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Tort Law as an Environmental Policy Instrument

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INTRODUCTION

Policymakers have a diverse tool chest of policy instruments at their disposal when tackling environmental problems. These tools include taxes, subsidies, marketable allowances, quotas, "command-and-control" regulations such as technology and performance standards, deposit-refund programs, licensing schemes, information and labeling requirements, insurance mandates, and the entitlement of property and liability rights.[1] In establishing an innovative environmental policy taxonomy, Kenneth Richards explains that the appropriate policy *must* achieve its environmental goal, subject to legal and political constraints, and it *should* minimize abatement costs, implementation costs, and undesirable effects on public finance.[2] Under Richards's framework, the first dimension of environmental policy instrument choice concerns the fundamental role of government.[3] As Richards sees it, the government can act as an entitlement setter or as a regulator. That is, lawmakers can choose to assign property or liability rights, effectively yielding control over pollution abatement to the market by way of an iterative series of private negotiations and court rulings. Alternatively, the government can enact one of the other instruments mentioned above. This common economic instrumentalist approach characterizes tort law as a public regulatory tool, which policymakers may choose in the same way that they might choose a command-and-control regulation.[4]

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1 *See* Kenneth R. Richards, *Framing Environmental Policy Instrument Choice*, 10 DUKE ENVTL. L. & POL'Y F. 221, 222 (2000); Marcel Boyer & Donatella Porrini, *The Choice of Instruments for Environmental Policy: Liability or Regulation?*, *in* AN INTRODUCTION TO THE LAW AND ECONOMICS OF ENVIRONMENTAL POLICY: ISSUES IN INSTITUTIONAL DESIGN 245 (Timothy Swanson ed., 2002); Lori Snyder Bennear & Robert N. Stavins, *Second-Best Theory and the Use of Multiple Policy Instruments*, 37 ENVTL. & RESOURCE ECON. 111, 111 (2007).

2 Richards, *supra* note 1, at 224–30.

3 *Id.* at 232–36.

4 Steven Shavell, *Liability for Harm Versus Regulation of Safety*, 13 J. LEGAL STUD. 357, 357–58 (1984) [hereinafter Shavell 1984]; Kyle D. Logue, *Coordinating Sanctions in Tort*, 31 CARDOZO L. REV. 2313, 2314 (2010).

Indeed, scholars of public health and safety have been debating the effectiveness of tort law as a regulatory tool for decades.[5] Much of the literature comparing liability entitlements with public regulations, however, lacks interdisciplinary dialogue and is therefore quite fragmented. The question of tort law as a policy instrument is almost exclusively evaluated by law and economics scholars and almost completely overlooked by the political science and public policy fields. Law and economics scholars, on the other hand, generally fail to account for the findings from those fields in their comparisons of tort law and public regulation.[6] Empirical evidence on the effectiveness of liability entitlements in reducing the incidence of harm to human health and the environment is also scarce and notoriously difficult to generate. Attempts to draw conclusions about the instrumental efficacy of environmental tort law, therefore, have been inconclusive. What's more, the legal literature on this topic is muddled because the field has failed to adopt a set of universal criteria by which to compare tort law to public regulation.

Advancing debate by applying comparative criteria to examine the efficacy of tort law as a regulatory tool is a worthwhile endeavor because the role of tort law in environmental regulation is a timely issue. Faced with the prospect of relatively lax enforcement of environmental regulations, legal and policy scholars in the early 2000s engaged in a heightened discussion of the use of tort law as an alternative to the promulgation of public environmental regulations.[7] Today, political gridlock, a severely anti-environment House of Representatives, and novel risks from cross-state air pollution,

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[5] *See generally* Guido Calabresi & A. Douglas Melamed, *Property Rules, Liability Rules, and Inalienability: One View of the Cathedral*, 85 HARV. L. REV. 1089 (1972); Charles D. Kolstad et al., *Ex Post Liability for Harm vs. Ex Ante Safety Regulation: Substitutes or Complements?*, 80 AM. ECON. REV. 888 (1990); Kenneth S. Abraham, *The Relation Between Civil Liability and Environmental Regulation: An Analytical Overview*, 41 WASHBURN L.J. 379 (2002); David E. Adelman & Ian J. Duncan, *The Limits of Liability in Promoting Safe Geologic Sequestration of CO_2*, 22 DUKE ENVTL. L. & POL'Y F. 1, 23 (2011); Logue, *supra* note 4; Patrick W. Schmitz, *On the Joint Use of Liability and Safety Regulation*, 20 INT'L REV. LAW & ECON. 371 (2000); Shavell 1984, *supra* note 4.

[6] *See* SEAN FARHANG, THE LITIGATION STATE: PUBLIC REGULATION AND PRIVATE LAWSUITS IN THE U.S. 10–11 (2010) (discussing the lack of interdisciplinary dialogue on the question of tort law as a policy instrument); Logue, *supra* note 4, at 2315 (indicating that scholarly work in this area is lacking).

[7] For example, the Washburn University School of Law hosted a seminar in 2001 entitled, "Using Torts as an Alternative to the Enforcement of Environmental Regulations." The Case Western Reserve University School of Law also held a symposium in 2008 on "Common Law Environmental Protection."

fracking, geologic carbon sequestration, and other activities continue to make the issue of liability as a policy tool ripe for consideration. Some scholars suggest that the use of tort law as a regulatory tool is in fact already on the rise.[8] Empirical work by Sean Farhang suggests that political conflict and polarization make private enforcement a more politically viable statutory tool than other public regulatory instruments.[9]

Additionally, heightened clarity on the usefulness of tort law as a complementary policy instrument to public regulations may have legal implications. In 2010, the Fourth Circuit held that the Clean Air Act (CAA) preempts state tort suits because allowing litigation would interfere with the policy objectives of the statute.[10] There has since been a rash of cases that follow the Fourth Circuit's rationale.[11] In August 2013, however, the Third Circuit, in *Bell v. Cheswick Generating Station*, overruled the Western District of Pennsylvania to hold that the CAA does *not* preempt state tort law, creating a conflict between the precedent of the Third and Fourth Circuits.[12] The judiciary's uneasiness with embracing the regulatory effects of tort law can be traced at least back to *Boomer v. Atlantic Cement Co.*, where Judge Bergan, writing for the New York Court of Appeals, opined, "that the judicial establishment is neither equipped . . . nor prepared to lay down and implement an effective policy for the elimination of air pollution."[13]

Political polarization makes it more difficult for both Congress and the Environmental Protection Agency (EPA) to enact and enforce environmental laws, making it increasingly likely that individuals harmed from novel activities may resort to litigation. What's more,

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8 ANDREW P. MORRISS ET AL., REGULATION BY LITIGATION 1 (2009).

9 FARHANG, *supra* note 6, at 5, 32–44, 76–80; *see also* MORRISS ET AL., *supra* note 8, at 4.

10 North Carolina *ex rel.* Cooper v. Tenn. Valley Auth. (*TVA*), 615 F.3d 291, 303 (4th Cir. 2010).

11 *See, e.g.*, Bell v. Cheswick Generating Station, 903 F. Supp. 2d 314, 321–22 (W.D. Pa. 2012); Comer v. Murphy Oil USA, Inc., 839 F. Supp. 2d 849, 865 (S.D. Miss. 2012); United States v. EME Homer City Generation L.P., 823 F. Supp. 2d 274, 294–97 (W.D. Pa. 2011); *see also* Nigel Barrella, Comment, North Carolina v. Tennessee Valley Authority, 35 HARV. ENVTL. L. REV. 247, 259–61 (2011) (criticizing the decision in *North Carolina v. Tennessee Valley Authority*); Emily Sangi, Note, *The Gap-Filling Role of Nuisance in Interstate Air Pollution*, 38 ECOLOGY L.Q. 479, 512–16 (2011) (providing a thorough and convincing critique of the preemption analysis in *North Carolina v. Tennessee Valley Authority*).

12 No. 12-4216, 2013 U.S. App. LEXIS 17283, at *23 (3d Cir. Aug. 20, 2013).

13 257 N.E.2d 870, 871 (N.Y. 1970).

many of the grand statutory frameworks are ill-equipped to address complex contemporary pollution problems, leaving regulatory gaps that tort law can fill. In this Article, therefore, I take Judge Bergan's rationale in *Boomer* to task.

The debate between tort law and public regulation presents a false choice: neither is best all of the time. Government should not rely on tort law as a lone policy instrument to address environmental and public health problems; but neither should government preempt tort law because it functions well as a complementary tool to regulatory programs in many instances. Allowing tort suits does not constitute laying down a policy for the elimination of pollution, as *Boomer* claims. Recognizing that tort law and public regulation are complements, not substitutes, I argue that the judiciary should not let an unfounded fear of interference with a federal statutory program lead them towards misguided preemption decisions. I also contend that Congress should enact environmental statutes with (and amend current statutes to have) unmistakably clear preemption savings clauses for state tort law and that policymakers should more seriously consider liability entitlements—including heightened liability standards, damage enhancements, and plaintiffs' fee shifts—as policy instruments to be incorporated into public regulatory programs.

Part I provides a basis for my normative arguments by reviewing economic and legal theories of liability law. Part II advances the discussion by explaining the distinctiveness of tort liability in the context of environmental policy. Part III adopts criteria from the public policy field to evaluate the strengths and weaknesses of tort law as an environmental policy instrument relative to public regulation. The final section draws all of the material together, weighing the strengths and weaknesses of tort law and public regulation against one another and highlighting the circumstances in which tort law is most likely to be an effective and efficient environmental policy instrument. I conclude that, in most circumstances, tort law will not function efficiently and effectively as a lone policy instrument; but nonetheless, it serves important functions as a complement to regulatory rules.

I
THEORIES OF LIABILITY

Individuals often take actions that adversely affect others. Those actions produce negative environmental externalities when they cause

unaccounted-for damage to human health or the environment.[14] The result is an inefficient allocation of market resources, and it generally falls on the government to address these market failures.[15] A body of literature has developed to determine the policy instrument that the government should employ when addressing various types of market failure. In his instrument choice taxonomy, the first question that Richards addresses is the "Fundamental Role of Government"—whether policymakers should choose public regulatory programs enforced by administrative agencies that are designed to prevent health and safety problems from developing ex ante, or property and liability entitlements, which address harm ex post.[16]

Many of the scholars that have engaged in this debate have framed the issue as a choice between one of two competing *substitutes*: a liability standard or public regulation.[17] Charles Kolstad, Thomas Ulen, and Gary Johnson developed a theoretical model, however, which posits that tort law and public regulation are complements, not substitutes.[18] They argue that "[o]ne of the most noticeable features of current policy dealing with externality-generating activities in a wide number of areas is that *ex ante* and *ex post* policies are very frequently used jointly."[19]

For instance, in the case of a noisy or polluting industrial operation located near a residential area, zoning regulations generally provide an ex ante public control that reduces the likelihood that these

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14 *See* DANIEL H. COLE & PETER Z. GROSSMAN, PRINCIPLES OF LAW & ECONOMICS 18–20, 390–92 (2d ed. 2011); CHARLES WOLF, JR., MARKETS OR GOVERNMENTS: CHOOSING BETWEEN IMPERFECT ALTERNATIVES 20–21 (2d ed. 1993); Henry N. Butler, *A Defense of Common Law Environmentalism: The Discovery of Better Environmental Policy*, 58 CASE W. RES. L. REV. 705, 710 (2008).

15 WOLF, *supra* note 14, at 17–18, 21.

16 Richards, *supra* note 1, at 232–36.

17 *See, e.g.*, Adelman & Duncan, *supra* note 5, at 23; Peter Cane, *Using Tort Law to Enforce Environmental Regulations?*, 41 WASHBURN L.J. 427, 455–66 (2002); Logue, *supra* note 4, at 2325; Richards, *supra* note 1, at 235; Schmitz, *supra* note 5, at 371–72; W. Kip Viscusi, *Toward a Diminished Role for Tort Liability: Social Insurance, Government Regulation, and Contemporary Risks to Health and Safety*, 6 YALE J. ON REG. 65, 65–66 (1989).

18 Kolstad et al., *supra* note 5; *see also* Denise Antolini, *Attacking Bananas and Defending Environmental Common Law*, 58 CASE W. RES. L. REV. 663 (2008) (critiquing the substitutes frame).

19 Kolstad et al., *supra* note 5, at 888–89; *see also* CHARLES D. KOLSTAD, ENVIRONMENTAL ECONOMICS 386–87 (2d ed. 2011); Adelman & Duncan, *supra* note 5, at 23; Bennear & Stavins, *supra* note 1, at 113; William W. Buzbee, *Asymmetrical Regulation: Risk, Preemption, and the Floor/Ceiling Distinction*, 82 N.Y.U. L. REV. 1547, 1588–89 (2007) (discussing Bates v. Dow Agrosciences L.L.C., 544 U.S. 431, 450 (2005)).

competing land uses come into contact with one another, whereas nuisance remedies provide an ex post private backstop to resolve disputes in the event of conflict. The Resource Conservation and Recovery Act (RCRA)[20] is an ex ante regulation that governs the cradle-to-grave use and disposal of toxic wastes, whereas the Comprehensive Environmental Response, Conservation, and Liability Act (CERCLA)[21] entitles victims of certain hazardous waste exposures to compensation and a cause of action against the responsible parties after a harm has already occurred. Any regulatory scheme Congress chooses, though, will be enacted over a backdrop of pre-existing (mostly state) common law and statutory liability rules.

In a tort action, a defendant is liable when the law requires her to pay damages for an injury suffered by the plaintiff. Additionally, in nuisance actions, the court may also issue an injunction on the tortfeasor to discontinue the harmful activity, and in certain liability suits, juries may award punitive damages to punish outrageous conduct.[22] Most often, though, the plaintiff is entitled to special damages for her out-of-pocket expenses and general damages for her pain and suffering.[23] Additionally, courts may award damages for harm that a plaintiff proves she has suffered and will suffer in the future.[24] In the majority of cases, these constitute the range of available tort remedies. These remedies have regulatory effects that merit economic analysis. The following sections explain the theoretical basis for understanding tort standards as regulatory instruments.

A. Economic Theories of Liability

Economic theories of liability have burgeoned into a well-developed and widely accepted body of scholarship since Ronald Coase first published *The Problem of Social Cost* in 1960.[25] With his invariance thesis, which has become widely known as the "Coase

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20 42 U.S.C. §§ 6901–92 (2006).

21 §§ 9601–75.

22 Abraham, *supra* note 5, at 388 (discussing injunctions); Andrew F. Popper, *In Defense of Deterrence*, 75 ALB. L. REV. 181, 191–93 (2011).

23 Abraham, *supra* note 5, at 388–89. For additional discussions of environmental tort remedies, see Jason J. Czarnezki & Mark L. Thomsen, *Advancing the Rebirth of Environmental Common Law*, 34 B.C. ENVTL. AFF. L. REV. 1, 4–5 (2007) and Roger Meiners & Bruce Yandle, *Common Law and the Conceit of Modern Environmental Policy*, 7 GEO. MASON L. REV. 923, 941–46 (1999).

24 Abraham, *supra* note 5, at 388.

25 R.H. Coase, *The Problem of Social Cost*, 3 J.L. & ECON. 1 (1960).

Theorem," Coase posited that in a market free of transaction costs, where entitlements are fully assigned and where all parties have full information, private parties, through costless negotiations with one another, will achieve the optimal allocation of resources regardless of the liability rule in place.[26] In other words, the government can entitle victims to compensation or it can entitle polluters with a right to pollute. If there are no transaction costs (e.g., if victims can identify polluters and vice versa, victims know the value of harm they have suffered, and polluters know the value of pollution and the costs of abatement), then the parties can negotiate with one another to achieve the optimal levels of pollution and abatement regardless of who holds the entitlement. The only effect of the entitlement is to determine whether the polluter pays the victims for the right to harm them or whether the victims pay the polluter to abate some of its pollution. Thus, the lower the transaction costs are, the less the allocation of legal rights matters.

Of course, as Coase acknowledged, we do not live in a world that is free of market distortions and transaction costs, where parties have full information.[27] Indeed, the New Institutional Economics (NIE) perspective, pioneered by Coase and expounded by Oliver Williamson, recognizes that the optimal policy instrument will vary depending on transaction costs.[28]

These costs are central to policy instrument choice when the parties to a would-be transaction and the transaction itself both exhibit certain characteristics. Williamson identifies the behavioral assumptions about the parties as bounded rationality and opportunism.[29] "Bounded rationality refers to the cognitive limits of the parties . . . ."[30] That is, limitations on brainpower preclude individuals from considering every important factor and accounting for every possible contingency in making decisions. The theory of

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[26] *Id.*; *see also* COLE & GROSSMAN, *supra* note 14, at 68–70, 393–95; RICHARD A. EPSTEIN, CASES AND MATERIALS ON TORTS 136 (8th ed. 2004); NEIL K. KOMESAR, IMPERFECT ALTERNATIVES: CHOOSING INSTITUTIONS IN LAW, ECONOMICS, AND PUBLIC POLICY 105–12 (1994); WOLF, *supra* note 14, at 22; Butler, *supra* note 14, at 712–14; Robert D. Cooter, *Economic Theories of Legal Liability*, 5 J. ECON. PERSP. 11, 18–19 (1991); Richards, *supra* note 1, at 233.

[27] WOLF, *supra* note 14, at 23; *see also* Calabresi & Melamed, *supra* note 5, at 1106.

[28] For a brief explanation of the NIE school of thought, see COLE & GROSSMAN, *supra* note 14, at 78.

[29] OLIVER E. WILLIAMSON, THE ECONOMIC INSTITUTIONS OF CAPITALISM 44–49 (1985).

[30] Richards, *supra* note 1, at 259; *see also* COLE & GROSSMAN, *supra* note 14, at 81–84; WILLIAMSON, *supra* note 29, at 45.

opportunism simply suggests that parties will not only act in their own self-interest, but will do so with "guile."[31] Williamson writes, "opportunism refers to [parties' tendency to provide] incomplete or distorted disclosure of information, especially to calculated efforts to mislead, distort, disguise, obfuscate, or otherwise confuse."[32] Finally, uncertainty generated by external factors, limited communication, and barriers to trust can generate costs, especially given the cognitive limits and biases of the parties.[33]

Transaction costs, market failures, policy failures, and political constraints create what economists have dubbed "second-best" problems. The theory of second best maintains that the correction of one market failure or constraint may not produce an efficient outcome if other failures or constraints exist, even in apparently unrelated markets.[34] For example, correcting an air pollution externality might not maximize social welfare if there is a policy failure in the governance of water pollution: facilities could scrub pollutants out of their emissions and deposit them into their effluents. Such problems often call for multiple policy instruments for different environmental mediums, at different levels of governance, that are both preventative (ex ante) and remedial (ex post) in nature.

In the context of liability as a policy tool, the theory of second best may justify the practical reliance on tort law in certain situations where economists (or courts) would otherwise not think to rely on private enforcement if the market was free of distortions. Though they do not address the use of tort law as a policy tool in their theoretical work, Lori Bennear and Robert Stavins, for example, "demonstrate that the second-best nature of problems addressed by policy makers justifies policy coordination and *can* justify the use of multiple policy instruments in a wide range of settings."[35] My analysis here illuminates the settings in which policymakers should consider tort law as one of the multiple policy tools that they employ to address pollution and ecological management problems.

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31 WILLIAMSON, *supra* note 29, at 47; *see also* Richards, *supra* note 1, at 260.

32 WILLIAMSON, *supra* note 29, at 47.

33 Richards, *supra* note 1, at 261–65.

34 COLE & GROSSMAN, *supra* note 14, at 28–29; KOLSTAD, *supra* note 19, at 255; Bennear & Stavins, *supra* note 1, at 112; Daniel H. Cole, Comment, *Environmental Instrument Choice in a Second-Best World: A Comment on Professor Richards*, 10 DUKE ENVTL. L. & POL'Y F. 287, 290–91 (2000); R.G. Lipsey & Kelvin Lancaster, *The General Theory of Second Best*, 24 REV. ECON. STUD. 11, 11 (1956).

35 Bennear & Stavins, *supra* note 1, at 112.

In a second-best world, policymakers establish public regulations and legal entitlements with the goal of inducing private parties to make production and consumption decisions that in the aggregate will produce an economically efficient market. Among the various kinds of efficiency, law and economics scholars are concerned primarily with allocative efficiency, which refers to a welfare-maximizing distribution of goods and services.[36] According to the Kaldor-Hicks criterion, a change in resource allocation will improve efficiency if three conditions are met.[37] First, the change must make at least one person better off. Second, the person (or persons) made better off must *theoretically* be able to compensate all of those made worse off and still experience a net gain in welfare. And third, if those made worse off were to pay those made better off to forgo the change, then those made worse off would be in an even worse position. In a situation in which it is uncertain whether a benefit is worth its social cost, legal entitlements should be structured to place the costs on the party with the most knowledge, who is in the best position to make a benefit-cost analysis, and who can most cheaply avoid the costs of precaution.[38]

A benefit-cost analysis is not always possible, though, because measuring the benefits of environmental and public health protection is an extremely difficult practice that often yields indeterminate results.[39] Therefore, regulators often make environmental policy choices based on a cost-effectiveness criterion, whereby the optimal policy is one that minimizes the costs of achieving a stated objective, rather than an efficiency criterion.[40] Examining tort law under a cost-

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36 COLE & GROSSMAN, *supra* note 14, at 13.

37 Nicholas Kaldor, *Welfare Propositions of Economics and Inter-Personal Comparisons of Utility*, 49 ECON. J. 549 (1939); J.R. Hicks, *The Foundations of Welfare Economics*, 49 ECON. J. 696 (1939); *see also* COLE & GROSSMAN, *supra* note 14, at 15; KOLSTAD, *supra* note 19, at 52–56, 70–72, 83–86; KOMESAR, *supra* note 26, at 31–32.

38 GUIDO CALABRESI, THE COST OF ACCIDENTS 135–97 (1970); EPSTEIN, *supra* note 26, at 136, 644; Calabresi & Melamed, *supra* note 5, at 1096–97; *see also* Union Oil Co. v. Oppen, 501 F.2d 558, 569–71 (9th Cir. 1974) (applying the least-cost avoider theory). *But see* Donald G. Gifford, *The Peculiar Challenges Posed by Latent Diseases Resulting from Mass Products*, 64 MD. L. REV. 613, 617–18 (indicating that it is not always possible to identify the cheapest cost avoider).

39 DANIEL A. FARBER, ECO-PRAGMATISM: MAKING SENSIBLE ENVIRONMENTAL DECISIONS IN AN UNCERTAIN WORLD 45 (1999); KOLSTAD, *supra* note 19, at 114–15, 122–23, 126–27.

40 *See* CORNELIUS M. KERWIN & SCOTT R. FURLONG, RULEMAKING: HOW GOVERNMENT AGENCIES WRITE LAW AND MAKE POLICY 96 (2011); KOLSTAD, *supra* note 19, at 133–34; Robert N. Stavins, *The Problem of the Commons: Still Unsettled After*

effectiveness criterion would necessarily involve measuring governance costs, including the expense of maintaining the judicial system relative to the costs associated with alternative regulatory systems.[41] In spite of the difficulty in measuring environmental benefits, much of the literature on tort law as a policy instrument evaluates liability standards in terms of efficiency.[42] However, policy decisions do not turn solely on efficiency determinations: distributional concerns are as (and often are more) important than efficiency in reaching political decisions.[43]

Thus, micro-economic theories of tort law generally recognize the two primary functions of the liability establishment as optimal deterrence of risky activity and corrective justice through compensation.[44] Some scholars characterize these as "competing theories"[45] and situate scholars into "camps."[46] Law and economics scholars as well as Progressive Realist scholars emphasize the deterrence theory of tort law—that tort law is a public policy instrument that can be used to spread losses, compensate victims, and reach the efficient balance between risky activity and precautionary measures.[47] An opposing group of notable scholars maintains that tort law is primarily private law intended to provide victims of wrongful injury a means of redress.[48] Ernest Weinrib, for example, rejects the

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100 Years, 101 AM. ECON. REV. 81, 92–94 (2011) (comparing efficiency and cost-effectiveness).

41 For a review of the costs of operating the tort system, see CONG. BUDGET OFFICE, THE ECONOMICS OF U.S. TORT LIABILITY: A PRIMER 19–23 (2003) and COLE & GROSSMAN, *supra* note 14, at 272, 304–07.

42 KOLSTAD, *supra* note 19, at 382–87; RICHARD A. POSNER, ECONOMIC ANALYSIS OF LAW 167–71, 178–79 (7th ed. 2007); WOLF, *supra* note 14, at 117; Kolstad et al., *supra* note 5.

43 WOLF, *supra* note 14, at 119.

44 COLE & GROSSMAN, *supra* note 14, at 269–70; EPSTEIN, *supra* note 26, at 133–36; Abraham, *supra* note 5, at 389; Boyer & Porrini, *supra* note 1, at 258–59; Cane, *supra* note 17, at 428–35; Alexandra B. Klass, *Tort Experiments in the Laboratories of Democracy*, 50 WM. & MARY L. REV. 1501, 1508–10 (2009) [hereinafter Klass 2009]; Peter S. Menell, *The Limitations of Legal Institutions for Addressing Environmental Risks*, 5 J. ECON. PERSP. 93, 93 (1991); Christopher H. Schroeder, *Lost in the Translation: What Environmental Regulation Does That Tort Cannot Duplicate*, 41 WASHBURN L.J. 583, 587 (2002); Gary T. Schwartz, *Mixed Theories of Tort Law: Affirming Both Deterrence and Corrective Justice*, 75 TEX. L. REV. 1801 (1997) [hereinafter Schwartz 1997].

45 Schroeder, *supra* note 44, at 587.

46 Klass 2009, *supra* note 44, at 1508–09.

47 *Id.* This group includes Richard Posner, Fleming James, Leon Green, and William Prosser.

48 *Id.* This group includes George Fletcher, Jules Coleman, Ernest Weinrib, John Goldberg, and Benjamin Zipursky.

deterrence theory on the basis that a plaintiff only has a cause of action for actual injuries suffered at the fault of the defendant, not *risks* taken by the defendant.[49]

The dominant position, however, seems to be the instrumentalist view, which emphasizes the general deterrent effects of liability as public law.[50] Actually, the classic response to Weinrib's objection is to distinguish general from specific deterrence[51]—a distinction that originates in Guido Calabresi's seminal work, *The Cost of Accidents*.[52] Specific deterrence refers to the extent that a sanction for a discouraged or prohibited activity deters future infractions by the defendant herself.[53] The theory of general deterrence, on the other hand, posits that sanctions exacted against one firm will generate "spillover effects" that encourage other similar companies to take precautionary measures in order to avoid being sanctioned themselves.[54] Liability standards, therefore, may reduce risks taken by firms even if those firms are never sued. Empirical literature on the effectiveness of tort law as a general deterrence mechanism is sparse, and much of the deterrence literature evaluates the effects of regulatory enforcement actions.[55] The following subsections discuss the theoretical regulatory effects of the primary legal theories of liability.

B. Legal Theories of Liability

1. Nuisance

Pollution discharge can often cause damage to property. There are two closely related property torts available to plaintiffs whose property is damaged: trespass to land and nuisance. Nuisance is the

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49 Cane, *supra* note 17, at 433.

50 Klass 2009, *supra* note 44, at 1510.

51 Cane, *supra* note 17, at 433.

52 CALABRESI, *supra* note 38.

53 Cane, *supra* note 17, at 433–34; Dorothy Thornton et al., *General Deterrence and Corporate Environmental Behavior*, 27 LAW & POL'Y 262, 263 (2005); Wayne B. Gray & Jay P. Shimshack, *Environmental Monitoring and Enforcement in the United States: Empirical Evidence from the Economics Literature*, 5 REV. ENVTL. ECON. & POL'Y 3, 16 (2011).

54 Cane, *supra* note 17, at 433–34; Gray & Shimshack, *supra* note 53; Thornton et al., *supra* note 53.

55 *See infra* Part III.D.

typical theory in tort litigation involving pollution externalities.[56] The Coase Theorem, explained above, posits that with perfect information, full entitlements, and no transaction costs, the parties would bargain for the efficient outcome—where the marginal costs of abatement to the polluter are equal to the marginal benefits of abatement to the victim. The parties must rely on the court to settle disputes because in general, neither party has access to full information, there are transaction costs, and entitlements may be unclear as to the parties. The resolution of a nuisance suit in favor of the plaintiff, then, is designed to internalize the external costs associated with pollution by simulating a market exchange between the defendant producing the externality and the plaintiff who must bear the cost.[57]

Although litigation constitutes a large transaction cost, the judicial system remedies the lack of information: the plaintiff provides information on the costs of the nuisance-generating activity, and the defendant provides information on the benefits. Nuisance balancing "seems to instruct courts to offset those harms [endured by the plaintiff] by the unpaid-for benefits plaintiffs get from being in the same locale as the nuisance generator."[58] For example, in *Boomer v. Atlantic Cement Co.*, the court balanced the plaintiffs' injuries from the air pollution emitted from the defendant's cement plant against the economic value of the plant to the community, leading the court to order a single payment of permanent damages rather than an injunction.[59]

Although nuisance law operates according to an efficient standard—balancing the defendant's cost of abating pollution against the plaintiff's cost to withstand or eliminate it herself—Richard Posner notes that nuisance law has historically "never had much impact on the amount of pollution."[60] One reason for this is that environmental quality is a superior good—one for which consumption increases as income rises.[61] In other words, as the income level rises

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56 BRUCE YANDLE, COMMON SENSE AND COMMON LAW FOR THE ENVIRONMENT: CREATING WEALTH IN HUMMINGBIRD ECONOMIES 91 (1997); Abraham, *supra* note 5, at 383; Czarnezki & Thomsen, *supra* note 23, at 4; Meiners & Yandle, *supra* note 23, at 926.

57 Keith N. Hylton, *When Should We Prefer Tort Law to Environmental Regulation?*, 41 WASHBURN L.J. 515, 526 (2002); SHELDON F. KURTZ & HERBERT HOVENKAMP, CASES AND MATERIALS ON AMERICAN PROPERTY LAW 794–95 (5th ed. 2007).

58 Hylton, *supra* note 57, at 526.

59 257 N.E. 2d 870, 871–72, 874–75 (N.Y. 1970).

60 POSNER, *supra* note 42, at 63.

61 *Id.*

in a certain area, demand for environmental quality in that area tends to increase as well.[62] Nuisance law can therefore be understood "as a regulatory framework that encourages development in early phases, and then places greater restrictions later as the demand for environmental quality increases."[63]

J.B. Ruhl, on the other hand, explains that the limited use of nuisance as a contemporary environmental policy strategy is a product of trends in the evolution of economic and ecological thought.[64] He posits that policymakers' preference for public regulation beginning in the late 1960s and desire to protect "species and ecosystems for their intrinsic and ecological qualities" diminished the role of nuisance law as an environmental management strategy because the preservation of ecosystems for their intrinsic value is not traditionally actionable under a nuisance theory.[65] However, several notable scholars, including Ruhl, John Copeland Nagle, and Christine Klein have identified the beginning of a new trend in which the movement towards economic valuation of ecological goods and services may bring nuisance litigation back to the forefront of environmental management.[66] Indeed, while pollution control is governed by a variety of grand regulatory schemes, litigation of "ecological nuisances" may mature to fill regulatory holes in land use governance.[67]

Moreover, trends in ecological nuisance litigation may also foretell a greater role of public nuisance litigation in the future of

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62 *Id.*; Hylton, *supra* note 57, at 527; Meiners & Yandle, *supra* note 23, at 949 ("As incomes rise, people prefer greater levels of environmental protection.").

63 Hylton, *supra* note 57, at 527; *see also* KURTZ & HOVENKAMP, *supra* note 57, at 780–82; WOLF, *supra* note 14, at 60. For a history of nuisance and the regulation of pollution, see Joel Franklin Brenner, *Nuisance Law and the Industrial Revolution*, 3 J. LEGAL STUD. 403 (1974); Jan G. Laitos, *Legal Institutions and Pollution: Some Intersections Between Law and History*, 15 NAT. RESOURCES J. 423 (1975); and Leslie Rosenthal, *Economic Efficiency, Nuisance, and Sewage: New Lessons from* Attorney-General v. Council of the Borough of Birmingham*, 1858–95*, 36 J. LEGAL STUD. 27 (2007).

64 J.B. Ruhl, *Making Nuisance Ecological*, 58 CASE W. RES. L. REV. 753, 756 (2008).

65 *Id.*

66 Christine A. Klein, *The New Nuisance: An Antidote to Wetland Loss, Sprawl, and Global Warming*, 48 B.C. L. REV. 1155 (2007); John Copeland Nagle, *From Swamp Drainage to Wetlands Regulation to Ecological Nuisance to Environmental Ethics*, 58 CASE W. RES. L. REV. 787 (2008); Ruhl, *supra* note 64 at 756–57; *see also* Stephen M. Johnson, *From Climate Change and Hurricanes to Ecological Nuisances: Common Law Remedies for Public Law Failures?*, 27 GA. ST. U. L. REV. 565, 595–98 (2011).

67 Ruhl, *supra* note 64, at 765–77; Johnson, *supra* note 66, at 595–97; Nagle, *supra* note 66, at 797–99.

environmental management.[68] "A public nuisance is an unreasonable interference with a right common to the general public."[69] An interference is unreasonable if the conduct significantly interferes with the public health, safety, peace, comfort, or convenience; is prohibited by a statute or regulation; or has a permanent, long-lasting effect on a public right and the actor knows or has reason to know that her conduct has such an effect.[70] Public nuisance suits are usually direct public actions brought by state officials to enforce regulations or criminal statutes.[71] However, an individual may bring a public nuisance suit if she has "suffered harm of a kind different from that suffered by" the general public.[72] Though infrequent, public nuisance actions brought by governmental bodies or private citizens may prove to be important policy instruments as science matures to draw cleaner connections between actions and their environmental, public health, and economic consequences.

2. Negligence

The heart of a negligence claim is the defendant's breach of the duty of care owed to the plaintiff. A defendant who exercises reasonable care will not be found liable under a theory of negligence even if her actions clearly injured the plaintiff.[73] In this sense, a negligence cause of action functions as a judicially imposed regulatory standard.[74]

According to the Hand Rule, a defendant is liable in a negligence action if her cost of avoiding the accident would have been less than the cost of the injury multiplied by the probability of the injury.[75] The Hand Rule has been accepted by many as the legal definition of

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[68] *See, e.g.*, Johnson, *supra* note 66, at 597–98 (nanotechnology and industrial chemicals); Alice Kaswan, *The Domestic Response to Global Climate Change: What Role for Federal, State, and Litigation Initiatives?*, 42 U.S.F. L. REV. 39, 91–100 (2007) (greenhouse gas emissions); Ruhl, *supra* note 64, at 775–77 (ecosystems).

[69] RESTATEMENT (SECOND) OF TORTS § 821B(1) (1979).

[70] *Id.* § 821B(2).

[71] *See, e.g.*, EPSTEIN, *supra* note 26, at 640; Kaswan, *supra* note 68, at 92; Sangi, *supra* note 11, at 484.

[72] RESTATEMENT (SECOND) OF TORTS § 821C(1).

[73] *See, e.g.*, Rinaldo v. McGovern, 587 N.E.2d 264, 267 (N.Y. 1991) ("To provide an actionable theory of liability, a person injured . . . must affirmatively show that the [alleged tortfeasor] failed to exercise due care.").

[74] Logue, *supra* note 4, at 2321–23, 2326.

[75] COLE & GROSSMAN, *supra* note 14, at 273–75; POSNER, *supra* note 42, at 167–69; Cooter, *supra* note 26, at 13–14; Cherie Metcalf, *Litigating Environmental Quality: An Economic Approach*, 13 J. ENVTL. L. & PRAC. 293, 302 (2004).

reasonable care.[76] In fact, the theory that a tort standard functions as a deterrence mechanism can be traced[77] to Judge Hand's decision in *United States v. Carroll Towing Co*.[78] Judge Hand calculated that firms will opt to pay the costs of litigation rather than undergo precautionary measures if the cost of those measures appears to be greater than the foreseeable cost of an accident.[79] In this model, risk-taking activity can be understood as a function of the benefit to the injuring party, the probability that the activity will cause harm, the degree of harm, and also the probability that the injuring party will be held liable.[80] Let b be the benefit that accrues to the injurer from taking on a risky activity, p be the probability of harm, d be damages or the cost of the injury, and q be the probability that the injurer will be held liable. Under the Hand Rule, then, a defendant is liable if $b < p \cdot d$, and a rational party will carry out a risky activity when she *perceives* that $b > p \cdot d \cdot q$.[81] Conversely, under this model, a rational party will be deterred from carrying out a risky activity when she perceives that $b < p \cdot d \cdot q$.

Figure 1 depicts the Hand Rule in its marginal form, with the horizontal axis representing units of care or precaution and the vertical axis representing price per unit.[82] The curve marked b represents the marginal cost of units of care and is rising on the assumption that the marginal cost of units of care increases as additional units are bought.[83] The curve marked pd represents the marginal change in expected accident costs, or marginal benefits, as more units of care are purchased. The curve has a negative slope on the assumption that additional units of care offer a diminishing return in actual accident prevention. The defendant will exercise due care at

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76 Cooter, *supra* note 26, at 14 (citing RESTATEMENT (SECOND) OF TORTS §§ 291–93 (1965)).

77 Schroeder, *supra* note 44, at 587.

78 159 F.2d 169 (2d Cir. 1947).

79 *Id.* at 173.

80 *Id.* The probability that a risk-taker will be held liable includes the probability that the harm will be detected, the probability she will be sued, and the probability she will be punished. Hylton, *supra* note 57, at 519.

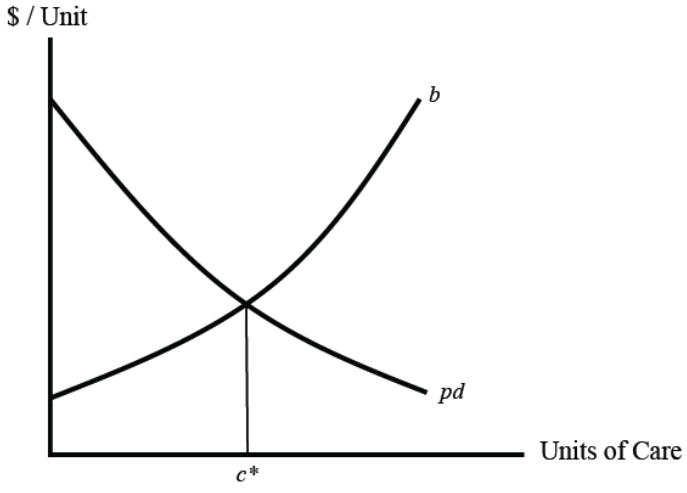
81 KOLSTAD, *supra* note 19, at 384–85; POSNER, *supra* note 42, at 167–71; Cooter, *supra* note 26, at 15.

82 KOLSTAD, *supra* note 19, at 230; POSNER, *supra* note 42, at 168–69; Metcalf, *supra* note 75, at 296–98. Firm actions can be expressed as level of care or, inversely, level of activity. Keith N. Hylton, *The Economic Theory of Nuisance Law and Implications for Environmental Regulation*, 58 CASE W. RES. L. REV. 673, 677 (2008).

83 "Units of care" may be safety protocols or practices, abatement techniques or technologies, or a downscale of risk-generating activity.

the intersection of the two curves, which is labeled *c**, where the marginal costs of precaution are equal to the marginal benefits. To the left, the expected costs of harm are greater than the cost of avoiding them, and the defendant will be found liable; whereas to the right, the costs of avoiding accidents outweigh the benefits in avoiding them, and the defendant will not be held liable.

Figure 1. The Hand Rule in Marginal Form
(As a Marginal Abatement Benefits / Costs Curve)



Under the Hand Rule, liability standards can theoretically encourage private actors to internalize external costs by creating incentives for risk-averse—or at least risk-aware—behavior.[84] Of course, excessive liability standards could over-deter risky activity while modest standards or imperfections in tort law's deterrence signal could result in under-deterrence. The key is for the government to set liability standards that encourage private parties to take the socially optimal levels of risk and precaution. The deterrence theory, therefore, characterizes "liability law as a search for efficiency in incentives and risk-bearing."[85] Even when negligence standards alone do not quite achieve the optimal levels of risk and precaution, they may nonetheless be useful complements to regulation.

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[84] Abraham, *supra* note 5, at 390; Cane, *supra* note 17, at 446; Cooter, *supra* note 26, at 12.

[85] Cooter, *supra* note 26, at 11.

3. Strict Liability

Under a strict liability standard, a court may find a defendant liable regardless of whether she exercised reasonable care.[86] Thus, whereas a negligence rule operates as a type of regulatory standard, strict liability functions more like a judicially imposed Pigouvian tax: the defendant must pay the penalty for every injury she causes.[87] Strict liability, therefore, provides redress for harms caused by activities for which due care cannot mitigate the risk.[88]

The Restatement (Second) of Torts applies strict liability to "abnormally dangerous activit[ies]."[89] The exact requirements for finding an activity to be abnormally dangerous differ from state to state, but "in general the activity must pose significant foreseeable risk that cannot be eliminated even when reasonable care is exercised in the conduct of the activity."[90] Of the twenty-seven jurisdictions that have considered the application of strict liability to activities that caused environmental damage as of 2008, twenty-one have upheld the application.[91] Examples include the contamination of water supplies and property by chemicals from oil and gas wells and industrial operations.[92]

Strict liability is also incorporated into CERCLA as a means of increasing the likelihood that victims of hazardous waste leakage are compensated for their injuries. The following section includes a discussion of CERCLA as a statutory model as well as the general characteristics of environmental torts and issues raised by overlapping regulations.

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86 RESTATEMENT (SECOND) OF TORTS § 519 (1977). For a discussion of strict liability in the environmental context, see JOHN S. APPLEGATE ET AL., THE REGULATION OF TOXIC SUBSTANCES AND HAZARDOUS WASTES 85–86 (2d ed. 2011); Adelman & Duncan, *supra* note 5, at 41–42; Troyen A. Brennan, *Environmental Torts*, 46 VAND. L. REV. 1, 58–61 (1993); Marshall S. Shapo, *Tort Law and Environmental Risk*, 14 PACE ENVTL. L. REV. 531, 533–36 (1997).

87 COLE & GROSSMAN, *supra* note 14, at 287–307; Logue, *supra* note 4, at 2321–24.

88 Adelman & Duncan, *supra* note 5, at 41–42.

89 RESTATEMENT (SECOND) OF TORTS § 519(1) .

90 Abraham, *supra* note 5, at 385.

91 Alexandra B. Klass & Elizabeth J. Wilson, *Climate Change and Carbon Sequestration: Assessing a Liability Regime for Long-Term Storage of Carbon Dioxide*, 58 EMORY L.J. 103, 142 (2008).

92 *Id.*; *see also* Ashland Oil, Inc. v. Miller Oil Purchasing Co., 678 F.2d 1293 (5th Cir. 1982) (disposal of waste into an oil pipeline); Albahary v. City & Town of Bristol, Conn., 963 F. Supp. 150 (D. Conn. 1997) (landfill contamination); Valentine v. Pioneer Chlor Alkali Co., 864 P.2d 295 (Nev. 1993) (release of liquefied chlorine into the environment); Meiners & Yandle, *supra* note 23, at 937–38.

II
LIABILITY IN THE ENVIRONMENTAL CONTEXT

Tort law functions most effectively in paradigm cases, which "involve[] a single plaintiff suing a single defendant for a well-documented and significant harm."[93] Environmental harm in the real world, however, is often not as straightforward as this paradigm case: injuries may not be well documented or significant, harm may be spread among a diffuse population, and the harm may have originated from many indeterminate risk takers. Subsection A discusses characteristics and transaction costs common to many environmental torts, revealing many of tort law's limitations as an environmental policy instrument. Subsection B provides examples of how tort law can be appropriated to work within federal regulatory frameworks. Subsection C begins with a discussion of the legal issues that litigants face when tort law overlaps with regulatory policies. The subsection ends by showing the circumstances in which tort law can act as a complement to other policy tools.

A. General Characteristics of Environmental Torts

1. Long Latency of Harms

The plaintiff must prove proximate causation by a preponderance of the evidence. To do so, the plaintiff must demonstrate that her injury was a foreseeable result of the defendant's activity by showing that the defendant knew or should have known that her conduct could cause harm at the time the defendant carried out the harm-causing activity. Establishing causation for toxic tort plaintiffs is more complex given inherent uncertainties in the incidence of disease. A toxic tort plaintiff must rule out other causes of her disease, establish general causation by providing statistical (epidemiological) evidence that the defendant's activity or product is capable of causing the plaintiff's type of illness, and establish specific causation by providing the evidence that the defendant actually caused the plaintiff's particular illness.[94] Moreover, the nature of environmental torts is such that the causal connection between the plaintiff's injury and the defendant's conduct typically does not become apparent until

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93 Schroeder, *supra* note 44, at 599.

94 APPLEGATE ET AL., *supra* note 86, at 49–55.

after the plaintiff discovers the injury.[95] In a paradigm case, it may be relatively simple for the plaintiff to show that the defendant should have known of the risk inherent in her conduct.

In many instances of injury in the toxicological context, however, the harm is removed in both time and space from the defendant's risky activity. First, it may take a great amount of time—perhaps years or even decades—for some substances to accumulate in the environment or people's bodies to threshold amounts high enough to have an effect on human health.[96] Second, even after exposure to a toxic substance, it may take decades for that exposure to manifest into a disease—e.g., cancer.[97] Third, it may take an additional period of time from when an individual contracts a disease to when the disease becomes detectable and even more time for a proper diagnosis.[98] Finally, many diseases that result from exposure to harmful pollutants have other causes as well, and it is against these background rates of latent disease that plaintiffs must establish that the defendant's conduct was the actual cause of injury.[99] Thus, even after the years that it may take for a toxic pollutant to build up in the environment and the additional years it may take for exposure to generate a tangible injury in a single victim, it may take many more years for epidemiologists to collect data from a large enough sample of people upon which reliable studies can be based.[100]

This long latency period between the conduct and the injury has several implications for the usefulness of tort law as an environmental policy tool. First, it may be very difficult for the plaintiff to discover, let alone establish by a preponderance of the evidence, the chain of events that led to the injury.[101] In addition to having a long latency period, the defendant's conduct may be removed in space from the victim's exposure. To take drinking water contamination as an

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95 RICHARD J. LAZARUS, THE MAKING OF ENVIRONMENTAL LAW 114 (2004); Abraham, *supra* note 5, at 384; Brennan, *supra* note 88, at 21; Gifford, *supra* note 40, at 615–16.

96 *See generally* Marilena Kampa & Elias Castanas, *Human Health Effects of Air Pollution*, 151 ENVTL. POLLUTION 362 (2008); KOLSTAD, *supra* note 19, at 232–33; Adelman & Duncan, *supra* note 5, at 20; Shavell 1984, *supra* note 3, at 363.

97 Abraham, *supra* note 5, at 30, 384; KOLSTAD, *supra* note 19, at 368–69.

98 Abraham, *supra* note 5, at 380.

99 *Id*. at 382; Schroeder, *supra* note 44, at 601–02.

100 Abraham, *supra* note 5, at 384.

101 *Id.* at 380–81; APPLEGATE ET AL., *supra* note 86, at 48–51; COLE & GROSSMAN, *supra* note 14, at 397; Czarneski & Thomsen, *supra* note 23, at 5; Daniel A. Farber, *Toxic Causation*, 71 MINN. L. REV. 1219, 1220 (1987); Hylton, *supra* note 57, at 517–18, 529; Menell, *supra* note 44, at 94–95, 99; Schroeder, *supra* note 44, at 592.

example, the defendant's pollutant may have migrated through ground water aquifers before the plaintiff became exposed.

Second, the defendant's conduct may pre-date advances in medical science that establish the connection between the conduct and the harm. Consequently, it may be difficult for a plaintiff to prove the foreseeability element of proximate causation.[102] In other words, it may not have been foreseeable to the defendant that her conduct could cause harm at the time she carried out the activity.

One illustrative example is the case of *Ethyl Corp. v. Environmental Protection Agency*.[103] In *Ethyl*, the plaintiff petroleum manufacturers challenged EPA's health-based regulation of lead as a criteria air pollutant in the CAA.[104] Plaintiffs argued that the regulation was arbitrary and capricious because medical science had not yet established the connection between lead air emissions and harmful concentration levels of lead in the bloodstream.[105] The evidence, therefore, would not have sustained a tort action.[106] However, the court ruled for EPA, indicating that the statute did not require proof of actual harm for EPA to regulate.[107] Although medical science established the causal connection years later, the risk of causing harm from using lead as a gasoline additive was not foreseeable to the manufacturers *at the time* they were using it.

Third, certain claims may be barred by a statute of limitations. However, the statute of limitations in most jurisdictions does not begin to run until the injured person knows or should know that her injury was caused by exposure to a pollutant.[108] Finally, scientific and medical proof is notoriously difficult, time-intensive, and costly to generate, regardless of the latency issue.[109]

The long latency of harm resulting from environmental degradation also increases the likelihood of discovering an exposure before an injury materializes, raising the issue of inchoate losses.[110] The

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102 Schroeder, *supra* note 44, at 601–02.

103 541 F.2d 1 (D.C. Cir. 1976).

104 *Id.* at 10–11.

105 *Id.* at 11.

106 *Id.* at 25.

107 *Id.* at 17.

108 Brennan, *supra* note 88, at 54–56; APPLEGATE ET AL., *supra* note 86, at 60.

109 Abraham, *supra* note 5, at 381; Meiners & Yandle, *supra* note 23, at 930; Schroeder, *supra* note 44, at 592.

110 Abraham, *supra* note 5, at 389–91; Meiners & Yandle, *supra* note 23, at 930–31; Robert L. Rabin, *Environmental Liability and the Tort System*, 24 HOUS. L. REV. 27, 29–30 (1987).

injuries resulting from discovery of such an exposure, of course, are not entirely inchoate: fear of developing a future disease is a real loss, as are expenses associated with medical monitoring of an exposed population, even if the monitoring never reveals any disease.[111] Some courts have discounted the traditional requirement that the plaintiff show a tangible physical harm and have provided for recovery under limited circumstances.[112]

Inadequate recovery for inchoate losses may raise issues both in terms of tort law's ability to provide for corrective justice and its capacity to deter risky behavior. "A party whose conduct imposes the risk of harm on others but who does not bear full liability for the harm ultimately caused by that conduct is suboptimally deterred."[113] The solution that some legal scholars have suggested is the establishment of a cause of action for the creation of risk.[114] Recognition of such a tort is more or less implausible due to the practical and political issues that it raises,[115] but it is an interesting concept nonetheless that highlights a shortcoming of the ability of liability law to fully address the creation of risk.

2. Diffuse Harms: The Indeterminate Plaintiff and Multiple Victims

In the paradigm case described above, "a single plaintiff su[es] a single defendant for a well-documented and substantial harm."[116] Troyen Brennan and Christopher Schroeder describe this tort as a concentrated effect from a concentrated origin (as opposed to a diffuse effect from diffuse origins).[117] This continuum of environmental and public health torts ranging from concentrated effects from concentrated origins to diffuse effects from diffuse

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111 Abraham, *supra* note 5, at 389; APPLEGATE ET AL., *supra* note 86, at 97–98.

112 Abraham, *supra* note 5, at 389 (citing Hagerty v. L & L Marine Servs., Inc., 788 F.2d 315 (5th Cir. 1986), Sterling v. Velsicol Chem. Corp., 647 F. Supp. 303 (W.D. Tenn. 1986); Potter v. Firestone Tire & Rubber Co., 863 P.2d 795 (Cal. 1993); Mauro v. Raymark Indus., Inc., 561 A.2d 257 (N.J. 1989); Redland Soccer Club, Inc. v. Dep't of the Army & Dep't of Defense of the U.S., 696 A.2d 137 (Pa. 1997); Bower v. Westinghouse Elec. Corp., 522 S.E.2d 424 (W. Va. 1999)).

113 Abraham, *supra* note 5, at 389; *see also* Adelman & Duncan, *supra* note 5, at 27–30; Brennan, *supra* note 88, at 45–47, 61–64; Gifford, *supra* note 40, at 615–16; Rabin, *supra* note 110, at 43.

114 Abraham, *supra* note 5, at 390–91. *But see* Mark Latham et al., *The Intersection of Tort and Environmental Law: Where the Twains Should Meet and Depart*, 80 FORDHAM L. REV. 737, 765 (2011) (criticizing risk-based liability).

115 Abraham, *supra* note 5, at 390–91.

116 Schroeder, *supra* note 44, at 599.

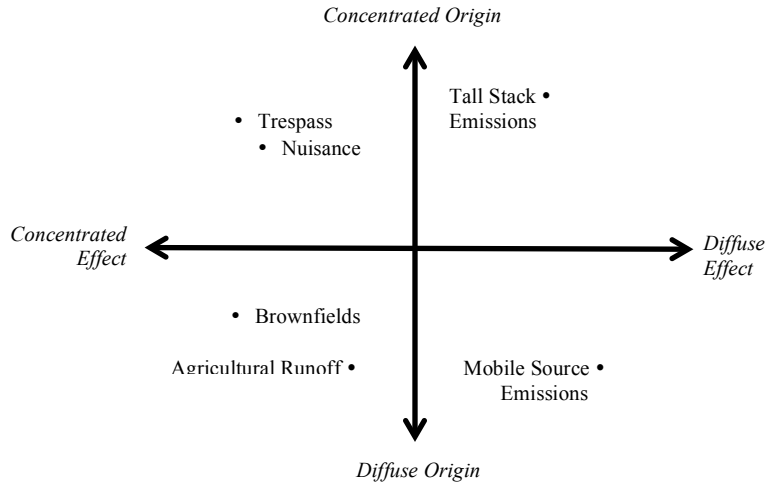
117 Brennan, *supra* note 88, at 9–13; Schroeder, *supra* note 44, at 600.

origins is shown below in Figure 2. This diagram is a useful conceptual tool to aid in the understanding of the capacity of tort law to ameliorate environmental problems.

Generally, tort standards are best equipped to address concentrated effects from concentrated origins. These suits do not necessarily involve only two parties; however, the injuries and parties are few and relatively easily identifiable. A typical concentrated effect from a concentrated origin would be a standard nuisance or negligence case in which the plaintiff can easily identify the harm and its source—for example, litigation for mesothelioma caused by exposure to asbestos.[118] Many environmental externalities, however, do not fit that model. This subsection discusses the issues associated with diffuse effects, and the following subsection addresses the issues associated with harm from diffuse origins.

[118] Schroeder, *supra* note 44, at 600; *see generally* Thomas O. McGarity, *Beyond Buckman: Wrongful Manipulation of the Regulatory Process in the Law of Torts*, 41 WASHBURN L.J. 549, 570 (2002) [hereinafter McGarity 2002].

Figure 2. Concentrated and Diffuse, Effects and Origins*



*This diagram is adapted from Schroeder, *supra* note 44, at 600. The plotted points are not exact, but rather are approximations that are conceptually useful in showing how types of pollution (or typical torts in the case of trespass or nuisance) vary by concentration of origin and effect.

Diffuse effects do not afflict single and discretely identifiable plaintiffs. Rather, they affect large populations of individuals—many of whom may not even know that they are affected—over wide geographic areas. What's more, these environmental externalities may manifest in more than one way. Air pollution is the typical diffuse-effect environmental externality. Whether from a concentrated source like a tall smokestack or from diffuse origins like mobile sources (e.g., automobiles), pollutants such as particulate matter, ozone, and sulfur dioxide impair the health of many millions by contributing to a range of respiratory, cardiovascular, and neurological diseases as well as multiple varieties of cancer.[119] As noted in the prior subsection, many of these health impairments may develop over a course of years, and as a result, it can be quite a challenge—both scientifically and as a practical matter—to identify the source of the harm.

The first difficulty associated with diffuse harm, therefore, is the so-called problem of the indeterminate plaintiff.[120] Most of the varieties of diseases that develop from diffuse-harm environmental

119 Bert Brunekreef & Stephen T. Holgate, *Air Pollution and Health*, 360 LANCET 1233 (2002); Kampa & Castanas, *supra* note 96; Sangi, *supra* note 10, at 489–90.

120 Abraham, *supra* note 5, at 382; Brennan, *supra* note 88, at 46.

contaminants also have other anthropogenic and natural causes. It falls on the plaintiff to show by a preponderance of the evidence that her injury more likely than not is the result of the actions of the defendant and cannot be attributed to some other cause. The indeterminate plaintiff, therefore, is "indeterminate" precisely because she cannot be certain that the defendant's conduct is the cause-in-fact of her injury. The latency of the plaintiff's illness confounds the problem: not only is it difficult to reconstruct the chain of events that led to the plaintiff's injury over a course of years, but it is also difficult for the plaintiff to distinguish her own injury from the background rate of her disease.[121]

The second challenge associated with diffuse-harm externalities is that they often affect a great number of individuals over an expansive geographic area. Tort law faces three primary difficulties in addressing diffuse-harm externalities. First, in certain cases, the aggregate damage of the pollution may be substantial, but the injury that any given individual suffers may be relatively small and will not rise to the level of a tort.[122] Second, even if a victim's harm does rise to the level of a tort, the transaction costs of litigation may be too great for that individual to decide to litigate.[123] Finally, cases involving many potential plaintiffs may encounter a collective action problem.[124] The transaction costs of litigation may be such that "[e]ach victim will have an incentive to wait for some other victim to bear the cost of bringing the first action."[125] In some instances, class actions are able to overcome these problems by aggregating the plaintiffs' injuries.[126]

3. Diffuse Origins: Multiple Tortfeasors

Many environmental externalities do not originate from a single polluter, but rather are the result of pollution from many sources.[127] It can often be difficult, therefore, for plaintiffs to determine which

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121 Abraham, *supra* note 5, at 382; Schroeder, *supra* note 44, at 601–02.

122 Schroeder, *supra* note 44, at 600–01.

123 Brennan, *supra* note 88, at 44–45; Schroeder, *supra* note 44, at 600–01.

124 Stuart Buck, *The Common Law and the Environment in the Courts*, 58 CASE W. RES. L. REV. 621, 638 (2008); Hylton, *supra* note 57, at 518–19; Kaswan, *supra* note 68, at 100–01.

125 Hylton, *supra* note 57, at 519.

126 David Rosenberg, *The Regulatory Advantage of Class Action*, *in* REGULATION THROUGH LITIGATION 244 (W. Kip Viscusi ed. 2002); Metcalf, *supra* note 75, at 314–19.

127 POSNER, *supra* note 42, at 63; Abraham, *supra* note 5, at 381; Brennan, *supra* note 88, at 12–13.

polluter is the cause-in-fact of their injuries. This is the so-called problem of the indeterminate defendant.[128]

Several doctrines of joint liability have emerged to ease the plaintiff's burden of showing cause-in-fact in these situations.[129] Rules of joint liability functionally shift the burden of assigning proportionate fault to the defendants.[130] A defendant who has been held liable and paid more than her fair share of the judgment may collect from other polluters under the theory of contribution (or partial equitable indemnity). This allows the defendant to compel other polluters to reimburse her for their fair share of the judgment, or under a theory of indemnity, to compel them to reimburse her for the entire amount of the judgment.[131] The precise elements of contribution and indemnification differ among jurisdictions; however, indemnification generally requires the defendant to show that the other polluters are substantially more responsible for the plaintiff's injury than the defendant is. By shifting the burden of showing proportionate fault to the polluters, joint liability rules improve the efficiency of liability entitlements because the polluters can most cheaply attain the information necessary to apportion fault for injuries from their environmental contamination.[132]

It may nonetheless be relatively easier for a plaintiff to win a judgment employing one of these theories in a products liability case than in a toxic tort suit. Identifying the gamut of manufacturers of a given product is a relatively simple task. On the other hand, identifying the responsible parties of diffuse-origin environmental externalities is relatively difficult. Examples of diffuse-origin environmental pollution range from groundwater contamination and Superfund sites (concentrated effects) to mobile source air pollution

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128 KENNETH S. ABRAHAM, THE FORMS AND FUNCTIONS OF TORT LAW: AN ANALYTICAL PRIMER ON CASES AND CONCEPTS 108–14 (1997); Abraham, *supra* note 5, at 381; *see also* Boyer & Porrini, *supra* note 1, at 246; Gifford, *supra* note 40, at 616–17; Rabin, *supra* note 110, at 29.

129 The four varieties are joint and several liability, alternative liability, market share liability, and proportionate share or contribution rules.

130 Schroeder, *supra* note 44, at 601.

131 *See, e.g.*, Dowie v. Fleishman-Hillard Inc., 422 Fed. App'x 627, 629-30 (9th Cir. 2011); W. Steamship Lines, Inc. v. San Pedro Peninsula Hosp., 876 P.2d 1062, 1066–68 (Cal. 1994); Am. Motorcycle Assoc. v. Superior Court of L.A. Cnty., 578 P.2d 899, 903–06 (Cal. 1978).

132 Calabresi & Melamed, *supra* note 5, at 1096–97; *see generally* Summers v. Tice, 199 P.2d 1, 4 (Cal. 1948) ("Ordinarily defendants are in a far better position to offer evidence to determine which one caused the injury."); CALABRESI, *supra* note 38, at 69–73, 135–97; EPSTEIN, *supra* note 26, at 136, 644.

from automobiles (diffuse effects). Schroeder argues that "diffuse effects from diffuse origins[] pose the greatest challenges for tort."[133]

This model explains why environmental advocates have so far been unsuccessful in convincing a court to hold carbon dioxide (CO_2) emitters liable for climate change damages under a liability theory.[134] Carbon dioxide emissions are the archetype diffuse-effect/diffuse-origin externality: even if a plaintiff establishes general causation by showing that she suffered an injury directly from CO_2 emissions, it would be nigh impossible for her to establish specific causation by showing that it was the *defendant's* CO_2 emissions that caused the harm. Although liability rules have emerged to assist plaintiffs in holding multiple defendants accountable for an injury, tort law may not be the best tool available to address diffuse-effect/diffuse-origin externalities. Congress elected, however, to employ liability to address a major diffuse-origin environmental problem by enacting CERCLA. The next subsections discuss statutory appropriation of liability rules.

B. Statutory Models

1. Strict Liability: CERCLA

Congress enacted CERCLA in 1980 in response to decades of improper disposal of hazardous substances from industrial activities.[135] CERCLA provides a cost-recovery mechanism for the federal government, state governments, and private parties who must incur remediation costs related to the release of hazardous substances.[136] Under CERCLA's liability machinery, any government or private entity may sue a responsible "person" to recover "response costs" resulting from any "release" of a "hazardous substance" from a

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133 Schroeder, *supra* note 44, at 601; *see also* Brennan, *supra* note 88, at 44–45.

134 *See* Latham et al., *supra* note 114, at 759–63; Laurence H. Tribe et al., *Too Hot for the Courts to Handle: Fuel Temperatures, Global Warming, and the Political Question Doctrine* (Wash. Legal Found. Critical Legal Issues, Working Paper No. 169, 2010), *available at* http://www.wlf.org/Upload/legalstudies/workingpaper/012910Tribe_wp.pdf. *But see* Czarnezki & Thomsen, *supra* note 23, at 12–18 (evaluating the capacity of tort law to address climate change); Douglas A. Kysar, *What Climate Change Can Do About Tort Law*, 41 ENVTL. L. 1 (2011) (discussing how tort law might adapt as it is applied to climate change).

135 Klass & Wilson, *supra* note 91, at 128.

136 *Id*. The Oil Pollution Act also establishes a liability standard to address claims arising from oil spills. 33 U.S.C. §§ 2701–62 (2006); Latham et al., *supra* note 114, at 771.

"facility."[137] Section 107(a) provides for strict liability.[138] The causation inquiry is reduced to whether the release of the hazardous substance caused the plaintiff to incur a response cost—an expense incurred in investigation and remediation.[139] CERCLA also applies retroactive and joint and several liability to any identifiable "potentially responsible parties."[140] If plaintiffs can identify the parties responsible for contamination, plaintiffs may hold them liable for past and future remediation costs as well as the cost of preventative measures. If the responsible parties cannot be identified, or if the identifiable parties are insolvent, then the government may finance the remedial and preventative cleanup efforts of these "orphan" sites through CERCLA's trust fund, known as the Superfund.[141]

In designing the liability framework of CERCLA, the government explicitly decided to rely on liability entitlements in addition to pubic regulation. In the context of the hazardous waste problem, this decision made sense. The government does not have full information on which hazardous waste sites are causing problems, and it would be too burdensome on regulators to monitor the more than 1,000 sites throughout the nation.[142] Reliance on private enforcement solves this efficiency problem by facilitating suits from individuals with information on the nature and extent of the injury, while joint and several liability places the burden of apportioning fault on the parties most likely to have that information.[143] Though CERCLA's liability rule is not perfect,[144] it nonetheless shows how legislators can marshal the strengths of liability entitlements to make up for the shortcomings of other policy tools.

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137 42 U.S.C. § 9601(1) (defining "person," "response," "release," "hazardous substance," and "facility," among others).

138 § 9607; *see also* APPLEGATE ET AL., *supra* note 86, at 512.

139 *See* United States v. Alcan Aluminum Corp., 964 F.2d 252, 264–66 (3d Cir. 1992); United States v. Monsanto Co., 858 F.2d 160, 167–69 (4th Cir. 1988); New York v. Shore Realty Corp., 759 F.2d 1032, 1042–48 (2d Cir. 1985); APPLEGATE ET AL., *supra* note 86, at 512; Klass & Wilson, *supra* note 91, at 128–30.

140 APPLEGATE ET AL., *supra* note 86, at 513–22.

141 Klass & Wilson, *supra* note 91, at 131.

142 *National Priorities List*, ENVTL. PROT. AGENCY, http://www.epa.gov/superfund/sites/npl/index.htm (last updated Oct. 17, 2012).

143 *See* Logue, *supra* note 4, at 2320–21.

144 *See generally* Menell, *supra* note 44, at 105–10 (critiquing CERCLA).

2. Limited Liability: Price-Anderson

The generation of nuclear power is one activity that receives a degree of protection from liability. The Price-Anderson Act of 1957 establishes a framework for compensation to the injured parties in the case of a nuclear accident.[145] Under the Act, owners of commercial nuclear power plants must assume liability and waive most legal defenses for damages from nuclear accidents.[146] However, the Act limits that liability through an insurance program and liability cap. The maximum amount that nuclear reactor owners would have to pay for a nuclear accident in the United States is $375 million in insurance coverage plus an additional $117.5 million, per nuclear reactor. There are 104 commercial nuclear reactors, leaving the total maximum payout at about $12.6 billion.[147]

The issue of liability for a nuclear accident has received increased attention recently due to the Fukushima Daiichi nuclear meltdown in March 2011.[148] The disaster in Japan highlights the fact that the damage from a nuclear accident may exceed Price-Anderson's $12.6 billion liability cap.[149] In spite of the Fukushima incident, nuclear power will likely play a noteworthy part in the solution to climate change and the rising worldwide demand for electricity.[150] In fact,

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145 42 U.S.C. § 2210 (2006); *see also* M.A. de Figueiredo et al., *Framing the Long-Term* In Situ *Liability Issue for Geologic Carbon Storage in the United States*, 10 MITIGATION & ADAPTATION STRATEGIES FOR GLOBAL CHANGE 647, 652 (2005).

146 MARK HOLT, CONG. RESEARCH SERV., NUCLEAR ENERGY POLICY, 15 (2011), *available at* http://www.fas.org/sgp/crs/misc/RL33558.pdf.

147 *Id.*

148 *See* Mark Cooper, *Nuclear Liability: The Market-Based, Post-Fukushima Case for Ending Price-Anderson*, BULL. OF ATOMIC SCIENTISTS (Oct. 5, 2011), http://thebulletin.org/nuclear-liability-market-based-post-fukushima-case-ending-price-anderson; Ellen Vancko, Nuclear Energy & Climate Change Project Manager, Union of Concerned Scientists, Address at the Center for Strategic and International Studies: The Impact of Fukushima on the US Nuclear Power Industry (Apr. 7, 2011) (transcript available at http://csis.org/files/attachments/110407_vancko_nuclear_safety_0.pdf).

149 HOLT, *supra* note 146, at 16; Vancko, *supra* note 148, at 5; Noah Shachtman, *Pentagon Quake Nightmare: Fukushima on the Mississippi*, WIRED.COM (Aug. 24, 2011, 6:30 AM), http://www.wired.com/dangerroom/2011/08/quake-nightmare; Rebecca Smith & Mark Maremont, *Earthquake Risks Probed at U.S. Nuclear Plants*, WALL ST. J., July 19, 2011, http://online.wsj.com/news/articles/SB10001424052702303795304576453842076898316.

150 David Pumphrey & Jane Nakano, *Nuclear Power After Fukushima*, *in* CENTER FOR STRATEGIC & INT'L STUD., GLOBAL FORECAST 2011: INTERNATIONAL SECURITY IN A TIME OF UNCERTAINTY 79–81 (Craig Cohen & Josiane Gabel eds., 2011), *available at* http://csis.org/files/publication/110610_Cohen_GlobalForecast2011.pdf; Michael G. Faure & Karine Fiore, *An Economic Analysis Of The Nuclear Liability Subsidy*, 26 PACE ENVTL. L. REV. 419, 420 (2009); Vancko, *supra* note 148.

nuclear power accounted for about nineteen percent of the United States' electricity generation in 2011.[151]

The Price-Anderson liability cap was instrumental in facilitating the development of the commercial nuclear power industry in the late 1950s.[152] Fears of liability would likely have otherwise driven away the investors essential to the development and deployment of nuclear power generation in the United States. Indeed, liability rules do not only impact how careful an individual will be in carrying out an activity; sometimes they determine whether the individual will engage in the activity at all. The appropriate liability rule will encourage nuclear power operators to generate the socially optimal amount of electricity from their reactors while internalizing the cost of the socially optimal level of precaution.[153] The Price-Anderson Act may not precisely result in the optimal amount of nuclear power, but it nonetheless illustrates an instance in which the government chose to limit liability to facilitate a somewhat risky but socially beneficial activity.

C. Regulatory Overlap with Tort Law

Much of the literature on environmental policy instrument choice suggests that policymakers must decide between regulation and the free market. This approach ignores the *pre-existence* of tort remedies to environmental problems. Indeed, Posner explains:

> The choice is rarely between a free market and public regulation. It is between two methods of public control—the common law system of privately enforced rights and the administrative system of direct public control—and should depend on a weighing of their strengths and weaknesses in particular contexts.[154]

This choice has six possible outcomes. The default outcome occurs when the government makes no choice at all. Without any actual policymaking, the government functionally "chooses" to rely on the tort law system as it is. The next five outcomes, when the government does engage in a policy decision, exist along a continuum, with limited liability on one extreme and strict liability on the other. The first policy outcome is to limit liability, as the United States has done

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151 U.S. ENERGY INFO. ADMIN., ELECTRIC POWER MONTHLY 1 (Aug. 16, 2011), *available at* http://www.eia.gov/electricity/monthly/current_year/august2011.pdf.

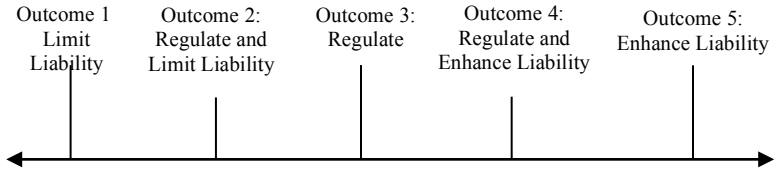
152 HOLT, *supra* note 146, at 16.

153 Faure & Fiore, *supra* note 150, at 420–22.

154 POSNER, *supra* note 42, at 389.

with the nuclear power industry in Price-Anderson. Second, the government could decide to limit liability in addition to regulatory standard setting. In fact, the full body of regulations governing nuclear power generation in the United States more closely resembles this second outcome than the first. The third option is to regulate alone without any explicit change to liability standards. An example would be the CAA, compliance with which does not relieve a polluter from state tort law. The fourth option is to regulate and enhance the liability system. The cradle-to-grave regulatory system governing hazardous wastes as a whole, embodied in RCRA and CERCLA, is an example of this fourth option. Taken alone, though, CERCLA's liability rule is also an example of the fifth outcome whereby the government does not regulate, but only enhances liability standards. The typology of these outcomes is expressed as a continuum in Figure 3 below.

Figure 3. Policy Decision Outcomes of Liability Entitlement Decision Making*



*Default, No Decision Outcome: Reliance on Liability Law

Whereas the Price-Anderson Act and CERCLA both overtly change liability rules, the government often enacts legislation with little (and in some instances, without any) explicit mention of the regulation's effect on liability entitlements. The following subsections briefly address the possible effects of regulatory overlap with the subject matter of the litigation on the outcomes of tort suits. The first three subsections specifically address the legal issues that arise from the overlap between federal statutes and state liability laws. The fourth section addresses the regulation redundancy that occurs when tort standards and regulatory rules overlap.

1. Preemption

The law of torts is almost entirely state law.[155] If pollutants do not cross state boundaries, then the application of state law is, of course, natural. Toxic substances in emissions and effluents, though, frequently cross state lines. Prior to a series of U.S. Supreme Court decisions in 1981, federal courts enforced a body of federal common law to govern nuisance actions between states.[156] In *City of Milwaukee v. Illinois* and *Middlesex County Sewerage Authority v. National Sea Clammers Association*, however, the Court held that the comprehensive scope of the Clean Water Act (CWA) preempted the application of the federal common law of nuisance to effluent discharges into navigable waters.[157] Recently, the Court held that the CAA also preempts federal public nuisance claims against carbon dioxide emitters contributing to climate change.[158] Many recent cases hold that the CAA preempts state tort law, relying on the Court's decision in *International Paper Co. v. Ouellette*.[159] There, the Court clarified its doctrine on the preemption of state tort law regarding cross-state pollution.[160] In *Ouellette*, however, the Court preserved state nuisance actions brought under the state law of the pollution source.[161] In the context of effluent discharges and the emission of criteria air pollutants, then, source state law controls in nuisance actions, whether the pollutants cross state borders or not. In certain instances, though, comprehensive federal statutes may nevertheless preempt the application of state nuisance law.

The Supremacy Clause of the U.S. Constitution[162] empowers Congress with the authority to preempt state regulation and common law concerning any activity that Congress has the authority to

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155 CONG. BUDGET OFFICE, *supra* note 41, at 1.

156 Sangi, *supra* note 11, at 501.

157 Middlesex Cnty. Sewerage Auth. v. Nat'l Sea Clammers Ass'n, 453 U.S. 1, 22 (1981); City of Milwaukee v. Illinois, 451 U.S. 304, 317 (1981); Alexandra B. Klass, *Common Law and Federalism in the Age of the Regulatory State*, 92 IOWA L. REV. 545, 563–64, 575–76 (2007) [hereinafter Klass 2007]; Meiners & Yandle, *supra* note 23, at 953–54; Sangi, *supra* note 11, at 502.

158 Am. Elec. Power Co. v. Connecticut, 131 S. Ct. 2527 (2011).

159 479 U.S. 481 (1987); *see, e.g.*, Bell v. Cheswick Generating Station, No. 12-4216, 2013 U.S. App. LEXIS 17283 (3d Cir. Aug. 20, 2013); North Carolina *ex rel.* Cooper v. Tenn. Valley Auth. (*TVA*), 615 F.3d 291, 303 (4th Cir. 2010).

160 *Ouellette*, 479 U.S. at 499–500.

161 *Id.*; *see also* Klass 2007, *supra* note 157, at 564–65; Sangi, *supra* note 11, at 512.

162 U.S. CONST. art. VI, cl 2.

regulate.[163] Whether or not a federal statute preempts a state's liability rules is a matter of statutory interpretation.[164] In making a determination on preemption, a court may find that a federal statute expressly or impliedly preempts state or local law.[165] If the statute includes a provision that specifically bars the application of state law in particular instances, then a court may find express preemption.[166] In the absence of an express preemption clause, a court must determine whether the federal law impliedly preempts state law.[167] The Court outlined its precedent on implied preemption in *Freightliner Corp. v. Myrick*:

> [A] federal statute implicitly overrides state law either when the scope of a statute indicates that Congress intended federal law to occupy a field exclusively, or when state law is in actual conflict with federal law. We have found implied conflict pre-emption where it is "impossible for a private party to comply with both state and federal requirements," or where state law "stands as an obstacle to the accomplishment and execution of the full purposes and objectives of Congress."[168]

In deciding whether a comprehensive federal statute impliedly preempts state liability rules, then, a court could find preemption if tort suits would interfere with the realization of policy objectives set out in the statute.[169] In an effort to preserve the traditional police powers of the states, though, the Court has found for a presumption against preemption.[170] Therefore, courts should require relatively express statutory language in order to find that a federal statute preempts state liability laws.

In the context of hazardous substances, effluent discharges into navigable waters, and the emission of criteria air pollutants, Congress has carved out a role for state liability law. Indeed, CERCLA, the

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163 *See generally* Abraham, *supra* note 5, at 392–93 (discussing preemption in the context of environmental torts); Logue, *supra* note 4, at 2345–48 (discussing federal preemption of state tort laws).

164 Abraham, *supra* note 5, at 392.

165 ERWIN CHEMERINSKY, CONSTITUTIONAL LAW: PRINCIPLES AND POLICIES 392–93 (3d ed. 2006); EPSTEIN, *supra* note 26, at 769.

166 Pacific Gas & Elec. Co. v. State Energy Res. Conservation & Dev. Comm'n, 461 U.S. 190, 203–04 (1983).

167 *Id.*; Freightliner Corp. v. Myrick, 514 U.S. 280, 287 (1995).

168 514 U.S. at 287 (citations omitted).

169 EPSTEIN, *supra* note 26, at 769.

170 Abraham, *supra* note 5, at 392–93; Thomas O. McGarity, *Regulation and Litigation: Complementary Tools for Environmental Protection*, 30 COLUM. J. ENVTL. L. 371, 395–96 (2005) [hereinafter McGarity 2005].

CWA, and the CAA all contain "savings clauses," which preserve lawsuits under state liability laws.[171] Section 505(e) of the CWA reads: "Nothing in this section shall restrict any right which any person (or class of persons) may have under any statute or common law to seek enforcement of any effluent standard or limitation or to seek any other relief (including relief against the Administrator or a State agency)."[172] Section 304(e) of the CAA is nearly identical,[173] and CERCLA's savings clause states that "[n]othing in this chapter shall be construed or interpreted as preempting any State from imposing any additional liability or requirements with respect to the release of hazardous substances within such State."[174] It is clear, then, from the plain language of the statutes (as well as the statutes' legislative histories and case law interpreting these provisions) that Congress designed these regulations to provide a floor of minimum requirements that industry must meet, and state regulations and liability laws may impose stricter obligations.[175]

The presence of savings clauses necessarily rules out the possibility that CERCLA, the CWA, and the CAA expressly preempt state liability law.[176] Furthermore, the provisions also demonstrate that Congress did not intend to occupy the field with any of these statutes. The only potential for these statutes to preempt state liability laws, therefore, rests in the area of conflict preemption.[177] It is almost never *impossible* for a private party to comply with both state liability laws and federal requirements. The only remaining question, then, is whether the application of state liability entitlements would present an obstacle to the realization of federal statutory objectives. Usually, state liability remedies pass this test, though in several recent cases,

171 *See* Meiners & Yandle, *supra* note 23, at 953–54.

172 33 U.S.C. § 1365(e) (2006).

173 42 U.S.C. § 7604(e); *see also* Sangi, *supra* note 11, at 503.

174 § 9614(a); *see also* Czarnezki & Thomsen, *supra* note 23, at 10–11.

175 *See* Int'l Paper Co. v. Ouellette, 479 U.S. 481, 506 (1987); Bell v. Cheswick Generating Station, No. 12-4216, 2013 U.S. App. LEXIS 17283, at *13–23, *27–28 (3d Cir. Aug 20, 2013); Her Majesty the Queen in Right of the Province of Ontario v. Detroit (*Ontario*), 874 F.2d 332, 342 (6th Cir. 1989); Buzbee, *supra* note 19, at 1586–89; Czarnezki & Thomsen, *supra* note 23, at 8–10; McGarity 2005, *supra* note 170, at 395–96; Sangi, *supra* note 11, at 515.

176 *Ontario*, 874 F.2d at 342; *Bell*, 2013 U.S. App. LEXIS 17283, at *13–23, *27–28; Butler, *supra* note 14, at 731–37; Sangi, *supra* note 11, at 511–12.

177 Sangi, *supra* note 11, at 511–12.

courts have found conflicts to exist.[178] These decisions highlight the need for greater clarity in savings clauses.[179]

When a court finds that a federal statute does preempt state or local law pertaining to a certain activity, victims of harm from that activity may not find recourse within state tort law; rather, the regulatory regime alone provides penalties for statutory violations in the preempted area. The Price-Anderson Act, for example, preempts state liability laws in the case of a nuclear accident.[180] Recourse and payment for damages is prescribed by Price-Anderson's insurance and retrospective premiums mechanisms, and damages beyond the $12.6 billion liability cap are preempted.[181] Price-Anderson may also preempt smaller tort actions for injuries resulting from radiation exposure.[182]

Statutory schemes that preempt state tort actions without creating an alternative federal liability standard resemble outcome 2 on the typology displayed in Figure 3 above. The statute would establish regulatory mechanisms for reducing the likelihood of harm from the regulated activity and prescribe penalties for violations of the statute. Liability under state law, however, would be functionally limited.

2. Compliance as a Defense or as Evidence

For regulations governing an activity that does not preempt liability claims, defendants may nonetheless escape liability in certain situations by claiming their compliance with those regulations as a defense.[183] In other words, whereas preemption bars state tort litigation outright as a matter of statutory purpose, a court may recognize regulatory compliance as a defense as a matter of statutory purpose or of its own decision.[184] Additionally, the availability of the

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178 *See, e.g.*, North Carolina *ex rel.* Cooper v. Tenn. Valley Auth. (*TVA*), 615 F.3d 291 (4th Cir. 2010); United States v. EME Homer City Generation L.P., 823 F. Supp. 2d 274 (W.D. Penn. 2011); Bell v. Cheswick Generating Station, 903 F. Supp. 2d 314 (W.D. Penn. 2012); Comer v. Murphy Oil USA, Inc., 839 F. Supp. 2d 849 (S.D. Miss. 2012); *see also* Czarnezki & Thomsen, *supra* note 23, at 10–11 (discussing instances in which CERCLA preempts state liability rules). *But see* Barrella, *supra* note 11; Sangi, *supra* note 11.

179 Buzbee, *supra* note 19, at 1591.

180 42 U.S.C. § 2210 (2006).

181 HOLT, *supra* note 146.

182 Price-Anderson, *Nuclear Power Plant Owner Avers Common-Law Claims Preempted*, *in* 19, vol. 7 MEALEY'S EMERGING TOXIC TORTS 28–29 (July 6, 2010).

183 Cane, *supra* note 17, at 462–63; Buzbee *supra* note 19, at 1582–85; Logue, *supra* note 4, at 2338–39; Meiners & Yandle, *supra* note 23, at 952.

184 Abraham, *supra* note 5, at 393.

compliance defense does not preclude tort claims for statutory or regulatory violations; whereas if a statute preempts state tort actions, then victims of what would otherwise be a tort may not bring a claim even if the would-be defendant violated the terms of the preempting statute.[185] That is, "[t]he defense applies only when there has been compliance."[186]

As a practical matter, few courts have found regulatory compliance to be a defense in a tort action, and few statutes provide for the defense.[187] Courts in most states, however, do admit showings of compliance with a relevant regulation or statute as evidence in liability actions.[188] In these instances, compliance may weigh in the defendant's favor, but the trier of fact (usually a jury) is free to find that the defendant breached a duty of care above the floor established by the statute.[189] The implication, then, is that most regulations either preempt state tort actions or establish a floor of minimum safety requirements, allowing tort liability to set safety standards that rise above the floor.[190] This places the regulatory compliance defense at some point between outcome 2 and 3 along the decision continuum in

The use of regulatory compliance as a defense (and even as evidence) is a contentious issue that invokes many of the arguments for and against tort law as a policy instrument. As a purely legal matter though, it is most appropriate to conclude that compliance with a federal regulation should not even be admitted as evidence in state tort trials because, absent a finding of preemption, compliance with a federal regulation is irrelevant to the narrow question of whether or not a defendant violated state tort law.[191] Many states have in fact

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185 *Id.*

186 *Id.*

187 *Id.* at 393–94; *see also* Riegel v. Medtronic, Inc., 552 U.S. 312, 345 (2008) ("Most States do not treat regulatory compliance as dispositive, but regard it as one factor to be taken into account by the jury."); Frank B. Cross, *Common Law Conceits: A Comment on Meiners & Yandle*, 7 GEO. MASON L. REV. 965, 967–69 (1999); Robert L. Rabin, *Reassessing Regulatory Compliance*, 88 GEO. L.J. 2049, 2069 (2000); Catherine M. Sharkey, *Federalism in Action: FDA Regulatory Preemption in Pharmaceutical Cases in State Versus Federal Courts*, 15 J.L. & POL'Y 1013, 1024 (2007).

188 *See, e.g.*, *Riegel*, 552 U.S. at 345; Brokaw v. Davol Inc., C.A. No. 07-3666, 2009 R.I. Super. LEXIS 46, at *15–16 (May 15, 2009); *see also* Abraham, *supra* note 5, at 394–95.

189 Abraham, *supra* note 5, at 394–95.

190 *Id.* at 394.

191 *See, e.g.*, Bell v. Cheswick Generating Station, No. 12-4216, 2013 U.S. App. LEXIS 17283, at *13–23 (3d Cir. Aug. 20, 2013); *Ontario*, 874 F.2d 332, 344-45 (6th Cir. 1989); Galaxy Carpet Mills, Inc. v. Massengill, 338 S.E.2d 428, 429–30 (Ga. 1986); Vill. of Wilsonville v. SCA Servs., Inc., 426 N.E.2d 824, 837 (Ill. 1981); Neal v. Darby, 318

codified this principle in different ways. Alabama's nuisance statute, for example, declares, "[t]he fact that the act done may otherwise be lawful does not keep it from being a nuisance."[192]

3. Non-Compliance as Negligence per se

Even though most states and courts have concluded that regulatory compliance is not dispositive, they have established that the "violation of a health or safety statute or regulation is negligent 'per se'—that is, negligent as a matter of law."[193] Compliance does not necessarily mean that state tort law standards of care have been met, but noncompliance can be negligent. A plaintiff must generally show four elements to successfully claim negligence per se[194]: (1) that the defendant violated a statute or regulation; (2) that the statute or regulation is designed to protect against the harm that occurred; (3) that the violation is the proximate cause of the harm; and (4) that the plaintiff is in the class of persons the statute or regulation is designed to protect.

The American Law Institute has incorporated this principle into the Third Restatement of Torts.[195] Whereas preemption and the regulatory compliance defense are often matters of statutory interpretation, the doctrine of negligence per se is a common law doctrine. Although some statutes do incorporate clauses specifying that noncompliance resulting in harm triggers civil liability,[196] courts may find that non-compliance is negligent even without such a clause simply because violation of a statute or regulation "*is* negligence

S.E.2d 18, 23 (S.C. Ct. App. 1984); Czarnezki & Thomsen, *supra* note 23, at 24–26; Charlie Garlow, *Environmental Recompense*, 1 APPALACHIAN J.L. 1, 9, 17 (2002).

192 ALA. CODE § 6-5-120 (West, Westlaw through 2013 Regular Sess.).

193 ABRAHAM, *supra* note 128, at 79; Abraham, *supra* note 5, at 394; *see also* Buzbee, *supra* note 19, at 1582; Cross, *supra* note 187, at 969; Klass 2007, *supra* note 157, at 584–85; Logue, *supra* note 4, at 2339–40; Thomas O. McGarity, *The Complementary Roles of Common Law Courts and Federal Agencies in Producing and Using Policy-Relevant Scientific Information*, 37 ENVTL. L. 1027, 1050 (2007) [hereinafter McGarity 2007]. In a minority of jurisdictions, statutory violation is not negligence per se, but is admissible as evidence. Abraham, *supra* note 5, at 395.

194 *See, e.g.*, Brown v. Shyne, 151 N.E. 197, 198 (N.Y. 1926).

195 RESTATEMENT (THIRD) OF TORTS: LIABILITY FOR PHYSICAL & EMOTIONAL HARM §14 (2011).

196 *See, e.g.*, CAL. EVID. CODE § 669(a) (West 1995) ("The failure of a person to exercise due care is presumed if: (1) He violated a statute, ordinance, or regulation of a public entity . . . ."); EPSTEIN, *supra* note 26, at 229.

itself."[197] In other words, the statute or regulation establishes a duty and standard of care, and non-compliance constitutes a breach of that duty.[198]

In the context of environmental policy, the negligence per se doctrine would appear between outcomes 3 and 4 on the decision typology in Figure 3 because the statute establishes a minimum requirement for due care, violation of which may constitute automatic negligence. Kenneth Abraham notes, however, that plaintiffs have not enjoyed widespread success asserting the negligence per se doctrine in the environmental context, explaining that there are just as many cases that apply the doctrine as those that reject it.[199] One possible explanation for the lack of cases in which a plaintiff successfully asserts negligence per se is that businesses on balance abide by regulatory rules. An alternative explanation, which Abraham suggests, is that it may be quite burdensome for an attorney to prove a statutory violation.[200] Plaintiffs' attorneys, therefore, may prefer to dodge potentially complex regulatory compliance issues in favor of asserting more traditional tort law claims.[201] This may be a more fruitful strategy if regulations do in fact only set a floor of minimum safety requirements, and liability standards of care may be more rigorous.

4. Redundant Regulation

The prior subsections all address legal issues that arise from the overlap between federal statutes and state liability laws. This subsection, on the other hand, addresses the economics of overlap between liability entitlements and public regulations. Indeed, if an action violates both regulatory requirements and tort standards of care, then a tortfeasor may not only be held liable in private litigation, but may also be subject to regulatory sanctions. Susan Rose-Ackerman and Peter Cane call this "double jeopardy,"[202] while Kyle

197 Martin v. Herzog, 126 N.E. 814, 815 (N.Y. 1920); *see also* EPSTEIN, *supra* note 26, at 233; Abraham, *supra* note 5, at 394.

198 Osborne v. McMasters, 41 N.W. 543 (Minn. 1889); EPSTEIN, *supra* note 26, at 229.

199 Abraham, *supra* note 5, at 395.

200 *Id.*

201 *Id.*

202 Cane, *supra* note 17, at 461–62; Susan Rose-Ackerman, *Public Law Versus Private Law in Environmental Regulation: European Union Proposals in the Light of United States Experience*, 4 REV. EUR. COMMUNITY & INT'L ENVTL. L. 312, 315 (1995). Double jeopardy is not an "outcome" of an environmental policy instrument choice, as the term outcome is employed here. The government may not choose double jeopardy in the way

Logue refers to the problem as "redundant regulation."[203] Redundant regulation is a potential effect of any overlap between tort standards and regulatory rules.

Some assert that redundant regulation is problematic when "the tort standard is higher than the regulatory standard"[204]—in other words, where the regulatory standard sets a floor of minimum standards that the tort law duty of care rises above. Rose-Ackerman suggests that a higher tort standard could supersede a regulatory rule if individuals aim to achieve that higher standard in an attempt to meet both; but she does not believe this is necessarily a problem.[205] Cane, though, raises two objections. First, he argues that it is simply not fair to expose polluters to double liability.[206] Cane concedes, though, that the corrective justice function of tort law would override his concerns to create a fair playing field for polluters.[207] Second, he and others suggest that exposing polluters to redundant regulation could result in over-precaution and/or over-deterrence of what is presumably a socially desirable activity, ultimately generating inefficiency and deadweight loss in the market.[208] This is a valid objection, though over-deterrence, which places the risk of liability on the risk takers, may be more desirable than under-deterrence, which spreads the cost of that risk to other parts of the economy.[209]

Moreover, critics of redundant regulation are wrong, or at least incomplete, because they blindly assume that the regulatory rules would be set to achieve *and actually achieve* the socially optimal level of care—and that is highly unlikely to be the case. More accurately, redundant regulation will only result in inefficiency when the combined effects of the tort standard and the regulatory rule encourage precaution beyond the socially optimal level of care.[210]

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that it may choose strict liability, a liability cap, preemption, or the regulatory compliance defense.

203 Logue, *supra* note 4, at 2316.

204 Cane, *supra* note 17, at 461.

205 Rose-Ackerman, *supra* note 202.

206 Cane, *supra* note 17, at 461–62.

207 *Id.*; *see also* Logue, *supra* note 4, at 2333–34 ("[I]f corrective justice through tort law is something society cares about, then the administrative costs of running the tort system in this example are not duplicative at all.").

208 Cane, *supra* note 17, at 462; Logue, *supra* note 4, at 2332–33.

209 Anthony Z. Roisman et al., *Preserving Justice: Defending Toxic Tort Litigation*, 15 FORDHAM ENVTL. L. REV. 191, 225 (2004).

210 Logue, *supra* note 4, at 2332.

Kolstad et al. make this very point,[211] and it should be apparent. Cane, though, seems to approach the problem from the wrong direction. Both he and Kyle Logue, presumably working from a blank policy instrument slate, seem to envision enacting a regulatory rule in a market without any pre-existing liability standards and ask what to do about civil liability.

Posner and Kolstad et al., on the other hand, explain that liability standards will pre-date the establishment of regulatory rules in the United States.[212] The appropriate way to approach the choice of a liability entitlement versus a regulatory rule, then, is to ask: given the liability standards in place, should the government establish a regulatory rule, and/or should it alter the tort standards? Kolstad et al. take this approach, and in so doing, they address the redundant regulation issue.[213] Redundant regulation would result in over-protection where the tort standard is higher than the regulatory standard *and* where the regulatory standard *actually achieves* the socially optimal level of care:

> [W]hen tort liability rules are in place, it is *inefficient* to set *ex ante* regulatory standards at the socially optimal level (where marginal costs of precaution equal the expected marginal benefits). The only instances when the *ex ante* regulatory standard should be set at the social optimum are when there is no *ex post* liability or, equivalently, when there is a zero probability of a judgment against a rational injurer under *ex post* liability.[214]

That is, if there is a non-zero chance of ex post liability despite regulatory compliance, and the regulatory rule is set to achieve and actually achieves the socially optimal level of care, then naturally the addition of the two yields a sum of protection greater than the social optimum.[215]

This effect is displayed in marginal form below in Figure 4. The curve labeled *MC* represents the social marginal costs of precaution, or units of care, and the curve marked *MB* represents the social

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211 Kolstad et al., *supra* note 5, at 900.

212 POSNER, *supra* note 42, at 389; Kolstad et al., *supra* note 5, at 889.

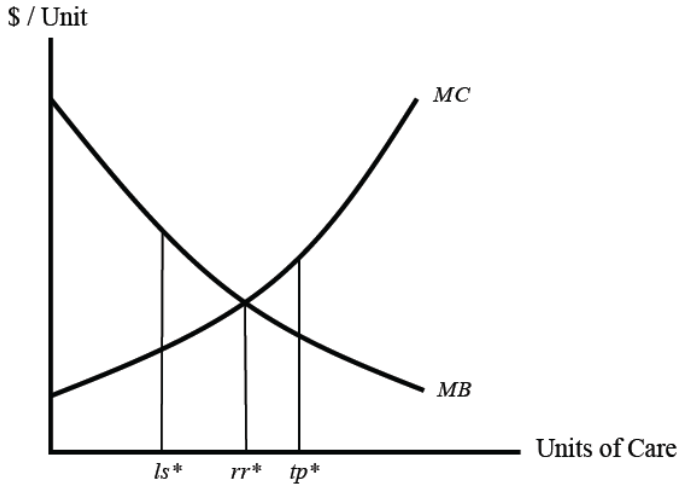
213 Kolstad et al., *supra* note 5, at 889.

214 *Id.*

215 The analysis by Kolstad et al. may be incomplete. The regulatory standard does not necessarily need to be set to achieve the socially optimal level of care for the combined effect of the regulatory and common law standards to generate over-precaution. The regulatory standard could foreseeably be set to achieve a level of care lower than the social optimum and still result in deadweight loss if the combined effect of the regulatory and liability standards encourages a level of precaution greater than is socially optimal.

marginal precaution benefits. The regulatory rule *rr** is set to achieve the socially optimal level of care, and *ls** represents the units of care achieved by the pre-existing liability standard. The combination of the units of care generated by the two standards, total precaution, is represented by *tp**, which clearly results in inefficiency due to over-precaution.

Figure 4. The Redundant Regulation Problem in Marginal Form



Here, the ex post liability standard is higher than the ex ante regulatory rule. However, even though the liability standard is *set* higher, the actual units of care that the tort law *achieves* are lower because of the imperfections inherent to tort law's enforcement and deterrence signal (hence the need for a regulatory rule in the first place). The regulatory rule is set to achieve the socially optimal level of care, and as a theoretical matter, this model assumes that the regulation accomplishes this objective. The combination of the two standards results in a total precaution level of *tp**; however, the exact location of *tp** is indeterminate. Were this a typical marginal analysis, *tp** would be equal to the sum of *ls** and *rr** along the x-axis. In this model, though, *tp** is less than the sum of its parts because simply adding the units of care that each standard achieves would double count some units of care. That is, some of the units of care that the ex post liability standard generates and some of the units of care that the ex ante regulatory rule generates are *the same units*.

In Figure 4, *tp** represents the combined effect of *ls** and *rr** only because the tort law standard of care is higher than the regulatory rule. If, on the other hand, the tort standard were lower than or equal to the regulatory rule, then the liability standard would functionally become immaterial because in meeting the higher regulatory rule, risk-takers would satisfy the tort law duty of care. An example of this is where regulatory compliance is a defense to tort liability: risk-takers will strive to meet the regulatory rule and disregard the possibility of ex post liability. This represents the ideal condition according to Cane—where the regulatory standard is higher than or equal to the liability standard.[216]

The important takeaway is that if the regulatory regime that is set to achieve the socially optimal level of care actually accomplishes its goal, then any additional precaution taken to meet a higher liability standard would generate inefficiency resulting in deadweight loss to the market. The flip side of this observation is that if the regulatory regime does not achieve the socially efficient level of care, then tort law may be an important complement to the regulation that ultimately serves to maximize social welfare.[217] Steven Shavell recently developed a model to demonstrate the complimentary nature of regulation and negligence standards.[218] This idealized outcome is shown in marginal form below in Figure 5, where the regulatory rule and liability standard operate as complements to yield the socially optimal level of precaution.

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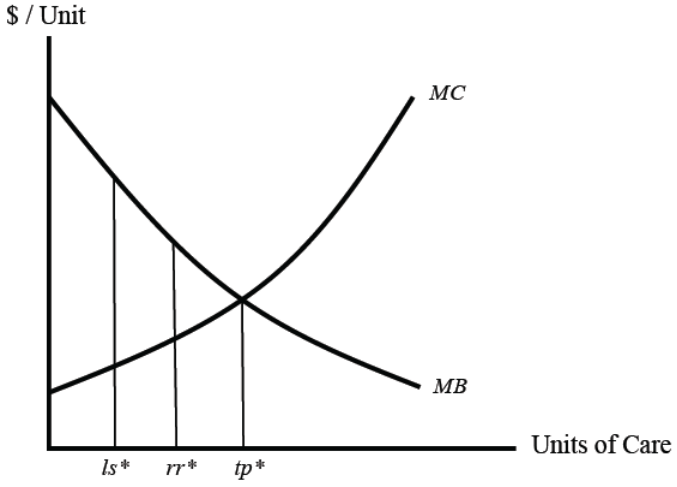
216 Cane, *supra* note 17, at 460–62.

217 Logue, *supra* note 4, at 2332; Ruhl, *supra* note 64, at 781–82.

218 Steven Shavell, *A Fundamental Enforcement Cost Advantage of the Negligence Rule over Regulation* 25 (Harvard Law Sch., Discussion Paper No. 731, 2012) [hereinafter Shavell 2012] ("[I]f both instruments are utilized, then, on one hand, society will be effectively guaranteed that regulated precautions will be taken, which will be of value because in certain contexts the negligence rule will be ineffective in inducing precautions.").

Figure 5. Redundant Regulation with Ideal Complements in Marginal Form



Overlap between tort law and regulation raises a number of policy questions that implicate the legal doctrines of preemption, the compliance defense, and negligence per se. Theoretically, if regulations achieve optimal levels of risk and precaution, then under an efficiency criterion, perhaps compliance with the regulations should be a defense to litigation, and a violation of the regulations should be negligent as a matter of law. On the other hand, if the regulatory rule and liability standard both achieve less than the optimal level of precaution (probably a more accurate description of reality in most instances), then regulatory compliance should not be dispositive since compliance with both will be necessary to achieve an efficient outcome.[219] In fact, there is good reason to believe that in many instances, tort law will act as a useful complement to other policy instruments.

III
TORT LAW VS. PUBLIC REGULATION

Whether tort law or public regulation is a more efficient policy instrument has been the subject of contentious debate. One of the

[219] A regulatory infraction, though, should still count as negligent if the threat of a double sanction is required to induce efficient levels of compliance or if the provision of private and public remedies is made mutually exclusive by law.

central theses of this Article, though, is that neither litigation nor regulation is "more efficient" per se—there is no first-best policy instrument.[220] Rather, each is suited to be more (or less) efficient under different conditions. The wisdom of Thomas Sowell's famous remark, "[t]here are no solutions; there are only trade-offs,"[221] comes to mind. Transaction costs of various types, bounded rationality, opportunism, and uncertainty mean that all policy instruments are imperfect, which is why—by accident or design—there are often overlapping systems of redundancy built into governance regimes. While I have thus far primarily highlighted many of tort law's shortcomings, regulatory regimes are also imperfect in design, implementation, and enforcement. Alone, tort law is certainly not a panacea for most pollution externalities, but the limitations of litigation do not validate the alternative. Litigation cannot be evaluated in a vacuum, but rather must be assessed relative to regulation in a second-best world. Though litigation is clearly most effective when addressing relatively less frequent paradigm cases, it has many attributes that make it worthy of consideration as a complementary policy tool to ameliorate more complex threats to public health as well.

In this section, I incorporate findings from the fields of law, economics, public policy, and political science on the strengths and limitations of litigation and regulation into a critical assessment of the arguments in favor of and against each as a policy tool. An interdisciplinary critical accounting of the arguments on each side of this debate will facilitate a synthesis of the literature that will better highlight the contexts in which tort law may serve as a useful complement to public regulation. This analysis will ultimately allow the debate to move forward.

To that end, I appropriate evaluative criteria from the economics and public policy fields to assess litigation and regulation in a qualitative comparative institutional analysis. The criteria most often described in the institutional analysis literature are variations on equity, legitimacy, efficiency, and effectiveness.[222] Environmental

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220 For example, Yandle attempts to comment on "which is best." Bruce Yandle, *The Common Law and the Environment in the Courts: Discussion of Code Law and Common Law*, 58 CASE W. RES. L. REV. 647, 647–48 (2008).

221 THOMAS SOWELL, THE VISION OF THE ANOINTED 142 (1995).

222 Giandomenico Majone, *Choice Among Policy Instruments for Pollution Control*, 2 POL'Y ANALYSIS 589, 600 (1976); Peter Bohm & Clifford S. Russell, *Comparative Analysis of Alternative Policy Instruments*, *in* 1 HANDBOOK OF NATURAL RESOURCE AND ENERGY ECONOMICS 395, 399–402 (Allen V. Kneese & James L. Sweeney eds., 1985);

policy researchers have, in certain instances, also adopted these criteria.[223] Additionally, the criteria have made their way into the law and economics literature on litigation versus regulation,[224] but most of that literature references the criteria incidentally or incompletely.

Shavell designed the staple framework comparing tort standards and regulatory rules.[225] He argues that information asymmetries and administrative costs weigh in favor of litigation while capital constraints on the ability of polluters to pay damages and the likelihood that culpable parties may not face lawsuits weighs in favor of regulation.[226] All of Shavell's analysis falls under effectiveness and efficiency criteria.[227] Likewise, in a recent book by the National

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Barry C. Field & Martha K. Field, ENVIRONMENTAL ECONOMICS: AN INTRODUCTION 182–93 (5th ed. 2009); Stuart S. Nagel, *Efficiency, Effectiveness, and Equity in Public Policy Evaluation*, 6 POL'Y STUD. REV. 99 (1986); Christine H. Rossell, *Using Multiple Criteria to Evaluate Public Policies: The Case of School Desegregation*, 21 AM. POL. Q. 155, 159–67 (1993). Other criteria include Harold Lasswell's "value terms," John Rawls's "maximin" principle, and Amartya Sen's "capability approach." Daniel H. Cole, *The Varieties of Comparative Institutional Analysis*, 2013 WIS. L. REV. 383, 396–97 (2013).

223 Regina Birner et al., *Who Should Be in Charge of Conservation? A Framework for Biodiversity Governance and a Case Study from Guatemala* 3, 5–10 (Int'l Food Pol'y Research Inst., Working Paper No. 15, 2011); W. Neil Adger et al., *Successful Adaptation to Climate Change Across Scales*, 15 GLOBAL ENVTL. CHANGE 77, 80–83 (2005). Many of the studies on environmental policy instrument choice employ more specific criteria, which are more meaningful when comparing different types of regulatory instruments (e.g., flexibility and the capacity to encourage innovation). *See* OFFICE OF TECH. ASSESSMENT, U.S. CONGRESS, ENVIRONMENTAL POLICY TOOLS: A USER'S GUIDE 143–200 (1995); DEP'T FOR CMTYS & LOCAL GOV., MULTI-CRITERIA ANALYSIS: A MANUAL (2009), *available at* https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/7612/1132618.pdf; Don Fullerton, *A Framework to Compare Environmental Policies*, 68 S. ECON. J. 224, 237–45 (2001); Evgeny Guglyuvatyy, *Climate Change Policy Evaluation: Method and Criteria*, 40 ENVTL. POL'Y & L. 355, 357-61 (2010); Per Mickwitz, *A Framework for Evaluating Environmental Policy Instruments*, 9 EVALUATION 415, 425–29 (2003).

224 *See generally* MORRISS ET AL., *supra* note 8, at 105–06; Kaswan, *supra* note 68; Sangi, *supra* note 11, at 519–23.

225 Shavell 1984, *supra* note 4; *see also* Brennan, *supra* note 88, at 56–57 ("Steven Shavell likely has done the best conceptual analysis.").

226 Shavell 1984, *supra* note 4; *see also* Adelman & Duncan, *supra* note 5, at 26–27 (reviewing Shavell's framework); Boyer & Porrini, *supra* note 1, at 259-61.

227 Shavell and Louis Kaplow argue that including fairness as a criterion in policy decisions reduces social welfare for all. *See generally* LOUIS KAPLOW & STEVEN SHAVELL, FAIRNESS VERUS WELFARE (2002); Louis Kaplow & Steven Shavell, *Fairness Versus Welfare: Notes on the Pareto Principle, Preferences, and Distributive Justice*, 32 J. LEGAL STUD. 331 (2003). However, their definition of welfare is inclusive of distributive concerns. *Id.* at 351–55. For critiques, see Richard Craswell, *Kaplow and Shavell on the Substance of Fairness*, 32 J. LEGAL STUD. 245 (2003); Michael B. Dorff, *Why Welfare Depends on Fairness: A Reply to Kaplow and Shavell*, 75 S. CAL. L. REV. 847 (2002); Lewis A. Kornhauser, *Preference, Well-Being, and Morality in Social Decisions*, 32 J.

Bureau of Economic Research, Posner develops an analytical framework to compare the two institutions[228] based on four dimensions: ex ante vs. ex post means of control, rules vs. standards, expert agencies vs. generalist courts, and public vs. private means of enforcement.[229] Posner's framework is very useful, but he seems to rely mostly on an efficiency criterion and only incidentally references other criteria.

In a recent article, Mark Latham, Victor Schwartz, and Christopher Appel develop what they call a "comprehensive, neutral framework for analyzing how the tort system can and should respond to environmental injuries."[230] They argue that tort action should be based on actual injuries to people or property rather than inchoate losses or harm to the environment; harm must be based on objectively wrongful conduct (e.g., statutory compliance should be a dispositive defense); and statutes should be clear on preemption questions.[231] Several of the authors' recommendations seem to rest on a fear that tort actions for harm to ecosystems or failure to conserve resources are on the horizon. That fear seems unfounded. Acknowledging the usefulness of tort law as a regulatory tool does not open the floodgates for torts without injury to persons or property. Moreover, their set of recommendations does not constitute a framework and, like many other evaluations before it, fails to take a multidisciplinary approach that assesses tort law relative to public regulation.[232] Ultimately, the authors' analysis is recent evidence of the need for a common set of evaluative criteria in assessing the regulatory efficacy of litigation.

This Article constitutes an attempt to recast the frame of the debate by deliberately encouraging the interdisciplinary usage of the economic and public policy evaluative criteria in the regulation versus

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LEGAL STUD. 303 (2003); and Jeremy Waldron, *Locating Distribution*, 32 J. LEGAL STUD. 277 (2003).

228 Referring to regulation and litigation as institutions, I employ Douglass North's definition of institutions as the "rules of the game." *See* DOUGLASS C. NORTH, INSTITUTIONS, INSTITUTIONAL CHANGE, AND ECONOMIC PERFORMANCE 3–4 (1990).

229 Richard A. Posner, *Regulation (Agencies) Versus Litigation (Courts): An Analytical Framework*, *in* REGULATION VERSUS LITIGATION: PERSPECTIVES FROM ECONOMICS AND LAW 11 (Daniel P. Kessler ed., 2011).

230 Latham et al., *supra* note 114, at 739.

231 *Id.* at 764–72.

232 The comparative analysis that the authors do include is entirely in the context of carbon dioxide regulation.

litigation debate.[233] Developing common evaluative criteria makes it more difficult for scholars to talk past one another. Moreover, establishing a common language facilitates the development of empirically testable hypotheses that emanate from the legal field because legal scholars will be using the same language as researchers from the public administration, public policy, and political science fields who regularly engage in empirical analysis. In the subsections that follow, I therefore compare litigation and regulation by employing four evaluation criteria, modified to address the questions that are relevant to this debate:

A. Equity & Corrective Justice: Which system best provides victims with a reasonable remedy?
B. Democratic Legitimacy: Which system adheres most closely to the tenets of constitutional democracy?
C. Efficiency & Organizational Competence: Which system is most amenable to identifying socially optimal levels of abatement and pollution-generating activity?
D. Effectiveness & Cost-Effectiveness: Which system is most likely to achieve its policy objectives and at what comparative cost?

A. Equity & Corrective Justice

The debate relies largely on economic conceptions of tort law as a system of regulation to deter risky activity. As an economic tool, tort law is only useful insofar as the looming threat of litigation encourages risk-takers to adopt cost-internalizing precautionary measures. The victim and the injury that she suffers at the hand of the tortfeasor are of secondary importance under this theory. Economic conceptions of tort law, therefore, tend to devalue victims.[234] The public policy literature includes equity as an evaluative criterion to account for the distributional impacts of a policy. Indeed, critiquing efficiency as a policy-making criterion, Thomas McGarity writes, "[a] change is efficient if it results in an additional one million dollars in

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233 My analysis is influenced to a great extent by the ideals of Indiana University's Vincent and Elinor Ostrom Workshop in Political Theory and Policy Analysis, which emphasizes interdisciplinary research and dialogue. For information regarding the Ostrom Workshop, visit http://www.indiana.edu/~workshop/.

234 *See* Cane, *supra* note 17, at 433; Gregory C. Keating, *Distributive and Corrective Justice in Tort Law of Accidents*, 74 S. CAL. L. REV. 193, 195 (2000); Logue, *supra* note 4, at 2333–34; Schroeder, *supra* note 44, at 587–88.

the pocket of Bill Gates and it takes $9,999 from 100 people with yearly incomes of $20,000."[235] In many instances, especially those in which the winners are blameworthy in bringing about adverse distributional changes, the losers should be provided compensation.

Therefore, a primary justification for tort law, as described above, is that it serves as a corrective justice mechanism.[236] Though there is no settled definition of what "corrective justice" means, Jules Coleman describes four elements:

> First, [corrective justice] applies to human agency, not, say, to natural misfortunes. Second, it is concerned with repair or rectification. Third, it is concerned with rectifying some kind of wrongdoing . . . . Fourth, it involves correlativity: "The claims of corrective justice are limited or restricted to parties who bear some normatively important relationship to one another. A person does not . . . have a claim in corrective justice to repair *in the air*, against no one in particular."[237]

Which theory—deterrence or justice—is a "better" conception of tort law is another decades-long scholarly debate that will never be resolved. In the environmental context, though, one of the great strengths of tort law over public regulation is that liability serves both functions. Compensation regimes (insurance, for example) and public regulations are somewhat insular: the former address the injury, and the latter address the causation. Tort law, though, is "bilateral" in that it both compensates victims and sends a deterrence signal.[238] The vast majority of the United States' environmental regulatory statutes, though, provide no compensation mechanism for pollution victims even if the culpable party violated the regulatory mandates: penalties go to the government, not to victims.[239]

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235 McGarity 2005, *supra* note 170, at 391.

236 COLE & GROSSMAN, *supra* note 14, at 269–70; JULES L. COLEMAN, RISKS AND WRONGS 303–28 (1992); Keating, *supra* note 234, at 195; Meiners & Yandle, *supra* note 23, at 960; Popper, *supra* note 22, at 181–83; Schwartz 1997, *supra* note 44, at 1801; *see also* ARTHUR RIPSTEIN, EQUALITY, RESPONSIBILITY, AND THE LAW 24 (1999); ERNEST J. WEINRIB, THE IDEA OF PRIVATE LAW 56–83 (1995); George P. Fletcher, *Fairness and Utility in Tort Theory*, 85 HARV. L. REV. 537, 547 (1972); Shapo, *supra* note 86, at 544.

237 Keating, *supra* note 234, at 197 (quoting Jules L. Coleman, *The Practice of Corrective Justice*, *in* PHILOSOPHICAL FOUNDATIONS OF TORT LAW 53, 67 (David G. Owen ed., 1995)). Justice is a difficult-to-define concept that means many things to many people. For a discussion of meanings of justice in the context of law and economics, see Calabresi & Melamed, *supra* note 5, at 1102–05.

238 Cane, *supra* note 17, at 429; Schwartz 1997, *supra* note 44.

239 Kaswan, *supra* note 68, at 102–03; Klass 2007, *supra* note 157, at 583; McGarity 2005, *supra* note 170, at 391–92; Sangi, *supra* note 11, at 521. In several limited settings, though, Congress has limited liability and developed regulatory compensation

That the tort system seeks to provide defendants with compensation equal to the damages suffered is a source of inefficiency, though. An emissions tax, for example, "provide[s] an incentive to reduce emissions by attaching a price to pollution on the margin. Because every polluter faces the same marginal tax rate, they independently choose abatement levels at which their marginal abatement costs are equal, satisfying a necessary condition for cost-effectiveness."[240] A tort remedy would be neither priced on the margin nor applicable to all polluters. Yet, even if liability sends a sub-optimal deterrence signal, tort law, imperfect as it is, provides compensation to victims without seriously undermining our society's moral notions of "agency, responsibility and reparation."[241]

Some critics of liability as a policy instrument suggest the establishment of an alternative regulatory mechanism to compensate victims of pollution. The primary alternatives suggested in the literature are variations of insurance schemes.[242] The benefit of a social insurance program to compensate victims of pollution is that injured parties may theoretically collect on benefits regardless of fault.[243] However, establishing a private insurance system to replace tort law as a compensatory mechanism for pollution victims would constitute an unnerving reduction in protection for America's most vulnerable communities. Moving to a private insurance system removes the courts as a non-biased institution in the compensation process in favor of an entity (the insurance company) that has a financial incentive to contest and deny coverage—an undeniable problem in the United States' present health insurance system.[244] In

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mechanisms. Klass 2009, *supra* note 44, at 1568–69 (discussing the Price-Anderson Act, the National Childhood Vaccine Act, and the Black Lung Benefits Act).

240 Nathaniel O. Keohane, Comment, *Evaluating Instruments of Environmental Policy: A Comment on Professor Richards*, 10 DUKE ENVTL. L. & POL'Y F. 389, 395 (2000).

241 Keating, *supra* note 234, at 195.

242 *See* Logue, *supra* note 4, at 2319–20; Menell, *supra* note 44, at 103. In his criticism of tort law as an environmental policy instrument, Menell suggests "expanding the use of the private insurance system (perhaps through direct subsidies or vouchers), enhancing the social welfare compensatory systems, [or] developing new administrative systems." *Id.* Additionally, civil penalties do not achieve corrective justice because the money damages are not paid to the plaintiff. *See* Johnson, *supra* note 66, at 598–99.

243 Viscusi, *supra* note 17, at 70.

244 *See, e.g.*, SCOT J. PALTROW, CTR. FOR AM. PROGRESS, INSURERS' BLACK BOX: NOW-SECRET CLAIMS DENIAL RATES COULD TELL CONSUMERS A LOT ABOUT THEIR INSURANCE COMPANY (2009), *available at* http://www.americanprogress.org/wp-content/uploads/issues/2009/10/pdf/insurers_black_box.pdf; Mark J. Browne, *Evidence of Adverse Selection in the Individual Health Insurance Market*, 59 J. RISK & INS. 13, 27 (1992); Ann Marie Marciarille & J. Bradford DeLong, *Bending the Health Cost Curve:*

addition, environmental risks do not satisfy the conditions of insurability.

Kolstad concludes that while environmental risks lend themselves to risk pooling and correcting for moral hazard problems, there are three disadvantages to environmental insurance systems.[245] First, it will be difficult for victims to identify a clear harm and establish causation against the background rates of their diseases.[246] This is especially problematic given that the victims will be presenting their cases not to juries but to insurance companies, which have a financial incentive to find against causation.[247] Second, losses will not occur in a well-defined period of time given the long latency of environmental damages.[248] As Kolstad explains, "eventually everything happens."[249] If the risk that an insurance company will have to pay for losses approaches 100 percent over a long enough timeframe, then it becomes uneconomical for the company to offer the insurance coverage in the first place. Third, insurance companies will be unable to calculate efficient premiums because the frequency and magnitude of environmental contamination is uncertain.[250] "If the premium is too large, no insurance will be sold; if it is too small, insurers will lose money or possibly become bankrupt."[251]

An insurance system might also bear an adverse selection problem, depriving victims of compensation from uninsured polluters.[252] An insurance company should be able to identify polluters within a close proximity to vulnerable communities and charge those polluters higher premiums under the rationale that a close proximity between the source of pollution and potential victims increases the risk of harm. In other words, insurance premiums are likely to be the highest in those areas where the risk of harm from environmental contamination is the highest. Unless insurance coverage is mandatory for potential polluters, then there is a risk that polluters in high-premium areas may forego insurance altogether, leaving the most

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The Promise and Peril of the Independent Payment Advisory Board, 22 HEALTH MATRIX 75, 86–87 (2012) (suggesting that adverse selection exists in individual health insurance markets).

245 KOLSTAD, *supra* note 19, at 388–92.

246 *Id.*

247 *Id.*

248 *Id.*

249 *Id.* at 390.

250 *Id.* at 388–92.

251 *Id.* at 390.

252 *Id.* at 391–92.

vulnerable communities unprotected. Moreover, the populations most likely to be affected by environmental contamination are poor minority communities.[253] At least under a tort system, victims of pollution have a fighting chance of holding the offending polluters accountable by seeking civil remedies.[254] An insurance system, on the other hand, may take the most powerful remedy for environmental contamination away from people who are simultaneously the most vulnerable to pollution and the least protected. Replacing tort law with a private insurance scheme could amount to an environmental justice catastrophe.

B. Democratic Legitimacy

The second evaluation factor to consider is legitimacy—which system of regulation adheres most closely to the tenets of constitutional democracy. The other elements that I have included in this framework—provision of a remedy, efficiency, and effectiveness—all relate to the fulfillment of an objective of any environmental regulatory program, and they therefore reflect the dual goals of tort law in general: optimal deterrence and corrective justice. The preservation of democratic principles, then, is somewhat unique because legitimacy is not a purpose but a constraining factor to any regulation. "Democratic principles present a key parameter by which to evaluate the choice between the common law and public law."[255] Indeed, that constitutional democratic principles serve as the foundation of our governance structure is not something to be taken lightly. Public participation in the policy-making process is a cornerstone of the United States' governance structure.[256] I therefore posit that questions of access to and the accountability of the policy-making process are central factors to consider when making a policy instrument choice.

When considering legitimacy, scholars tend to prefer public regulation because the public has greater access to influence decisions of Congress and the bureaucracy.[257] Legislators are elected through a

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253 *See generally* UNEQUAL PROTECTION: ENVIRONMENTAL JUSTICE AND COMMUNITIES OF COLOR (Robert D. Bullard ed., 1994).

254 Johnson, *supra* note 66, at 599.

255 Kaswan, *supra* note 68, at 98.

256 *See* Roy Peled & Yoram Rabin, *The Constitutional Right to Information*, 42 COLUM. HUM. RTS. L. REV. 357, 357–70 (2011) (describing rationales for the public's right to information).

257 Sangi, *supra* note 11, at 518.

democratic process, which serves as an accountability mechanism.[258] Citizens also have a degree of access to communicate with and express their preferences to their legislators. Public participation in the policy-making process improves the quality and reception of environmental laws.[259] Congressional representatives actively gather information on citizen preferences through polling data, direct communication, and even through interest groups. Empirical political science research finds that the elected branches of government—especially the House of Representatives—respond to changes in citizen preferences relatively quickly.[260] Elected officials act in a way to represent constituents' preferences because otherwise they are likely to be (or at least fear that they will be) replaced.[261]

The public also has access to the regulatory rulemaking process through notice and comment procedures.[262] However, citizen preferences are not likely to be very influential in the rulemaking setting. The regulatory state is highly complex and notoriously difficult for ordinary citizens to navigate.[263] Although citizens and public interests groups do provide comments on prospective rules and rule changes, any given citizen comment is unlikely to influence the final rule in a meaningful way.

Additionally, empirical analysis indicates business interests dominate rulemaking in terms of both participation and influence.[264]

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258 *See* Kaswan, *supra* note 68, at 99; Sangi, *supra* note 11, at 518.

259 LAZARUS, *supra* note 95, at 189–90.

260 *See generally* James Stimson et al., *Dynamic Representation*, 89 AM. POL. SCI. REV. 543, 558–59 (1995).

261 Stephen Ansolabehere & Philip Edward Jones, *Constituents' Responses to Congressional Roll-Call Voting*, 54 AM. J. POL. SCI. 583, 596 (2010) (finding that roll-call voting affects citizen perspectives on their representatives).

262 Kaswan, *supra* note 68, at 99; Sangi, *supra* note 11, at 518.

263 Wendy Wagner, *When All Else Fails: Regulating Risky Products Through Tort Litigation*, 95 GEO. L.J. 693, 702–05 (2007) (discussing the high process costs associated with public participation in regulatory policymaking); KERWIN & FURLONG, *supra* note 40, at 114–16.

264 Jason Webb Yackee & Susan Webb Yackee, *A Bias Towards Business? Assessing Interest Group Influence on the U.S. Bureaucracy*, 68 J. POL. 128, 135 (2006) ("Our results . . . suggest that the APA's legal framework for promoting public participation in rulemaking does not succeed in equalizing the influence of all types of participants. In other words, just because the notice and comment period may appear 'refreshingly democratic' in its call for public participation during agency decision making, this does not mean that the interests of the broader public are furthered in agency rulemaking." (citation omitted)); *see also* KERWIN & FURLONG, *supra* note 40, at 194, 199; Wendy E. Wagner, *Administrative Law, Filter Failure, and Information Capture*, 59 DUKE L.J. 1321, 1385–86 (2010) [hereinafter Wagner 2010].

During the comment period, agencies routinely receive thousands of comments, often receiving more for higher profile rules. For example, EPA's proposed rule to restrict carbon dioxide pollution from new power plants drew 2.5 million comments.[265] Most citizen comments are not supported with the type of specialized research or warranted arguments that characterize many business or interest group comments, and therefore agencies are freer to discount these citizen comments without the risk of acting in an arbitrary and capricious manner. That is especially true when rules address highly technical issues. Ordinary citizens and even public interest groups are often unable to amass the resources and technical expertise to match business interests in influencing rules through formal comments and other contacts with bureaucrats.[266] Finally, bureaucrats are more removed from the public eye than are legislators. They are not elected, but appointed or hired; therefore, citizens have little means to hold bureaucrats directly accountable for their actions.

The risk of regulatory capture or other undue influence by interest groups and regulated industries—recognized as a threat to democracy by James Madison in *Federalist No. 10*[267]—presents an additional weakness of both legislative and rulemaking processes.[268] Interest groups are goal-oriented organizations that seek to influence policy to advance the objectives of the companies or individuals they represent. Regulatory capture occurs when regulated parties come to exert a great deal of control over the decisions of the regulatory authority.[269] Even if firms do not "capture" the agency that regulates them, legislative and regulatory processes are susceptible to the influence of industry at multiple stages in the policy-making process in almost all areas of public health and safety regulation.[270]

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265 Standards of Performance for Greenhouse Gas Emissions from New Stationary Sources: Electric Utility Generating Units (proposed April 13, 2012), *available at* http://www2.epa.gov/sites/production/files/2013-09/documents/20130920proposal.pdf.

266 *See generally* Wagner 2010, *supra* note 264.

267 THE FEDERALIST NO. 10 (James Madison).

268 *See generally* FRANK R. BAUMGARTNER ET AL., LOBBYING AND POLICY CHANGE: WHO WINS, WHO LOSES, AND WHY (2009).

269 Ernesto Dal Bó, *Regulatory Capture: A Review*, 22 OXFORD REV. ECON. POL'Y 203, 203 (2006); Joel A. Mintz, *Has Industry Captured the EPA?: Appraising Marver Bernstein's Captive Agency Theory After Fifty Years*, 17 FORDHAM ENVTL. L. REV. 1, 1 (2005); Craig W. Thomas et al., *Special Interest Capture of Regulatory Agencies: A Ten-Year Analysis of Voting Behavior on Regional Fishery Management Councils*, 38 POL'Y STUD. J. 447 (2010).

270 Mintz, *supra* note 269, at 19; Mark Seidenfeld, *Bending the Rules: Flexible Regulation and Constraints on Agency Discretion*, 51 ADMIN. L. REV. 429, 464 (1999).

Public choice theory explains that self-interested politicians and bureaucrats tend to collaborate with regulated industries as a result of asymmetries in the policy-making process.[271] Regulated industries form organized, motivated, well funded, highly informed, and vocal groups to represent their interests to legislators, congressional staffers, and bureaucrats. The public, on the other hand, tends to be less organized, less motivated, less informed, less vocal, and not as well funded.[272] This is especially true when it comes to low salience, highly technocratic issues common in environmental and public health regulation.[273] Dan Esty expounds:

> [T]he complexity and opacity of many environmental issues and the public's difficulty in perceiving its own interest make the risk of special interest manipulation much more severe in the environmental realm than in other fields of regulation or government activity. Simply put, the average citizen knows if he or she is getting adequate roads or schools and even has a sense of whether the government regulation of banks seems appropriate. In many environmental circumstances, however, no comparable basis for judging the adequacy of outcomes exists . . . . In this non-transparent world, the threats of special interest manipulation and public choice failures are very real and often very large.[274]

Regulations are susceptible to this undue influence at every stage of the policy-making process. At the legislative stage, industry may influence legislators and staffers through lobbying efforts, campaign contributions, issue advertising, testimony, and the provision of information.[275] Following *Citizens United v. Federal Election Commission*,[276] which affirmed the First Amendment right of corporations to financially support political candidates, campaign finance may become a particularly notable method by which industries exert their influence over the democratic process.[277]

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271 WOLF, *supra* note 14, at 5, 36; Wagner, *supra* note 263, at 697–708.

272 WOLF, *supra* note 14, at 41–43; Hylton, *supra* note 57, at 523–24; Meiners & Yandle, *supra* note 23, at 954–56; Mintz, *supra* note 269, at 10–11, 18–19.

273 *See* Diana Evans, *Before the Roll Call: Interest Group Lobbying and Public Policy Outcomes in House Committees*, 49 POL. RESEARCH Q. 287, 300–01 (1996).

274 Daniel C. Esty, *Toward Optimal Environmental Governance*, 74 N.Y.U. L. REV. 1495, 1548–49 (1999); *see also* Mintz, *supra* note 269, at 19–20.

275 BAUMGARTNER ET AL., *supra* note 268, at 153; Morten Bennedsen & Sven E. Feldmann, *Lobbying Legislatures*, 110 J. POL. ECON. 919, 920–21 (2002); Hylton, *supra* note 57, at 523–24.

276 558 U.S. 310 (2010).

277 *See* David D. Kirkpatrick, *Lobbyists Get Potent Weapon in Campaign Ruling*, N.Y. TIMES, Jan. 21, 2010, http://www.nytimes.com/2010/01/22/us/politics/22donate.html?_r=0; LARRY M. BARTELS, UNEQUAL DEMOCRACY: THE POLITICAL ECONOMY OF THE

Empirically, interest groups have been most successful at blocking regulation and defending the status quo.[278]

Even when Congress does enact legislation, lobbying efforts have been successful at limiting legislative burdens.[279] For instance, Congress called on relatively few scientists to testify at the hearings prior to the passage of the CAA and CWA. Instead, the vast majority of witnesses at those hearings represented industry interest groups.[280] The Toxic Substances Control Act (TSCA),[281] to take another example, includes a poison pill within its legislative text that limit its effectiveness to the advantage of industry. Specifically, under section 6, EPA may pass rules to limit the risk posed by an industrial chemical only "to the extent *necessary* to protect adequately against such risk using the *least burdensome* requirements."[282] The Fifth Circuit in *Corrosion Proof Fittings v. Environmental Protection Agency* overturned EPA's ban on asbestos after finding that EPA did not impose the "least burdensome" requirements on the manufacture and use of asbestos products.[283] The statutory language of TSCA section 6, therefore, is one of the primary reasons why EPA has regulated so few industrial chemicals under TSCA.[284]

Yet, even sound statutory language would not save a regulatory program from the influence of interest groups. Companies may sway bureaucrats' decision making through a variety of methods including outright bribery, implicit and explicit threats to a regulators' reputation, the promise of future employment (often referred to as the "revolving door" phenomenon), and the provision of highly technical

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NEW GILDED AGE 252-82 (2008); MARTIN GILENS, AFFLUENCE AND INFLUENCE: ECONOMIC INEQUALITY AND POLITICAL POWER IN AMERICA 234-52 (2012).

278 BAUMGARTNER ET AL., *supra* note 268, at 29–45, 215–38; Susan Webb Yackee, *Sweet-Talking the Fourth Branch: The Influence of Interest Group Comments on Federal Agency Rulemaking*, 16 J. PUB. ADMIN. RESEARCH & THEORY 103, 111, 116–17 (2005).

279 Meiners & Yandle, *supra* note 23, at 956–58.

280 *Id.* at 957 ("[I]t does not appear that Congress was much interested in gathering scientific evidence to guide them in policy making.").

281 15 U.S.C. §§ 2601–92 (2006).

282 § 2605(a) (emphasis added).

283 947 F.2d 1201 (5th Cir. 1991).

284 Ortwin Renn & E. Donald Elliott, *Chemicals*, *in* THE REALITY OF PRECAUTION: COMPARING RISK REGULATION IN THE UNITED STATES AND EUROPE 223, 234–35 (Jonathan B. Wiener et al. eds., 2011); John S. Applegate, *Synthesizing TSCA and REACH: Practical Principles for Chemical Regulation Reform*, 35 ECOLOGY L.Q. 721, 737 (2008); David Markell, *An Overview of TSCA, its History and Key Underlying Assumptions, and its Place in Environmental Regulation*, 32 WASH. U. J.L. & POL'Y 333, 367 (2010).

information.[285] Indeed, agencies have limited resources for data collection and must therefore rely on the cooperation of regulated entities to report accurate and timely data, affording those firms the opportunity to undercut regulations by providing inaccurate or incomplete information.[286] Conversely, Wendy Wagner has shown that industry has become adept at overloading agency staff with too much information—a phenomenon that she refers to as "information capture."[287] She illustrates: "[a] continuous barrage of letters, telephone calls, meetings, follow-up memoranda, formal comments, post-rule comments, petitions for reconsideration, and notices of appeal from knowledgeable interest groups over the life cycle of a rulemaking can have a 'machine-gun' effect on overstretched agency staff."[288] By law, agencies are not permitted to disregard any of this material.[289] Through all of these methods, even in the absence of explicit malfeasance, business interests have been able to influence regulatory standard setting to their advantage through street-level contacts with agency staff.[290]

The stage of the policy-making process that is most vulnerable to undue influence, though, is enforcement, where individual bureaucrats must make decisions regarding monitoring, whether to initiate an enforcement action, and the type of enforcement action to be used.[291] By its nature, enforcement lacks the transparency and mechanisms for public involvement that characterize lawmaking and

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285 THE POLITICS OF REGULATION 359 (James Q. Wilson ed., 1980); Dal Bó, *supra* note 269, at 212–14; Hylton, *supra* note 57, 520–21; McGarity 2002, *supra* note 118, at 560–68; Yackee & Yackee, *supra* note 266, at 105.

286 McGarity 2002, *supra* note 118, at 549, 559–68; *see generally* THOMAS O. MCGARITY & WENDY E. WAGNER, BENDING SCIENCE: HOW SPECIAL INTERESTS CORRUPT PUBLIC HEALTH RESEARCH (2008).

287 Wagner 2010, *supra* note 264, at 1325 ("In the regulatory context, information capture refers to the excessive use of information and related information costs as a means of gaining control over regulatory decisionmaking in informal rulemakings.").

288 *Id.*

289 Administrative Procedure Act, 5 U.S.C. § 553(c) (2006); *see also* Adams v. U.S. Evntl. Prot. Agency, 38 F.3d 43, 51–53 (1st Cir. 1994); Motor Vehicle Mfrs. Ass'n v. State Farm Mut. Auto. Ins. Co., 463 U.S. 29, 43 (1983); United States v. Nova Scotia Food Prods. Corp., 568 F.2d 240, 252-53 (2d Cir. 1977); Wagner 2010, *supra* note 264, at 1354–55.

290 McGarity 2005, *supra* note 170, at 381; Wagner 2010, *supra* note 264, at 1346, 1367–69 (analyzing pre-Notice of Proposed Rulemaking discussions).

291 Mintz, *supra* note 269, at 3–4, 20–21; Matthew D. Zinn, *Policing Environmental Regulatory Enforcement: Cooperation, Capture, and Citizen Suits*, 21 STAN. ENVTL. L.J. 81 (2002).

rulemaking.[292] Enforcement is largely insulated from scrutiny by legislators and the judiciary and involves close interaction between regulators and industry.[293] Indeed, bureaucrats and the firms they regulate often interact on a daily basis and therefore form professional relationships with one another. The implication is that regulators may feel pressure to avoid strict enforcement of regulations lest they disrupt the cooperative professional relationships with the businesses they interact with each day (and for whom they may rely on for future employment).[294] Finally, a conflict of interest arises when manipulation does occur: no agency wants to admit publicly that it has been compromised.[295]

Though theory and case study examples abound, empirical evidence on the incidence of regulatory capture is scarce.[296] Joel Mintz, however, has examined the full length of EPA's history for evidence of capture.[297] He concludes that although EPA has managed to avoid complete capture, trends indicate that "EPA is not immune from regulatory capture," and its enforcement efforts in particular have come awfully close to captivity at several points during the administrations of Presidents Ronald Reagan, George H.W. Bush, and George W. Bush.[298]

Pluralists may counter that many progressive groups exist to advance the public interest in matters concerning the environment and public safety. However, regulated industries have far greater resources available to influence the policy-making processes of EPA and the Occupational Safety and Health Administration than do public interest groups.[299] At the very least, advocates of public regulation over liability entitlements must account for the costs associated with guarding against regulatory capture[300] and should not be so quick to tout the democratic advantage of public regulation over tort law.

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292 Mintz, *supra* note 269, at 3–4, 20–21; Zinn, *supra* note 291.

293 Mintz, *supra* note 269, at 3–4, 20–21; Zinn, *supra* note 291.

294 McGarity 2002, *supra* note 118, at 656–66.

295 *Id.* at 578.

296 Dal Bó, *supra* note 269, at 220.

297 Mintz, *supra* note 269.

298 *Id.* at 26–28.

299 McGarity 2005, *supra* note 170, at 381.

300 Boyer & Porrini, *supra* note 1, at 257.

Indeed, political and legal scholars often suggest that the judicial branch is "the least democratic branch."[301] First, many judges are not elected, and citizens are therefore not able to hold them accountable for the public policy effects of their decisions. Second, tort suits account only for the interests of the private parties, interveners, and amici participants,[302] whereas environmental policy must take into account a multitude of constituencies separated by time (i.e., multiple generations) and space.[303]

The judicial system, however, is less accountable *by design*: the courts are supposed to be removed from the political process to act as a counter-majoritarian institution.[304] And, although judges are not meant to make policy—often referred to as "judicial activism" or "legislation from the bench"[305]—liability entitlement is not an undemocratic policy instrument. After all, "[t]ort law still applies community or collective norms, often under a rubric of 'unreasonableness.' Those norms, though, are spelled out through an iterative process of individualized litigation, not through an intentional decision of some public entity."[306]

In *A Common Law for the Age of Statutes*, Calabresi argued that this iterative process affords judges the opportunity to incrementally change the law by applying it to evolving fact patterns.[307] Specifically, Calabresi called on judges to repeal outdated statutes. Judges and legislators, though, do not need to be so bold to acknowledge the usefulness of tort law as a policy instrument. In fact, Justice Cardozo constantly advocated for judges to incorporate progressive social values and morals into their jurisprudence.[308] The

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301 *See, e.g.*, JEFFREY ROSEN, THE MOST DEMOCRATIC BRANCH: HOW THE COURTS SERVE AMERICA, at xiii (2006).

302 Kaswan, *supra* note 68, at 99; Sangi, *supra* note 10, at 519–20; Schroeder, *supra* note 44, at 586.

303 Schroeder, *supra* note 44, at 586.

304 Kaswan, *supra* note 68, at 99; McGarity 2005, *supra* note 170, at 382; Sangi, *supra* note 11, at 520.

305 *See, e.g.*, Bruce G. Peabody, *Legislating from the Bench: A Definition and a Defense*, 11 LEWIS & CLARK L. REV. 185 (2007).

306 Schroeder, *supra* note 44, at 585; *see also* Hylton, *supra* note 57, at 525 ("What emerges from negligence litigation is a set of conduct norms that are shaped by the private information of parties. Although courts decide only the individual cases in front of them, the decisions create precedents that shape specific conduct norms that apply to future cases."); Sangi, *supra* note 11, at 520.

307 GUIDO CALABRESI, A COMMON LAW FOR THE AGE OF STATUTES (1982); *see also* Klass 2007, *supra* note 157, at 555–56.

308 Klass 2007, *supra* note 157, at 552–53.

common law should not ignore advances in social norms, economics, and science.[309] The process in common law "is continuous; it draws together information on controversies as they occur; and evolves as the world changes."[310]

Moreover, what I call for in this Article is for legislators to give greater consideration to tort law as a policy instrument that can be incorporated into environmental and public health legislation. The very decision to rely on tort standards, therefore, should be a collective decision.[311] The incorporation of privately enforced liability entitlements into future environmental statutes may also be a method to reduce the risk of undue interest group influence. To be sure, courts are also susceptible to political and business interests.[312] Judges harbor political ideologies, many state judges are elected, and business interests have more money than citizens or public interest groups to hire better attorneys, pay for more hours of work, appeal cases, and engage in strategic settlements.[313] Still, the judiciary's relative insulation from the political process provides some measure of protection from lobbying efforts and undue influence from industry and interest groups.[314]

The courts also improve citizens' access to the policy-making process. An army of plaintiffs' attorneys is perpetually available to advocate on behalf of victims in exchange for contingency fees.[315] The tort system addresses information asymmetries by lowering entry barriers and information costs for ordinary citizens who fall victim to

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309 Butler, *supra* note 14, at 705–06 ("Command-and-control bureaucrats and legislators are often oblivious to changes inherent in a dynamic world, but common law environmentalism and jurisdictional competition provide a dynamic process through which policy options are discovered and discarded in response to the reality of perpetual changes in technology and political preferences."); Kaswan, *supra* note 68, at 100; Klass 2007, *supra* note 157, at 551–56, 592–95; Sangi, *supra* note 11, at 519.

310 Meiners & Yandle, *supra* note 23, at 959.

311 FARHANG, *supra* note 6, at 3–4; Schroeder, *supra* note 44, at 555–56.

312 Andrei Shleifer, *Efficient Regulation*, *in* REGULATION VERSUS LITIGATION, *supra* note 229, at 32–37.

313 *See generally* Cross, *supra* note 187, at 971–75; Frank B. Cross, *Political Science and the New Legal Realism: A Case of Unfortunate Interdisciplinary Ignorance*, 92 NW. U. L. REV. 251 (1997); Richard L. Revesz, *Environmental Regulation, Ideology, and the D.C. Circuit*, 83 VA. L. REV. 1717 (1997); Paul H. Rubin, *Common Law and Statute Law*, 11 J. LEGAL STUD. 205 (1982).

314 Butler, *supra* note 14, at 721–22; Kaswan, *supra* note 68, at 99; McGarity 2005, *supra* note 170, at 373, 381–82; Posner, *supra* note 229, at 19–20; Yandle, *supra* note 220, at 656–58.

315 Wagner, *supra* note 263, at 703–04.

pollution externalities.[316] Finally, appellate courts and the legislature serve as a constant democratic check on judicial overreach.[317] Therefore, the implication is that the interests of democracy do not weigh completely in favor of public regulation over liability entitlements.

C. Efficiency & Organizational Competence

As important as legitimacy and compensation are from ethical, distributional, and political perspectives, if the goal is to achieve the optimal level of protection, then tort law's utility as a policy instrument depends on the ability of the judicial system to provide meaningful input into standard-setting processes.[318] I therefore turn to the question of which system—judicial or regulatory—is most amenable to identifying socially optimal levels of abatement and pollution (or precaution and risk). I label this an "efficiency" criterion. Even though effectiveness is also a key component of economic efficiency, I consider effectiveness separately.

Efficiency is about the relation of input and output; however, much of the literature comparing tort law and public regulation muddles the questions of *setting* the socially optimal standard and *achieving* the goals of that standard. For the purposes of comparative institutional analysis in this context, therefore, I find it conceptually useful to address these questions separately. To answer the efficiency question, we must address the ways in which our governance organizations and institutions develop standards and rules, how they gather data, and how they incorporate that information and expertise into those standards and rules—what I call "organizational competence."

Liability entitlements generally operate through broad standards (e.g., reasonableness) whereas public environmental regulations usually function through extensive rules. The distinction between standards and rules, therefore, becomes important. A rule specifies permissible or impermissible conduct in advance, leaving the adjudicator to determine only the factual question of whether a person's conduct violates the rule. Conversely, a standard requires the adjudicator to determine both what is permissible (i.e., the meaning of the standard) and the factual question of whether the conduct violates

316 *Id.* at 697–709.

317 Klass 2007, *supra* note 157, at 555–56.

318 Cane, *supra* note 17, at 464; *see also* Butler, *supra* note 14, at 730–31 (illuminating differences between effectiveness and efficiency).

the standard.[319] Under a rule, the law has content ex ante the conduct, and under a standard, the law is only given content ex post.[320] Louis Kaplow illustrates this distinction with highway speed limits: a rule would prohibit driving faster than 55 miles per hour while a standard would prohibit driving at "an excessive speed."[321] This example highlights that Congress and agencies can adopt either standards or rules at their discretion, so the question of "standards or rules" is not necessarily a question of "courts or Congress." Because I argue that Congress should adopt liability standards to be enforced by the courts more often than it currently does, I must address both of those questions.

Two primary factors determine whether a rule or a standard is best suited to address a regulatory problem. The first factor is the frequency of the behavior to be regulated and how often adjudication will be necessary.[322] Rules are more expensive to establish, yet standards are more expensive to apply.[323] Therefore, if the behavior is common and it is likely that many enforcement actions will be necessary, then the cost of establishing a rule to "resolve[] the issue on a wholesale basis" will be less than the expense of having to repeatedly adjudicate a standard over and over.[324] The second factor is whether firms will seek legal advice before they act.[325] If so, then rules have an advantage over standards because rules specify precisely what is and is not permissible and are therefore easier and less costly for a firm to learn before it acts.[326]

Indeed, the importance of advance notice, predictability, and consistency of the law is one of the primary criticisms of standards, especially as applied through the common law.[327] Courts have echoed this argument as well, primarily in preemption cases. In *TVA*, for

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319 Louis Kaplow, *Rules Versus Standards: An Economic Analysis*, 42 DUKE L.J. 557, 559–60 (1992); Posner, *supra* note 229, at 16–17.

320 *See* Posner, *supra* note 229, at 13–16 (comparing ex ante and ex post policies); *see also* Shavell 2012, *supra* note 218.

321 Kaplow, *supra* note 319, at 560.

322 *Id.* at 563–64, 579–80.

323 Steven J. Eagle, *The Common Law and the Environment*, 58 CASE W. RES. L. REV. 583, 618–19 (2008); Posner, *supra* note 229, at 18.

324 Kaplow, *supra* note 319, at 563; *see also* Adelman & Duncan, *supra* note 5, at 26; Eagle, *supra* note 323, at 618–19.

325 Kaplow, *supra* note 319, at 563–64.

326 *Id.*

327 *See* Cane, *supra* note 17, at 464–66; Kaswan, *supra* note 68, at 101–04; Klass 2007, *supra* note 157, at 582–83; McGarity 2005, *supra* note 170, at 380–81.

example, the Fourth Circuit reasoned that allowing a nuisance action to proceed against power plants operating with valid permits under the CAA would confound industry with incapacitating uncertainty as to the applicable standard it must meet to operate free of liability.[328] In addition to reasoning that nuisance standards are vague and applied retrospectively, the court also determined that they are inconsistently applied across jurisdictions.[329]

In *Bell v. Cheswick Generating Station*, the Third Circuit firmly rejected these arguments.[330] First, the objective of the CAA is to place responsibility for emissions regulations on the states, with guidance from EPA in a cooperative federalism framework.[331] In so doing, the CAA sets only a baseline of rules and invites states to enact stricter rules or standards, which may include tort laws.[332] The CAA by its very nature therefore results in fragmented regulation across the country due to variations in state implementation plans. The court further stated that adding one additional standard (state tort law) that firms must adhere to would not go so far as to unduly burden industry.[333] As the Third and Fourth Circuits are engaged in what seems to be a policy debate about the role of tort law in environmental regulation, it is vitally important for jurists to understand that tort law functions as a complement to other regulatory tools in many ways.

Criticisms of the Fourth Circuit's approach to tort law and preemption further highlight the advantages of flexible standards.[334] Whereas rules apply to specific, common patterns of behavior, liability standards have an intrinsically valuable capacity to address circumstances where activities cause harm that falls outside the reach of regulatory rules.[335] Standards, therefore, are most appropriate to govern heterogeneous behavior. Negligence standards, for example,

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328 615 F.3d 291, 301–06 (4th Cir. 2010). However, given the barriers to litigation, it is unlikely that industry would be faced with a flood of nuisance lawsuits. Brief of Amici Curiae National Parks Conservation Association et al. in Support of the State of North Carolina at 21, North Carolina *ex rel.* Cooper v. Tenn. Valley Auth. (*TVA*), 615 F.3d 291 (4th Cir. 2010) (No. 09-1623); Sangi, *supra* note 11, at 522.

329 *TVA*, 615 F.3d at 300.

330 No. 12-4216, 2013 U.S. App. LEXIS 17283, at *24–26 (3d Cir. Aug. 20, 2013).

331 *Id*. at *3–4.

332 *Id*. at *17; International Paper v. Ouellette, 479 U.S. 481, 497 (1987).

333 *Bell*, 2013 U.S. App. LEXIS 17283, at *25–26; *Ouellette*, 479 U.S. at 498–99.

334 *See generally* Sangi, *supra* note 11.

335 Eagle, *supra* note 323, at 618–19; Kaplow, *supra* note 319, at 563–64; Kaswan, *supra* note 68, at 104.

resolve conflicts that arise from a vast range of distinct and improbable accidents.[336] Because of the sheer breadth of unique circumstances, it would be difficult, if not impossible, to account for all of these scenarios through rules. The cost of generating a rule to cover every contingency would far exceed the cost of applying a general standard on a case-by-case basis.[337] Common law "is dynamic and spontaneous, yet orderly."[338] Precedent resulting in inefficiencies can be weeded out through challenges or rejection in other jurisdictions.[339] The inherent flexibility of standards also affords judges the ability to modernize the law so as to keep it in line with advances in science.[340] Statutes, on the other hand, run the risk of remaining in force even after the economic or scientific foundations upon which they rest have been discredited.[341] EPA's recent failed attempt at enacting a cross-state air pollution rule is a good example of this phenomenon.[342]

Moreover, even if the scientific and economic foundations of statutes are sound, the regulatory rules developed to enforce them may not necessarily be workable. In some instances, EPA staff might "lack [the] field experience and exposure to industry" that are necessary to write high quality regulations.[343] And, even when rules are workable, environmental regulations in particular are extraordinarily complex and technocratic:

> Perhaps the central defining feature of environmental law in the United States is its mind-numbing complexity and detail. . . . Today there is no serious question that environmental law is the most

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336 Kaplow, *supra* note 319, at 564.

337 Eagle, *supra* note 323, at 618–19; Kaplow, *supra* note 319, at 563–64.

338 Butler, *supra* note 14, at 718.

339 *See id*. at 715–20 (describing the advantages tort law's flexibility).

340 Butler, *supra* note 14, at 705–06; Kaswan, *supra* note 68, at 100; Klass 2007, *supra* note 157, at 551–56, 592–95; Meiners & Yandle, *supra* note 23, at 959; Sangi, *supra* note 11, at 519.

341 Meiners & Yandle, *supra* note 23, at 959.

342 Although the science to understand air pollution has advanced, the CAA is not written in a way that is conducive to regulating cross-state air pollution, and the statute's limitations are impeding EPA's ability to enact a rule that will pass judicial scrutiny. *See* EME Homer City Generation, L.P. v. Envtl. Prot. Agency, 696 F.3d 7 (D.C. Cir. 2012) (rejecting EPA's attempt to regulate cross-state air pollution); Sangi, *supra* note 11, at 498–501; Matthew L. Wald, *Court Blocks E.P.A. Rule on Cross-State Pollution*, N.Y. TIMES, Aug. 21, 2012, http://www.nytimes.com/2012/08/22/science/earth/appeals-court-strikes-down-epa-rule-on-cross-state-pollution.html?_r=0.

343 OFFICE OF SOLID WASTE AND EMERGENCY RESPONSE, ENVTL. PROT. AGENCY, THE NATION'S HAZARDOUS WASTE MANAGEMENT PROGRAM AT A CROSSROADS 37 (1990).

> complicated and detailed body of law the world has ever known; we have won the (dubious) distinction of representing the "state of the art" in legal complexity and detail.[344]

The bottom line is that environmental regulation—whether expressed through standards or rules, the common law or regulation—will challenge the understanding of citizens, businesses, judges, regulators, and representatives simply because the environment and the various pathways by which pollution may harm it and human health are fantastically complex.

A fundamental element in the discussion of efficiency and institutions, therefore, is the capacity of those institutions to gather and make use of information.[345] Information is the life force of environmental and public health protection. The development of environmental statutes and regulations requires immense amounts of scientific and economic data on, for example, the chemical and physical processes that generate the pollution externality, the chemical and biological reactions that occur when ecosystems and humans are exposed to the pollution in varying amounts and over varying periods of time, the costs and benefits of available pollution abatement technologies, and the costs and benefits of various policy instruments. The cost of gathering information, therefore, represents an acute transaction cost, making it an important factor to consider in comparative institutional analysis.[346]

Many scholars assume that the information gathering capacity of regulatory agencies far exceeds that of the judicial system.[347] However, information asymmetries skewed toward regulated industries greatly limit regulatory authorities' information gathering capabilities.[348] Imperfect as it is, the inclusion of judicial institutions in the regulatory process is vitally important in many environmental

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344 E. Donald Elliott, *The Last Great Clean Air Act Book?*, 5 ENVTL. LAW. 321, 326–30 (1998) (reviewing THE CLEAN AIR ACT HANDBOOK (Robert J. Martineau & David P. Novello eds., 1998)); *see also* Sangi, *supra* note 11, at 521 ("[T]he SIP process is not a model of clarity."); John-Mark Stensvaag, *The Not So Fine Print of Environmental Law*, 27 LOY. L.A. L. REV. 1093, 1093 (1994) ("The Clean Air Act's comparison to the tax code is legendary. And the federal hazardous waste regulations defy the comprehension of any one person.").

345 Wagner, *supra* note 263, at 695.

346 *See* Viscusi, *supra* note 17, at 71–72 (explaining that the tort system imposes information costs on all parties while regulatory rules do not).

347 Wagner, *supra* note 263, at 696.

348 *Id.* at 696–701. *But see* Adelman & Duncan, *supra* note 5, at 24–25 (indicating that many firms are unaware of the effects of their business operations on human health or the environment); Shavell 1984, *supra* note 3, at 369–70; Viscusi, *supra* note 17, at 75–77.

policy-making contexts because of the judicial system's ability to facilitate information gathering for three primary reasons.

First, the design of many regulations requires access to information that only private citizens have regarding the nature and extent of the harm.[349] The plaintiff knows more about the cost of her injury than anyone else, and the defendant knows more about the cost of precaution or abatement than anyone else.[350] From a purely theoretical economic perspective, this makes rational sense. To design an efficient regulatory scheme—one that maximizes social welfare—regulators need to know the slopes of both the social marginal cost curve and the social marginal benefits curve of the target populations. Marginal costs and benefits could take the form of abatement costs and benefits (e.g., the costs of controlling pollution and the benefit to individuals from less exposure to pollutants) or emissions costs and benefits (e.g., the cost of harm from pollution and the benefits of production). Most of this information comes from private individuals and entities. Environmental goods are notoriously hard to price,[351] and all parties have an economic incentive to exaggerate costs.[352]

Because regulators have access to imperfect information, the regulations they design often provide inefficient under-protection in some instances and overprotection in others[353]: "When one combines the elusiveness of the problem with the indeterminacy of its cause and multiplies that by the number and diversity of the people whose lives the agency is attempting to change, the probability of error is very high indeed."[354]

Of course, agencies do have a range of information gathering techniques available to them. As Justice Breyer notes, regulatory agencies collect information from regulated industries, public interest

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349 KERWIN & FURLONG, *supra* note 40, at 104 ("[T]he information needed to write rules . . . is not solely in the hands of the public sector. On the contrary, those who know the most about the area affected by the rule are those in the regulated or benefiting community."); Brennan, *supra* note 88, at 56–57; Hylton, *supra* note 57, at 524–25; Klass 2007, *supra* note 157, at 582; Logue, *supra* note 4, at 2320–21; Meiners & Yandle, *supra* note 23, at 958; Ruhl, *supra* note 64, at 778; Shavell 1984, *supra* note 3, at 359–60.

350 Hylton, *supra* note 57, at 524–25.

351 For example, economists must often use imperfect willingness-to-pay surveys to place a monetary value on certain environmental goods. KOLSTAD, *supra* note 19, at 135–38.

352 McGarity 2002, *supra* note 118, at 549, 559–63.

353 Kaplow, *supra* note 319, at 599–600; Kolstad et al., *supra* note 5, at 889.

354 KERWIN & FURLONG, *supra* note 40, at 101–02; *see also* HENRY N. BUTLER & JONATHAN R. MACEY, USING FEDERALISM TO IMPROVE ENVIRONMENTAL POLICY 27–28 (1996) (describing the limits of regulatory information gathering).

groups, external experts, and government research offices.[355] In addition, agencies attain information through public comments received during the notice and comment process and through participants in negotiated rulemaking procedures.[356] In spite of information asymmetries and barriers to regulatory information gathering, agencies do gather and generate an incredible amount of data that they use to promulgate some of the most sophisticated regulatory programs ever designed.[357]

Liability standards of care, on the other hand, are broad enough to apply to the gamut of harms to human health and the environment that regulations may be too narrow to protect against. Moreover, private litigation has facilitated the generation of a great deal of public health data on many industrial chemicals and pharmaceuticals, most prominently tobacco and asbestos.[358] Although litigants develop tort law one case at a time, the accumulation of precedent over time has incorporated private information into robust public standards of care:

> A public regulatory scheme could not hope to match the negligence system in terms of its scope, detail, and encapsulation of private information. To do so would require public agents to discover ex ante how much a potential victim would be hurt by a specific injury, and how much it would cost a potential injurer to avoid the injury. Even if the parties were able to provide this information ex ante, their incentives to do so honestly would be weak.[359]

Second, private attorneys are often more effective at uncovering misconduct than regulatory agencies—a strength of the adversarial

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355 KERWIN & FURLONG, *supra* note 40, at 102 (citing STEPHEN BREYER, REGULATION AND ITS REFORM 110 (1982)); *see also* Peter K. Manning, *The Limits of Knowledge: The Role of Information in Regulation*, *in* MAKING REGULATORY POLICY 49 (Keith Hawkins & John Thomas eds., 1989); McGarity 2007, *supra* note 193, at 1049.

356 KERWIN & FURLONG, *supra* note 40, at 168–70, 205–10.

357 McGarity 2007, *supra* note 193, at 1049; *see also* Brennan, *supra* note 88, at 48–54; Klass 2007, *supra* note 157, at 592–95.

358 Wagner, *supra* note 263, at 711–12 (discussing litigation against breast implant manufacturers). Wagner also makes the point that even when advances in science show litigation to be misinformed, the value of the data generated from the litigation may outweigh the costs of its production. *Id.* at 713–14.

359 Hylton, *supra* note 57, at 525. Hylton may be employing hyperbole here, but the point remains that the tort system is adept at incorporating private information. *See also* Kaplow, *supra* note 319, at 616 (indicating that standards are easier to update given new information than regulatory rules). *But see* Buck, *supra* note 124, at 633–34 (questioning that local parties may provide better information than agencies can gather).

system.[360] The tort system empowers private litigators with the capacity to compel their opponents to disclose full and complete information during pre-trial discovery and provides attorneys with incentives to "spend the resources necessary to copy and organize documents, take depositions, and fight . . . efforts to resist discovery."[361] Plaintiffs' attorneys are willing to spend those resources because the court can often shift those costs to the tortfeasor as attorneys' fees when the plaintiff emerges victorious.

Third, the tort system does not rely exclusively on the deterrent effects of precedent to send signals to the market. Indeed, companies must often purchase liability insurance to protect themselves in the case of an accident.[362] Insurance companies gather massive amounts of information in order to price risk into premiums, and premiums in turn send price signals to businesses about their levels of risk. In this way, the tort system marshals insurance companies as secondary standard-setters. One limitation to this attribute of tort law, though, is that many insurance policies often exclude coverage for toxic torts.[363]

In addition to its information-gathering function, tort law may facilitate more effective enforcement of public regulation and vice versa. Knowing that private litigators could uncover misconduct or manipulation of the regulatory process, industry may be more candid when working with or providing information to regulatory agencies.[364] Private litigation may also produce information that may be useful in regulatory settings. For example, "an ecosystem services nuisance case is likely to generate information about natural capital and ecosystem service values that would not normally be produced from regulatory programs, yet which could be generalizable to many other similar settings and added to the storehouse of information."[365]

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360 MICHAEL D. GREEN, BENDECTIN AND BIRTH DEFECTS: THE CHALLENGES OF MASS TOXIC SUBSTANCES LITIGATION 15 (1996); Abraham, *supra* note 5, at 391; Margaret A. Berger, *Eliminating General Causation: Notes Towards a New Theory of Justice and Toxic Torts*, 97 COLUM. L. REV. 2117, 2150 (1997); E. Donald Elliott, *The Future of Toxic Torts: Of Chemophobia, Risk as a Compensable Injury and Hybrid Compensation Systems*, 25 HOUS. L. REV. 781, 788 (1988); Hylton, *supra* note 57, at 525; McGarity 2002, *supra* note 118, at 571, 579; Richard A. Nagareda, *Turning from Tort to Administration*, 94 MICH. L. REV. 899, 923 (1996); Wagner, *supra* note 263, at 697–709.

361 McGarity 2002, *supra* note 118, at 571; *see also* McGarity 2007, *supra* note 193, at 1029.

362 COLE & GROSSMAN, *supra* note 14, at 283–85.

363 APPLEGATE ET AL., *supra* note 86, at 120–21.

364 McGarity 2002, *supra* note 118, at 571.

365 Ruhl, *supra* note 64, at 778. Ruhl concludes that "investment in experts and the civil litigation discovery process will unquestionably yield specific and general information

Moreover, information generated through litigation could facilitate regulatory enforcement actions.[366] For example, private litigation against DuPont for injuries from the perfluorooctanoic acid (PFOA) that it used in its Teflon manufacturing process revealed documents that encouraged EPA to bring a TSCA enforcement action against the company, which settled for $16.5 million.[367] In more extreme cases, a series of tort suits on a novel harm could prompt the federal and state governments to enact entirely new environmental statutes[368] or highlight inadequacies of existing ones.[369] Operating in the opposite direction, information gathered by regulatory agencies can be used in litigation or to enhance tort law's deterrent effect by increasing firms' awareness of their liability exposure.[370]

Fourth, regulatory agencies encounter asymmetries in information that are skewed in favor of industry.[371] For example, to determine whether a certain practice or product meets safety or performance standards or licensing requirements, agencies often rely on information submitted by the regulated firms themselves. Regulatory agencies, including EPA, are "heavily dependent upon regulated entities for the scientific information that they need to support effective regulation."[372] The primary environmental statutes do not require companies to submit all relevant data on the risks associated with their activities and products, nor do the statutes empower EPA with a great deal of authority to require companies to submit that information.[373] Even though EPA does have some limited authority to affirmatively subpoena information or require companies to generate new data that it believes it needs, political pressures and limited

about natural capital and ecosystem services values, actions that degrade their delivery, and alternatives that could be adopted in land use to avoid such injuries." *Id.* at 779.

366 Wagner, *supra* note 263, at 695–96; Abraham, *supra* note 5, at 391.

367 Wagner, *supra* note 263, at 712–13; *see also* McGarity 2007, *supra* note 193, at 1050–51.

368 Kaswan, *supra* note 68, at 100; Johnson, *supra* note 66, at 599–600; Wagner, *supra* note 263, at 710 ("[T]he deficiencies that afflict the court system are dwarfed by much more serious problems that paralyze the regulatory process. Litigation thus serves a vital role in dropping inflated information costs and sparking public understanding and debate that in turn jump-starts the market and political process.").

369 Buzbee, *supra* note 19, at 1578.

370 Kaswan, *supra* note 68, at 103; Gary T. Schwartz, *Reality in the Economic Analysis of Tort Law: Does Tort Law Really Deter?*, 42 UCLA L. REV. 377, 418–19 (1994) [hereinafter Schwartz 1994].

371 Wagner, *supra* note 263, at 696–701.

372 McGarity 2002, *supra* note 118, at 549.

373 Wagner, *supra* note 263, at 698–99.

resources have discouraged EPA from liberally using this authority.[374] Even when EPA does acquire information, it sometimes yields to industry requests to shield that data from public disclosure by classifying it as confidential business information.[375]

Moreover, it is not uncommon for regulatees to withhold or provide misleading scientific information to regulators.[376] For many practices and products—pharmaceuticals and industrial chemicals, for example—regulated firms generate or receive commissioned data on safety hazards and risks confidentially.[377] Upon finding results counter to its business interests, a company might elect to withhold the data from the regulator on the justification that the information is unreliable or invalid.[378] Even when the data is both reliable and valid, some companies decide to withhold it from the government—often illegally—out of fear that the data will incite adverse regulatory or enforcement action.[379] Examples of products for which companies have withheld important scientific data include pharmaceuticals such as bendectin, the MER-29 anti-cholesterol drug, and the morning sickness drug; dozens of pesticides; and tobacco.[380] Regulatees may manipulate data as well in efforts to secure favorable regulatory outcomes.[381] One strategy that pharmaceutical manufacturers have used has been to "ghost write" seemingly impartial epidemiological studies supporting their products.[382] More egregious examples include toxicological studies for pesticides that were outright forged.[383] A more subtle approach has been for companies to employ consultants to publish articles discrediting studies that find their products to have adverse effects on human health or the environment.[384] The adversarial nature of the judicial system makes tort law less susceptible to such data manipulation.

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374 *Id*.

375 *Id.* at 699–700.

376 *Id.* at 728; MCGARITY & WAGNER, *supra* note 286; McGarity 2002, *supra* note 118, at 559–63.

377 McGarity 2002, *supra* note 118, at 559.

378 *Id.* at 559–60.

379 *Id.*

380 *Id.*; Wade Roush et al., *Publishing Sensitive Data: Who Calls the Shots?*, 276 SCIENCE 523, 523–24 (1997).

381 McGarity 2002, *supra* note 118, at 560–63.

382 *Id.* at 561.

383 *Id.* at 562.

384 *Id.* at 562–63.

The primary active agents within the judicial system—judges, juries, and attorneys—however, do not usually possess the technical expertise necessary to design workable and optimal standards. Regulators at administrative agencies, on the other hand, are scientific and policy experts with explicit delegated authority from Congress to design and carry out regulations to enforce statutory mandates.[385] In preemption cases, courts are especially quick and emphatic in highlighting their own lack of expertise in areas of science and policy.[386] Indeed, in the matter of expertise, public regulations have a clear advantage over liability standards. Successful implementation of environmental regulation requires the resolution of complicated scientific and political issues, and the judicial system, because of its adversarial nature and blunt remedies, is hardly the best venue within which to settle those issues.[387]

Judges and juries, though, are not flying blindly into the abyss each time they are confronted with environmental litigation. Attorneys have the benefit of presenting the court with experts to provide sworn scientific testimony that is directly relevant to the case at hand.[388] To establish causation, a plaintiff must show a cause-effect relationship between, for example, exposure to a toxic substance and harm to her health or economic wellbeing—a showing that often requires epidemiological studies.[389] Yet, courts do not have the authority to commission such studies.[390] Plaintiffs must instead rely on existing studies—which may even include data compiled by administrative agencies—or fund new ones themselves.[391] Studies that can be replicated or that have been peer reviewed have become increasingly important in products liability and toxic tort cases following *Daubert v. Merrell Dow Pharmaceuticals, Inc.*[392]

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385 For comparisons of the expertise of the judicial system and regulatory agencies, see Kaswan, *supra* note 68, at 102; Kaplow, *supra* note 319, at 608–10; Posner, *supra* note 229, at 19–20; and Shleifer, *supra* note 314, at 34–39.

386 *See, e.g.*, Boomer v. Atlantic Cement Co., 257 N.E. 2d 870 (N.Y. 1970); North Carolina *ex rel.* Cooper v. Tenn. Valley Auth. (*TVA*), 615 F.3d 291 (4th Cir. 2010).

387 Cane, *supra* note 17, at 462–63; Czarnezki & Thomsen, *supra* note 23, at 5.

388 KOMESAR, *supra* note 24, at 140–42; Kaswan, *supra* note 68, at 102; Klass 2007, *supra* note 157, at 582; McGarity 2007, *supra* note 193, at 1032–33; Sangi, *supra* note 11, at 521.

389 APPLEGATE ET AL., *supra* note 86, at 68; McGarity 2007, *supra* note 193, at 1032.

390 McGarity 2007, *supra* note 193, at 1032.

391 Kaswan, *supra* note 68, at 103; McGarity 2007, *supra* note 193, at 1032; Meiners & Yandle, *supra* note 23, at 962.

392 509 U.S. 579 (1993); *see* PROJECT ON SCIENTIFIC KNOWLEDGE & PUB. POL'Y, DAUBERT: THE MOST INFLUENTIAL SUPREME COURT RULING YOU'VE NEVER HEARD OF

The Supreme Court in *Daubert* held that federal judges should function as gatekeepers (or "amateur scientists" as Chief Justice Rehnquist put it)[393] to determine the admissibility of expert testimony according to four non-exclusive criteria: whether the evidence is based on a testable theory or technique, has been peer reviewed, has acceptable error rates, and has been generally accepted by the scientific community.[394] Industry defendants have successfully used the *Daubert* test to significantly raise the bar for plaintiffs seeking to establish causation with expert testimony in federal courts and many state courts that have adopted the test.[395] A more fruitful strategy for plaintiffs has been to mine defendants' files for scientific information or evidence that the defendant had advance notice of the risks posed by its products or activity.[396]

Of course, if Congress were to employ a liability entitlement as a policy instrument in a future environmental statute, it would have the authority to determine not only the liability standard, but also what evidence the plaintiff could present. That is, Congress could legislate around the *Daubert* test if it were to create a new right of action within a new federal regulatory program. Moreover, if Congress were to include a liability entitlement as part of a regulatory scheme, then that standard would be developed with the same expertise that goes into every other public regulatory instrument. And even with limitations on the expertise available to courts, it is not clear that the expertise of agency staff necessarily makes public regulatory instruments the best choice in all instances. As noted above, not all regulatory rules are created equal: some rules prove to be unworkable while others fall prey to the influence of interest groups. What's more, appeals are often made to the judiciary to clarify vague regulatory language. Nevertheless, no judgment can be made without discussing the comparative effectiveness of tort law and public regulation. The following subsection addresses that issue.

(2003) [hereinafter DAUBERT], *available at* http://www.defendingscience.org/site/default/files/upload/Daubert-The-Most-Influential-Supreme-Court-Decision-You-ve-Never-Heard-Of-2003.pdf; McGarity 2007, *supra* note 193, at 1032–33.

393 *Daubert*, 509 U.S. at 601 (Rehnquist, C.J., concurring).

394 *Id.* at 592–95.

395 DAUBERT, *supra* note 392, at 4.

396 McGarity 2007, *supra* note 193, at 1032.

D. Effectiveness & Cost-Effectiveness

Whereas the efficiency question calls for a determination of which institution may *set* the most optimal standards, the question of effectiveness asks which institution is most likely to *achieve* its policy objectives, and the cost-effectiveness criterion asks which policy will achieve its goal at the lowest cost. Tort law operates as a regulatory tool through its general deterrence function, so a discussion of the effectiveness of tort law must center on the empirical success of its deterrence signal and the host of factors that muddle that signal. Empirical evidence on the effectiveness of tort law's deterrence signal yields mixed results, and no study is dispositive.[397]

However, in his review of empirical studies, surveys of businesses, journalist reports, and original research on general deterrence, Gary Schwartz concludes that "tort law provides something significant by way of deterrence."[398] What's more, a mass of case studies—litigation on asbestos, methyl tertiary-butyl ether, PFOA, and others, for example—demonstrates that tort law can be an effective and often necessary policy instrument.[399] Much of the contemporary quantitative literature on general deterrence focuses on citizen suits and regulatory enforcement actions.[400] That body of literature

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397 For a thorough review of the empirical literature on tort law, see W. Jonathan Cardi et al., *Does Tort Law Deter Individuals? A Behavioral Science Study*, 9 J. EMPIRICAL LEGAL STUD. 567, 571–76 (2012) (finding that tort law does not have a general deterrent effect, although there are methodological limitations to the study). *See also* WILLIAM M. LANDES & RICHARD A. POSNER, THE ECONOMIC STRUCTURE OF TORT LAW 4–7, 10, 58, 161–62 (1987); JAY P. SHIMSHACK, OFFICE OF ENFORCEMENT & COMPLIANCE ASSURANCE & OFFICE OF RESEARCH & DEV., ENVTL. PROT. AGENCY, MONITORING, ENFORCEMENT, & ENVIRONMENTAL COMPLIANCE: UNDERSTANDING SPECIFIC & GENERAL DETERRENCE (2007), *available at* http://www.epa.gov/compliance/resources/reports/compliance/research/meec-whitepaper.pdf (providing a detailed account of the empirical literature on general and specific deterrence); Tom Baker et al., *The Virtues of Uncertainty in Law: An Experimental Approach*, 89 IOWA L. REV. 443 (2004); Popper, *supra* note 22, at 189–97 (labeling those who argue against the deterrence effect "deterrence deniers"); Schwartz 1994, *supra* note 370 (reviewing empirical and theoretical literature on the deterrent effect of tort law).

398 Schwartz 1994, *supra* note 370, at 443. *But see* Schroeder, *supra* note 44, at 591–93 (indicating that the effectiveness of tort law's deterrence signal is a contentious issue); Buck, *supra* note 124, at 630–33 (describing an ideal, if not impossible, study).

399 Czarnezki & Thomsen, *supra* note 23, at 6–7; McGarity 2005, *supra* note 170, at 401.

400 *See* Gray & Shimshack, *supra* note 53; Christian Langpap & Jay P. Shimshack, *Private Citizen Suits and Public Enforcement: Substitutes or Complements?*, 59 J. ENVTL. ECON. & MGMT. 235 (2010); Jay P. Shimshack & Michael B. Ward, *Enforcement and Over-Compliance*, 55 J. ENVTL ECON. & MGMT. 90 (2008); Jay P. Shimshack & Michael B. Ward, *Regulator Reputation, Enforcement, and Environmental Compliance*, 50 J.

suggests that enforcement actions have general deterrence effects that stem not only from the threat of legal sanctions, but also from the social stigma of being viewed as a polluter.[401] Moreover, enforcement actions against other companies have also been found to serve a "reassurance function"—informing cautious businesses that their investments in safety are worthwhile—and as a "reminder mechanism"—to encourage them to maintain their equipment, monitoring practices, employee safety training, and the like.[402] There is no reason why the deterrence signal of tort law should not operate in the same way as that of citizen enforcement suits.

Of course, the best measure of the cost-effectiveness of liability as a general deterrent would really lie in cases that never materialize because firms took precautionary measures that they otherwise would not have taken were it not for the looming threat of litigation. That data, however, would be difficult if not impossible to obtain. When firms take precautionary measures, the threat of being sued is only one of many reasons, if it even is one at all. However, Shavell argues that governance costs for liability entitlements are generally less than those for public regulatory instruments for that very reason: a well-functioning liability standard theoretically means that parties, having taken due care, will not engage the machinery of the judicial system at all.[403] Additionally, it is usually cheaper for parties to settle out of court than undergo a trial. Finally, the government, through regulation, must spend resources whether or not the regulation is effective. The potential for liability, on the other hand, only affects the behavior of the targeted group of firms most likely to cause harm, and the government will only incur administrative costs if harm actually occurs.[404] Regulating through a liability standard may therefore avoid many of the governance costs and impacts on public finance that burden many regulatory programs.

However, a number of factors function to mitigate the general deterrence signal—and hence the overall effectiveness—of tort litigation as a policy tool. These factors include firms' imperfect perceptions of their exposure to liability, plaintiffs' high transaction costs, and managers' cognitive limitations.

ENVTL. ECON. & MGMT. 519 (2005) (evaluating the general deterrence effects of regulatory enforcement actions); Thornton et al., *supra* note 53.

401 Thornton et al., *supra* note 53, at 263–66.

402 *Id.* at 278–83.

403 Shavell 1984, *supra* note 4, at 364.

404 *Id.*

First, the effectiveness of tort law's ability to act as a deterrent relies on firms' perceptions of the probability that they will be held liable for injuries that they cause. The probability that a risk-taker will be held liable includes the probabilities that the harm will be detected, that the harm will be attributed to the risk-taking firm, that the firm will be sued, and that the firm will incur some cost through a settlement, a penalty, or bad publicity.[405] Uncertainty as to any of these probabilities can lead to inefficient overprotection by risk-averse firms and underprotection by less cautious firms.[406] If firms fail to take due care in their business operations, but are not held liable, then tort law as a policy instrument will provide a suboptimal deterrence signal.[407] That a firm may only be held liable for the injuries it causes as opposed to the risks it takes is a key factor that mutes tort law's deterrence signal.[408]

Additionally, plaintiffs are often encumbered with high transaction costs. Any litigation is generally expensive to begin with. Environmental tort plaintiffs, however, encounter additional barriers. A plaintiff may be unsure whether she should be a plaintiff at all. That is, it is sometimes difficult for a plaintiff to establish general and specific causation by linking her disease with exposure to a pollutant, thereby distinguishing the cause of her disease from other potential causes. Even when a plaintiff is certain that exposure to pollution has injured her, determining the identity of the defendant can be a difficult task given the long latency of many diseases and the possibility that there are many potential defendants.[409]

Furthermore, the diffuse nature of pollution-related injuries may require many plaintiffs to come together in class actions. The presence of multiple plaintiffs raises the possibility that they may encounter a collective action problem and free-riding by plaintiffs who join only after the first mover has undertaken the expense of initiating litigation. And while diffuse harm in the aggregate may rise to the level of an actionable tort, the injury to any one person may not

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405 Hylton, *supra* note 57, at 519.

406 KOLSTAD, *supra* note 19, at 386.

407 *Id.*; *see also* Ronald H. Coase, *The Federal Communications Commission*, 2 J.L. & ECON. 1, 29 (1959) (arguing that high transaction costs may necessitate regulatory action); Kolstad et al., *supra* note 5, at 889.

408 Abraham, *supra* note 5, at 389; Adelman & Duncan, *supra* note 5, 27–30; Brennan, *supra* note 88, at 45–47, 61–64; Cane, *supra* note 17, at 434–35, 443–44; Gifford, *supra* note 40, at 615–16; Rabin, *supra* note 110, at 43.

409 Adelman & Duncan, *supra* note 5, at 27–28; Buck, *supra* note 124, at 637–38; Rabin, *supra* note 110, at 43.

be large enough to rise to that level. "As a general rule, the probability of suit drops as the stake of any given person declines or the delay after which harm occurs grows."[410] Each of these transaction costs diminishes the deterrent effect of tort law because polluting firms perceive them, know that they reduce the likelihood that a suit will be brought, and discount the probability of being held accountable for taking risks.

Of course, even when a suit is brought, it cannot serve as much of a deterrent if the defendant is not found liable.[411] Inconsistency in the application of liability standards and the outcomes of litigation over time and across jurisdictions is a final source of uncertainty that muddles tort law's deterrent signal.[412]

Second, defendants' capital constraints diminish the deterrent effect of tort standards.[413] A civil penalty levied on a firm is necessarily limited by that company's capacity to pay for it. The potential for bankruptcy, therefore, "operate[s] as a de facto cap on potential liability."[414] This weakens firms' incentive to take precautionary measures because companies will not consider costs that exceed their assets.[415] It also provides an incentive for large companies to separate their risk-generating operations into smaller, low-capital corporations with distinct corporate identities.[416] On the other hand, a company's inability to pay is immaterial under most pubic regulatory instruments.[417]

Third, the decision-making capacity of individuals is constrained by bounded rationality, opportunism, and other cognitive biases.[418] Firm managers that are willing to take risks tend to be overly optimistic in underestimating the risks that their business decisions

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410 Adelman & Duncan, *supra* note 5, at 25.

411 Schroeder, *supra* note 44, at 598.

412 Kaswan, *supra* note 68, at 101.

413 KOLSTAD, *supra* note 19, at 386; Adelman & Duncan, *supra* note 5, at 25; Hylton, *supra* note 57, at 529; Kolstad et al., *supra* note 5, at 889; Menell, *supra* note 44, at 101–02; Schroeder, *supra* note 44, at 592; Shavell 1984, *supra* note 3, at 360–62.

414 Adelman & Duncan, *supra* note 5, at 25.

415 Buck, *supra* note 124, at 636; Posner, *supra* note 229, at 17; Shavell 1984, *supra* note 3, at 360–61; Shleifer, *supra* note 314, at 32–33. *But see* Roisman et al., *supra* note 209, at 225–26 (refuting this argument).

416 Adelman & Duncan, *supra* note 5, at 25.

417 Shavell 1984, *supra* note 3, at 360–61.

418 WILLIAMSON, *supra* note 29, at 29, 44–47; *see generally* Daniel W. Shuman, *The Psychology of Deterrence in Tort Law*, 42 U. KAN. L. REV. 115 (1993); Cass R. Sunstein, *Behavioral Analysis of Law*, 64 U. CHI. L. REV. 1175 (1997).

entail.[419] This irrationality is compounded by a timeframe disjuncture between the tenure of managers and the manifestation of long-latency risks.[420] The long timeframe in which diseases may develop or be discovered encourages firm managers to discount the potential long-term cost of liability for those injuries in favor of short-term profits needed to please shareholders, especially considering that the harm may not become apparent until long after the managers have left their firms. Finally, a manager may believe that even if her company is held liable for injuries resulting from her decisions, she may not be held directly responsible. The potential to avoid personal responsibility may therefore further encourage risky decision-making.[421]

In spite of these limitations that impede tort law's deterrence effect, Anthony Roisman et al. argue that businesses do not entirely discount the threat of litigation. Insurance companies account for the risk of liability when calculating premiums, giving firms an incentive to increase safety.[422] Those who have a long-term stake in a company—the board of directors, shareholders, and banks—"are unlikely to tolerate management creating financial time bombs by failing to be sensitive to the dangers of using and disposing of toxic substances and products."[423] Furthermore, pre-sale due diligence reviews examine potential liability, providing those groups with an extra incentive to ensure their firm is taking due care, lest they jeopardize the future sale of the company.[424] Finally, defense lawyers who advise their clients on regulatory compliance also counsel them on potential liability.[425]

Critics of tort law often point out that nuisance was the primary regulatory tool prior to the 1970s, and it failed miserably, necessitating the enactment of federal environmental laws.[426] Defenders of tort law, though, contend that pollution was already declining by the 1970s, and improving environmental quality cannot

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419 Schroeder, *supra* note 44, at 592.

420 Adelman & Duncan, *supra* note 5, at 28; Menell, *supra* note 44, at 102; Schroeder, *supra* note 44, at 592.

421 Menell, *supra* note 44, at 102; Shavell 1984, *supra* note 4, at 362.

422 Roisman et al., *supra* note 209, at 222.

423 *Id.*

424 *Id.* at 222–23.

425 Popper, *supra* note 22, at 196–97; Roisman et al., *supra* note 209, at 222.

426 Buck, *supra* note 124, at 630–31; Cross, *supra* note 187, at 977–80.

be (at least entirely) attributed to federal programs.[427] Recall that environmental quality is a superior good. And, to the extent that tort law failed, the historical factors limiting its effectiveness in the early 20th Century—mostly procedural factors limiting the ability of plaintiffs to bring suit—are no longer present.[428]

Roger Meiners and Bruce Yandle, on the other hand, argue that tort law was historically "too strict for those who wanted to generate pollution with greater impunity."[429] Regulatory permits under the CAA or CWA, for example, may act as sanctions to pollute, providing the basis for a preemption claim or a compliance defense.[430] Whereas tort standards vary across jurisdictions, federal regulatory mandates are uniform across the nation, providing businesses with more predictable rules to follow.[431] Special interests have a greater ability to influence the outcomes of the regulatory process than private lawsuits. Notably, industry has been able to shape federal environmental regulation to facilitate rent seeking by establishing stricter mandates on new facilities than on existing ones—a feat that would not have been possible through liability standards.[432] Generally, regulatory fines for noncompliance are less cumbersome than penalties assessed by juries.[433] Regulations also give industry greater lengths of time to comply than tort remedies do.[434] Finally, just as with tort law, uniform regulations have variable, often muddled enforcement.

In a discussion of policy instruments, though, it is difficult to judge the effectiveness of tort law against public regulation without discussing the relative strengths and weaknesses of the various public regulatory instruments, including taxes, subsidies, marketable allowances, technology standards, licensing schemes, and the like. The circumstances in which each of those instruments will perform optimally vary as well. There are, however, several general factors

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427 *See* Jonathan H. Adler, *Fables of the Cuyahoga: Reconstructing a History of Environmental Protection*, 14 FORDHAM ENVTL. L.J. 89 (2002); Yandle, *supra* note 220, at 658–61.

428 Butler, *supra* note 14, at 727–30.

429 Meiners & Yandle, *supra* note 23, at 956; *see also* Yandle, *supra* note 220, at 655 (defending this argument).

430 Meiners & Yandle, *supra* note 23, at 956.

431 *Id.* at 956–57.

432 *Id.*

433 *Id.*

434 *Id.*

that limit the overall effectiveness of public regulation in the United States: transaction costs, politics, and limitations on public resources.

Regulators encounter different types of implementation costs than tort plaintiffs face. When confronted with a public health problem, regulators and congressional staffers tasked with drafting legislation face a great deal of uncertainty. As noted above, they have to understand the physical and chemical processes that generate the pollution externality, the chemical and biological reactions that occur when ecosystems and humans are exposed to the pollution in varying amounts over varying periods of time, the production costs and benefits of available pollution control technologies, and the costs and benefits of various policy instruments. What's more, for a policy to function efficiently, economists must first pinpoint the socially optimal level of economic activity, where the marginal costs of abatement to the polluters are equal to the marginal benefits of abatement to the victims. Reaching this determination is itself a daunting task, which often requires placing a price tag on human life: How does one weigh the immediate economic costs of regulation against the risk, for example, that one person in 10,000 of the at-risk population might develop cancer years in the future? Even with all of the evidence that modern science and economics provide, decision makers face cognitive limitations and biases.[435] Firms also tend to opportunistically conceal information from regulators. Regulators, therefore, are confronted with tough decisions at every turn in the policy process.[436]

At the very center of every decision made at every stage of the policy-making process, though, is politics.[437] In fact, politics—not scientific or economic efficiency considerations—motivates many environmental regulatory decisions, especially those to delay or block regulations from being enacted.[438] Courts often praise the CAA and

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435 BAUMGARTNER ET AL., *supra* note 268, at 33; HERBERT A. SIMON, ADMINISTRATIVE BEHAVIOR: A STUDY OF DECISION-MAKING PROCESSES IN ADMINISTRATIVE ORGANIZATION, at xxiv (2d ed. 1957); WILLIAMSON, *supra* note 29, at 45; Shuman, *supra* note 419; Sunstein, *supra* note 418.

436 *See* Buzbee, *supra* note 19, at 1593–96 (reviewing the causes of regulatory failure).

437 BAUMGARTNER ET AL., *supra* note 268, at 33.

438 *See* Robin Bravender, *Obama Ozone Decision Blindsides Enviros—and His Own EPA*, POLITICO (Sept. 2, 2011, 6:02 PM EDT), http://www.politico.com/news/stories/0911/62586.html ("EPA officials were not involved in the decision-making process."); Juliet Eilperin, *Obama Pulls Back Proposed Smog Standards in Victory for Business*, WASH. POST (Sept. 2, 2011), http://articles.washingtonpost.com/2011-09-02/national/35274851_1_ground-level-ozone-burdens-and-regulatory-uncertainty-smog-standards (discussing the political motivations behind President Obama's decision to delay EPA's

CWA, for example, as being comprehensive programs, carefully crafted to encourage polluters to engage in the socially optimal levels of activity and abatement.[439] This vision is far from reality, and politics is the explanation. Federal environmental laws, including the CAA and CWA, are examples of what Frank Baumgartner and others have labeled incrementalism:

> [T]he notion that decision makers search comprehensively through all available alternatives and evidence before reaching a decision on the most appropriate route to take . . . . seems hopelessly idealistic . . . . [T]he way people make decisions in the real world is to quickly limit their thinking to a small number of realistic alternatives and then choose a pragmatic course of action. And that course may not be the most effective solution, merely the one that most will agree to, the one that is most easily available, or one of several that is "good enough," even though it may not necessarily be the absolute best. The consequence of this process is that over time, policy making moves in small steps.[440]

The CAA and CWA, intricate as they are, are nonetheless wrought with complications typical of incremental policymaking—where politics determines outcomes more than effectiveness or efficiency criteria. For example, political stumbling blocks kept EPA from enacting substantial regulations for hazardous air pollutants for twenty years,[441] and EPA has been unable to develop a judicially acceptable cross-state air pollution rule. The CAA includes technology standards rather than performance standards due to the influence of eastern coal interests,[442] and the CWA fails to address non-point source pollution due to the influence of agricultural

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promulgation of new regulations on ground level ozone); Deborah Solomon, *EPA to Ease Rule on Power Plants*, WALL ST. J., Oct. 5, 2011, http://online.wsj.com/article/SB10001424052970203791904576611370921020358.html (discussing the political motivations behind President Obama's decision to curb EPA's July 2011 rule on interstate air pollution).

439 *See, e.g.*, North Carolina *ex rel.* Cooper v. Tenn. Valley Auth. (*TVA*), 615 F.3d 291, 298 (4th Cir. 2010); Bell v. Cheswick Generating Station, 903 F. Supp. 2d 314, 322 (W.D. Penn. 2012).

440 BAUMGARTNER ET AL., *supra* note 268, at 32; *see also* LAZARUS, *supra* note 95, at 169–70 (explaining how federal environmental laws are incrementalist in nature); Brennan, *supra* note 88, at 27–38 (critiquing federal environmental risk reduction for being incrementalist).

441 Brennan, *supra* note 88, at 33.

442 *See generally* BRUCE A. ACKERMAN & WILLIAM T. HASSLER, CLEAN COAL/DIRTY AIR: OR HOW THE CLEAN AIR ACT BECAME A MULTIBILLION-DOLLAR BAIL-OUT FOR HIGH-SULFUR COAL PRODUCERS AND WHAT SHOULD BE DONE ABOUT IT (1981).

interests.[443] Indeed, enforcement within the tort system by private litigation may be more insulated from the influence of special interests. This could give tort law another leg up vis-à-vis public regulation[444] because heavy industry involvement in shaping regulatory rules has limited the effectiveness of public regulation by encouraging the statutory adoption of suboptimal policy instruments:

> The "worst" polluters were at the table and subscribed to a statutory scheme that they deemed preferable to the alternative.
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> Economists have long advocated various taxes on pollutants to give industries incentives to search for efficient ways to cut emissions. Congress, on the other hand, never showed much interest in this approach. By cooperating with Congress in the creation of command-and-control regulation, rather than "sensible" plans for pollution taxes advocated by economists, national industries obtained barriers to entry. Perhaps regulation was inevitable and industry just got the best deal it could given the circumstances. That can never be known. But no one can assert that the federal regulatory schemes are substantially related to dealing with alleged environmental problems in an effective manner, either on the basis of science or economic efficiency.[445]

In the United States, environmental regulation is especially contentious because of its redistributive nature and impact on economic activity.[446] Moreover, the beneficiaries of environmental policies are often diffuse, uninformed, and unmotivated relative to the concentrated interests representing regulated industries. The short-termism that is pervasive in the business community, the government, and the public at large compounds the problem by making it particularly difficult for legislators to support immediate restrictions on the economic activity of a targeted industry in favor of abstract, long-term benefits spread over a wide population—even if the restrictions are economically efficient.[447] Furthermore, the pluralistic

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443 Jonathan Cannon, *A Bargain for Clean Water*, 17 N.Y.U. ENVTL. L.J. 608, 615 (2008).

444 For an additional description of how interest groups influence the public policy process, see BAUMGARTNER ET AL., *supra* note 268, at 40–41. Interest groups have affected the tort system through a variety of tort reform statutes that limit causes of action. However, environmental torts have largely remained free from the interference of interest groups and limiting legislation. Klass 2009, *supra* note 44, at 1516, 1529–36.

445 Meiners & Yandle, *supra* note 23, at 957.

446 LAZARUS, *supra* note 95, at 25–29, 32–37, 40.

447 *Id.* at 2, 41 (indicating that short termism makes it difficult for candidates to run on a pro-environment agenda because voters tend to value short-term economic gain over long-term and ambiguous environmental benefits); Adelman & Duncan, *supra* note 5, at 30–31.

way in which the United States' governance system fragments authority makes coalitions necessary to drive legislation through Congress; however, the above factors make it exceedingly difficult for those coalitions to effectively coalesce around environmental protection issues.[448]

Given the state of the economy and the Republican majority in the House of Representatives, it is not only difficult for progressive legislators to enact environmental protection legislation, but it is also a challenge for them to prevent environmental regulations from being rolled back. In the first session of the 112th Congress, the House voted on 191 measures to undermine environmental regulations or limit agencies' authority to promulgate additional rules,[449] prompting Representative Henry Waxman to label that House as "the most anti-environment House in the history of Congress."[450] With a gridlocked, anti-environment Congress, though, politics becomes an even more important factor to consider in environmental policy instrument choice. And against a background of political paralysis, the regulatory role of the tort law becomes ever more important as well.

Limitations on public resources are a closely related factor to discuss in the choice between tort law and public regulation. Governance costs are a fundamental consideration within both Shavell's and Richards's policy choice frameworks. Limitations on public resources operate as a constraint on instrument choice due to the finite size of agency budgets, competing demands on agency resources, and restrictions on the ways in which agencies spend money. All public agencies have limited budgets,[451] and rulemaking requires both human and financial resources.[452] Statutes that require a constant high volume of rulemaking and persistent federal budget deficits act together to create endemic strains on agencies' personnel and financial resources.[453] Furthermore, there is a disjuncture

448 LAZARUS, *supra* note 95, at 32–40.

449 U.S. HOUSE OF REPRESENTATIVES COMM. ON ENERGY & COMMERCE, MINORITY STAFF, THE ANTI-ENVIRONMENT RECORD OF THE U.S. HOUSE OF REPRESENTATIVES 112TH CONGRESS, 1ST SESSION (2011) [hereinafter MINORITY STAFF REPORT], *available at* http://democrats.energycommerce.house.gov/index.php?q=news/new-report-details-the-most-anti-environment-house-in-the-history-of-congress; *see also* Ronald Brownstein, *Curious Cohesion*, NAT'L J., Oct. 6, 2011, *available at* http://www.nationaljournal.com/columns/political-connections/house-gop-in-lockstep-against-epa-20111006.

450 MINORITY STAFF REPORT, *supra* note 449.

451 KERWIN & FURLONG, *supra* note 40, at 95, 112; Langpap & Shimshack, *supra* note 400, at 235.

452 KERWIN & FURLONG, *supra* note 40, at 112.

453 *Id.* at 95, 112; Klass 2009, *supra* note 44, at 1570.

"between the authorizing process that creates rulemaking responsibilities and the appropriations process that provides the resources agencies need to carry them out."[454] In other words, that an agency receives a mandate from Congress does not mean that it will receive the funding or personnel necessary to fulfill that mandate. The appropriations process, therefore, affords Congress the opportunity to undercut regulations by placing strains on agency resources. EPA and the FDA, for example, currently find themselves in this very situation.[455] Overall, budget and personnel constraints limit EPA's ability to gather information, check data submissions from industry for accuracy and completeness, train personnel, police against internal wrongdoing, engage in the rulemaking and appeals processes, and initiate enforcement actions.[456]

Ultimately, firms must make decisions regarding the manner in which they will comply with regulations—or whether they will comply at all.[457] In doing so, companies will make the same calculations regarding the probability of being caught in noncompliance as they will in regards to the likelihood of a private lawsuit. If firms perceive that they will not be caught and that the penalty for being caught is low, then the likelihood that industry will comply with regulatory mandates diminishes. In practice, incomplete and inconsistent enforcement is not uncommon.[458]

Therefore, it is not surprising when evidence suggests that regulatory violations are not rare either.[459] A 2003 EPA report on the

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454 KERWIN & FURLONG, *supra* note 40, at 112.

455 Nicole Blake Johnson, *Spending Bill Deals Steep Budget Cuts to EPA, Interior*, FED. TIMES (July 13, 2011, 6:08 PM), http://www.federaltimes.com/article/20110713/AGENCY01/107130305/; Gabriel Nelson, *EPA Budget Deal Slams State, Regional Programs*, N.Y. TIMES, Apr. 13, 2011, http://www.nytimes.com/gwire/2011/04/13/13greenwire-epa-budget-deal-slams-state-regional-programs-26003.html; Joe Nocera, *Killing Jobs and Making Us Sick*, N.Y. TIMES, Sept. 16, 2011, http://www.nytimes.com/2011/09/17/opinion/nocera-killing-jobs-and-making-us-sick.html.

456 KERWIN & FURLONG, *supra* note 40, at 95, 112 (discussing personnel training, data gathering, rulemaking, and enforcement); Klass 2009, *supra* note 44, at 1570 (rulemaking and enforcement); McGarity 2002, *supra* note 118, at 549 (policing against wrongdoing), 567–68 (enforcement); Meiners & Yandle, *supra* note 23, at 961–62 (data gathering). "The net effect of these and other factors is that rarely, if ever, are agencies with large agendas for rulemaking given the staff and access to the essential expertise that they think they need to get the work done." KERWIN & FURLONG, *supra* note 40, at 112.

457 KOLSTAD, *supra* note 19, at 337–39.

458 Langpap & Shimshack, *supra* note 400, at 235; Czarnezki & Thomsen, *supra* note 23, at 6–7.

459 Thornton et al., *supra* note 53, at 264 ("Evidence abounds that regulatory violations by business firms are far from infrequent."); Sangi, *supra* note 11, at 521 ("[T]he

enforcement of the CWA, for example, showed that "approximately 25 percent of major facilities were in significant noncompliance with their CWA permits at any given time."[460] In fact, a body of empirical evidence suggests that the proliferation of environmental statutes in the 1970s had little to do with improving environmental quality.[461] Rather, environmental quality acts as a superior good: demand grows as income levels rise. Improvements in environmental quality, then, might not be a result of EPA's actions, but rather the result of companies' sensitivity to their public image and desire not to be associated with harm to the environment.[462]

The contention that federal regulatory programs are not responsible for improvements in environmental quality, though, is a hard pill to swallow. I have no doubt that the normal functioning of the market, alongside advances in social norms, economic wellbeing, and science have contributed to improvements in environmental quality. But, as complex as enforcement issues are, I also have no doubt that federal environmental programs including the CAA, CWA, RCRA, and CERCLA (to name a few), have been hugely successful in improving the quality of the air we breathe and the water we drink. EPA's 2010 cost-benefit analysis of the CAA, for example, concluded that the costs of the CAA would reach $65 billion by 2020 while the benefits in improved air quality would reach an astounding $2 trillion.[463] From a cost-effectiveness perspective, then, there is no question that the CAA is a beneficial regulatory program. Nevertheless, large gaps in the design of our federal regulatory programs—for example, the CAA's difficulty in addressing interstate air pollution and the CWA's failure to regulate non-point source pollution—highlight that we can

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effectiveness of uniform federal legal standards is diminished when enforced non-uniformly.").

460 Clifford Rechtschaffen, *Enforcing the Clean Water Act in the Twenty-First Century: Harnessing the Power of the Public Spotlight*, 55 ALA. L. REV. 775, 782–83 (2004); *see also id.* at 781–87 (detailing significant noncompliance with the mandates of the CWA); OFFICE OF ENFORCEMENT & COMPLIANCE ASSURANCE, U.S. ENVTL. PROT. AGENCY, A PILOT FOR PERFORMANCE ANALYSIS OF SELECTED COMPONENTS OF THE NATIONAL ENFORCEMENT AND COMPLIANCE ASSURANCE PROGRAM (2003); Thornton et al., *supra* note 53, at 264.

461 Meiners & Yandle, *supra* note 23, at 948–49 (citing Richard L. Revesz, *Rehabilitating Interstate Competition: Rethinking the "Race-to-the-Bottom" Rationale for Federal Environmental Regulation*, 67 N.Y.U. L. REV. 1210 (1992)).

462 Meiners & Yandle, *supra* note 23, at 948–49.

463 OFFICE OF AIR & RADIATION, U.S. ENVTL. PROT. AGENCY, THE BENEFITS AND COSTS OF THE CLEAN AIR ACT: 1990 TO 2020—SUMMARY REPORT 3 (2010), *available at* http://www.epa.gov/air/sect812/aug10/summaryreport.pdf.

do better. In that light, I submit that tort law has been and will continue to be a valuable policy instrument that Congress should consider with greater frequency.

SYNTHESIS

The appropriate way to approach environmental policy instrument choice is to first ask: Given the liability standards in place, should the government adopt a public regulatory instrument, and/or should it alter liability (or property) entitlements? Drawing on works from the fields of political science, public policy studies, economics, and law, I attempt with this Article to take a much more comprehensive and inter-disciplinary approach in addressing this question than prior studies that appear in the legal literature. Much of the literature has pitted liability standards against public regulation in a zero-sum contest. In reality, though, environmental and public health problems call for multiple policy instruments, and tort law and public regulatory rules usually operate as complements, not substitutes. Policymakers and scholars, therefore, should give additional thought in determining which instruments pair well with tort law. The evaluation criteria I have specified—corrective justice, democratic legitimacy, efficiency, and effectiveness—facilitate a thorough comparative institutional analysis between tort law and public regulation.

There is, however, no standardized method by which to compare the evaluative criteria. In fact, weighing criteria against one another enters the realm of an entirely separate debate. Shavell and Kaplow, for example, argue that policy decisions should always be made on the basis of efficiency, not fairness.[464] Richards reasons that the appropriate policy must achieve its environmental goal, subject to legal and political constraints, while minimizing abatement costs, implementation costs, and negative effects on public finance.[465] This framework seems to make the most sense by incorporating contextual political factors and transaction costs into the analysis. Ultimately, the choice of policy instruments will turn on contextual factors including the nature of the problem, the attributes of the parties involved, the political climate, the available data, and some manifestation of the evaluative criteria.

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464 KAPLOW & SHAVELL, *supra* note 227.

465 Richards, *supra* note 1, at 224–30.

In Shavell's initial framework comparing liability entitlements and public regulation, he concluded that administrative costs and information asymmetries weigh in favor of tort law.[466] My analysis here echoes his conclusions. If tort law's general deterrence signal is functioning effectively, then private parties should be able to avoid engaging the machinery of the judicial system. Even in the case of private litigation, though, the expense to the government is minimal relative to the cost of high-volume rulemaking by administrative agencies whose budgets and personnel resources are already stretched thin. Moreover, the tort law system seems to have the upper hand in its ability to incorporate private information, though plaintiffs often encounter difficulty in generating scientific data and uncovering the precise causal chain of events that led to their misfortune. I also believe that the courts' greater insulation from undue interest-group influence, relative to Congress and agencies, weighs slightly in favor of liability entitlements. Interest group influence is a source of asymmetry in several areas of the policy process: industry and special interests have an informational advantage over the government and the public, they undemocratically influence public decision making to the disadvantage of the citizenry, and they undermine the effectiveness and efficiency of public regulations for personal financial gain.

Perhaps the most powerful arguments in favor of increased reliance on liability entitlements as policy instruments, however, are their corrective justice function and political constraints on the enactment of other public policy instruments. While tort law functions as a policy tool through a general deterrence effect, its equally (and perhaps more) important dual purpose is to act as a compensation mechanism for victims. Alternative compensation mechanisms seem to be politically and financially infeasible. And, there is something to be said about victims being able to collect compensation from the parties who injured them: justice is an important function of our legal system that should not be forgotten or disregarded in a discussion about public policy. Neither should political constraints be underestimated. In the present political climate, discussions about pollution taxes and marketable allowances are simply (and unfortunately) non-starters. Despite rollbacks of liability entitlements by tort reform statutes in other areas (e.g., against gun manufacturers), environmental rights of action have persisted and even flourished, as

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466 Shavell 1984, *supra* note 4, at 365.

in the case of ecological nuisances.[467] Furthermore, there is something attractive to progressives and libertarians alike in enabling victims of pollution to hold their wrongdoers accountable in court.

Of course, several other evaluation criteria weigh in favor of public regulation. Despite the influence of special interests, public access to the policy-making process and the ability to hold legislators accountable for their policy choices are advantages of the public regulatory system. Democratic legitimacy should constrain instrument choice. That is, no environmental policy should undermine constitutional democratic principles. For reasons explained above, though, acknowledging the regulatory effects of the tort system is not undemocratic per se. Even though standards of care are communal standards, there is reason to suspect that standards established through cases that focus on narrow sets of facts do not reflect the collective will of the citizenry. What's more, public participation in environmental lawmaking could possibly have the effect of incorporating large amounts of private information into public regulatory schemes.[468] The expertise of agency and congressional staff that goes into the formation of those regulatory programs is also an advantage of public regulation. While judges and juries have the benefit of considering expert testimony, *Daubert* has (perhaps misguidedly) increased the burdens on plaintiffs who seek to present that testimony to them.

Additionally, I again echo Shavell's conclusion that capital constraints on the ability of polluters to pay damages and the likelihood that culpable parties may not face lawsuits significantly impair the effectiveness of tort law as policy tool. Plaintiffs often encounter great difficulty determining that they have been victims of a wrongful action, identifying the wrongdoer(s), establishing causation, and overcoming collective action problems. With plaintiffs facing so many barriers, general deterrence appears to be a weak regulatory mechanism.

Regardless, the weaknesses of tort law do not validate the alternative: that plaintiffs must often overcome high transaction costs does not signify that public regulation is always more effective.[469] With strained budgets and time, agencies must design and enforce highly complex regulations in the face of opportunistic firms while

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467 *See* Czarnezki & Thomsen, *supra* note 23, at 2 ("A rebirth of the common law is already occurring.").

468 LAZARUS, *supra* note 95, at 189–90.

469 Wagner, *supra* note 263, at 710.

overcoming the perils of regulatory and information capture. Nevertheless, studies have shown that many public regulatory programs are, in fact, cost-effective. Few studies, on the other hand, have attempted to measure the effectiveness of environmental tort suits. With empirical evidence lacking, "one encourages or discourages tort litigation [as a policy tool] with great caution and little confidence."[470]

I have, however, identified the circumstances in which tort law will theoretically be most and least effective. As a preliminary matter, tort law's greatest strength is to provide victims with a mechanism to collect compensation from wrongdoers when they have been unjustly injured. Environmental statutes, therefore, should preserve state liability remedies as a compensation mechanism when there is no alterative compensatory policy in place. It is tort law's greatest weakness—imperfection in its deterrence signal—however, that dictates when it will be most effective. The factors that muddle the deterrence signal include the perceived likelihood that a suit may not be brought (because of plaintiffs' high transaction costs), capital constraints on businesses, and the behavioral characteristics of managers.

There is reason to believe that tort law will be most effective, then, in cases that involve a concentrated harm from a concentrated source—so-called paradigm cases.[471] While the incidence of a paradigm case would not address a tortfeasor's capital constraints, it would mitigate the effects of the other two factors. Generally, the more distinct the harm, the easier it will be for the plaintiff to identify herself as the victim of a wrongdoing and establish a causal connection between her injury and the wrongful action; and the more concentrated the source, the easier it will be for the plaintiff to identify the responsible party. Moreover, in certain instances where a liability entitlement exists to govern the activity of a readily identifiable group of potential polluters, those firms' perceptions of their exposure to liability would grow concordantly—potentially mitigating the effects of managers' behavioral tendencies. Both the plaintiffs' transaction costs and firms' inclinations to discount the likelihood of litigation, however, will likely increase as the harm and the sources grow more diffuse.[472]

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470 Shavell 1984, *supra* note 3, at 6.

471 Brennan, *supra* note 88, at 46; Latham et al., *supra* note 114, at 753; Menell, *supra* note 44, at 110; Schroeder, *supra* note 44, at 599.

472 Hylton, *supra* note 57, at 529–30; Schroeder, *supra* note 44, at 601–02.

A notable strength of the tort system is its capacity to incorporate privately held information from both injured parties and risk-taking firms. Therefore, when the government encounters information asymmetries that are skewed heavily toward industry or lacks information on the extent and nature of the harm, then policymakers will want to take special care to preserve tort law and should consider a statutory liability entitlement—as in the case of hazardous waste and CERCLA. Also recall that standards are cheaper to promulgate than rules, but are more expensive to apply.[473] Given the low governance costs associated with liability standards and the higher relative costs of rulemaking, policymakers should prefer tort law to regulate heterogeneous activities—precisely the activities that will present information asymmetries.

Finally, complementing public regulations with state tort law builds multidimensional institutional diversity and reflexivity into policy instruments by involving actors at local, state, and federal levels.[474] As tort standards evolve, those that prove unworkable (or that function as poor policy complements) will be weeded out while those that prove more beneficial may enhance the function of their complementary policy tools.

All things considered, the usefulness of tort law as an environmental policy instrument presents a fundamental question regarding the role of liability entitlements that policymakers should take more care to resolve than they have in the past. Notably, many of the major environmental statutes have savings clauses that preserve state liability law. Congress decided to preserve state tort law not only to serve as a compensatory mechanism for victims, but also to function as a higher regulatory standard (if states so choose) that may rise above the floor established by federal regulations, to catch cases that fall through regulatory gaps, and to address novel harms.[475] However, many of those clauses, as well as areas in which Congress does intend to preempt state law, lack clarity: "In many of the recent preemption cases the Court has considered, . . . Congress has not been clear about whether it intends to preempt state tort law or whether it

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473 Eagle, *supra* note 323, at 618–19; Kaplow, *supra* note 14, at 563–64.

474 Butler, *supra* note 14, at 744–45; Buzbee, *supra* note 19, at 1576.

475 Abraham, *supra* note 5, at 391; Czarnezki & Thomsen, *supra* note 23, at 2–3, 29–30; Kaswan, *supra* note 68, at 101, 103; Klass 2007, *supra* note 157, at 547 (discussing common law in the age of "new federalism"); McGarity 2005, *supra* note 170, at 372–73; Meiners & Yandle, *supra* note 23, at 959–61; Sangi, *supra* note 10, at 482 (criticizing *TVA*).

intends to delegate to federal agencies the power to preempt state tort law through regulation."[476] The Court must then decide whether or not to defer to bureaucratic decisions to preempt state tort law. To avoid the confusion that contributed to the rise of these cases and misguided decisions, such as the Fourth Circuit's preemption ruling in *TVA*, Congress should be more explicit regarding the instances in which it intends to preempt state law.

The literature addressing liability entitlements as a policy tool has thus far framed the debate as one between common law against public law. However, tort law does not have to be common law at all. Rather, Congress can employ liability entitlement as a public regulatory tool, designed by expert agencies and carefully woven into the regulatory fabric of a statutory program as a private information-gathering, enforcement, deterrence, and compensation mechanism. In an increasingly gridlocked policy-making climate overshadowed by an anti-environment House, policymakers and courts must be exceedingly innovative and, when circumstances call for it, more seriously embrace tort law as an environmental policy instrument.

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476 Klass 2009, *supra* note 44, at 1570.