuisance is becoming a subcategory of the law of negligence in other respects as well. *Cambridge Water Co.*, [1994] 1 All E.R. at 71-72 (H.L.) (implying that law of nuisance is converging with that of negligence with respect to, *inter alia*, claims for damages). In particular, the Law Lords stated in dicta that “foreseeability [of harm] should be a prerequisite of liability in damages for nuisance as it is of liability in negligence” because they saw no reason to favor claims of nuisance over those of negligence. *Id.* at 72; *cf.* *Allen & Overy*, *supra* note 72, at 26 (stating traditional rule that “plaintiff [in a nuisance claim] does not need to show that the defendant has been negligent”).

108. [1866] 1 L.R. 265 (Ex.).

should be obliged to make good the damage which ensues if he does not succeed in confining it to his own property.¹⁰⁹

The predictable repetition of this text in British cases concerning pollution is presumably due to a concern for tradition; almost never is the rule applied as stated.

The phrase "something . . . which was not naturally there" in the original case has given rise to a "natural use" exception that nearly swallows the rule. *Read v. J. Lyons & Co.*,¹¹⁰ although decided on other grounds, is often cited as authority for the proposition that the manufacture of explosives may be considered a natural use of land.¹¹¹ More recently, the trial court in *Cambridge Water* held that storing large quantities of organic solvents on a facility set in a residential neighborhood was a natural land use.¹¹² Apparently recognizing the absurd lengths to which the phrase "natural use" was being stretched, Lord Goff in the final appeal of *Cambridge Water* felt "bound to say that the storage of substantial quantities of chemicals on industrial premises should be regarded as an almost classic case of non-natural use."¹¹³ Since the case was decided in the defendant's favor because of lack of foreseeability, however, he found it unnecessary at that point "to attempt any redefinition of the concept of natural or ordinary use."¹¹⁴

In sum, despite its continuing importance in supplying remedies where Parliament has not yet provided any alternatives, British common law does little to reallocate losses from land contamination, and it has shown little tendency to evolve in the face of emerging environmental harms.¹¹⁵ However, Parliament has begun to realize that problems exist, although the actions it has taken in response are of arguable efficacy.

109. *Id.* at 279-80 (Blackburn, J.).

110. [1946] 2 All E.R. 471 (H.L.) (holding that where there is escape from control rather than escape from premises, *Rylands v. Fletcher* does not apply).

111. See, e.g., 34 HALSBURY'S LAWS, *supra* note 73, ¶ 340 n.2.

112. *Cambridge Water Case Law Analysis*, *supra* note 90, at 97 (relying on judge's observation of "the innumerable small works that one sees up and down the country with drums stored in their yards").

113. [1994] 1 All E.R. at 79 (H.L.).

114. *Id.*

115. Even this assertion is difficult to understate. As late as 1990 the Department of the Environment found "no reported cases in the UK concerning the application of relevant common law principles to contaminated land issues." DOE, CONTAMINATED LAND, *supra* note 13, at 12. One case strikingly similar to *Cambridge Water* was decided on appeal in favor of the plaintiff. *Ballard v. Tomlinson*, (1885) 29 Ch. D. 115 (C.A.) (awarding damages in nuisance for plaintiff-brewer whose well was fouled by defendant-neighbor's disposal of printing and sanitary wastes through abandoned well). However, the only modern application of *Ballard* to hold for the plaintiff in a pollution case was the Court of Appeals decision in *Cambridge Water*, which awarded the plaintiff over £1 million plus interest. [1994] 1 All E.R. at 62 (C.A.). When the decision was overturned in the House of Lords, Lord Goff somewhat cryptically dismissed the Court of Appeals' reliance on *Ballard* because "the point [on foreseeability] did not arise" in that case. [1994] 1 All E.R. at 68 (H.L.).

IV. STATUTORY REFORM

A. *Historic Background*

Britain has a long legislative tradition of regulating waste accumulations. The Nuisances Removal and Diseases Prevention Act 1848 (Nuisance Act) first gave local authorities the capacity to inspect upon complaint any premises that might be "in such a filthy and unwholesome Condition as to be a Nuisance to or injurious to the Health of any Person," including any "Ditch, Gutter, Drain, Privy, Cesspool, or Ashpit . . . or any Accumulation of Dung, Manure, Offal, Filth, [or] Refuse."¹¹⁶ The Nuisance Act also allowed local authorities to bring the owner or occupier of premises before a justice, who could order "Removal or Abatement of any such Cause or Causes of Complaint."¹¹⁷ If the order of the justice was not obeyed, the authorities could enter the premises to perform abatement and later recover their costs in a civil action,¹¹⁸ including an action predicated upon joint and several liability.¹¹⁹ Where the authorities could not recover damages from the owner or occupier of the premises, abatement costs were to be recovered from the local "Funds [for the] Relief of the Poor."¹²⁰ These provisions were reinforced in the Sanitary Act 1866,¹²¹ which transformed the *capacity* of the "Nuisance Authority" to inspect upon complaint into a *duty* to inspect periodically.¹²²

This general regime was reauthorized, with a few notable modifications, in the Public Health Act 1936.¹²³ The Public Health Act increased local authorities' participation in waste management by allowing them to "undertake the removal of trade refuse" at the request of the owner or occupier of the premises,¹²⁴ but restricted authorities from undertaking "a general collection of trade refuse."¹²⁵ In addition, the Public Health Act allowed private citizens directly to bring an action for abatement of a statutory nuisance.¹²⁶

It is not clear whether local authorities utilized these provisions efficiently to redress pollution. Certainly, the authorities made little effort to police inactive waste sites.¹²⁷ At any rate, this issue was largely rendered moot by

116. Nuisances Removal and Diseases Prevention Act, 1848, 11 & 12 Vict., ch. 123, § 1.

117. *Id.*

118. *Id.* § 3.

119. *Id.* § 18.

120. *Id.* § 4.

121. Sanitary Act, 1866, 29 & 30 Vict., ch. 90.

122. *Id.* § 20.

123. Public Health Act, 1936, 26 Geo. 5 & 1 Edw. 8, ch. 49, §§ 92-97.

124. *Id.* §§ 73-74.

125. *Id.* § 74.

126. *Id.* § 99.

127. Historically, the United Kingdom has viewed inactive contaminated sites as a constraint on development only, and thus "major public health/environmental problems may remain unremedied for many years." HC, TOXIC WASTE, *supra* note 2, app. at 561 (submission of Clayton Bostock Hill & Rigby Ltd.). Typically, cleanup is considered only where land values are sufficiently high to provide an

COPA 1974.¹²⁸ With respect to waste, COPA 1974 sought primarily to regulate the operation of disposal sites, rather than provide for site remediation; while it outlined requirements for site inspection and entry by authorities in great detail,¹²⁹ it contained no provision for the abatement of contamination or the recovery of abatement costs.¹³⁰ The cost recovery sections of the Public Health Act were not repealed, but, significantly, they were not reauthorized either. Furthermore, in the only area where COPA 1974 did provide for civil liability for damage “caused by poisonous, noxious or polluting waste” — where that waste was deposited illegally¹³¹ — it made recovery more difficult by requiring proof under a higher criminal, rather than civil, standard.¹³²

COPA 1974 was widely criticized¹³³ for repealing the Public Health Act 1936 prohibition of local authorities’ participation in the “general collection of trade refuse.”¹³⁴ Indeed, the opening sections of COPA 1974, which detail licensing and planning requirements for the disposal of waste to land, clearly recognize a dual role for regulators as operators.¹³⁵ Placing regulators in direct competition with the regulated has had far-reaching implications for subsequent regulation of waste management.¹³⁶ COPA 1974 has been widely decried as allowing foxes to guard the chicken coop¹³⁷ because of the prevalence of double standards in the regulation of publicly and privately held waste sites.

Moreover, government officials in Britain consult industry representatives extensively before making or enforcing environmental regulatory policies.¹³⁸ This practice has led to an institutional resistance to public participation in the industry-government relationship. Indeed, “British pollution-control policy is basically made and enforced in private, by a ‘family-like, . . . close-knit group of experts proud of their traditions and the trust placed in them by the

incentive. *Id.* app. at 572.

128. Control of Pollution Act, 1974, ch. 40.

129. *Id.* §§ 91-93.

130. “A major deficiency of COPA is that it only relates to waste disposal sites when they are active and a licence holder may at any time surrender his licence. Landfills . . . pose a long term threat to the water environment, long after the deposition of waste has finished.” HC, TOXIC WASTE, *supra* note 2, app. at 67 (submission of Water Authorities Association).

131. COPA 1974 § 88.

132. *Id.* (applying criminal provisions of §§ 18(2), 3(3)). The criminal standard of proof clearly favors the defendant. In a criminal action, if the burden of proof lies with the prosecution, the required standard is “proof beyond a reasonable doubt.” Where the defense bears the burden, the standard is reduced to “the civil standard of the balance of probabilities.” 11(2) LORD HAILSHAM OF ST. MARYLEBONE, HALSBURY’S LAWS OF ENGLAND ¶ 1066 (4th ed. reissue 1990).

133. *See, e.g.*, HC, TOXIC WASTE, *supra* note 2, at xl-xli; HC, DRAFT DIRECTIVE, *supra* note 13, at xix.

134. COPA 1974 § 108(2), sched. 4.

135. *See id.* § 11(2) (“If any land occupied by a disposal authority is used by the authority as a site on which to deposit or permit other persons to deposit controlled waste”); *see also id.* §§ 1-10.

136. *See* HC, TOXIC WASTE, *supra* note 2, at xl-xli.

137. Or, in British, as providing inadequate “separation of the poacher and gamekeeper roles.” HC, DRAFT DIRECTIVE, *supra* note 13, at xix.

138. VOGEL, *supra* note 52, at 257.

public.”¹³⁹

While many of these “traditions” of excluding the public originated at the enforcement level, Parliament has proven eager to follow suit, effectively barring public participation in the regulatory process by attaching disclosure prohibitions to numerous statutes. For example, the Rivers (Prevention of Pollution) Act 1951 required local river boards to maintain a register of all conditions imposed on sewage discharges into streams that “shall be open to inspection . . . by any person appearing to the river board to be interested in the outlet.”¹⁴⁰ However, virtually every river board interpreted “interested” to mean only “those with a property interest at the point of discharge,” i.e., the polluters themselves.¹⁴¹ A decade later, the Rivers (Prevention of Pollution) Act 1961 codified this interpretation and made it a criminal offense punishable by fine and/or imprisonment to disclose information gathered under the act without the consent of the regulated party.¹⁴² In fact, the penalty on summary conviction was greater for unlawful disclosure than for pollution offenses under the primary provisions of the act.¹⁴³ While most of both acts has been repealed over the years, the disclosure prohibitions of the 1961 Act were still in force in March 1994.¹⁴⁴

These provisions reflect a clear government-industry consensus that public involvement in environmental regulation should be minimized. A prominent government official once stated: “I am a great believer in informing the public, but not in giving them figures they can’t interpret. You would get amateur environmental experts and university scientists playing around with them. People can become scared of figures, they can get the wind up.”¹⁴⁵ This fear of public participation extends beyond the substance of regulation to the process of regulatory policy development.¹⁴⁶ In the absence of a

139. *Id.* at 91-92 (quoting Timothy O’Riordan, *Role of Environmental Quality Objectives: The Politics of Pollution Control*, in 1 *PROGRESS IN RESOURCE MANAGEMENT AND ENVIRONMENTAL PLANNING* 239, 241 (Timothy O’Riordan & Ralph C. D’Arge eds., 1979)).

140. Rivers (Prevention of Pollution) Act, 1951, 14 & 15 Geo. 6, ch. 64, § 7(7).

141. VOGEL, *supra* note 52, at 93.

142. Rivers (Prevention of Pollution) Act, 1961, 9 & 10 Eliz. 2, ch. 50, § 12.

143. Summary conviction for illegal disclosure of information carried a maximum penalty of £100 and three months imprisonment. *Id.* § 12(2). In contrast, summary conviction for pollution offenses carried only a £100 fine. *Id.* §§ 1(7)(b), 7(1).

144. The fine imposed for illegal disclosure of information was set by “the standard scale” of fines defined in the Criminal Justice Act, 1982, ch. 48 § 37(2), and updated by the Criminal Justice Act, 1991, ch. 53 § 17(2). See HALSBURY’S STATUTES OF ENGLAND AND WALES: CUMULATIVE SUPPLEMENT (4)49/3 (Rona Johnstone ed., 4th ed. 1993) (noting application of these provisions to the 1961 Act). Thus, § 12 of the 1961 Act was in force at the date of the Criminal Justice Act 1991. In addition, a LEXIS search of British legislation revealed no revision or repeal provisions regarding § 12 since 1991.

145. VOGEL, *supra* note 52, at 92 (citing 1972 comment of chief alkali inspector, in Jon Tinker, *Britain’s Environment — Nanny Knows Best*, NEW SCIENTIST, Mar. 9, 1977, at 553); see also *Minister Hits Out*, *supra* note 70 (reporting UK Environment Minister’s pronouncement that the government “would be ‘very cautious’ about giving enhanced status to non-governmental organisations in respect of civil actions for environmental damage”).

146. For example, the HC Committee declared that “it seems sensible to us for the waste industry, the insurance industry, and the Government to press ahead with a joint working group to explore the possibility of evolving a total package . . . for the protection of the environment and cleanup of the consequences of unforeseen damage.” HC, DRAFT DIRECTIVE, *supra* note 13, at xxxviii.

consciousness-raising disaster,¹⁴⁷ such barriers to public participation have proven intractable. Even pressure from the European Union to increase the public availability of government-held environmental information¹⁴⁸ has been less than effective.¹⁴⁹ At any rate, it remains to be seen how environmental groups will enter the debate on the regulation of waste management and how effective they will be once there.¹⁵⁰

In summary, the past 130 years in Britain have witnessed an increasing involvement of local waste regulation authorities in the waste management industry, along with a gradual de-emphasis of civil remedies in general and the recovery of abatement costs for public nuisances in particular. The dual role of many authorities as regulators as well as competitors frustrates deterrence efforts, and the lack of adequate statutory tools stymies remediation goals. Further, Parliament has codified a cultural bias for regulation through close government-industry relationships to the exclusion of the public. All the while, the British public mostly expresses an incongruous level of confidence in the protection afforded by the system.¹⁵¹ It is in this setting that a flourish of environmental legislation occurred in the late 1980s and early 1990s.

B. *Recent Initiatives*

In the last five years, Parliament has enacted measures with broad implications for environmental regulation. The Environmental Protection Act 1990, the Water Act 1989, and the Water Resources Act 1991 affect a range of issues regarding waste management and landfill remediation.

147. See, e.g., DOE, TOXIC WASTE, *supra* note 10, at 4-5 (claiming that lack of disasters in United Kingdom has allowed "a rational approach towards waste disposal [to] be maintained").

148. See Freedom of Access to Information on the Environment, Council Directive 90/313, 1990 O.J. (L 158) 56.

149. See, e.g., HUGHES, *supra* note 45, at 21 ("UK law will continue to lack a codified right of access to environmental information and . . . implementation of the Directive will take place in an ad hoc, topic by topic manner."). Although the House of Commons feels that "changing legislation will mean that more information from the monitoring of polluting activities is made publicly available," HC, TOXIC WASTE, *supra* note 2, at lxix, some environmentalists insist that "the government plans to renege on promises made by Prime Minister John Major and 'flout (European Community) law on the public's right to know about the environment.'" *Government Denies Charge of Evading Commitments on Access to Environment Data*, 15 Int'l Env't Rep. (BNA) 749 (Nov. 18, 1992); see also *EC Directive Not Being Implemented, FoE Says*, *supra* note 3, at 238.

150. This is not to say that British environmental groups are generally inactive. See William Wilson, *Environmental Law as Development Assistance*, 22 ENVTL. L. 960-61 n.34 (1992) (noting that aggregate membership of three environmental groups is over twice that of all major political parties); VOGEL, *supra* note 52, at 20 (citing parallel increase in membership and activity of environmental organizations in Britain and the United States since mid-1960s). However, until recently, the environmental lobby has been notably silent with regard to landfills, "in marked contrast to their reaction to the disposal of nuclear wastes or the dumping of wastes into the North Sea." HC, TOXIC WASTE, *supra* note 2, at lxix; cf. *supra* note 3 (noting recent activities of FoE).

151. "Indeed, the very idea of voluntary bodies organizing themselves with official encouragement to 'hunt the dump' as happens elsewhere rings strangely in British ears since local authority environmental health officers . . . have been doing this as part of their normal duties for over a century." NIGEL HAIGH, *EEC ENVIRONMENTAL POLICY AND BRITAIN* 127 (2d ed. 1989).

1. *Environmental Protection Act 1990*

The Environmental Protection Act (EPA) 1990¹⁵² seeks, *inter alia*, to

re-enact the provisions of the Control of Pollution Act 1974 relating to waste on land with modifications as respects the functions of the regulatory and other authorities concerned in the collection and disposal of waste, . . . [and] restate the law defining statutory nuisances and improve the summary procedures for dealing with them.¹⁵³

The scope of EPA 1990 is wide. In addition to waste on land, the act regulates, among other things, air pollution and genetically modified organisms. With respect to waste management, it modifies the regulatory and operating roles of local authorities and broadens the scope of criminal liability for environmental harm caused by waste. In addition, EPA 1990 restructures the nuisance control provisions for all statutory nuisances, including those defined by the Public Health Act 1936.

a. *Involvement of Local Authorities in Regulated Operations*

Section 32 of EPA 1990 directs local waste disposal authorities to form waste disposal companies and transfer to those companies “the relevant part of their undertakings,” unless the local authority has already made arrangements to guarantee adequate separation of regulatory and operating functions.¹⁵⁴ These companies may not engage in activities other than “the disposal, keeping, or treatment of waste and the collection of waste.”¹⁵⁵ Although the local authority is permitted to maintain ownership and control of a waste disposal company, it must exercise control in such a way that “the company is an arm’s length company.”¹⁵⁶ This ambiguous provision — EPA 1990’s primary safeguard against the conflicts of interest inherent in the dual role of owner/regulator — casts a shadow on the authorities’ ability to provide deterrence at sites they own. Furthermore, nothing in the act prohibits sole ownership of an “arm’s length company” by a locality. Thus, regardless of any improvement in the separation of regulatory and operation functions, financial responsibility for waste sites in some cases remains with local governments, a result with serious implications for remediation financing.¹⁵⁷

152. Environmental Protection Act, 1990, ch. 43.

153. *Id.* pmbi.

154. *Id.* § 32(2)-(4).

155. *Id.* § 32(8).

156. *Id.* § 32(9).

157. The formation of independent companies could lead to the absence of a party financially responsible for contaminated sites. Depending on the legal structure of a waste disposal company, financial problems resulting from remediation operations (or even merely from competition) could result in bankruptcy, which would presumably insulate the parent municipality. *See* DOE, TOXIC WASTE, *supra* note 10, at 9 (“[L]ocal authorities’ disposal operations, when organised into [companies], should be opened up to competition with the private sector rather than being able to rely on guaranteed markets in perpetuity.”).

b. *Liability Rules*

Section 33 of EPA 1990 codifies, for the first time, a prohibition on waste management practices based solely on the likelihood of harm to the environment, without reference to the violation of a rule, license provision, or regulatory action such as an abatement order.¹⁵⁸ Although this provision is a step toward strict liability for environmental pollution, it is unlikely actually to facilitate site remediation, because it creates criminal rather than civil liability.¹⁵⁹ Fines imposed under EPA 1990 are large relative to traditional pollution penalties,¹⁶⁰ but the act's intent is clearly deterrence rather than remediation; there is no mention of remediation or damages in this context. Finally, beyond the problems of proving liability under a criminal standard, Section 33 complicates prosecution by allowing the defense that a person "took all reasonable precautions and exercised due diligence to avoid the commission of the offence."¹⁶¹ These modified liability rules of EPA 1990 do not advance the goals of remediation, and they provide deterrence only to the limited extent that authorities are willing to impose criminal sanctions on polluters.

c. *Statutory Nuisances*

A statutory nuisance "is one which, whether or not it constitutes a nuisance at common law, is made a nuisance by statute either in express terms or by implication."¹⁶² EPA 1990 provides a streamlined and comprehensive source of authority for remedying statutory nuisances, including those caused by air pollutants, odors, animals, deposits to land, or any other nuisance defined by statute, such as the Public Health Act 1936,¹⁶³ which is a source of much of the language in EPA 1990.

Some have suggested that placing all statutory nuisance provisions in an environmental protection rather than public health statute "may have the effect of ensuring that the term 'nuisance' is no longer given a restrictive meaning."¹⁶⁴ However, consolidating statutory nuisance law under a green umbrella does not guarantee greater environmental remediation. In addition to their reluctance to apply common law principles to fund cleanups, courts

158. "[A] person shall not . . . (c) treat, keep or dispose of controlled waste in a manner likely to cause pollution of the environment or harm to human health." EPA 1990 § 33(1)(c).

159. *Id.* § 33(8)-(9).

160. A magistrates court, on conviction, can levy a fine as high as £20,000 (about US\$35,000), while there is no limit on the fine a crown court may set. *Industry 'Ill-Prepared,' supra* note 71, at 240. The maximum prison sentence under this section is five years. EPA 1990 § 33(9)(b).

161. EPA 1990 § 33(7)(a).

162. 34 HALSBURY'S LAWS, *supra* note 73, ¶ 304.

163. EPA 1990 § 79.

164. DoE, CONTAMINATED LAND, *supra* note 13, at 21.

have shown resistance to honoring the spirit of environmental statutes.¹⁶⁵ Perhaps the greatest innovation of EPA 1990 with respect to nuisances is its provision for summary proceedings whereby a local authority has the capacity to issue an abatement order without court approval.¹⁶⁶

Further sections of EPA 1990 restate the compensation for abatement provisions of the Public Health Act 1936,¹⁶⁷ which were de-emphasized by COPA 1974,¹⁶⁸ and render creators of statutory nuisances liable "whether or not what any one of them is responsible for would by itself amount to a nuisance."¹⁶⁹ This provision could prove helpful in the remediation of waste sites when a party argues that its responsibility for the contamination "by itself" was insignificant. In this context, however, the term "persons responsible" is virtually always limited to those connected with the land (owners, occupiers, and, occasionally, trespassers¹⁷⁰), as opposed to waste generators who have contracted with an owner or occupier for disposal. Thus, the utility of this provision is confined to facilitating remediation efforts that are complicated by the presence of more than one site owner or operator.

As in the Public Health Act 1936, actions for statutory nuisances may be brought by private parties¹⁷¹ as well as local authorities. The procedures and standards for private and government actions are for the most part parallel.¹⁷² Only the government has the authority to remediate and recover its costs at a site that has defaulted under a cleanup order.¹⁷³ However, where a private party initiated the action, it can recover the expenses of remediation only after a court has found the defaulting party criminally liable.¹⁷⁴ On the other hand, a local authority has discretion to proceed against a defaulting party under either the civil or the criminal provisions of EPA 1990 or both.¹⁷⁵ This dichotomy decreases the efficacy of private suits in funding site remediation.

Perhaps the greatest obstacle to recovery for remediation in private party suits is the "best practicable means" defense whereby the use of "best practicable means . . . to prevent, or to counteract the effects of, the

165. In a case of illegal dumping, despite a clear statutory violation, the "fly-tipper" was fined less than what the generator had paid him to commit the crime in the first place. The HC Committee remarked that "the Courts were treating these matters so lightly that the . . . Authorities felt that it was not worth their time and expense to mount prosecutions." HC, TOXIC WASTE, *supra* note 2, at lvii.

166. EPA 1990 § 80.

167. Compare *id.* § 81(3)-(4) with Public Health Act, 1936, § 96.

168. See *supra* notes 128, 131-132 and accompanying text.

169. EPA 1990 § 81(1).

170. See, e.g., Environmental Protection Act, 1990, 35 HALSBURY'S STATUTES OF ENGLAND AND WALES § 79, n. Sub-s (7) (Andrew Davies & Lorena Sutherland eds., 4th ed. 1993).

171. EPA 1990 § 82.

172. This parallelism suggests that, at least with respect to statutory nuisances, there is now less of a distinction between private nuisances and public nuisances. See *supra* text accompanying notes 97-107.

173. EPA 1990 §§ 81(3)-(4), 82(11).

174. *Id.* § 82(11); see *supra* note 132 (noting higher standard of proof in criminal actions relative to civil actions).

175. EPA 1990 § 81(3)-(4).

[statutory] nuisance” provides a defense against criminal proceedings for failure to abate under an order.¹⁷⁶ Although this defense is allowed in suits brought by either local authorities¹⁷⁷ or private parties,¹⁷⁸ it is a greater barrier in private party remediation suits since private parties must first overcome the “best practicable means” defense in a criminal proceeding before making a civil claim for damages. In contrast, local authorities are not required to meet the more demanding criminal standards to recover in a civil action. They could of course intervene with a separate suit when private parties face this roadblock, but nothing in EPA 1990 encourages such actions. Furthermore, the DoE has taken the position that where waste deposits have contaminated adjoining properties, each owner must bear the cleanup cost of its own property.¹⁷⁹ When the British bias against public participation in industry regulation is also considered,¹⁸⁰ the inadequacy of private party actions under EPA 1990 for remediation becomes apparent.

Although EPA 1990 contains many positive reforms regarding the regulation of active sites, its primary aim is deterrence rather than remediation. This is most evident in its prohibition of municipalities’ continued operational control of — but not financial responsibility for — disposal sites. The modified liability rules may be precursors to broadening remedies for pollution abatement, but since the new rules apply only in criminal cases, they still do not expand the availability of funding for remediation. Nuisance proceedings have been streamlined somewhat, particularly where the action is brought by the government, but with respect to the recovery of abatement costs, EPA 1990 provides only limited improvement over legal mechanisms that have been available to local authorities since the mid-1800s.¹⁸¹ In sum, despite the broad changes in waste disposal regulation enacted by EPA 1990, the law has not advanced in its ability to allocate financial responsibility for environmental harms caused by waste.

2. *Water Act 1989*

In addition to the provisions of EPA 1990 aimed at a wide range of waste management activities, Parliament recently passed legislation addressing the potential impact of waste disposal practices on water resources. The Water

176. *Id.* § 80(7). “Best practicable means” is defined in terms of “local conditions and circumstances, . . . the current state of technical knowledge and . . . financial implications.” In addition, “the test is to apply only so far as compatible with any duty imposed by law.” *Id.* § 79(9).

177. *Id.* § 80(1), (7)-(8).

178. *Id.* § 82(1), (9)-(10).

179. Paul Luiki & Dale Stephenson, *European Community Waste Policy: At the Brink of a New Era*, 14 *Int’l Env’t Rep. (BNA)* 403, 408 n.27 (July 17, 1991).

180. *See supra* text accompanying notes 138-150.

181. *See supra* text accompanying notes 116-120.

Act 1989¹⁸² established the National Rivers Authority (NRA), which assumed the responsibilities of ten regional authorities for, *inter alia*, water pollution and water resource management.¹⁸³ However, most substantive provisions of this act were repealed by the Water Resources Act 1991,¹⁸⁴ which further defined the role and powers of the NRA.

3. *Water Resources Act 1991*

Dissatisfied with the patchwork of statutes governing water resources and supply, Parliament consolidated relevant legislation in 1991.¹⁸⁵ Under this consolidation, the Water Resources Act 1991 was to address water quality issues and provide a single source of authority for the NRA. Virtually all sources of drinking water including groundwater fall under the NRA's jurisdiction.¹⁸⁶ The act defines "Pollution Offences"¹⁸⁷ and the NRA's powers to prevent and control pollution.¹⁸⁸

In particular, Section 85 of the act makes it an offense for a person to "cause[] or knowingly permit[] any poisonous, noxious or polluting matter or any solid waste matter to enter any controlled waters," and imposes stiff fines and the possibility of imprisonment.¹⁸⁹ However, these provisions are distinctly criminal in nature; the act explicitly states that they shall not be construed to "confer[] a right of action in any civil proceeding."¹⁹⁰ The provisions therefore support deterrence rather than remediation objectives.

The act does provide broad abatement and compensation authority to the NRA regarding any pollution "likely to enter, or to be or to have been present in, any controlled waters."¹⁹¹ The NRA's statutory mandate is thus broad enough to allow it to act against any waste disposal site that is polluting, or likely to pollute, groundwater. However, the efficacy of these provisions is significantly limited by insufficient NRA resources,¹⁹² for the Act provides for recovery only *after* the NRA has incurred remediation expenses.¹⁹³ In effect, Parliament provided the mechanics for combatting water pollution but

182. Water Act, 1989, ch. 15.

183. *Id.* § 4(1)(a)-(b), sched. 2.

184. Water Resources Act, 1991, ch. 57.

185. The Water Resources Act, 1991, the Water Industry Act, 1991, ch. 56, and the Statutory Water Companies Act, 1991, ch. 58, form a trilogy of acts referred to as the "1991 consolidation." 49 HALSBURY'S STATUTES OF ENGLAND AND WALES 4 (James Bowman ed., 4th ed. reissue 1992) [hereinafter 49 HALSBURY'S STATUTES].

186. Water Resources Act, 1991, § 104.

187. *Id.* §§ 85-90.

188. *Id.* §§ 92-97.

189. *Id.* § 85(1), (6).

190. *Id.* § 100(a).

191. *Id.* § 161(1).

192. Wheeler, *supra* note 13, at 580 ("[The NRA's] powers to carry out remedial works and recover the costs from the polluter are proving ineffective given the lack of financial means to carry out the initial cleanup operations.").

193. Water Resources Act, 1991, § 161(3).

failed to prime the pump, thus frustrating both deterrence and remediation goals.

Overall, the legislative reforms of the last several years have not adequately addressed the problems of remediation and have provided no realistic avenues for financing cleanup projects. Parliament's efforts to enhance deterrence have focused on criminal provisions that allow for significant penalties, including imprisonment in some cases. The efficacy of these provisions, however, will depend on agency enforcement, which remains questionable, particularly in light of the British tradition of government-industry cooperation.

V. INTERNATIONAL INFLUENCES

The following explores two legal systems with different implications for the development of British law. Section A outlines recent proposals by the European Union to modify civil liability rules for environmental harm. EU initiatives will have a direct, substantive impact on British law. Section B discusses legal mechanisms developed in the United States to provide funding for waste site remediation, with an emphasis on the lessons that this experience provides for a British regime.

A. *European Union Trends*

Amidst a wide range of activity concerning waste management during the 1980s,¹⁹⁴ the European Union has often struggled with the issue of civil liability for environmental harm caused by waste.¹⁹⁵ In the late 1980s and early 1990s, the EU Commission issued two proposals that directly implicate British law. The first, the Commission Proposal for a Council Directive on Civil Liability for Damage Caused by Waste (Waste Liability Proposal),¹⁹⁶ focuses on modified civil liability rules. The second, the Council Directive on the Landfill of Waste (Landfill Proposal),¹⁹⁷ suggests a broader range of

194. See, e.g., Council Directive 82/883, 1982 O.J. (L 378) 1 (waste from titanium dioxide industry); Council Directive 89/428, 1989 O.J. (L 201) 56 (same); Council Directive 84/631, 1984 O.J. (L 326) 31 (transfrontier shipment of hazardous waste); Council Directive 90/170, 1990 O.J. (L 92) 52 (same); Council Directive 86/278, 1986 O.J. (L 181) 6 (protection against use of sewage sludge in agriculture); Council Directive 87/101, 1987 O.J. (L 42) 43 (waste oils); Council Directive 91/156, 1991 O.J. (L 78) 32 (waste).

195. The Proposed Directive on the Supervision and Control of Transfrontier Shipment of Hazardous Wastes Within the European Community, 1983 O.J. (C 53) 3, is the earliest proposal to include such liability. The final directive, 84/631, 1984 O.J. (L 236) 31, ultimately promised only that "the Council would consider 'the conditions for implementing civil liability.'" Thieffry & Nahmias, *supra* note 5, at 963.

196. 1989 O.J. (C 251) 3, as amended in 1991 O.J. (C 192) 6 [hereinafter Waste Liability Proposal]. The original proposal appeared October 4, 1989, and its amendments July 23, 1991.

197. 1991 O.J. (C 190) 1, as amended in COM(93)275 final [hereinafter Landfill Proposal]. The original proposal was published in the Official Journal on July 22, 1991; the amendments are dated June 10, 1993.

controls on landfills, including design requirements and permitting procedures, yet it also addresses civil liability and proposes a Landfill Aftercare Fund. To some extent the impact of both proposals has been modified by the EU Commission's Green Paper on civil liability.¹⁹⁸ For example, further consideration of the Waste Liability Proposal has "effectively been shelved to make way for a consultation exercise" on the Green Paper,¹⁹⁹ and the Landfill Proposal also awaits resolution of certain issues through the Green Paper process.²⁰⁰ However, the Green Paper itself affirms the continued vitality of both proposals.²⁰¹

The Green Paper is broad in its scope; it is intended to address environmental liability "in an overall manner and not from the angle of specific economic activities."²⁰² It contemplates the formulation of general principles of liability applicable to a universe of environmentally damaging events, including industrial accidents, emissions from industrial facilities and motor vehicles, waste waters from cities and farms, and hazardous substances deposited in the past.²⁰³ By its terms, the Green Paper anticipates specific application of these principles after further consideration of particular sectors or types of activity.²⁰⁴

To this end, the Green Paper lists "[s]ome of the factors that could be considered in determining the appropriateness of strict liability for a particular activity."²⁰⁵ More specifically, the Green Paper suggests that "answers to

198. Communication from the EU Commission to the Council and Parliament and the Economic and Social Committee: Green Paper on Remedying Environmental Damage, COM(93)47 final [hereinafter Green Paper]. The Green Paper, dated May 14, 1993, is intended "to stimulate discussion on whether and how requirements to remedy environmental damage might be introduced appropriately and effectively within the Community to recover the costs of such restoration." *Id.* ¶ 4.0.

199. *EC Dives into Environmental Liability Debate*, EC ENERGY MONTHLY, Sept. 16, 1993, available in LEXIS, Eurcom Library, ECNews File.

200. Landfill Proposal, *supra* note 197, at II ("The Commission . . . decided not to amend the [Landfill Proposal] concerning insurance coverage at the moment, because it prefers to tackle this problem within the general framework designed by the Green Paper on remedying environmental damage.").

201. *See, e.g.*, Green Paper, *supra* note 198, ¶ 2.2.3, at 19 ("The initial proposal for a [Waste Liability] Directive has been amended . . . and is under consideration by the Council."). Repeated references to the Landfill Proposal in the Green Paper, *see, e.g., id.* ¶¶ 2.2.3, at 19, 3.2.3, and the publication of Landfill Proposal amendments after the appearance of the Green Paper clearly indicate that the Landfill Proposal is still under consideration as well.

202. 1992 O.J. (C247) 41 (statement of EU Environment Commissioner Carlo Ripa di Meana).

203. Green Paper, *supra* note 198, ¶ 1.0.

204. *Id.* ¶ 2.1.2, at 7; *see also id.* ¶ 3.1.2 ("In order to respect the 'polluter pays' principle to the greatest degree possible, should not the burden rest upon the sector or sectors most specifically responsible?"); ¶ 4.1.2(B) ("What criteria should be used to decide whether certain activities are dangerous and therefore to be covered by a strict liability regime?").

205. *Id.* ¶ 2.1.2, at 7. These factors include:

- the types of hazard posed by a particular activity;
- the probability that damage might occur from the activity, and possible extent of that damage;
- the incentive that strict liability would provide for better risk management and prevention of damage;
- the feasibility and cost of restoring the damage that would be likely to occur; and [*sic*]
- the potential financial burden of strict liability on the economic sector involved[; and]
- the need for and availability of insurance.

Id.

the main issues” of civil liability for environmental damage, including “which activities should be covered,”²⁰⁶ might be found in the recent Council of Europe Convention on Civil Liability for Damage to the Environment (CoE Convention).²⁰⁷ The CoE Convention singles out waste management,²⁰⁸ particularly landfill operations,²⁰⁹ as covered activities. It is not yet clear whether the European Community will adopt the CoE Convention.²¹⁰ Nevertheless, the Green Paper’s references to the Convention along with the Convention’s emphasis on waste operations reinforce an interpretation of the Green Paper as complementing, rather than superseding, the Waste Liability and Landfill Proposals. The following discussion outlines the relevant portions of the proposals in light of the more recent Green Paper.

1. *The Civil Liability Debate*

According to the Waste Liability Proposal, “[t]he producer of waste shall be liable under civil law for the damage and impairment of the environment caused by the waste, irrespective of fault on his part.”²¹¹ In addition, where more than one party is liable for the same environmental impairment, each “shall be liable jointly and severally.”²¹²

206. *Id.* ¶ 4.1.2, at 27.

207. Convention on Civil Liability for Damage Resulting from Activities Dangerous to the Environment, *opened for signature* June 21, 1993, 32 I.L.M. 1228 [hereinafter CoE Convention]. The CoE Convention “aims at ensuring adequate compensation for damage resulting from activities dangerous to the environment and also provides for means of prevention and reinstatement.” *Id.* art. 1. For a discussion of the structure of the CoE Convention, see David Wilkinson, *The Council of Europe Convention on Civil Liability for Damage Resulting from Activities Dangerous to the Environment: A Comparative Review*, 2 EUR. ENVTL. L. REV. 130 (1993).

208. See CoE Convention, *supra* note 207, art. 2(1)(c) (defining “dangerous activity” as including “the operation of an installation or site for the incineration, treatment, handling or recycling of waste”).

209. See *id.* art. 7 (titled “Liability in respect of sites for the permanent deposit of waste”); art. 2(1)(d) (defining “dangerous activity” as including “the operation of a site for the permanent deposit of waste”).

210. Upon its opening for signature, the CoE Convention was signed by four EU members (Greece, Italy, Luxembourg, and the Netherlands) as well as by Cyprus, Finland, Iceland, and Liechtenstein. 32 I.L.M. 1228, 1228. France, also an EU member, as well as Switzerland are considered likely to sign, while the United Kingdom, Germany, and the Irish Republic (all EU members) along with the Czech Republic are expected to abstain. *Seven [sic] Countries Are First Signatories to Environmental Civil Liability Convention*, 16 Int’l Env’t Rep. (BNA) 471, 471 (June 30, 1993) (neglecting to mention Iceland). In addition, the Green Paper granted the EU Commission a negotiating mandate with regard to the CoE Convention, see Green Paper, *supra* note 198, Annex IV, at 7, while the prospect of EU adoption is left open by the Green Paper, *id.* ¶ 4.1.2, at 27, and has been termed “a real possibility” by at least one commentator, see David Wilkinson, *EC Green Paper on Remedying Damage to the Environment: COM(93)47*, 2 EUR. ENVTL. L. REV. 159, 160 (1993). On the other hand, the CoE Convention is not without its detractors within the European Union, based both on substantive grounds, see, e.g., *Eurochambres Asks Commission and Member States Not to Sign the Convention on Civil Liability*, Agence Europe, June 25, 1993, available in LEXIS, Txline Library, Txprim File, and on the perception that the European Union is ahead of the Council of Europe on these issues, see *EC Expected to Approve ‘Green Paper’ on Civil Liability for Environmental Damage*, 16 Int’l Env’t Rep. (BNA) 156, 156 (Mar. 10, 1993) (quoting Brussels-based lawyer as stating that “[t]he green paper apparently [is] more detailed . . . and is being taken more seriously” than CoE Convention).

211. Waste Liability Proposal, *supra* note 196, art. 3.

212. *Id.* art. 5(1).

The Waste Liability Proposal's narrow definition of potentially liable parties precludes an expansive application of joint and several liability. Paragraph 1(a) of Article 2 states that a producer is "any person who, in the course of a commercial or industrial activity, produces waste."²¹³ Paragraph 2 of the same Article, however, provides a list of those who "shall be deemed to be the producer of the waste *in place of* the person defined in paragraph 1(a)."²¹⁴ This list covers importers as well as transporters of waste where the transporter can not identify the original producer, and, most important, it includes "the person responsible for the [facility] where the waste was lawfully transferred to such [facility]."²¹⁵ In other words, when waste generators lawfully dispose of waste at licensed facilities, they transfer their liability for that waste as well.²¹⁶ By the terms of the proposal, this liability is always transferred with the waste unless the facility operator can demonstrate that the generator has deceived him as to the nature of the waste;²¹⁷ even contractual arrangements limiting the transfer of liability are specifically disallowed.²¹⁸

The transferability of liability to the facility operator is reinforced by the Green Paper's concept of "channelling liability" to the party "having the expertise, resources, and operational control to carry out the most effective risk management."²¹⁹ The Green Paper proposes liability channelling as one solution to high litigation costs and the "deep pocket" effect traditionally associated with joint and several liability.²²⁰

A major shortcoming of the Waste Liability Proposal with respect to

213. *Id.* art. 2(1)(a). The proposal does not apply to nuclear waste or to damage caused by oil from ships at sea in circumstances where those concerns are already regulated. *Id.* art. 1(2).

214. *Id.* art. 2(2)(b) (emphasis added).

215. *Id.* art. 2(2)(c).

216. This issue is muddled somewhat by comments in the accompanying Explanatory Memorandum released with the original draft of the proposal. In notes explaining Article 2, the Memorandum states that the additional parties (i.e., importers, transporters, and disposers) "are also considered to be producers of waste," an interpretation at odds with the "in place of" language in the actual proposal. Explanatory Memorandum on the Proposal for a Council Directive on Civil Liability for Damage Caused by Waste, COM(89) 282 final, at 7 (emphasis added). Furthermore, the Memorandum itself states earlier that "a producer of waste must retain liability until disposal is ensured under the prescribed conditions." *Id.* at 3. In addition, the Preamble to the proposal states that "if the waste has been lawfully transferred to an authorized disposal [facility] . . . liability must be transferred." Waste Liability Proposal, *supra* note 196, pmb1. The only consistent reading of these assertions is that importers, transporters, and disposers "are also considered to be producers" in the sense that they take on liability *in place of* generators rather than *in addition to* generators.

217. Waste Liability Proposal, *supra* note 196, art. 7(1).

218. *Id.* art. 8.

219. Green Paper, *supra* note 198, ¶ 2.1.3.

220. The term "deep pocket effect" describes the phenomenon of injured parties suing "the party with the most financial assets first, instead of the party who caused the most damage." *Id.* ¶ 2.1.4.

remediation is its strictly prospective nature.²²¹ Taken to its logical conclusion, this limitation would restrict application of the Waste Liability Proposal to new landfills — i.e., those that received no waste before the passage of the directive. Already active sites would be exempt from liability under the current Proposal merely by virtue of their having received waste before its passage.²²²

Should the Waste Liability Proposal be amended to avoid exempting active sites, liability channelling would present a problem in the British context, since many targeted facility owners would become insolvent under such a regime.²²³ Here the Green Paper, as anticipated by the Waste Liability Proposal,²²⁴ presents a significant step forward with its suggestion of “joint compensation systems,” or remediation funds financed by industry contributions.²²⁵ Joint compensation systems are proposed for instances of “authorized pollution”;²²⁶ circumstances in which it is impossible “to

221. Waste Liability Proposal, *supra* note 196, art. 13 (stating that directive “shall not apply to damage . . . arising from an incident which occurred before the date on which its provisions are implemented”); *see also* George Clemon Freeman, Jr. & Kyle E. McStarow, *The Proposed European Community Directive on Civil Liability for Waste: The Implications for U.S. Superfund Reauthorization in 1991*, 46 BUS. LAW. 1, 8-9 (1990) (citing explanatory memorandum on proposal, which states that Article 13 “bars retroactive application of the directive”).

222. This is due to problems of causation at common law that are not ameliorated by the Waste Liability Proposal. Article 4 holds that

the burden of proof on the plaintiff, when affirming the causal link between the waste on the one hand and the damage or impairment of the environment suffered or likely to be suffered on the other hand . . . shall be no higher than the standard burden of proof in civil law.

Waste Liability Proposal, *supra* note 196, art. 4(c). On its face, this provision is intended to insure that member states do not make it *more* difficult to show causation for purposes of waste liability relative to other types of liability. However, this ignores significant difficulties with demonstrating causation even under a “standard burden of proof.” In particular, where liability is to be imposed only for damage due to “new” waste (i.e., that deposited after passage of the directive), one required element of any action for recovery would be a demonstration that the damage claimed resulted from “new” waste. Where both “old” and “new” waste are present at a landfill, rarely, if ever, would it be possible to attribute the damage claimed to new waste (to the exclusion of old waste) with sufficient certainty to meet the standard burden of proof. *See infra* text accompanying note 268 (noting U.S. courts’ acceptance of impossibility of determining amount of harm caused by each of multiple wastes at given site).

223. *Cf. supra* note 29 (suggesting that as many as 80% of British landfills do not have financial ability to withstand proposed EU requirements).

224. The Waste Liability Proposal stated that rules governing situations where liable parties “cannot be identified” or are “incapable of providing full compensation for the damage . . . caused” shall be determined by the Council “acting on a proposal from the Commission” and that the Commission “shall study the feasibility of the establishment of a European fund for compensation.” Waste Liability Proposal, *supra* note 196, art 11(2).

225. Green Paper, *supra* note 198, ¶ 3.0.

226. *Id.* “Authorized pollution” refers to pollution caused without violating permits or other government regulations. On this matter, an earlier section of the Green Paper makes a radical suggestion: “[I]f the operator has fully disclosed all relevant data for evaluation by the permitting authority and complied with the standards set in the permit, there may be reasons for holding the public authority — and ultimately the taxpayer — responsible for ensuing damage.” *Id.* ¶ 2.1.5(II). The justifications for this approach, i.e., providing the operator incentive for full disclosure and permit compliance and the regulator incentive “to make responsible decisions,” *id.*, have little application to existing contamination. In addition, this concept conflicts directly with the Waste Liability Proposal, which states that “[t]he producer shall not be relieved of liability by the sole fact that he holds a permit issued by the public authorities.” Waste Liability Proposal, *supra* note 196, art. 6(2).

recover all the costs from a liable party with limited financial resources";²²⁷ and, most important, for remedying "past pollution."²²⁸ Thus, even as it recognizes elements of the joint compensation fund concept in the Waste Liability Proposal,²²⁹ the Green Paper directly confronts the deficiencies presented by the prospective nature of that Proposal.

In addition, the Green Paper outlines other positive features of joint compensation systems. For example, the "polluter pays" principle could be implemented by levying fund charges on "the economic sectors most closely linked to the type of damage needing restoration."²³⁰ Further, the incentive for effective risk management inherent in the "polluter pays" principle could be enhanced by "[l]inking the likelihood of damage to the amount of charges to be paid."²³¹

As with any contributory compensation system, the fund envisioned by the Green Paper provides little incentive for responsible behavior where individual actors expect the fund to bear the consequences of their actions. Thus, it is significant that the EU Commission did not choose between a liability regime and a joint compensation scheme but rather proposed a dual system: "Could one consider an approach where the strengths of civil liability would come into play and its limitations would be made up for by the advantages of compensation mechanisms?"²³² Application of a joint compensation system to fill gaps in the Waste Liability Proposal may provide an affirmative answer to the question. Nevertheless, important related issues such as insurability are not addressed in the current framework of the Waste Liability Proposal.

Whatever financing regime the EU Commission ultimately adopts, the Waste Liability Proposal anticipates broad remedies. They include injunctions prohibiting harmful acts or omissions, "ordering the reinstatement of the environment," or requiring reimbursement of remediation costs.²³³ Reasonably, balancing tests limit liability for reimbursement; no reimbursement will be required for costs that "substantially exceed" the benefit to the environment or where "alternative measures to the reinstatement of the environment" could have been taken "at a substantially lower cost."²³⁴ Although definitional problems with terms such as "substantially exceed" and "reinstatement of the environment"²³⁵ are obvious, the

227. Green Paper, *supra* note 198, ¶ 3.0.

228. *Id.*

229. *Id.* ¶ 3.2.3 (noting Waste Liability Proposal provision for study of a European fund for compensation); *see supra* note 224.

230. Green Paper, *supra* note 198, ¶ 3.0.

231. *Id.* ¶ 3.1.3.

232. *Id.* ¶ 4.2, at 28.

233. Waste Liability Proposal, *supra* note 196, art. 4(1)(b)(iii).

234. *Id.* art. 4(2).

235. *Cf.* Green Paper, *supra* note 198, ¶ 2.1.7 (noting "fundamental importance" of "legal definition of damage to the environment" and of "degree of impact that should be considered environmental damage").

inclusion of these provisions indicates a sensitivity to economic constraints on site remediation.

The Waste Liability Proposal is potentially generous in its recognition of the public's interest in environmental remediation. Article 4 of the Proposal states that "[c]ommon interest groups or associations, which have as their object the protection of nature and the environment, shall have the right . . . to seek any remedy [provided herein]," the conditions of which "shall be laid down by national legislation."²³⁶ Given the British government's traditional aversion to public participation in environmental policy debates,²³⁷ this provision alone could have a significant impact on British environmental law.

In summary, the prospective nature of the Waste Liability Proposal significantly weakens some of its positive aspects such as an economically sensitive approach to remedies and respect for public concern over landfill contamination. The Green Paper suggests a potential to remedy this shortcoming by recognizing the need to address past pollution and by proposing joint compensation funds in situations where civil liability provides inadequate solutions. Nonetheless, questions concerning the boundaries of the concurrent systems of liability and compensation funds remain unanswered, as do related questions concerning insurability and financial guarantees of landfills.

2. *The Landfill Proposal*

The Landfill Proposal, in contrast to the Waste Liability Proposal and the Green Paper, is striking in its technical complexity. For example, annexes list requirements for landfill permit applications, minimum groundwater monitoring programs, and liner permeability standards. In its emphasis on operating requirements, the Landfill Proposal is prospectively oriented, even more so than the Waste Liability Proposal.²³⁸ However, some aspects of this proposal are a logical outgrowth of the civil liability debate and represent the most likely EU resolution of the problem of existing leaking landfills.

At times, the Landfill Proposal recycles provisions of the Waste Liability Proposal. For example, Article 14 is a near-verbatim copy of the language of the earlier proposal, with "operator" replacing "producer": "The operator shall be liable under civil law for the damage and impairment of the environment caused by the landfilled waste, irrespective of fault on his part."²³⁹ Article 12 reinforces this with a provision that "corrective

236. Waste Liability Proposal, *supra* note 196, art. 4(3). The Green Paper notes that there are problems with traditional standing rules in the context of environmental litigation and that these rules vary among the member states, but it leaves these issues unresolved. Green Paper, *supra* note 198, ¶ 2.1.9.

237. See *supra* note 145 and accompanying text.

238. Cf. HC, DRAFT DIRECTIVE, *supra* note 13, at xxxii ("It is a general failing of the [Landfill Proposal] that while it is long on the 'input' side of the landfill of waste, it is rather shorter on site operation, aftercare, and afteruse.").

239. Landfill Proposal, *supra* note 197, art. 14.

measures shall be taken, at the expense of the operator," even where they are "carried out by [the competent] authority."²⁴⁰

The Landfill Proposal, however, adds teeth to these provisions by requiring sites that remain operational after its implementation to obtain sufficient financial guarantees "to cover the estimated costs of the closure procedures and aftercare operations of the landfill."²⁴¹ The aftercare provisions require, among other things, a groundwater monitoring plan to last a minimum of thirty years.²⁴² Furthermore, existing sites that do not pass groundwater tests and meet new liner permeability requirements must be closed within five years of the implementation of the proposal.²⁴³ As noted above, as many as eighty percent of the existing UK sites are expected to fail these tests.²⁴⁴

Although the Article 17 financial guarantee requirement seems to contemplate coverage of only routine closure procedures and aftercare operations, the limits on a public Landfill Aftercare Fund required under Article 18 suggest that the Article 17 guarantee must be broader. The stated purpose of the fund is "to cover the normal aftercare costs of *closed* landfills"²⁴⁵ and to cover expenses "not otherwise recoupable or not covered by insurance or financial guarantee."²⁴⁶ In particular, "the fund shall not cover the costs that can be directly charged to the landfill operator as long as he is liable."²⁴⁷ Thus, if the new liability net woven by the Waste Liability Proposal and the Green Paper is cast broadly, financial guarantees under Article 17 will amount to compulsory insurance for landfill contamination.²⁴⁸

Indeed, the Green Paper provides an extensive discussion of the "problem of insurability," including the pros and cons of compulsory insurance.²⁴⁹ The Green Paper particularly notes the positive regulatory nature of compulsory insurance: "[R]isk evaluation by the insurance industry is beneficial, since it reduces the risk of environmental damage."²⁵⁰ At the

240. *Id.* art. 12(3).

241. *Id.* art. 17.

242. *Id.* art. 13(3), (5)(a) (noting that groundwater monitoring on biannual basis may be required "for as long as needed if the site poses an active risk").

243. *Id.* art. 15(4). The five-year grace period could be reduced by Parliament, given that the House of Commons Environment Committee feels it is merely "five years' pollution time." HC, DRAFT DIRECTIVE, *supra* note 13, at xxxiii.

244. HC, DRAFT DIRECTIVE, *supra* note 13, at xx.

245. Landfill Proposal, *supra* note 197, art. 18(2)(a) (emphasis added).

246. *Id.* art. 18(2)(b).

247. *Id.* art. 18(3).

248. This interaction among the three proposals, fragmented as it may be, was probably intended by the EU Commission. Evidence of this design lies in the requirement that Landfill Aftercare Funds be financed by a direct tax on the "types and tonnage of the waste landfilled." *Id.* art. 18(4). This requirement corresponds perfectly to the Green Paper's policy of linking the likelihood of damage to the amount of charges to be paid to a joint compensation system. Green Paper, *supra* note 198, ¶ 3.0. This financing scheme reveals that the Landfill Aftercare Fund is just a specific form of the joint compensation system envisioned by the Green Paper. *Cf. id.* ¶ 3.2.3 (noting Landfill Aftercare Fund requirement of Landfill Proposal).

249. Green Paper, *supra* note 198, ¶ 2.1.11.

250. *Id.* at 13.

same time, the EU Commission recognizes that this result is not guaranteed, particularly under the current state of affairs, as “not all insurers have the technology or capacity yet for providing [environmental insurance coverage].”²⁵¹ Further potential problems noted include the unpredictable costs of remediation, which might exceed the insured’s coverage,²⁵² and the flight of larger companies (implicitly, and somewhat questionably, assumed to be better insurance risks) to self-insurance schemes, leaving “small and medium sized enterprises (SME) — those most in need of liability insurance for environmental damage — . . . with less economic leverage to fight expensive premiums.”²⁵³ The Green Paper does nothing to resolve these issues beyond noting that “[s]tate intervention may be necessary if private insurers do not provide [adequate] insurance coverage . . . or if premiums are too high for SMEs,” with little elaboration of what that intervention may entail.²⁵⁴

As noted above, the Waste Liability Proposal and the Landfill Proposal are to some extent currently on hold. In addition, the ambitious scope of the Green Paper does not bode well for an early conclusion of the general liability debate, particularly in light of early EU reactions to the Green Paper.²⁵⁵ However, trends evident in the evolution of the proposals currently on the table bring into focus a rough outline of a likely EU regime for financing landfill remediation. This regime will undoubtedly entail a system of operator liability complemented by financial guarantees or insurance along with joint compensation funds. Still, crucial details concerning how these features will interact to provide adequate funding for remediation remain unclear. Similarly, incentives for the appropriate risk management of existing as well as future landfills remain to be specified.

B. *U.S. Lessons*

U.S. common law has traditionally been no more effective than British common law in providing a mechanism to fund site remediation.²⁵⁶ Congress

251. *Id.* at 12.

252. *Id.*

253. *Id.* at 13.

254. *Id.* The Green Paper goes on to state: “One feature of such intervention might be to avoid creating unjustified discrimination between firms or imposing obligations which vary according to company size.” *Id.* This only begs the question at the heart of all compulsory insurance schemes, namely, what degree of political intervention may be tolerated without destroying the desirable economic incentives provided by a functional insurance system.

255. *EC Dives into Environmental Liability Debate*, *supra* note 199 (“Initial responses to the EC green paper . . . suggest that long-term resolution of the issues at Community level could still be a long way off.”).

256. “Existing state tort laws present a convoluted maze of requirements . . . that make it extremely difficult for a victim to be compensated for damages. A clear, uniform federal law defining a victim’s cause of action in these areas is sorely needed” INTERSTATE AND FOREIGN COMMERCE COMM. REPORT, *supra* note 34, at 63-64, *reprinted in* 1980 U.S.C.C.A.N. 6140-41 (comments of Rep. Albert Gore, Jr.).

attempted to provide the needed tools in the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA or Superfund),²⁵⁷ amended by the Superfund Amendment and Reauthorization Act of 1986 (SARA).²⁵⁸ Since the first reports of the plight of victims of improper waste disposal at Love Canal,²⁵⁹ the often emotional terms of the remediation debate have prevented the development of a consensus on many fundamental issues.²⁶⁰ As a result, CERCLA has been criticized as a "muddle of inconsistent and sometimes conflicting social goals."²⁶¹

While this "muddle" of goals includes both deterrence and remediation, Superfund as applied has achieved at best mixed results in their attainment. As we shall see, CERCLA's *in terrorem* deterrence has produced incentives counter to notions of environmental protection, and potentially significant sources of remediation financing have been bound up in extended litigation. The following section outlines these issues in the context of the major features of Superfund law and the U.S. EPA's strategies to implement that law.²⁶²

1. CERCLA Liability

CERCLA makes waste generators, transporters, and owners or operators of waste disposal sites liable for costs of remedial action and damages to natural resources due to the release of hazardous substances.²⁶³ The standard of this liability, defined indirectly by reference to Section 311 of the Clean Water Act,²⁶⁴ has resulted in the imposition of strict joint and several liability unless defendants can demonstrate that the harm their wastes have caused is divisible.²⁶⁵ CERCLA specifically allows the government to institute remedial actions²⁶⁶ with the intent of subsequent recovery under this liability regime.²⁶⁷ As a result, the term "plaintiff" in this context often

257. Pub. L. No. 96-510, 94 Stat. 2767 (1980) (current version at 42 U.S.C. §§ 9601-9657 (1982 & Supp. IV 1992)).

258. Pub. L. No. 99-499, 100 Stat. 1613 (1986).

259. See *supra* note 1.

260. This situation may be changing. See *infra* notes 304-306 and accompanying text for a discussion of growing public participation in the Superfund debate.

261. Elliott, *supra* note 6, at 48. Even commentators with the advantage of hindsight cannot agree on what the objectives of Superfund are or should be. Cf. Cummings, *supra* note 7, at 11 (claiming primary objective is deterrence); CHURCH & NAKAMURA, *supra* note 66, at 36 (remediation of threats to public health and restoration of natural resources); *Chemical Waste Management v. Armstrong World Indus.*, 669 F. Supp. 1285, 1290 n.6 (E.D. Pa. 1987) (all of the above and more).

262. In addition to the deterrent effects provided by CERCLA and discussed in detail below, Congress has attempted to prevent pollution at operational waste disposal facilities through extensive regulatory involvement mandated by the Resource Conservation and Recovery Act of 1976 (RCRA), 42 U.S.C. §§ 6901-6992k (1988 & Supp. IV 1992). For a discussion of RCRA, see, e.g., PERCIVAL ET AL., *supra* note 1, at 214-87.

263. 42 U.S.C. § 9607.

264. 42 U.S.C. § 9601(32). Section 311 of the Clean Water Act is codified at 33 U.S.C. § 1321 (1982).

265. PERCIVAL ET AL., *supra* note 1, at 301.

266. 42 U.S.C. § 9604(a)(1), (c)(1)(B)-(C).

267. 42 U.S.C. § 9607(a)(4)(A).

means the U.S. EPA.

Placing the burden on defendants — or, in CERCLA parlance, potentially responsible parties (PRPs) — to show that the harm caused by their waste is divisible renders it practically impossible for responsible parties to escape joint and several liability, as “courts regularly find[] that where wastes of varying (and unknown) degrees of toxicity and migratory potential commingle, it simply is impossible to determine the amount of environmental harm caused by each party.”²⁶⁸ As a result, if the plaintiff can show that a defendant has contributed even one drum to a contaminated site, that defendant technically could be held responsible for the entire cleanup cost.²⁶⁹ Joint and several application of CERCLA liability thus can serve both deterrence and remediation purposes.

Strict liability in many cases also serves both purposes. Where the plaintiff is relieved of the obligation to prove “that hazardous substances were released as the result of negligence or that the defendant’s conduct was intentional and unreasonable,”²⁷⁰ funds will be more readily available for remediation, and waste managers will be more careful to avoid environmental damage.

CERCLA’s definition of liable persons is so broad that Congress clearly anticipated situations where liability would primarily serve remediation, rather than deterrence, purposes. These definitions repeatedly refer to past behavior with no reference to a limiting time frame.²⁷¹ As a result, CERCLA applies retroactively, and liability can arise from actions taken before the passage of the law that, at the time, did not result in liability.²⁷² To be sure, large judgments imposed under retroactive liability can enhance deterrence as well to the extent that they command the attention of the regulated community and thus further the *in terrorem* effect of the CERCLA regime. Still, retroactive liability is an imperfect tool for deterrence;²⁷³ the primary intent of these provisions is to supply funds for remediation. Unfortunately, in practice

268. O’Neil v. Picillo, 883 F.2d 176, 179 (1st Cir. 1989).

269. In an attempt to soften this seemingly harsh result, Congress included *de minimis* settlement provisions in SARA under which the EPA may settle with a PRP “if such settlement involves only a minor portion of the response costs” and if the settling party meets other requirements related to its relative contribution to site impairment. SARA § 122(a) (codified at 42 U.S.C. § 9622(g)).

270. PERCIVAL ET AL., *supra* note 1, at 302.

271. Specifically, a site owner/operator is defined as “any person who *at the time of disposal* . . . owned or operated any facility,” 42 U.S.C. § 9607(a)(2) (emphasis added); generators as “any person who . . . arranged for disposal or treatment,” *id.* § 9607(a)(3); and transporters as “any person who accepts or accepted any hazardous substances for transport,” *id.* § 9607(a)(4).

272. Beyond applying solely to the past behavior of defendants, CERCLA’s retroactive liability has also been interpreted to give the government authority to recover response costs incurred prior to the enactment of CERCLA. *See, e.g.,* O’Neil v. Picillo, 883 F.2d at 176. For a discussion of the judicial construction of retroactive liability and other aspects of CERCLA case law, see generally David E. Jones & Kyle E. McSarrow, . . . *But Were Afraid to Ask: Superfund Case Law, 1981-1989*, 19 *Envtl. L. Rep.* (Envtl. L. Inst.) 10,430 (1989).

273. *See* Freeman & McSarrow, *supra* note 221, at 7 (“Commentators have long recognized that social costs can virtually never be ‘internalized’ retroactively.”) (citations omitted).

CERCLA liability is known more for fostering extended and costly litigation²⁷⁴ than for financing remediation.

Emphasizing the deterrence objectives of Superfund, one congressional staff member who helped draft CERCLA and SARA has stated, "It was a conscious intention of the law's authors to draw lenders and insurers into this new army of quasi-regulators."²⁷⁵ However clear this intent might once have been, the text of the final legislation does not reflect it.²⁷⁶ Indeed, insurers have spent far more resources litigating this ambiguity than remediating waste sites,²⁷⁷ suggesting that there has been precious little commitment to "quasi-regulation." CERCLA has provided no deterrence through policing by the insurance industry.

Furthermore, the combination of retroactive and joint and several liability produces a deep pocket effect that encourages further pollution. Any amount of waste disposed at a site at any time in the site's history renders the generator of that waste fully responsible for all cleanup costs at that site. Under CERCLA, a generator must seek contribution from other PRPs for costs incurred beyond its "fair share."²⁷⁸ As a result, the EPA, when pursuing private funding for cleanup projects, has incentives to identify only so many deep pocket plaintiffs as needed to provide funding for remediation.²⁷⁹ This in turn provides incentives for financially secure organizations to continue to use the same waste disposal sites rather than expand liability by entering new sites, even where potential problems at the existing sites are evident, and even where the risk of uncontrolled pollution at new sites is greatly diminished by modern design and operating techniques.²⁸⁰ These same incentives induce potentially responsible "deep

274. See *infra* notes 307-310 and accompanying text for a discussion of the costs of litigation associated with CERCLA.

275. Cummings, *supra* note 7, at 11. Mr. Cummings was chief counsel of the Senate Committee on Environment and Public Works during the drafting of CERCLA and minority counsel during the development of SARA. *Id.*

276. See, e.g., James L. Knoll & Randy L. Arthur, *Property Insurance: No Solution for Pollution*, 17 B.C. ENVTL. AFF. L. REV. 231, 307 (1990) (arguing that Congress clearly "did not intend that insurers should bear the expense of cleaning up environmental pollution").

277. A survey of four national insurance companies gave the following breakdown of total CERCLA expenses between 1986 and 1989: 42% for coverage disputes (which "arise when the insurance company and the policyholder disagree on the applicability of the policy"); 37% for legal costs of defending policyholders; 12% for indemnity payments (i.e., direct remediation expenses); and 9% on internal administrative costs. JAN PAUL ACTON & LLOYD S. DIXON, *SUPERFUND AND TRANSACTION COSTS: THE EXPERIENCES OF INSURERS AND VERY LARGE INDUSTRIAL FIRMS* 21-24 (1992).

278. Equitable factors such as "a limited degree of participation in waste disposal activities . . . are relevant in subsequent actions for contribution. They are not pertinent to the question of joint and several liability." *United States v. Monsanto Co.*, 858 F.2d 160, 171 n.22 (4th Cir. 1988). The right of contribution implied by the courts was codified in SARA § 113(f) (codified at 42 U.S.C. § 9613(f)).

279. See *supra* note 220 (citing Green Paper's recognition of "deep pocket effect").

280. The author is personally aware of at least one major corporation that utilizes only hazardous waste facilities used in the past. Decisions concerning non-hazardous waste disposal at a "new" facility, though less formalized, are often based primarily on the potential paper trail left by the disposal. These are classic examples of undesirable regulatory avoidance behavior. See also Colin Hugh Buckley, *A Suggested Remedy for Toxic Injury: Class Actions, Epidemiology, and Economic Efficiency*, 26 WM. & MARY L. REV. 497, 501 (1985) (noting generators' increasing use of "hazardous waste 'black market' to

pockets” to resist the closure of an unsound facility, thereby postponing CERCLA application as long as possible in order to delay liability expenses they feel they will ultimately have to pay anyway. Thus some aspects of retroactive liability are actually antithetical to the deterrence goals of Superfund.

The liability provisions of CERCLA therefore provide some deterrence through their *in terrorem* effect at the same time that they encourage the continued use of existing waste sites regardless of the environmental risk those sites pose. Although these provisions in theory could finance remediation, to date they have earned a greater reputation for generating litigation.

CERCLA’s application of liability to past generators of waste is often justified by the seemingly unassailable “polluter pays” principle. Put bluntly, equity demands that polluters who profited from past transgressions return those profits for the cause of remediation. However, close inspection of this rationale reveals severe flaws in its equitable foundation, as well as an out of hand dismissal of economic efficiency. For example, it is far from clear that any firm ever received “pollution profits.” Assuming that past waste generators operated in competitive markets, any past cost savings from improper disposal practices were necessarily passed on to consumers of the generators’ products. Objections to this assertion necessarily imply that the “pollution profiteers” had unusual market power, not that they employed unusually polluting practices. In a very real sense, then, the true “profiteers” of past improper waste disposal practices are all of us, society in general. Congress, however, found it more politically palatable to aim CERCLA at faceless organizations that are easily vilified.

A further inequity of retroactive liability is that it punishes businesses for their success. Given that all firms followed uniformly bad waste management practices, only those that have survived to this day may be held liable for sins of the past.²⁸¹ More important, though, is the inefficiency resulting from the selective application of CERCLA to those businesses still solvent. In practice, Superfund liability is random; some businesses will be targeted for recovery by the EPA, while others with similar past waste disposal practices will not. The allocation of liability is more likely to depend on the ease of identifying barrels at a site than on a firm’s application of shoddy waste management standards twenty years ago. As a result, some firms will bear the costs of everyone’s past misdeed and be placed at a competitive disadvantage, with little regard for relative culpability.

CERCLA’s retroactive liability, already found wanting on deterrence and remediation grounds, is thus questionable on its own equitable terms as well.

cut costs”).

281. Potentially liable businesses could still be solvent *because* they unfairly benefitted from waste disposal “on the cheap” in the past, but such an assertion cannot be found in legislative records or the general literature. Indeed, given the complexity of modern business, it is unlikely that the assertion could be substantiated in more than a few isolated cases, if at all.

2. The *Superfund*

In addition to modifying the application of common law liability rules to the remediation of contaminated sites, CERCLA established a fund²⁸² to finance emergency government "removal operations."²⁸³ This fund allows EPA action

[w]henever (A) any hazardous substance is released or there is a substantial threat of such a release into the environment, or (B) there is a release or substantial threat of release into the environment of any pollutant or contaminant which may present an imminent and substantial danger to the public health or welfare.²⁸⁴

This emergency response capability is normally limited to a maximum of \$2 million total in funds and twelve months total response time per site. These limitations do not apply where "immediate risk[s] to public health or welfare or the environment" exist that "will not otherwise be [remedied] on a timely basis."²⁸⁵ This exception also permits funding of "orphan sites" where no solvent responsible parties can be found. These emergency response powers have been cited as a "largely unheralded aspect of Superfund . . . responsible for the relatively speedy elimination of most of the worst dangers posed by hazardous waste in America."²⁸⁶

In addition to emergency removal operations, the EPA may initiate "remedial actions" for permanent site cleanup with Superfund moneys and recover later under the liability rules discussed above.²⁸⁷ Thus, to the extent those rules provide deterrence, such deterrence is promoted indirectly by EPA use of the Superfund. However, the size of the fund indicates that Congress placed considerable value on site remediation, regardless of deterrence.²⁸⁸

282. Hence, the nickname "Superfund," often applied generically to all of CERCLA and its amendments.

283. In CERCLA parlance, "removal" actions are distinct from "remedial actions"; the latter term "means those actions consistent with permanent remedy." 42 U.S.C. § 9601(24) (defining "remedy" and "remedial action"); *cf.* 42 U.S.C. § 9601(23) (defining "remove" and "removal"); *see infra* text accompanying note 287 (discussing CERCLA funding of remedial actions).

284. 42 U.S.C. § 9604(a)(1).

285. In addition, this section is premised upon the fact that "continued response actions are immediately required to prevent, limit, or mitigate an emergency." 42 U.S.C. § 9604(c)(1).

286. CHURCH & NAKAMURA, *supra* note 66, at 5; *cf.* Elliott, *supra* note 6, at 13 (contrasting large number of efficiently performed EPA "removal actions" with extended "bureaucratic process" of negotiating permanent remediation plans).

287. *See supra* notes 266-267 and accompanying text.

288. SARA § 111(a), (i) (codified at 42 U.S.C. § 9611(a), (p)) authorized expenditures of up to \$8.5 billion over five years, the majority of which was to come from a per-ton tax on the sales of specified chemicals established by the Hazardous Substance Response Revenue Act of 1980, CERCLA § 201 *et seq.* (codified in scattered sections of 26 and 42 U.S.C.). The Omnibus Budget Reconciliation Act of 1990 extended these appropriation arrangements for three years through fiscal year 1994. Pub. L. No. 101-508, § 6301, 104 Stat. 1388, 1388-319 (1990); *cf. supra* note 192 (noting inability of British NRA "to carry out remedial works and recover the costs from the polluter . . . given the lack of financial means to carry out the initial cleanup operations").

3. Abatement Orders

Although EPA typically initiates a cleanup project with Superfund moneys and follows with a civil suit for recovery of costs,²⁸⁹ CERCLA provides another strategy for site remediation: the EPA may directly order responsible parties to initiate cleanup themselves.²⁹⁰ This power is explicitly enforceable in federal court.²⁹¹ SARA set the maximum fine for violating or refusing to comply with an abatement order at \$25,000 per day.²⁹²

SARA also allowed persons complying with abatement orders to file suit for reimbursement from Superfund for costs that are "reasonable in light of the action required by the relevant order."²⁹³ Reimbursement is available only where the party subject to the order can "establish by a preponderance of the evidence that it is not liable for response costs under [42 U.S.C.] section 9607(a)."²⁹⁴ A party defying an abatement order must also meet at least this standard to establish "sufficient cause" for such defiance and avoid the increased fines.²⁹⁵ As noted above, Section 9607 liability renders even *de minimis* polluters potentially liable for all cleanup costs. Thus, the SARA amendments significantly enlarge the stick EPA has available to enforce abatement orders and thereby potentially further both remediation and deterrence goals.

4. Public Participation

Congress' allowance of a significant level of public participation in the Superfund regulatory process stands in stark contrast to the typical British approach. In addition to private rights of action under Section 9607 against parties responsible for the release of hazardous substances²⁹⁶ and allowance of private claims against the Superfund under Section 9612,²⁹⁷ CERCLA imposes other requirements in furtherance of public participation in the regulatory process.

With regard to specific sites, SARA requires that the EPA publish relevant information before and after the adoption of a remedial action plan

289. PERCIVAL ET AL., *supra* note 1, at 363.

290. 42 U.S.C. § 9606.

291. 42 U.S.C. § 9606(a).

292. 42 U.S.C. § 9606(b)(1), amended by SARA § 109(b). This is a dramatic increase over the \$5000 per day fine originally imposed by CERCLA § 106(b).

293. 42 U.S.C. § 9606(b)(2)(C), added by SARA § 106(3).

294. *Id.*

295. 42 U.S.C. § 9606(b)(1), (2)(C).

296. For a discussion of private actions under CERCLA, see Lewis M. Barr, *CERCLA Made Simple: An Analysis of the Cases Under the Comprehensive Environmental Response, Compensation and Liability Act of 1980*, 45 BUS. LAW. 923, 937-41 (1990).

297. *But cf. Developments in the Law: Toxic Waste Litigation*, 99 HARV. L. REV. 1458, 1497-98 (1986) (noting inadequacy of such provisions due to "cumbersome procedural standards for section [9612] claims and vague pre-cleanup conditions for section [9607] actions").

and that it accept public comments during the plan's development.²⁹⁸ Further publication is required to explain subsequent developments that differ "in any significant respects from the final plan."²⁹⁹ The EPA may make technical assistance grants of up to \$50,000 "to any group of individuals which may be affected by a release" so that they may "obtain technical assistance in interpreting information" concerning any aspect of the CERCLA action.³⁰⁰

Section 9605 requires annual publication and revision of a National Priorities List (NPL). The NPL was originally to contain "[t]o the extent practicable, at least four hundred of the highest priority facilities,"³⁰¹ as well as a "hazard ranking system" used to identify those facilities.³⁰² SARA also enhanced public access to this process by allowing "[a]ny person who is, or may be, affected by a release" to petition to have a site evaluated under the hazard ranking system.³⁰³

This trend of increasing public participation in the CERCLA process has reached a new level in the warm-up for the next round of Superfund reauthorization exercises. Amid a flurry of proposed amendments, the Clinton Administration's plan has been lauded as "a good foundation for a new law" precisely because it "sought input from a wide variety of interest groups and tried to reach consensus positions."³⁰⁴ Groups consulted include representatives from industry, government, academia, and environmental organizations.³⁰⁵ The proposal itself supports substantial public participation in waste site remediation.³⁰⁶ Such extraordinary emphasis on a broad-based consensus at all stages of the process reflects a realization that public involvement in the waste site remediation debate is essential in a democratic society. Beyond the technical issues of liability and remediation schemes, this clearly is a lesson the British should take from our fourteen years of experience with CERCLA.

298. SARA § 117 (codified at 42 U.S.C. § 9617(a)-(b)).

299. 42 U.S.C. § 9617(c).

300. 42 U.S.C. § 9617(e). For an elementary discussion of the scientific and engineering issues involved in waste site remediation, see Melvyn Kopstein, *Science for Superfund Lawyers*, 19 *Env'tl. L. Rep. (Env'tl. L. Inst.)* 10,388 (1989).

301. This requirement was amended by SARA § 105(a)(3)(A) to require merely that "the highest priority facilities shall be designated." 42 U.S.C. § 9605(a)(8)(B). This change was likely due to congressional realization that it had seriously underestimated the number of sites ultimately covered by CERCLA. By the time of the consideration of SARA, the Office of Technology Assessment had estimated that Superfund sites across the nation may number as high as 10,000. This estimate included a variety of contaminated sites beyond just waste disposal sites. HOUSE COMM. ON ENERGY AND COMMERCE, SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986, H. REP. NO. 253(I), 99th Cong., 2d Sess. 54-55 (1986), *reprinted in* 1986 U.S.C.C.A.N. 2835, 2837.

302. 42 U.S.C. § 9605(c). The hazard ranking system occupies over a hundred pages of the Code of Federal Regulations. The NPL listed 1078 facilities, not including federally owned sites, in October 1992. 40 C.F.R. § 300 (1993).

303. SARA § 105(b) (codified at 42 U.S.C. § 9605(d)).

304. *Superfund Reauthorization*, 24 *Env't Rep. (BNA)* 1663, 1664 (Jan. 21, 1994).

305. *Id.*

306. *Id.* at 1665 (noting that proposal "calls for community groups to be established to participate in the remedy selection process and identify likely future uses of sites" to determine appropriate level of remediation).

5. CERCLA Implementation Strategies

At home and abroad, CERCLA is perhaps best known for its vast appetite for legal resources.³⁰⁷ One recent estimate places average transaction costs — primarily legal fees — at \$4 million per site; by comparison, actual cleanup costs average \$25 million.³⁰⁸ Indeed, the liability scheme of CERCLA has been charged with having “palpable effects on [the] competitiveness” of U.S. industry in international markets.³⁰⁹ SARA, the only major legislative retooling of CERCLA to date, has not altered these trends.³¹⁰ While a Clinton Administration proposal has recently rekindled hope that the Superfund may yet be reformed,³¹¹ the glaring deficiencies of CERCLA’s past have not been lost on the Europeans, who typically regard the U.S. experience only as an example of bad environmental regulation.³¹²

Such dismissal is myopic in light of the “uniquely varied kit of alternative statutory tools”³¹³ that Congress provided the EPA for cleaning up impaired sites. EPA’s use of this tool kit varies widely from site to site. Recent research suggests that the EPA’s varying approach, partly a result of a lack of concrete guidance on the policy priorities of Superfund,³¹⁴ is also affected by many site-specific factors, including site size and complexity, nature of responsible parties, and, surprisingly, the EPA regional office responsible for supervising the cleanup.³¹⁵ The different implementation strategies have been

307. See Jones & McSlarrow, *supra* note 272, at 10,430 (“[O]therwise known as the full employment act for lawyers, [CERCLA] has generated a prodigious amount of litigation since its enactment in 1980.”).

308. Turner T. Smith, Jr., EC Environmental Regulation, Address Before the American Foreign Law Association 12 (May 28, 1991) (transcript on file with author). Another study of five Fortune 100 companies active in Superfund sites found that transaction costs for those firms ranged between 15 and 31% of all Superfund costs. ACTON & DIXON, *supra* note 277, at xiv.

309. Freeman & McSlarrow, *supra* note 221, at 2 (“[T]he structural inefficiencies associated with our regime invite protracted litigation and perpetuate the misdirection of resources.”).

310. This is so for two reasons. First, SARA was largely a congressional effort to codify then-existing case law. Second, the sections where Congress did attempt to innovate are primarily concerned with issues that occur later in remediation projects, a stage rarely reached so far. Jones & McSlarrow, *supra* note 272, at 10,431. What might have been a second extensive reexamination of Superfund in 1990 did not live up to expectations. In the Omnibus Budget Reconciliation Act of 1990, Congress extended Superfund through fiscal year 1994 but made no substantive changes in the law. Pub. L. No. 101-508, § 6103, 104 Stat. at 1388-319 (codified at 42 U.S.C. § 9611 (Supp. IV 1992)).

311. See, e.g., *Not So Super Superfund*, N.Y. TIMES, Feb. 7, 1994, at A16 (commenting that “[i]t is hard to think of a government program with a wider gulf between ambitions and results than Superfund” and supporting the Clinton Administration’s “promising plan to redo that law”).

312. See, e.g., *EC: Clean-Up Laws Have Similarities to Superfund Legislation in the US According to Davies Arnold Cooper*, LONDON POST MAG., Oct. 10, 1991, at 4 (noting “frightening parallels”); Neil Hawke & Susan Nudds, *Insurance and the Enforcement of Waste Disposal Laws*, 17 ANGLO-AM. L. REV. 239, 250 (1988) (“[T]he success of insurance-based regulation will depend, in part, on an avoidance of some of the excesses and uncertainties of the American system.”); *EC Action on Environmental Liability Could Repeat US Errors, Conference Told*, 15 Int’l Env’t Rep. (BNA) 429 (July 1, 1992).

313. CHURCH & NAKAMURA, *supra* note 66, at 17.

314. Indeed, “[a]s a nation we have been unable to decide [what] the goal[s] of the Superfund program [are].” Elliott, *supra* note 6, at 13.

315. See generally CHURCH & NAKAMURA, *supra* note 66. The last variable is said to be a result of, among other things, “the personality and occupational background of regional administrators; the size, complexity, and configuration of PRPs at typical Superfund sites; and the constraints placed on program

characterized as the prosecution, accommodation, and public works approaches.³¹⁶

a. *Prosecution*

The prosecution approach places "an emphasis on coercion and a reliance upon the legal power of the government to command compliance."³¹⁷ This substantial power includes potential fines and the even more serious threat of joint and several liability. Prosecution is perhaps most effective at minimizing taxpayer expense where solvent parties may be found, although judicial requirements of agency reasonableness make it unlikely that any site could be remediated under complete government coercion.³¹⁸ Moreover, the adversarial nature of this approach introduces significant inefficiencies, not limited to litigation costs, that increase the overall cost of remediation. For example, the government typically pursues the prosecution strategy against a limited number of deep pocket defendants and thereby avoids the costs of identifying additional PRPs. These expenses, however, are only transferred to the PRPs named by the EPA. These parties, lacking the information gathering and police powers available to the EPA, must resort to the courts to pursue additional PRPs, thereby increasing aggregate transaction costs.

b. *Accommodation*

In contrast to prosecution, the accommodation approach emphasizes what is in the interest of both the EPA and the PRPs, namely, "settlement, selection of an appropriate remedy, and equitable allocation of costs."³¹⁹ While this tactic can lead to a faster remediation program, its hallmark is minimized transaction costs. Because the EPA and named defendants approach the remediation problem in a spirit of cooperation, negotiations tend to be less costly and the flow of information smoother than in a more adversarial situation.³²⁰

Nevertheless, the accommodation strategy may sacrifice other values in order to secure the voluntary involvement of PRPs. A single-minded determination to minimize taxpayer expenses, for instance, will poison the cooperative spirit vital to the success of this approach. Moreover, the greater

implementation by state environmental policy." *Id.* at 13 (footnote omitted).

316. *Id.* at 10-12.

317. *Id.* at 24.

318. *Id.* at 127 ("[W]hile the federal government holds most of the legal cards in this judicial showdown, it still must convince a federal judge that it is acting both within the law — the easy part — and reasonably. The requirement of at least the appearance of government reasonableness emerges not from the statutory language of Superfund, . . . but from . . . judicial imperatives.").

319. *Id.* at 28 (quoting AT&T ET AL., SUPERFUND FROM THE INDUSTRY PERSPECTIVE: SUGGESTIONS TO IMPROVE AND EXPEDITE THE SUPERFUND REMEDIATION PROCESS 1-2 (1989)).

320. *See id.* at 28.

emphasis on PRP participation is likely to leave a more limited role for other potentially interested parties, such as affected citizens.

c. *Public Works*

The public works approach casts the EPA in the dual role of an active remediator and a bill collector. Under this tactic, the EPA proceeds as it sees fit, without prior negotiations. The public works strategy provides the speediest remedy available, leaving cost recovery for later consideration.³²¹

Because the strategy allows only after-the-fact involvement of the parties ultimately presented with the bill, however, it entails transaction costs that are potentially large relative to remediation costs. These costs include EPA expenditures to maintain documentation that will withstand judicial review in actions to recover costs, as well as *ex post* litigation among PRPs to establish the final allocation of liability.³²² Thus, this approach is limited primarily to sites where removal actions, as opposed to remedial actions,³²³ are feasible.³²⁴ As a result, a public works approach at "relatively small, noncomplex sites . . . may minimize transaction costs," although perhaps to no greater extent than an accommodation approach.³²⁵

One common thread shared by all approaches to implementing CERCLA is EPA's ever-present "gorilla in the closet," the coercive tools provided by Congress.³²⁶ Regarding deterrence, these tools provide perverse incentives in some aspects, such as the inducement of deep pockets' continued use of old sites over new, safer ones, and completely overlook asserted goals in others, such as the failure to enlist lenders and insurers as quasi-regulators. Still, by imposing headline-grabbing monetary penalties on the regulated community they do deter waste mismanagement to some extent. Nonetheless, although EPA emergency removal operations have been praised for their efficiency and speed, the system is widely viewed as a failure for its inability to deliver more permanent remediation, a result often blamed on protracted litigation.

The lesson to be learned from the various implementation strategies of the EPA is one of flexibility. Every remediation program will face recalcitrant polluters deserving prosecution, repentant remediators worthy of accommodation, and orphan sites requiring public works. The British clearly may profit from the lessons the United States has learned.

321. *Id.* at 31.

322. *Id.* at 134.

323. *See supra* note 283.

324. CHURCH & NAKAMURA, *supra* note 66, at 134.

325. *Id.*

326. *Id.* at 23.

VI. A PROPOSAL FOR PARLIAMENT

A. *Introduction*

Waste regulation, particularly with respect to waste site remediation liability, is in a great state of flux in the United Kingdom. Its past gives cause for concern that many seriously polluting sites exist and that many current operators have neither the technical nor the financial wherewithal to address that pollution; its present provides no mechanisms to support remediation and only inadequately deters further contamination; and its future holds certain upheaval due to EU-mandated legislation and possibly growing public discontent as well.

The following proposal incorporates these factors in a scheme that recognizes the necessary coexistence of remediation and deterrence in any program to address environmental contamination. This necessity is expressed in a bifurcated system that addresses existing contamination separately from future contamination. In broad terms, a tax-based remediation fund will finance the cleanup of past pollution, while strict liability imposed on facility owners, backed by insurance requirements, will remediate future pollution.

This British system, like any other, will particularly benefit from a clear delineation of the policy goals that waste site remediation legislation might address, or at least a clear understanding of the conflicts inherent in those goals. Parroting the "polluter pays" cliché will not suffice. Ultimately decisions must be made concerning who, in fact, the "polluters" are, how much society as a whole is willing to pay to address waste site pollution, and what level of transaction costs is appropriate for the resolution of these issues.

More specifically, the current state of British regulatory agencies and the demonstrated attitudes of British courts toward remediation highlight the need for constructive discussion. With respect to the agencies, widespread underfunding and demoralization, if left unredressed, will derail any plan requiring detailed regulatory involvement. Thus, Parliament's solution must, at the level of substance, give the agencies clear direction on issues with which they have had no experience and developed no expertise. At the level of procedure, Parliament must at least provide adequate funding and staffing, including allowances for start-up costs of a program fraught with uncertainty. The courts' reluctance to apply sanctions for pollution even in the face of clear legislative intent suggests that an ideal system should avoid adjudication wherever possible. The wasted transaction costs of litigation support this goal as well. To the extent that judicial involvement is unavoidable, however, the same clear statement of program priorities is crucial.

Much of this proposal depends upon the development of a British consensus on the goals of the waste site remediation program. For such a consensus to develop, at least two other conditions must be met: the system

proposed must produce a substantial amount of information regarding the condition of existing waste sites, and it must take into account the concerns of the British public.

Little is known about the business character of most facility owners, and even less about the physical condition of existing sites. What is known, including historic waste management and regulation practices, indicates that a significant number of problem sites exist. Likely EU landfill inspection and monitoring requirements will require some data gathering. More important, though, the U.S. experience has demonstrated the peril of attempting to tackle these issues without some understanding of the size of the problem. It is folly to attempt to resolve, for example, how much society is willing spend on waste site cleanup (i.e., how clean is clean) without some concept of how much *might* be spent.

As in the United States following the discovery of the Love Canal tragedy, gathering this information will almost certainly result in public outcry and pressure for government action.³²⁷ The British thus face the risk of repeating U.S. errors such as imposing liability out of a sense of moral outrage rather than on economic grounds,³²⁸ or failing to achieve consensus on or even clear understanding of the magnitude of the problem. These errors should put British government and industry on notice of the stakes involved and the consequent importance of good faith negotiations toward consensus.

The U.S. experience has also shown that public participation in this process is crucial. The traditional British reliance on genteel industry-government cooperation is no match for the broad sweep of remediation law, which affects polluted as well as polluter. Certainly a rush of public scrutiny risks dampening the pace of deliberation as government and industry become accustomed to the bright light of public disclosure. But as CERCLA reformers have come to know, consensus must include citizens' groups, which are part of the process — whether explicitly invited or not.

The following section outlines a program to be established on a foundation of British consensus concerning waste site remediation goals and priorities. This program addresses both remediation and deterrence concerns through a bifurcated system of tax-based remediation for past pollution along with a strict liability/insurance scheme for future contamination.

327. In fact, the government's concern over "intensif[ie]d pressure for measures to strengthen existing, and inadequate, powers to order the cleanup of land" was responsible for initial delays in the development of contaminated land registers. Wheeler, *supra* note 13, at 580. More recently, the government has repeatedly ruled out these comprehensive national registers, more than likely over the same concerns. See *DoE Attacked*, *supra* note 12, at 653 (noting pressure on government from industry concerned over cleanup liability); see also Environmental Protection Act, 1990, ch. 43, § 143 (proposing contaminated land registers at discretion of secretary of state).

328. See, e.g., *Highest Court of Appeals Rejects Claim Linked to Strict Retrospective Liability*, 16 Int'l Env't Rep. 938, 938 (Dec. 15, 1993) (noting FoE's urging of EU Commission "to act as soon as possible to impose strict, retrospective, joint and several liability across the European Union to make sure industry cannot pass the bill for its pollution to the victims of that pollution").

B. *Past Waste Site Contamination: A British Superfund*

Much like its U.S. counterpart, the British superfund proposed here is a government-administered fund financed through taxes purposely chosen to further the policy goals of the program. To avoid the moral hazard of poor waste management practices, the fund should finance remediation only for past harms at sites where operations have ceased. Nevertheless, the British superfund should be the sole financier of a much broader scope of remediation of past harms than the U.S. Superfund.

1. *Justification*

A tax-based fund primarily encourages prompt remediation of impaired sites. The EPA's success in quickly implementing removal actions through Superfund financing demonstrates the efficacy of this approach. In addition, the absence of "pollution profits" and the inherently uneven application of retroactive liability provide equitable arguments that favor a superfund over liability for remediating past harms. Moreover, retroactive liability is technology-impeding, at least with respect to larger firms that might otherwise be in the best position to advance technology. The deep pocket effect encourages these firms to stay in old sites, even if those sites are leaking and new sites are not.

In addition, publicly funded waste site remediation avoids the astronomical transaction costs of extended litigation — arguably the greatest evil of retroactive liability. Where the money spent comes from a government-administered common fund, private parties have little incentive to litigate the allocation of responsibility or the selection of appropriate remedies.³²⁹ This approach has the added benefit of minimizing the involvement of British courts, which are of dubious reliability in enforcing environmental statutes.

One of the major flaws in the initial planning of CERCLA was a lack of understanding of the magnitude of the problem the program would ultimately address. Public funding of site remediation, particularly where followed by the imposition of strict liability, is akin to a regulatory forgiveness program that provides an incentive for owners of impaired sites to register contamination in hopes of avoiding future liability. This registration will improve early recalibration of the program and potentially avoid extended start-up delays and expenses.

Finally, broad CERCLA-style retroactive liability applied to generators has not been suggested as a realistic policy alternative, either in Britain or the European Union. Should the stringent requirements of the Landfill Proposal become law, many public sites and less stable private sites will thus become

329. Obviously no solution can reduce transaction costs to zero. Issues of agency efficiency and representativeness are addressed below.

burdens on the British public purse through bankruptcy and closure at any rate.

2. *Sources of Revenue*

Funding for the preliminary social insurance scheme should be modeled after CERCLA's Superfund provisions, which selectively tax hazardous chemicals. This arrangement, if properly structured, could serve many purposes beyond raising revenue. Because the tax would apply to all chemicals that are known or suspected contributors to environmental pollution, the burden of the remediation fund would be widely borne by nearly all industrial actors, who are then equally well positioned to spread the costs.³³⁰

In addition, adopting a volumetric base for the tax and adjusting the tax rate according to the relative risk of harm associated with each chemical, as was done by CERCLA, could ensure that expenses are concentrated in industries responsible for the greatest risks. Besides its obvious equitable appeal, such a scheme would provide incentives for industry to minimize use of the most harmful chemicals wherever possible. A waste disposal tax based on the waste type and volume, suggested in the Landfill Proposal,³³¹ would have the added effect of encouraging waste minimization in both industrial and domestic settings. A remediation tax would thus be a much more efficient implementation of the "polluter pays" principle than retroactive liability.

On the other hand, CERCLA's environmental tax scheme will require modification to suit the British situation. The Superfund was designed to generate resources for a program more limited in scope than the one proposed here, and was expected to be replenished through recovery against solvent defendants. The taxes must therefore be adjusted if the British fund is to cover all sites deemed too contaminated to continue operations. In addition, casting the tax net further would enhance deterrent effects.

3. *Limitations*

A clear disadvantage of the remediation fund is its inability to deter prospective harms. Where pollution is remedied through a common fund supported by contributions unrelated to the level of pollution caused by each contributor, the contributors will have little incentive to reduce contamination. The fund presented here should therefore be strictly limited to facilities where impairment has already occurred and where operations that might lead to

330. Of course, to a certain extent this tax suffers a flaw of CERCLA liability noted above, namely, that only surviving firms are subject to it. *See supra* note 281 and accompanying text. However, the tax would be levied on chemicals used by all existing firms, and would thus be less random in its effect than CERCLA liability. A remediation tax would not disadvantage any existing British firm vis-à-vis another existing firm.

331. Landfill Proposal, *supra* note 197, art. 18.

future harms have ceased. Issues of identifying such sites and enforcing discontinuation of operations are discussed below.

Finally, the imposition of specific taxes on chemical products could raise claims of trade interference, and should thus be measured carefully against EU tax standards. This problem should not prove insurmountable, as the EU Commission has in the past shown flexibility in applying competition rules where environmental insurance is concerned.³³²

C. *Future Waste Site Contamination: Strict Liability*

Imposing strict liability for future contamination deters prospective environmental harms. The strict liability system proposed here limits potentially responsible parties to landfill owners/operators and their insurers in order to reduce transaction costs, ensure financial accountability, and promote industry regulation by the insurance industry.

1. *Justification*

The imposition of strict liability emphasizes the deterrence goals of environmental regulation. Where industrial actors understand that they will be held responsible for damages resulting from improper disposal of waste regardless of fault, they will take appropriate preventive measures, particularly where prevention is substantially cheaper than cure.

In the United States, CERCLA imposes strict liability on a wide range of actors involved in the commerce of hazardous waste: generators, transporters, and disposers. The advantages of including generators in this scheme are increased policing of waste facilities by generators, a significantly increased pool of remediation funds, and deterrence of illicit dumping. Disadvantages include increased transaction costs of litigation for cost recovery against multiple defendants, particularly in suits for contribution where issues of relative fault are impossible to resolve definitively. In addition, liability for generators is not the only, or even the most efficient, means of increasing private policing of waste sites, or of providing adequate funding to remedy contamination that has occurred.

The European Union's Waste Liability Proposal suggests that the benefits of generator liability might be more efficiently captured by allowing generators to transfer their liability to a licensed facility upon legal transfer of their waste. Because the proposal imposes responsibility for wastes on generators up to the time of transfer, the deterrence of illicit dumping is much

332. *EC Cites Environment in Exempting Insurance Scheme from Competition Rules*, 15 Int'l Env't Rep. (BNA) 35, 35 (Jan. 29, 1992). Still, there are limits to the EU Commission's permissiveness in this regard; the exemption reported here was apparently predicated on the fact that this private re-insurance pool's "market share was not enough to seriously disrupt competition." *Id.*

the same as that under CERCLA: both programs focus sanctions for illegal dumping on generators, who are best positioned to control this stage of the waste management cycle. In addition, the Waste Liability Proposal allows the disposer's liability to revert to the generator upon a demonstration that the generator deceived the disposer about the nature of the waste.³³³ Because the generator is in the best position to provide this information, this provision should be strengthened with sanctions beyond the threat of additional liability to encourage generators to provide as complete information as possible. Once waste has been transferred to a disposal facility, however, the generator is no longer in the best position to monitor potentially harmful activities. Transfer of liability at the time of transfer of waste would provide more efficient site monitoring where, as the EU proposals recommend, operating waste facilities are required to carry adequate insurance.

Currently, the insurance industry is unwilling to provide coverage for an industry that has faced severe problems elsewhere and about which so little is known.³³⁴ This plan would not force insurers to take on sites with no potential revenue, i.e., those closed under the superfund, and insurers would therefore have an incentive to cover the remaining sites where risks accepted would be adequately compensated. More important, technical information on contamination gathered during the superfund phase of the program would help insurers assess the environmental risks posed by waste sites.

Under this proposal, insurance providers would have an incentive to police the insured. In addition, insurers would enjoy economies of scale unavailable to generators, providing more efficient monitoring of waste facilities. In other words, insurers' specialization in waste site coverage would lead to a development of expertise that would not be possible in generating firms for whom waste disposal is only a small part of a larger operation.

Some might object that a leaking waste site covered by a single insurer represents poor risk spreading that could result in the bankruptcy of both the site and the insurer, with no resources left for remediation. However, risk calculation and spreading are the insurance industry's forte.

2. Sources of Revenue

Under the proposal, site owners would pay for their insurance premiums by imposing surcharges on the waste coming through their gates. The level of required coverage would initially be a matter of some debate, and might need to be determined by the government. As cleanup of past contamination

333. Waste Liability Proposal, *supra* note 196, art. 7(1).

334. See HC, DRAFT DIRECTIVE, *supra* note 13, at xxxvi ("The American experience has had the effect of giving pollution a 'dirty' name . . . in insurance terms . . ."); *UK Report Calls for Strict Liability in Waste Management*, HAZNEWS, Jan. 1991, available in LEXIS, Envir Lib, Zev1 File ("Lloyds of London . . . identified the impact of environmental claims on the US insurance market as one of the main reasons for resistance of insurers in the UK and Europe.").

progresses under the superfund scheme, however, a better understanding of the costs would allow a market-based calibration of risks and appropriate premiums. Furthermore, individual site operators, perhaps in cooperation with their insurers, would be allowed to decide how these charges should be applied (e.g., by strict volumetric measure or by risks inherent in a given waste stream) to reap additional efficiencies of the market. Should it be found that the costs of cleanup are quite high, the resulting insurance premiums and surcharges passed on to generators would better reflect the true costs of disposal,³³⁵ providing further incentive for generators to minimize their wastes.

3. *Limitations*

Private insurance is based on the predictability of future liability. The insurance system proposed here would not be viable without sufficient information about currently operating facilities, and it could not survive another substantial modification of liability rules. The requirements of site specific information and classification are addressed in the next section.

The need for stable liability rules highlights the importance of broad consensus on the program's policy goals. The exercise of achieving this consensus would protect the integrity of this insurance scheme in two regards. First, where all affected parties' concerns are considered in determining key aspects of the program, those determinations are more likely to withstand the test of time. Second, should circumstances such as the discovery of previously unknown environmental harms force a reconsideration of earlier determinations, the mechanism for achieving consensus on how to proceed would already exist. Despite uncertainties, this insurance scheme is therefore viable.

D. *Implementation*

Waste site remediation programs must provide decisionmaking processes for identifying both the sites that require remediation and the necessary level of remediation.

1. *Site Classification*

In order to decide which sites require remediation, existing waste facilities would be divided into three categories: "clean" sites eligible to continue operations, "dirty" facilities clearly in need of prompt closure and remediation, and the majority of sites in between those extremes. Because public funds for remediation would be available only for sites eligible on the

335. This much is required by the Landfill Proposal, *supra* note 197, art. 16.

date of the legislation, this classification process would play a key role in the success of the proposed program. Sites mistakenly classified as clean and eligible for continued operation would present an undesirable risk of remediation cost to private insurers. For sites at either end of the spectrum, classification would be relatively simple. For the sites in between the two extremes, however, classification would involve extensive testing (likely to be required under the EU Landfill Proposal), a thorough review of facility records, and a degree of educated guesswork.

One approach to this problem would be to initiate a government assessment program to determine the level of risk at each facility. The sites found adequately protective of the environment would be allowed to continue operations after acquiring appropriate insurance. At this point, insurers would perform an evaluation to determine the terms of insurance. A process for redressing government errors in the initial assessments would be required, unless insurers performed independent assessments. Yet such independent assessments would present an avoidable loss of efficiency and risk of conflicts between government and industry determinations.

Alternatively, the government could limit its involvement to setting minimum investigation and monitoring levels for insurers and giving the insurance market a deadline to classify facilities. Two problems might arise under this approach: insurers as a group could under- or overestimate facility risks. Underestimation of risks is less likely to occur because of the U.S. experience, which provides both ample warning to the British insurance industry on the potential scope of the problem and empirical data on which risk estimates can be based. In addition, because some sites will be deemed uninsurable by any standard, some cleanup will be initiated immediately through the superfund, providing real-time experience on British soil for the further adjustment of risk assessment.

Because sites, once classified, would no longer be able to join the social insurance program under the superfund, the costs of underestimating risks would fall on the insurers and industry. To the extent that insurers are aware of this possibility, their initial risk assessments would likely be overly conservative, or too high. This could force the closure of too many sites, leaving generating industries with inadequate capacity for waste disposal needs.³³⁶ Such an error would be hard to correct, as sites denied insurance would be closed and designated for remediation under the government-administered superfund. Although a concrete solution to this problem is not clear, Parliament should realize the nature of this hazard and provide a

336. To be sure, should widespread environmental damage prove to be the rule, even perfect risk assessments could lead to a crisis in disposal capacity. The House of Commons expressed dismay at the inadequacy of information available to forecast the impact of the Landfill Proposal on landfill capacity, although industry representatives reported "an overall surplus of available space compared with the amount of waste that we are expecting to put into that space." HC, DRAFT DIRECTIVE, *supra* note 13, at xx (quoting National Association of Waste Disposal Contractors).

mechanism for its redress. One approach would rank the sites excluded from coverage to determine which are the least risky and provide for government-industry negotiation to allow continued operation of sites closed because of insurance industry skittishness rather than actual risk.

Once sites have been segregated, site operations could proceed according to their classification. Facilities determined to be clean would proceed under standard business operations, protected by required insurance coverage. Facilities that are viable but not quite clean would have to implement required remediation projects prior to reopening. Finally, sites determined to be too contaminated would be closed and would await remediation under the government's superfund program.

Because of the expenditure of public moneys in their remediation, the disposition of the most contaminated sites would require additional regulation. While owners of closed sites should not benefit from public funds in the remediation of pollution from which they have already profited, outright government appropriation of these properties might also be inequitable. In addition, due to the greater level of private ownership of landfills in Britain than on the Continent, this issue will have to be resolved in a way that does not offend EU controls on government subsidies to private industry.

The dilemma could be solved by charging the site owner a fee equal to the lesser of the increase in the value of his land after remediation or the actual cost of remediation. Where remediation costs are less than the increase in site value resulting from remediation, rational site-owners could be expected to make those investments themselves. In effect, the government would be acting as a fully compensated remediation contractor to the landowner. In the more common case where remediation costs far exceed the increase in land value, the landowner would essentially buy back remediated land from the government. The landowner's advantage over other potential bidders would be limited to the probably negligible value of the unremediated, yet condemned, landfill site. Such an arrangement would allow the landowner to retain ownership, yet prevent profit-taking at public expense.

Should this bifurcated plan work as envisioned, all existing sites would eventually be operating under private insurance, and the British superfund would be needed only for emergency projects or where site owners or their insurers resist prompt action. At that time, the disposition of additional funds will be left to the imagination of Parliament.

2. *Selection of Remedies*

The selection of appropriate remediation procedures is as critical to the success of this system as adequate classification of facilities. Economically rational selection of remedies requires consideration of possible future uses of impaired land. A landfill set among factories clearly is not as great a concern

as a site destined to become a schoolyard. A sensible determination of future land uses requires an understanding of the concerns of the community in the vicinity of the polluting site. Thus, remedy selection reinforces the importance of public participation in setting both national cleanup goals and goals for particular condemned sites. Recently proposed CERCLA amendments strongly support this conclusion.³³⁷ Some form of local decisionmaking process should be institutionalized to address this issue.

Certain aspects of remediation planning would be more efficient if centralized. This would be particularly true during the publicly funded phase of the program. Clearly only one superfund based on national revenues should cover the whole program. This structure would avoid leaving districts with shrinking industrial bases — and therefore shrinking revenues and typically greater pollution problems — with inadequate resources to cover necessary remediation.

The concentration of remediation resources also calls for a minimum level of central technical decisionmaking capability. For example, in early phases, sites would need to be ranked to assure that most serious problems are addressed first. A central facility could act as a clearinghouse for technical information as well. Her Majesty's Inspectorate of Pollution in the Department of the Environment is the logical home for this facility. However, HMIP, as it currently exists, is clearly not equal to this task. It lacks adequate funding, staff, and the moral support of its parent organization for an expansion of duties. These issues should be addressed by Parliament to ensure competent and efficient program administration. The role of this facility would diminish once the superfund program closes and privately funded operations commence. Although a technical clearinghouse would always be needed, there would be no need for a national prioritization of sites because most remediation planning will be done locally.

At this point, authorities would have three options for initiating cleanup similar to the EPA's options under CERCLA. They could proceed under the prosecution, accommodation, and public works models. Several elements of the program proposed here would lead to greater efficiency than exists under the U.S. system. The reduction in PRPs from several hundred at some U.S. sites to two in Britain — the site owner and insurer — would significantly reduce transaction costs regardless of the implementation model the government chooses. In addition, because all sites would have substantial histories of environmental monitoring, the authorities would have a clearer picture in initiating remediation operations and setting cleanup priorities. The publication of this information would allow further public input to sustain a consensus on the program goals.

337. See *supra* text accompanying notes 304-306.

VII. CONCLUSION

I have outlined a waste site remediation program to provide adequate resources to address existing environmental impairment in the United Kingdom. This plan fills gaps in recent EU proposals and anticipates the likely consequences of those proposals on British law.

The EU debate on remediation of waste disposal sites is far from settled. While the Green Paper suggests a "joint compensation fund" combined with a liability system, the issue remains controversial and a detailed proposal has yet to be developed. Unfortunately, the Europeans' awareness of the extreme costs and relatively meager results of CERCLA in the United States has resulted in little constructive discussion on the potential lessons of the U.S. experience.

However, those lessons *are* relevant even within the constraints of both the EU proposals and existing British conditions, and they can help to forge a system more efficient than CERCLA to integrate the various policy goals of waste site management. A bifurcated program of Superfund-style funding for past harms and strict site-owner liability for future harms would remediate orphan as well as claimed sites. It would provide incentives for industry to minimize the use of hazardous chemicals and the generation of waste, and to report previously unregistered contaminated sites. Appropriately structured, such a scheme would encourage the private sector to police waste sites in an efficient manner, and it would avoid many of the transaction costs that plague CERCLA.

Whatever form the EU and British rules finally take, some system will inevitably be negotiated, legislated, and enacted in the coming years. The tremendous expenses and wide range of interests at stake in waste site remediation guarantee that the solution will be expansively studied, debated, and analyzed. Perhaps then research on both sides of the Atlantic will provide the silver bullet to put the CERCLA werewolf to rest.