

# VALUING THE PUBLIC HEALTH ASPECTS OF ENVIRONMENTAL ENFORCEMENT: QUALITATIVE VERSUS QUANTITATIVE EVALUATIONS OF ENFORCEMENT EFFORT

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*It is clear, then, that rhetorical study, in its strict sense, is concerned with modes of persuasion. Persuasion is clearly a sort of demonstration, since we are most fully persuaded when we consider a thing to have been demonstrated.*

Aristotle, Rhetoric<sup>1</sup>

## INTRODUCTION

It would be difficult to contest the status of pollution as a public health problem.<sup>2</sup> Indeed, federal pollution control statutes such as the Clean Air Act, Safe Drinking Water Act, and the Clean Water Act explicitly acknowledge this connection.<sup>3</sup> Nevertheless, the public health value of particular enforcement actions are not always easy to discern. As a result, this Article argues, most basically, that the rhetoric of enforcement reporting matters. How the EPA and its OECA choose to justify their enforcement efforts can make a significant difference in how the general public—and Congress—understand the

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1. LEE HONEYCUTT, ARISTOTLE'S RHETORIC, at § 1355a, available at <http://www.public.ia.state.edu/~honeyl/Rhetoric>.
2. Robin Kundis Craig, *Removing "The Cloak of a Standing Inquiry": Pollution Regulation, Public Health, and Private Risk in the Injury-in-Fact Analysis*, 29 CARDOZO L. REV. 149, 152–54 (Oct. 2007). See generally Wendy Wagner & Lynn Blais, *Children's Health and Environmental Exposure Risks: Information Gaps, Scientific Uncertainty, and Regulatory Reform*, 17 DUKE ENVTL. L. & POL'Y F. 249 (Spring 2007); Jessica E. Yates, Note, *Pollution and Health Care Costs: States Can and Should Seek Medicaid Reimbursement from Big Polluters*, 24 VA. ENVTL. L.J. 423 (2006); Todd Stedeford et al., *Environmental Quality and Health: Got Merc? Regulating, Mitigating, and Litigating Mercury Levels for the Fish We Eat*, 20 J. LAND USE & ENVTL. L. 503 (Spring 2005).
3. Craig, *supra* note 2, at 155–56, 158–69.

relationship between pollution regulation and protection of the public health and hence how they value environmental regulation in the first place.<sup>4</sup>

In general, people will support regulation to protect both the environment and public health. For example, the Office of Management and Budget (OMB) has noted that, “[a]ll other factors being equal, the public prefers products, technologies, production facilities, and waste-disposal methods that do not pose unreasonable risks to human health, safety, and the environment.”<sup>5</sup>

Environmental protection is certainly an important and worthy goal. Moreover, protection of ecological systems and their ecosystem services can itself produce public health benefits,<sup>6</sup> albeit generally a bit less directly than other aspects of pollution regulation. For example, the Millennium Ecosystem Assessment noted that “habitat fragmentation, with subsequent biodiversity loss, increases the prevalence in ticks of the bacteria that causes Lyme disease in North America.”<sup>7</sup>

Nevertheless, environmental regulation by definition imposes limitations on private individuals and entities, and those limitations become most acutely obvious in the context of government enforcement actions. As a result, there always has been and likely always will be resistance to environmental regulation and enforcement, at least in many circumstances.<sup>8</sup> For example, as Daniel Farber, Richard L. Revesz, and Michael Livermore have all recently

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4. David Markell has made a similar argument regarding the potential for EPA’s penalty assessments to educate the public about ecosystem services affected by environmental violations, noting that civil penalty assessments can become the mechanism for “data-gathering and valuation efforts to learn more about the particular resources involved,” and that “learning the Agency derives from calculating a ‘harm-based’ penalty for one set of violations may provide information that will facilitate understanding, protecting, and restoring ecosystems and the services they provide in a wide range of contexts.” David Markell, *Is There a Possible Role for Regulatory Enforcement in the Effort to Value, Protect, and Restore Ecosystem Services?*, 22 J. LAND USE & ENVTL. L. 549, 571–72 (Spring 2007).
  5. OFFICE OF INFORMATION AND REGULATORY AFFAIRS, OFFICE OF MANAGEMENT AND BUDGET, *INFORMING REGULATORY DECISIONS: 2003 REPORT TO CONGRESS ON THE COSTS AND BENEFITS OF FEDERAL REGULATIONS AND UNFUNDED MANDATES ON STATE, LOCAL, AND TRIBAL ENTITIES* 51 (2003), available at [http://www.whitehouse.gov/omb/inforeg/2003\\_cost-ben\\_final\\_rpt.pdf](http://www.whitehouse.gov/omb/inforeg/2003_cost-ben_final_rpt.pdf) [hereinafter 2003 OIRA COST-BENEFIT REPORT].
  6. See, e.g., MILLENNIUM ECOSYSTEM ASSESSMENT, *ECOSYSTEMS AND HUMAN WELL-BEING: SYNTHESIS* 50 Box Fig. A (noting that provisioning, regulating, and cultural ecosystem services all contribute to human health), 51 Box Table (listing water-borne diseases associated with fresh water ecosystem services), 88 (noting that disease emergence is associated with nonlinear changes to ecosystems), 114–16 (describing disease regulation as an ecosystem service) (2005), available at <http://www.millenniumassessment.org/documents/document.356.95pt.pdf>.
  7. *Id.* at 114.
  8. Of course, not all regulated entities resist every form of environmental regulation. Nevertheless, such resistance is a recognized and recurring theme in environmental law. Most famously, perhaps, the relevant industries have repeatedly resisted regulation under the Clean Air Act. See, e.g., *Lead Indus. Ass’n, Inc. v. Envtl. Prot. Agency*, 647 F.2d 1130 (D.C. Cir. 1980), *cert. denied*, 449 U.S. 1042 (dealing with the National Ambient Air Quality Standards for Lead).

analyzed, regulators and industry alike have long used cost-benefit analysis in the U.S. to resist more stringent environmental regulation.<sup>9</sup>

Thus, while it is clear that, overall, environmental enforcement is itself a public good<sup>10</sup> that protects both public health and the environment, maintaining a level of popular and political support for environmental regulation and enforcement through clear acknowledgement and articulation of the public benefits of such regulation remains important to the continued viability of environmental law.<sup>11</sup> In particular, in light of the fact that regulated entities often resist environmental law, the directly cognizable public health benefits from pollution regulation offer strong rhetorical and political arguments in favor of such regulation and its effective enforcement, especially during a flailing economy.

Articulating the public health benefits of the pollution control laws thus can make enforcement of these statutes—particularly when compliance involves significant expense or effort—more palatable to the regulated public. Like judges, the EPA is an “agent[] of public norm articulation.”<sup>12</sup> However, while it may be true that “law influences behavior expressly by what it says, independent of what it threatens,”<sup>13</sup> it is also true that a regulated public will more willingly tolerate cost-imposing regulation and its enforcement if it perceives benefits, both direct and indirect, from that regulation. For better or for worse, public health benefits are legally, politically, and rhetorically more compelling than more purely “environmental” benefits. For example, while keeping pollutants out of waterways to make rivers and streams “cleaner” and better habitat for fish is a worthy goal, it packs nowhere near the political punch of punishing water polluters who are putting populations at risk of

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9. See Daniel A. Farber, *Rethinking the Role of Cost-Benefit Analysis*, unpublished manuscript, available at <http://ssrn.com/abstract=1324388>, at 5–20 (reviewing and building upon a similar analysis of CBA in RICHARD L. REVESZ & MICHAEL A. LIVERMORE, *RETAKING RATIONALITY: HOW COST-BENEFIT ANALYSIS CAN BETTER PROTECT THE ENVIRONMENT AND OUR HEALTH* (2008)); see also FRANK ACKERMAN & LISA HEINZERLING, *PRICELESS: ON KNOWING THE PRICE OF EVERYTHING AND THE VALUE OF NOTHING* 211 (2004) (expressing the same skepticism regarding the political/regulatory agenda behind the use of CBA).
  10. See, e.g., Elizabeth Chamblee Burch, *CAFA's Impact on Litigation as a Public Good*, 29 *CARDOZO L. REV.* 2517, 2518–19 (May 2008) (describing public goods and noting that “[o]ptimally deterring wrongdoing through litigation is one example of a public good.”). Optimally deterring environmental violations through enforcement is a similar example of a public good that the market will not provide.
  11. See Jody Freeman, *The Private Role in Public Governance*, 75 *N.Y.U. L. REV.* 543, 547–49, 551–56 (2000) (discussing the roles of private actors in administrative law and suggesting the possibility of “harnessing private capacity to serve public goals”).
  12. Richard G. Bone, *Lon Fuller's Theory of Adjudication and the False Dichotomy Between Dispute Resolution and Public Law Models of Litigation*, 75 *B.U. L. REV.* 1273, 1301 (1995).
  13. Richard H. McAdams, *The Expressive Power of Adjudication*, 2005 *U. ILL. L. REV.* 1043, 1050 (2005).

cholera and typhoid outbreaks or contributing to the poisoning of downstream residents through mercury and PCB contamination of food fish.<sup>14</sup>

Unfortunately, the public health benefits of pollution control laws are not always obvious. This obscurity can become particularly opaque in the context of individual enforcement actions, because the full public health benefits of environmental regulation derive from the *collective* reductions of pollutants in the air, on land, in streams, and in drinking water. Individual minor violations may not, in fact, have that great an impact on the public health. As a result, it can become easy for both the public and the courts to disconnect regulatory requirements imposed on individual regulated entities from public benefits. This disconnection, in turn, often creates what Shi-Ling Hsu has termed an identifiability bias in environmental law, where the impacts of regulatory requirements on regulated entities become more immediately cognizable than the public benefits that environmental law provides.<sup>15</sup>

Because public health benefits in particular can be obscure, the Environmental Protection Agency's (EPA's) annual enforcement assessments and reports, prepared by its Office of Enforcement and Compliance Assurance (OECA), become important vehicles for communicating the public benefits of environmental enforcement efforts to Congress and the American public. Since 2005, OECA has been reporting specifically on the public health benefits of its Clean Air Act enforcement efforts. This new reporting metric demonstrates the rhetorical power of specific and qualitative assessments of the public health benefits that pollution regulation and enforcement provide. However, because OECA has been using it only for Clean Air Act enforcement, and *not* for enforcement actions pursuant to other federal statutes with important public health connections, like the Clean Water Act, the Resource Conservation and Recovery Act (RCRA), or even the Safe Drinking Water Act, the new public health metric also underscores the rhetorical anemia of the EPA's more traditional quantitative measures of enforcement effort.

This Article begins in Part I by reviewing the use of public health benefits in more general cost-benefit analyses of the pollution control statutes. Part II then looks at OECA's new public health rhetoric in its enforcement reports, assessing the rhetorical strength of this new metric, while Part III contrasts that new reporting with OECA's more traditional quantitative

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14. See ROBIN KUNDIS CRAIG, *THE CLEAN WATER ACT AND THE CONSTITUTION: LEGAL STRUCTURE AND THE PUBLIC'S RIGHT TO A CLEAN AND HEALTHY ENVIRONMENT* 56–59 (2004) (discussing interstate water pollution litigation based in fears of typhoid from sewage discharges); Craig, *supra* note 2, at 205–21 (discussing health risks from mercury discharges).

15. Craig, *supra* note 2, at 156–57, 169–74, 183–86, 208–10; Shi-Ling Hsu, *The Identifiability Bias in Environmental Law*, 35 FLA. ST. U. L. REV. 433, 440–51 (Winter 2008).

measures of enforcement effort—measures that OECA largely retains for statutes other than the Clean Air Act. While acknowledging the difficulties of producing quantitative public health benefit calculations for all of the major federal pollution control statutes, this Article concludes that the EPA and OECA could beneficially strengthen the rhetoric describing their enforcement efforts by providing more, and more prominent, *qualitative* assessments of the public values of certain kinds of enforcement actions, across statutory regimes.

#### I. COST-BENEFIT AT THE LARGE SCALE: USING PUBLIC HEALTH TO JUSTIFY THE COSTS OF ENVIRONMENTAL REGULATION

A number of entities have produced cost-benefit studies of environmental regulation in general and pollution control regulation specifically. Many of these studies have relied at least partially on public health benefits to conclude that the public benefits of environmental regulation clearly outweigh the costs imposed on polluters.

General analyses of environmental regulations confirm that pollution control provides a net public benefit. For example, in 2003, OMB reported that the various benefits of 107 federal regulations promulgated between 1992 and 2002 were worth \$146 to \$230 billion annually, greatly exceeding the regulations' annual costs of \$36 to \$42 billion.<sup>16</sup> More specifically, regulations from the EPA alone produced benefits worth \$1.25 billion to over \$4.8 billion annually, while imposing costs of only \$192 million.<sup>17</sup> Thus, environmental regulation fairly clearly provides a net public benefit, especially where public health concerns are involved.

Many assessments of the costs and benefits of pollution regulation have focused particularly on the Clean Air Act. The Clean Air Act is a health-based statute: the EPA must identify criteria pollutants to regulate on the basis that emissions of those pollutants “cause or contribute to air pollution which may

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16. 2003 OIRA COST-BENEFIT REPORT, *supra* note 5, at 3.

17. *Id.* at 6 tbl. 1. Notably, as the report acknowledged, Clean Air Act regulation claimed a disproportionate share of benefits among all federal regulations studied:

It is important to note that of the 107 rules reviewed by OMB over the last ten years, four EPA rules—two rules limiting particulate matter and NOx emissions from heavy duty highway engines, the Tier 2 rule limiting the emissions from light duty vehicles, and the Acid Rain rule . . . — account for a substantial fraction of the aggregate benefits reported . . . . These four EPA rules have estimated benefits of \$101 to \$119 billion per year and costs of \$8 to \$8.8 billion per year. The aggregate benefits and costs for the other 103 rules are \$41 to \$107 billion and \$29 to \$34 billion, respectively.

*Id.* at 8.

reasonably be anticipated to endanger public health or welfare,”<sup>18</sup> and it then establishes primary National Ambient Air Quality Standards (NAAQS) at levels “requisite to protect the public health,” including “an adequate margin of safety.”<sup>19</sup> However, the Act itself requires the EPA to compile comprehensive cost-benefit analyses of air pollution regulation.<sup>20</sup>

In its initial cost-benefit analysis of the Clean Air Act, covering the cumulative costs and benefits of air pollution regulation from 1970 through 1990, the EPA concluded that the total cumulative direct costs of compliance were \$523 billion.<sup>21</sup> The EPA did not monetize *all* of the health benefits of air pollution regulation. However, it did provide a fairly specific list of the non-monetized benefits, which included avoiding such diverse effects as chronic respiratory disease, angina, eye irritation, and IQ loss from lead poisoning.<sup>22</sup> Moreover, the EPA *did* monetize many of the public health benefits,<sup>23</sup> concluding that “[t]he total monetized benefits of the Clean Air Act realized during the period from 1970 to 1990 range from 5.6 to 49.4 trillion dollars, with a central estimate of 22.2 trillion dollars.”<sup>24</sup> Subtracting the direct costs of approximately \$0.5 trillion meant that, over 20 years, the Clean Air Act produced net public benefits—largely public health benefits—of “5.1 to 48.9 trillion dollars, with a central estimate of 21.7 trillion dollars.”<sup>25</sup> The public health benefits of the Clean Air Act were thus clearly substantial, and they clearly outweighed the costs of regulation by at least an order of magnitude.

In 1999, the EPA published its first prospective cost-benefit analysis of the Clean Air Act, estimating costs and benefits from 1990 to 2010.<sup>26</sup> This study’s confidence intervals suggested that under some low-probability scenarios the Act’s yearly costs could outweigh its yearly benefits by 2000; however, the mean estimates indicated that the Act would produce net benefits of \$52 billion *per year* in 2000 and \$83 billion *per year* in 2010,<sup>27</sup> with a total

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18. 42 U.S.C. § 7408(a)(1) (2006).

19. 42 U.S.C. § 7409(b)(1) (2006). The U.S. Supreme Court has confirmed that NAAQS are purely health-based standards and that the EPA Administrator may not consider costs when setting them. *Whitman v. American Trucking Assns.*, 531 U.S. 457, 466–71 (2001).

20. 42 U.S.C. § 7612(a) (2006).

21. U.S. EPA, THE BENEFITS AND COSTS OF THE CLEAN AIR ACT, 1970 TO 1990, at ES-2 (Oct. 15, 1997), available at <http://www.epa.gov/oar/sect812/retro.html>.

22. *Id.* at ES-5, tbl. ES-2.

23. *Id.* at ES-6, tbl. ES-3.

24. *Id.* at ES-8.

25. *Id.*

26. OFFICE OF AIR AND RADIATION & OFFICE OF POLICY, U.S. EPA, THE BENEFITS AND COSTS OF THE CLEAN AIR ACT 1990 TO 2010 (Nov. 1999), available at <http://www.epa.gov/oar/sect812/1990-2010/fullrept.pdf>.

27. *Id.* at iii tbl. ES-1.

of mean estimated net benefits over the 20-year period of \$510 billion.<sup>28</sup> Again, the benefits of air pollution regulation prominently included public health benefits. Specifically, the benefits monetized:

[I]nclude reduced incidence of a number of adverse human health effects, improvements in visibility, and avoided damage to agricultural crops. The estimated annual economic value of these benefits in the year 2010 ranges from \$26 to \$270 billion, in 1990 dollars, with a central estimate, or mean, of \$110 billion. These estimates do not include a number of other potentially important effects which could not be readily quantified and monetized (i.e., converted to dollar terms). These excluded effects include a wide range of ecosystem changes, air toxics-related human health effects, and a number of additional health effects associated with criteria pollutants.<sup>29</sup>

The EPA has been compiling a second prospective study, to cover costs and benefits from 1990 to 2020, since 2003.<sup>30</sup> In the interim, other researchers have confirmed the public health benefits of air pollution regulation. For example, in 2005, researchers at MIT reported that air pollution regulation provided \$400 billion in health benefits in 2000 (measured in 1997 dollars), while remaining air pollution problems imposed \$200 billion in health care costs.<sup>31</sup>

Cost analyses of other health-based environmental statutes have been more ambiguous but nevertheless suggest that pollution regulation generally provides a relatively lost-cost means of reducing significant public health risks, particularly non-cancer risks. For example, drinking water treatment is widely recognized to reduce or even eliminate the spread of many diseases, including diarrhea, typhoid, trachoma, cholera, and dracunculiasis (Guinea worm disease).<sup>32</sup> To address these concerns in the United States, the Safe Drinking Water Act, like the Clean Air Act, is a health-based statute: the EPA regulates contaminants that “may have an adverse effect on the health of persons”<sup>33</sup> and sets maximum contaminant level goals (MCLG) “at the level

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28. *Id.* at v.

29. *Id.* at iv.

30. See Office of Air and Radiation, U.S. EPA, *Benefits and Costs of the Clean Air Act: Second Prospective Study*, <http://www.epa.gov/oar/sect812/prospective2.html> (last updated Mar. 25, 2008) (presenting interim documents contributing to that study).

31. Kira Matus et al., “Benefits of Environmental Regulation: Calculating the Economic Gains from Better Health,” in MIT Laboratory for Energy and the Environment, *Energy & Environment* 6, 7 (July 2005), available at [http://lfee.mit.edu/public/e%26e\\_July05\\_FINAL.pdf](http://lfee.mit.edu/public/e%26e_July05_FINAL.pdf).

32. MILLENNIUM ECOSYSTEM ASSESSMENT, *supra* note 6, at 51 Box Table.

33. 42 U.S.C. § 300g-1(b)(1)(A)(i) (2006).

at which no known or anticipated adverse effects on the health of persons occur and which allows an adequate margin of safety.”<sup>34</sup>

Nevertheless, criticisms arose that costs of treating drinking water were grossly disproportionate to the health benefits derived. Resulting cost-benefit analyses of the Safe Drinking Water Act demonstrate, among other things, the variety of ways of presenting public health costs and benefits, including whether to focus on the costs of water treatment to consumers or to governments or the country as a whole, the value of illnesses avoided, the costs of medical treatment for illnesses that occur, and/or the severity and inconvenience of illnesses either avoided or suffered. For example, in 1995, the Congressional Budget Office (CBO) noted that 80% of households pay less than \$20 per year for water treatment<sup>35</sup> and 91% pay less than \$30 per year, suggesting that drinking water regulation in general imposes fairly limited costs on the protected public.<sup>36</sup> Similarly, non-cancer health benefits, measured in terms of cost per case avoided, generally appeared reasonable: the cost per case of giardia avoided, for example, was only \$782 to \$978.<sup>37</sup> However, the CBO also pointed out that the total costs of drinking water treatment run \$1.4 billion to \$2.3 billion per year<sup>38</sup> and that the cost per case of cancer avoided could run from \$867,000 to \$8.67 billion, depending on the pollutant involved.<sup>39</sup>

If nothing else, therefore, this study made clear that the rhetoric regarding the public health benefits from environmental regulation matters. Specifically, environmental regulation can be made to seem more reasonable or more unreasonable depending on the exact discussion metric chosen. As Aristotle himself observed so many centuries ago, the important second method of persuasion is “putting the audience into a certain frame of mind.”<sup>40</sup> An equally important component of this rhetoric, however, is the goal sought:<sup>41</sup> cost-benefit analyses by entities seeking to avoid regulation will make different

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34. 42 U.S.C. § 300g-1(b)(4)(A) (2006).

35. CONGRESSIONAL BUDGET OFFICE, THE SAFE DRINKING WATER ACT: A CASE STUDY OF AN UNFUNDED FEDERAL MANDATE 13 (Sept. 1995), available at <http://www.cbo.gov/ftpdocs/48xx/doc4804/EntireReport.pdf>.

36. *Id.* at 24.

37. *Id.* at 29.

38. *Id.* at 10.

39. *Id.* at 25, 28.

40. HONEYCUTT, *supra* note 1, at § 1356a.

41. *See, e.g.*, Rob Atkinson, *Lawyering in Law's Republic*, 85 VA. L. REV. 1505, 1506 (Oct. 1999) (noting that “Socrates forced the leading rhetoric teacher of his day, the Sophist Gorgias, to admit that training in the art of persuasion is socially pernicious unless tempered with an understanding of substantive justice.”); Rob Atkinson, *A Dissenter's Commentary on the Professionalism Crusade*, 74 TEX. L. REV. 259, 336 (Dec. 1995) (arguing similarly that rhetoric is not just about persuasion, but also about seeking proper ends).

rhetorical choices than cost-benefit analyses by entities promoting the most extensive public protections.

More recently, the EPA wrestled with the problem of justifying its arsenic regulation for drinking water, and it more comprehensively defined the public health benefits of the regulation in doing so. In 2001, in response to a National Academy of Sciences report, the EPA lowered the drinking water standard for arsenic from 50 parts per billion (ppb) to 10 ppb.<sup>42</sup> While the EPA explicitly noted that the arsenic rule would benefit 13 million Americans,<sup>43</sup> it had difficulty quantifying the health benefits. Nevertheless, its qualitative list of the health problems arsenic causes was compelling. As the EPA explained to the public, the MCLG for arsenic is actually zero because of the health impacts that arsenic can have:

Some people who drink water containing arsenic in excess of EPA's standard over many years could experience skin damage or problems with their circulatory system, and may have an increased risk of getting cancer. Health effects might include:

- Thickening and discoloration of the skin, stomach pain, nausea, vomiting, diarrhea, and liver effects;
- Cardiovascular, pulmonary, immunological, neurological (e.g., numbness and partial paralysis), reproductive, and endocrine (e.g., diabetes) effects;
- Cancer of the bladder, lungs, skin, kidney, nasal passages, liver, and prostate.<sup>44</sup>

Moreover, the costs of the regulation were fairly limited, especially for citizens served by large systems: "For small community water systems (those serving fewer than 10,000 people), the increase in [average annual household] cost is expected to range between \$38 and \$327. For community water systems that serve greater than 10,000 people, annual household costs for water are expected to increase from \$0.86 to \$32."<sup>45</sup>

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42. Office of Ground Water and Drinking Water, U.S. EPA, *Arsenic Rule*, <http://www.epa.gov/safewater/arsenic/regulations.html> (last updated Sept. 13, 2006).

43. Office of Ground Water and Drinking Water, U.S. EPA, *Fact Sheet: Drinking Water Standard for Arsenic* (Jan. 2001), available at [http://www.epa.gov/safewater/arsenic/regulations\\_factsheet.html](http://www.epa.gov/safewater/arsenic/regulations_factsheet.html).

44. Office of Ground Water and Drinking Water, U.S. EPA, *Fact Sheet: Just the Facts for Consumers: Arsenic in Your Drinking Water 1* (March 2007), available at [http://www.epa.gov/safewater/arsenic/pdfs/fs\\_arsenic\\_justthefactsforconsumers.pdf](http://www.epa.gov/safewater/arsenic/pdfs/fs_arsenic_justthefactsforconsumers.pdf).

45. Office of Ground Water and Drinking Water, U.S. EPA, *Fact Sheet: Drinking Water Standard for Arsenic* (Jan. 2001), available at [http://www.epa.gov/safewater/arsenic/regulations\\_factsheet.html](http://www.epa.gov/safewater/arsenic/regulations_factsheet.html).

The literature discussing the propriety and limitations of using cost-benefit analyses in environmental regulation is extensive and varied.<sup>46</sup> This Article largely sidesteps that debate and instead pragmatically accepts such analyses as a given in environmental law—a facet of environmental regulation that, however questionable its use in particular circumstances or its incorporation of specific methodologies, and with full acknowledgement of its potential for manipulation and politicization, is unlikely to disappear any time soon.

Nevertheless, one under-emphasized aspect of environmental cost-benefit analysis is that it encourages, arguably forces, agencies and other analyzers to identify appropriate costs and benefits to measure, explicitly articulating the sometimes obscure particulars of how a specific statute or regulation will affect human lives and well-being. Thus, cost-benefit analyses that seek to incorporate public health benefits generate metrics of evaluation that are at least potentially helpful in promoting congressional and public support for continuing pollution regulation—and that might otherwise remain veiled from public consciousness.

In this regard, the Clean Air Act analyses discussed above are instructive. They indicate that the process of cost-benefit analysis, and particularly of monetizing (or attempting to monetize) public health benefits, has four salutary effects for rhetoric justifying environmental law. First, the process of cost-benefit analysis itself, including publication, increases public access to information about the public health benefits of pollution regulation and enforcement. Second, when the EPA *can* monetize the public health benefits of pollution regulation, those dollar amounts tend to be large, immediately

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46. See, e.g., Stephen Clowney, *Environmental Ethics and Cost-Benefit Analysis*, 18 FORDHAM ENVTL. L. REV. 105, 108 (Fall 2006) (noting that “[a] new generation of scholars, working primarily through the lens of environmental law, is casting fresh doubts on the basic desirability of CBA as a policy-making tool.”); Frank Ackerman, Lisa Heinzerling, & Rachel Massey, *Applying Cost-Benefit to Past Decisions: Was Environmental Protection Ever a Good Idea?*, 57 ADMIN. L. REV. 155, 157–58 (Winter 2005) (arguing that prospective cost-benefit analysis is inherently biased against environmental regulation, even if retrospective analyses reveal significant benefits); David M. Driesen, *Distributing the Costs of Environmental, Health, and Safety Protection: The Feasibility Principle, Cost-Benefit Analysis, and Regulatory Reform*, 32 B.C. ENVTL. AFF. L. REV. 1, 7, 66–91 (2005) (suggesting feasibility analysis as an alternative to and measure of the worth of cost-benefit analysis); Lynn E. Blais, *Beyond Cost/Benefit: The Maturation of Economic Analysis of the Law and Its Consequences for Environmental Policymaking*, 2000 U. ILL. L. REV. 237, 244–53 (arguing that the cost-benefit analyses and risk-risk analyses employed to date have been “rudimentary” and that environmental law needs to evolve to fully incorporate incommensurability theory). See generally RICHARD L. REVESZ & MICHAEL A. LIVERMORE, RETHINKING RATIONALITY: HOW COST-BENEFIT ANALYSIS CAN BETTER PROTECT THE ENVIRONMENTAL AND OUR HEALTH (2008); FRANK ACKERMAN & LISA HEINZERLING, PRICELESS: ON KNOWING THE PRINCE OF EVERYTHING AND THE VALUE OF NOTHING (2004); CASS R. SUNSTEIN, THE COST-BENEFIT STATE (2002).

suggesting the importance of those benefits. Third, even when the EPA cannot attach dollar amounts to public health benefits, or the monetized benefits are not significantly greater than the costs of regulation, the analytical process nevertheless forces the agency to compile lists of specific benefits from that regulation—that is, qualitative explanations of how various types of pollution impact human health in ways that are graphically meaningful to the public. Moreover, these lists tend to be impressively long, identifying a wide and sometimes surprising range of public health benefits (e.g., reduced heart attacks from air pollution regulation). Finally, the results of the analytical process often demonstrate that public health benefits from pollution regulation are widespread, as when the EPA emphasized that the arsenic rule would improve drinking water safety for 13 million people.

This Article goes one step further and argues that the second and third aspects of the cost-benefit analytical results are as, if not more, important than the numbers that the EPA actually attaches to particular health benefits. Listing specific health benefits for millions of Americans can provoke a visceral valuation of environmental regulation in the reader by providing graphic descriptions of the problems that various pollutants cause. Moreover, unlike the OMB, it is unclear that citizens would balk at an \$867,000—or perhaps even an \$8 billion-price tag to significantly reduce their risks of diseases such as cancer—at least once they know that those risks exist.

## II. COST-BENEFIT AT THE SMALL SCALE: OECA'S RECENT PUBLIC HEALTH EVALUATIONS OF ENVIRONMENTAL ENFORCEMENT

Since the end of FY 2005, the EPA and OECA have been incorporating this more graphic approach to assessing benefits into their annual enforcement reports, focusing explicitly on the public health benefits of those enforcement actions.<sup>47</sup> For that year, and looking at only the reductions in emissions of nitrogen oxides (NO<sub>x</sub>) and sulfur oxides (SO<sub>x</sub>), OECA estimated that ten of the EPA's Clean Air Act enforcement actions would produce annual estimated health benefits of over \$4.6 billion per year by 2012.<sup>48</sup> Moreover, it reinforced

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47. OFFICE OF ENFORCEMENT & COMPLIANCE ASSURANCE, U.S. EPA, FY2005 COMPLIANCE & ENFORCEMENT ANNUAL RESULTS 4 (Nov. 15, 2005), *available at* <http://epa.gov/compliance/resources/reports/endofyear/eoy2005/2005resultscharts.pdf> (noting that “[t]his is the first time EPA is estimating health benefits from its enforcement cases.”).

48. *Id.* As OECA noted, there is a time-delay in the public receiving the full benefit of the enforcement actions:

A portion of these benefits is expected to be realized immediately and to increase annually as the companies continue to install the pollution controls required in the judicial

that quantitative bottom line with qualitative descriptions of the particular benefits enjoyed, which “include reductions in premature mortality, chronic and acute bronchitis, myocardial infarctions, hospitalizations, respiratory symptoms, and/or work loss days.”<sup>49</sup>

Thus, as in the EPA’s larger cost-benefit analyses to justify regulation, the quantification of enforcement benefits emphasized specific *qualitative* benefits—deaths avoided, reductions in bronchitis, and fewer heart problems, hospitalizations, and sick days. The pro-regulation rhetorical impact of this kind of enforcement assessment is difficult to miss.

OECA has continued to include such estimates of the health benefits of particular enforcement actions in its subsequent enforcement reports. As in the FY 2005 report, such estimates have been limited to particular enforcement actions under the Clean Air Act only. For example, for FY 2006, OECA reported that civil air enforcement “resulted in a total of more than 583 million pounds of pollutants reduced,” which “will have substantial benefits for public health”:<sup>50</sup>

The annual human health benefits from these air emission reductions are valued at \$3.5 billion. The health benefits include reducing premature deaths among people with heart or lung disease, preventing hundreds of cases of bronchitis and nonfatal heart attacks, as well as preventing thousands of cases of respiratory ailments, including aggravated asthma.<sup>51</sup>

Monetization of public health benefits became even more detailed in the FY 2007 report. As in the prior two reports, OECA focused solely on the Clean Air Act and provided both quantitative and qualitative assessments. For example, in his opening message, EPA Assistant Administrator Granta Y. Nakayama emphasized that:

EPA’s 12 largest stationary source air enforcement cases alone will reduce more than 500 million pounds of harmful air pollutants, with annual human health benefits estimated at \$3.8 billion. These health benefits include approximately 500 fewer premature deaths in people with heart or lung disease; 50,000 fewer days of missed work or school; and 1,000 fewer

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settlements. The benefits are expected to reach their maximum annual amount at \$4.6 billion in 2012, after which they will continue to accrue. Thus, the \$4.6 billion is a very conservative estimate.

*Id.*

49. *Id.*

50. *Id.* at 15.

51. *Id.*

hospital visits due to asthma or heart failure annually. These enforcement actions also will reduce harmful air emissions, including 308 million pounds of sulfur dioxide (SO<sub>2</sub>), 187 million pounds of nitrogen oxides (NO<sub>x</sub>), and 11 million pounds of particulate matter annually.<sup>52</sup>

In more detail, the Report itself identified several specific health benefits beyond those listed by the Assistant Administrator: “[a]bout 1,500 fewer cases of chronic bronchitis and acute bronchitis”; “[a]bout 1,000 fewer nonfatal heart attacks”; “[m]ore than 8,000 fewer cases of upper aggravated asthma”; and “[m]ore than 15,000 few cases of upper and lower respiratory symptoms.”<sup>53</sup> Such qualitative descriptions of public health benefits also applied to specific types of air enforcement actions. For example, coal-fired electric utilities “release sulfur dioxide (SO<sub>2</sub>) and nitrogen oxides (NO<sub>x</sub>), which cause respiratory problems and contribute to childhood asthma, acid rain, smog, and haze,” while mobile sources emit toxic air pollutants like “cancer-causing benzene” and other pollutants “that are responsible for respiratory illnesses.”<sup>54</sup>

Finally, in its FY 2008 Enforcement Report, published in December 2008, OECA reported that EPA’s ten largest enforcement actions against Clean Air Act stationary sources yielded \$35 billion in health benefits for the nation. “These health benefits include:”

- Approximately 4,000 avoided premature deaths in people with heart or lung disease;
- Over 2,000 fewer emergency room visits for diseases such as asthma and respiratory failure;
- About 6,000 fewer cases of chronic bronchitis and acute bronchitis;
- About 4,000 fewer nonfatal heart attacks;
- Over 30,000 fewer cases of upper aggravated asthma;
- Over 50,000 fewer cases of upper and lower respiratory symptoms; and
- Over 200,000 fewer days when people would miss work or school.<sup>55</sup>

As in the FY 2007 analysis, these specifics are powerful evidence of the public health benefits of Clean Air Act enforcement, made clear through the combined quantitative/qualitative rhetoric.

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52. *Id.* at 2. *See also id.* at 6 (summarizing the same information in essentially the same way).

53. *Id.* at 12.

54. *Id.* at 14.

55. *Id.*

Nevertheless, the EPA's public health focus for Clean Air Act enforcement actions may be having a perverse unintended consequence. Providing this kind of assessment for Clean Air Act enforcement actions gives the impression that public health benefits accrue only (or at least primarily) from reductions in air pollution, not in other EPA programs—particularly because OECA often fails to provide consistent qualitative descriptions of the benefits of specific enforcement actions taken pursuant to other programs. Part III examines OECA's presentation of enforcement in other pollution programs over the last ten years to suggest that, when provided, specific qualitative explanations of benefits can be almost as powerful as the quantitative/qualitative combination.

### III. THE CASE FOR QUALITATIVE ANALYSIS OF THE PUBLIC HEALTH BENEFITS OF EPA ENFORCEMENT ACTIONS

#### A. For the Most Part, OECA Has Engaged in a Decade of Meaningless Quantitative Measures

OECA's recent use of a public health metric for Clean Air Act enforcement actions deviates sharply from the EPA's traditional measures of its enforcement efforts. In prior years—and in recent years for statutes other than the Clean Air Act—these assessments tend to emphasize *quantitative* metrics that convey very little information about either the public health or environmental values of the EPA's environmental enforcement efforts. Such quantitative metrics simply count various measures of agency enforcement effort—number of administrative orders issued, number of civil and criminal cases file, and/or various measures of the results of those efforts, total values of the administrative and civil penalties assessed and criminal fines imposed, number of criminal convictions, years of jail time sentenced, value of injunctive relief obtained, money violators had to spend on pollution control equipment, and money violators had to spend on supplemental environmental projects (SEPs). While these assessments can provide measures of EPA enforcement *effort*, they supply almost no information regarding the actual environmental or public health benefits that that effort provided—that is, no measure of the *qualitative* benefits to human health or ecological well-being that those enforcement efforts produced, or of the harms redressed or avoided.<sup>56</sup>

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56. See Markell, *supra* note 4, at 562–66, 566–70, 570–71 (noting that the EPA does not routinely assess harm in its penalty calculations despite clear legal, policy, and theoretical justifications for doing so); David L. Markell, *The Role of Deterrence-Based Enforcement in a "Reinvented" State/Federal*

Even when presenting information about enforcement outcomes—a perfect context in which to discuss specific public benefits achieved or public harms avoided—the EPA and OECA still often prefer purely quantitative measures that obscure the public health and ecological benefits of agency enforcement efforts. Such metrics typically include pounds of pollutants reduced or eliminated, cubic yards of soil decontaminated, and gallons (or other volume measure) of water treated. While these measures provide some basic indication of environmental benefit (clean is generally better than dirty) and are easily compared from year-to-year, they lack both the rhetorical power and the depth of meaning that more qualitative and descriptive evaluations can provide.

For example, in OECA's FY 1999 enforcement report, EPA Assistant Administrator Steven Herman provided an almost purely quantitative assessment of the EPA's environmental enforcement efforts:

Enforcement actions concluded in FY99 will reduce over 6.8 billion pounds of pollutants. Additionally, polluters were required to spend a record \$3.4 billion to correct violations and take steps to protect the environment. We also achieved a record \$236.8 million in environmentally beneficial projects. A record \$166.7 million in civil penalties was assessed, including the largest Clean Air Act settlement in history against seven diesel engine manufacturers who used illegal devices to disable their emission control systems. This case alone will result in 75 million tons of nitrogen oxide reductions over the next quarter century. We took 3,935 civil judicial and administrative enforcement actions in 1999, the highest number of civil actions taken over the last three years.<sup>57</sup>

This rhetoric is virtually devoid of any qualitative description of the public benefits from enforcement, giving neither Congress nor the public any strong sense of what these enforcement efforts might mean for either public health or the environment.

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*Relationship: The Divide Between Theory and Reality*, 24 HARV. ENVTL. L. REV. 1, 28, 64–65, 107 (2000) (emphasizing that EPA and the states need new outcome measures for the effectiveness of their enforcement efforts, including “the nature of the environmental harm or risk resulting from non-compliance” and “the harm being caused or threatened by such violations, and the extent to which enforcement has . . . diminished such threats”).

57. OFFICE OF ENFORCEMENT AND COMPLIANCE ASSISTANCE, U.S. EPA, ANNUAL REPORT ON ENFORCEMENT AND COMPLIANCE ASSURANCE ACCOMPLISHMENTS IN 1999, at i (July 2000), available at <http://www.epa.gov/compliance/resources/reports/accomplishments/oeca/fy99accomplishment.pdf> [hereinafter 1999 ENFORCEMENT REPORT].

One explanation for this rhetorical style is the fact that the FY 1999 Report incorporated new outcome measures<sup>58</sup> developed in OECA's February 1997 National Performance Measures Strategy (NPMS).<sup>59</sup> These outcome measures did not include public health benefits, instead emphasizing increased rates of compliance and pollutant reductions.<sup>60</sup> Only in Phase II of the NPMS, to begin in FY 2000, would OECA evaluate "environmental and human health improvements from compliance assistance" and "environmental and human health improvements from integrated initiatives."<sup>61</sup>

OECA's FY 2001 Report<sup>62</sup> thus reflected both a change in presidential administration and the implementation of Phase II, and a different rhetorical style was evident. For example, in his opening greeting, EPA Assistant Administrator Suarez put less emphasis on the quantitative aspects of the EPA's enforcement efforts and instead focused on improving the environment and public health and safety:

Reducing pollution is a primary goal for the enforcement and compliance program. Last year we and our partners prevented millions of pounds of *harmful* pollutants from being released into the environment and ensured that billions of pounds of pollutants were *safely* treated and managed. We also required violators to spend nearly \$1 billion on environmental improvement projects—up 60 percent from the previous year.<sup>63</sup>

In the same vein, "EPA's enforcement and compliance assurance program's mission is to protect human health and the environment by ensuring that regulated entities, federal, state, tribal, and local governments comply with our nation's environmental requirements for keeping our air, land, and water *clean*."<sup>64</sup> From the very beginning, therefore, the Report emphasized, if subtly, the public benefits of environmental enforcement, including public health improvement.

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58. *Id.* at 3.

59. *Id.* at 14.

60. *Id.* at 3, 14.

61. *Id.* at 15.

62. OFFICE OF ENFORCEMENT AND COMPLIANCE ASSURANCE, U.S. EPA, PROTECTING THE PUBLIC AND THE ENVIRONMENT THROUGH INNOVATIVE APPROACHES: FISCAL YEAR 2001 ENFORCEMENT AND COMPLIANCE ASSURANCE ACCOMPLISHMENTS REPORT (Dec. 1, 2002), available at <http://www.epa.gov/compliance/resources/reports/accomplishments/oeca/fy01accomplishment.pdf> [hereinafter 2001 ENFORCEMENT REPORT].

63. *Id.* at 3 (emphasis added). See also *id.* at 9 ("In FY01, EPA secured commitments for an estimated reduction of more than 660 million pounds of *harmful* pollutants, and the *treatment and safe management* of an estimated record 1.84 billion pounds of pollutants," and violators would spend "\$4.39 billion on *pollution controls and environmental cleanup*" (emphasis added)).

64. *Id.* at 5 (emphasis added).

Similarly, in its FY 2002 Report,<sup>65</sup> OECA injected qualitative adjectives into an otherwise largely quantitative assessment. For example, EPA Administrator Christine Todd Whitman stressed that “[m]illions of pounds of *harmful* pollutants will be reduced, cleaned up or treated, and all of us will enjoy *cleaner* air, water, and land.”<sup>66</sup> The EPA had focused its enforcement resources “on cases that posed the most serious threats to public health and the environment.”<sup>67</sup>

Revealingly, however, even though OECA reported for the first time the connections between EPA enforcement and ground water treatment, explicitly connecting such treatment to safe public water supply, quantitative measures of enforcement effort obscured the true public health benefits of those enforcement actions. Thus, while “more than 3 million people will be served by drinking water systems that will be brought into compliance” as a result of FY 2002 enforcement actions, OECA emphasized only that “an estimated 2.8 billion gallons of groundwater will be treated.”<sup>68</sup> Similarly, the EPA also “secured commitments for the reduction of more than an estimated 260 million pounds of harmful pollutants . . . .”<sup>69</sup>

If the FY 2001 and FY 2002 Reports made attempts to blend qualitative evaluations with quantitative, in FY 2003, in the press release announcing the EPA’s enforcement accomplishments for FY 2003,<sup>70</sup> OECA returned to a primarily quantitative assessment:

In addition to the approximately 600 million pounds of pollutants to be reduced, treated or properly managed, EPA enforcement resulted in the treatment of over 3.7 million tons (7.5 billion pounds) of contaminated soil. Last year, EPA began estimating as well the gallons of contaminated groundwater to be treated (6.5 billion), acres of wetlands that will be restored (1,050), and the number of people served by drinking water systems that will

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65. OFFICE OF ENFORCEMENT AND COMPLIANCE ASSURANCE, U.S. EPA, ENVIRONMENTAL RESULTS THROUGH SMART ENFORCEMENT: FISCAL YEAR 2002 ENFORCEMENT AND COMPLIANCE ASSURANCE ACCOMPLISHMENTS REPORT 20 (June 27, 2003), available at <http://www.epa.gov/compliance/resources/reports/accomplishments/oeca/fy02accomplishment.pdf> [hereinafter 2002 ENFORCEMENT REPORT].

66. *Id.* at 2 (emphasis added).

67. *Id.*

68. *Id.* at 15.

69. *Id.* at 17.

70. Printed annual enforcement reports are apparently not available for FY2003, FY2004, and FY2005. However, summaries of the annual enforcement results for FY2003 are available. See Office of Enforcement and Compliance Assurance, U.S. EPA, *Annual Results—FY2003*, <http://epa.gov/compliance/data/results/annual/fy2003.html> (last visited Feb. 8, 2009, last updated Jan. 16, 2009).

be brought into compliance (2 million) as a result of EPA enforcement activity.

As a result of enforcement settlements, almost \$2.9 billion in injunctive relief will go toward the cleanup of polluted sites and protection against further environmental harm. . . . In addition, the value of Supplemental Environmental Projects, which are undertaken voluntarily as a result of an enforcement settlement action, were up 12 percent to \$65 million this year.

In the Superfund Program, EPA secured private party commitments for cleanup and cost recovery that exceeded \$1.1 billion. More than 87 percent of new remedial action starts at non-federal Superfund sites were initiated by private parties.<sup>71</sup>

To be sure, some of these measures, such as treatment of soil and restoration of wetlands, certainly suggest public benefits; nevertheless, OECA did not actively describe those benefits.

In contrast, EPA Assistant Administrator Suarez strove to connect the quantitative data to public health. “‘EPA’s going after what really counts—reducing pollution and protecting public health,’ said Suarez. ‘We don’t count our success in the number of notices of violation we write, as some would suggest.’”<sup>72</sup> This quotation perhaps reveals some EPA sensitivity to merely quantitative accounting and also a distinction between counting EPA enforcement activities—notices of violation—and counting things that matter more to environmental and public health goals, such as pounds of pollutants removed, investments in pollution control technologies, and supplemental projects. However, it provides nothing close to the graphic and specific qualitative descriptions that the EPA has recently been providing regarding the public health benefits of Clean Air Act enforcement.

Indeed, quantitative assessments—including the counting and comparing of various types of EPA enforcement efforts—dominated OECA’s summaries for FY 2003.<sup>73</sup> Even in its enforcement highlights, OECA drew explicit

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71. U.S. EPA, Press Release: *Pollution Reduction Enforcement Numbers More Than Double; Agency Using Better Data to Guide Enforcement Initiatives* (Dec 11, 2003), available at <http://yosemite.epa.gov/opa/admpress.nsf/b1ab9f485b098972852562e7004dc686/85880c6b2c3f00f985256df900645bb0?OpenDocument>.

72. *Id.*

73. See, e.g., Office of Enforcement and Compliance Assurance, U.S. EPA, *FY 2003 End of Year Enforcement & Compliance Assurance Results* 3–13 (Dec. 11, 2003), available at <http://epa.gov/compliance/resources/reports/endofyear/eoy2003/fy2003enforcementandcomplianceendofyearcharts.pdf> (tabulating pollutant reductions, total entities reached, entities using compliance assurance centers, administrative compliance orders, administrative penalty complaints, value of

connections between particular enforcement actions and human well-being—qualitative assessments related to public health—for only a handful of the 23 specific enforcement actions that it described in more detail, even though many involved Clean Air Act violations, sewage problems, oil spills, PCB contamination, and asbestos exposure.<sup>74</sup>

This pattern largely held for FY 2004. In its press release reporting on EPA's FY 2004 enforcement accomplishments, OECA again stressed many of the relatively meaningless quantitative measures of enforcement effort:

EPA enforcement actions concluded in fiscal year (FY) 2004 will reduce a projected one billion pounds of pollution and require cleanups estimated to total a record \$4.8 billion—significant increases from last year. Other annual measures of the Agency's enforcement and compliance activity—such as the number of inspections (up 11 percent from FY 2003) and investigations (up 32 percent from FY 2003)—surpassed or kept pace with previous years, indicating continued progress in deterring violations of the nation's environmental laws and reflecting an emphasis on environmental benefits and compliance.<sup>75</sup>

Against this announcement, EPA Acting Assistant Administrator Tom Skinner's assertion that "EPA's enforcement strategy is focused on what

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enforcement actions, judicial civil referrals, companies voluntarily disclosing violations, civil enforcement actions, criminal enforcement actions, and cumulative cleanup and cost recovery). In addition, the EPA introduced a new methodology for counting civil enforcement actions. Office of Enforcement and Compliance Assurance, U.S. EPA, *New EPA Methodology for Civil Enforcement Case Initiation Counting* (Nov. 17, 2003), available at <http://epa.gov/compliance/resources/reports/endofyear/eoy2003/newcasecountingmethod.pdf>.

74. See Office of Enforcement and Compliance Assurance, U.S. EPA, *FY 2003 Case Highlights* 5, 6, 7, 9, 10, 11, available at <http://epa.gov/compliance/resources/reports/endofyear/eoy2003/fy2003casehighlights.pdf> (noting that a gasoline pipeline spill in Bellingham, Washington, had killed two boys and injured nine other people, applauding Toledo citizens for voting to improve their wastewater treatment plant and thereby take "an important step in strengthening their community's quality of life, health, and long-term environmental viability," noting that as part of its sewage treatment liability, the Puerto Rico Aqueduct and Sewer Authority "agreed to spend \$1 million on a supplemental environmental project that will help low-income, rural communities improve the quality of their drinking water," reporting that "[l]eaking USTs can present health and environmental risks, including the potential for fire and explosion," noting criminal prosecution of a refinery where one man was killed and five others injured, emphasizing that "exposure to benzene is a known cause of cancer" in a Clean Air Act and Clean Water Act criminal enforcement case, and noting that "[i]nhaling airborne asbestos is a known cause of lung cancer, a lung disease known as 'asbestosis' and mesothelioma, which is a cancer of the chest and abdominal cavities," in another criminal enforcement case).
75. Office of Enforcement & Compliance Assurance, U.S. EPA, Press Release: *EPA FY 2004 Enforcement Secures Cleanups Worth a Record \$4.8 Billion Preventing One Billion Pounds of Pollution* (Nov. 15, 2004), available at <http://yosemite.epa.gov/opa/admpress.nsf/b1ab9f485b098972852562e7004dc686/04b3e855d5a0b21785256f4d006bd344!OpenDocument>.

matters most: achieving real environmental improvements that benefit everyone”<sup>76</sup> fell flat. Again, the great weight of OECA’s performance measures for FY 2004 were purely quantitative: billions of pounds of pollutant reductions, dollar value of injunctive relief, numbers of SEPs, facilities brought within a compliance program, numbers of administrative penalty orders, numbers of inspections, number of civil investigations, and number of criminal prosecutions.<sup>77</sup>

Similarly, and despite introducing the public health metric for Clean Air Act enforcement efforts, the FY 2005 enforcement assessment otherwise continued to emphasize quantitative measures. For example, in that year’s press release, OECA emphasized that:

EPA enforcement actions in fiscal year 2005 resulted in legal commitments by companies, governments and other regulated entities to reduce a projected 1.1 billion pounds of pollution and require that they spend a record \$10 billion to come into compliance with environmental laws. This is an increase of \$5 billion over last year. EPA’s criminal enforcement program helped successfully prosecute some of the largest environmental crimes in history in FY 2005, with judges imposing significant sentences and large criminal fines.<sup>78</sup>

As was true in FY 2004, this quantitative emphasis did not quite resonate with EPA Assistant Administrator Nakayama’s assertion that ““EPA’s enforcement strategy and accomplishments demonstrate our commitment to achieving cleaner air, cleaner water and healthier communities.””<sup>79</sup> Moreover, OECA again provided only limited explicit insights into the public health benefits of its civil enforcement efforts outside of the Clean Air Act program.

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76. *Id.*

77. Office of Enforcement & Compliance Assurance, U.S. EPA, Press Release: *EPA FY 2004 Enforcement Secures Cleanups Worth a Record \$4.8 Billion Preventing One Billion Pounds of Pollution* (Nov. 15, 2004), available at <http://yosemite.epa.gov/opa/admpress.nsf/b1ab9f485b098972852562e7004dc686/04b3e855d5a0b21785256f4d006bd344!OpenDocument>. See also Office of Enforcement & Compliance Assurance, U.S. EPA, *FY 2004 End of Year Enforcement and Compliance Assurance Results* (Nov. 15, 2004), available at <http://www.epa.gov/compliance/resources/reports/endofyear/eoy2004/fy04results.pdf> (visually tabulating similar quantitative measures).

78. Office of Enforcement & Compliance Assurance, U.S. EPA, Press Release: *EPA Enforcement Cuts Pollution by 1 Billion Pounds; Requires \$10 Billion to Be Spent on Cleaning Up* (Nov. 15, 2005), available at <http://yosemite.epa.gov/opa/admpress.nsf/d9bf8d9315e942578525701c005e573c/dd8415693467dbdd852570ba005be46f!OpenDocument>.

79. *Id.*

In contrast, in OECA's FY 2006 Report,<sup>80</sup> Assistant Administrator Nakayama's opening message stressed both qualitative and quantitative enforcement measures. For example, he claimed that EPA was "making significant progress in protecting the nation's environment and public health, and achieving lasting environmental results."<sup>81</sup> Moreover, in addition to again monetizing and explicitly presenting the public health benefits of Clean Air Act enforcement, OECA's description of its work in environmental justice underscored the public health importance of this national enforcement priority. OECA listed eight national environmental justice priority efforts, five of which directly promote health: reducing asthma attacks, reducing toxic air pollutants, reducing blood lead levels, ensuring that fish and shellfish are safe to eat, and ensuring that water is safe to drink.<sup>82</sup> Two others—ensuring that companies meet environmental laws and revitalizing brownfields and contaminated soils<sup>83</sup>—can also have fairly immediate public health impacts. The eighth priority, collaborative problem-solving,<sup>84</sup> emphasizes procedure rather than health or environmental results—but problem-solving can certainly contribute to either one.

Nevertheless, outside the contexts of air enforcement and environmental justice, the FY 2006 Report's public benefit rhetoric falters. For example, throughout the Report, OECA stressed the importance of the EPA's enforcement prioritization. Thus, "74 percent of the total pollution reductions and 71 percent of the total pollution prevention and control investments obtained by the civil enforcement program in FY 2006 were in national priority areas."<sup>85</sup> Similarly, after explaining the dramatic health benefits of air enforcement, OECA noted that "[t]he most significant air pollution reductions for enforcement actions concluded in FY 2006 resulted from OECA's work in national priority areas,"<sup>86</sup> and it emphasized its enforcement success in its water enforcement priorities<sup>87</sup> and the fact that it opened 24 criminal enforcement cases in six national priority areas.<sup>88</sup> In the same vein, Assistant Administrator Nakayama stressed that these "priority enforcement activities

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80. OFFICE OF ENFORCEMENT AND COMPLIANCE ASSURANCE, U.S. EPA, FY2006 OECA ACCOMPLISHMENTS REPORT 9–11 (March 12, 2007), available at <http://www.epa.gov/compliance/resources/reports/accomplishments/oeca/fy06accomplishment.pdf> [hereinafter 2006 ENFORCEMENT REPORT].

81. *Id.* at 2.

82. *Id.* at 19–20.

83. *Id.* at 20.

84. *Id.*

85. *Id.* at 14.

86. *Id.* at 15.

87. *Id.* at 16–17.

88. *Id.* at 18.

are responsible for nearly 75 percent of the 890 million pounds of pollutant reductions achieved, as well as more than 70 percent of the \$4 billion worth of investments in pollution prevention and control obtained in injunctive relief.”<sup>89</sup>

However, despite the fact that almost all of the relevant national priorities had explicit connections to public health,<sup>90</sup> OECA preferred to use non-health quantitative metrics in evaluating its performance. Such measures included, for example, 26 million pounds of pollutant reductions from CSOs and SSOs and investments of \$930 million in sewer system upgrades,<sup>91</sup> a \$10.25 million penalty in an enforcement action under the Toxic Substances Control Act,<sup>92</sup> 154 years in jail and \$43 million in criminal fines for the criminal enforcement program, a \$391 million to study and clean up 15 million cubic yards of contaminated soil and 1.3 billion cubic yards of contaminated ground water,<sup>93</sup> and \$400,000 in penalties plus \$125 million “to clean up more than 850 million cubic yards of soil, sediment, and water” at federal facilities.<sup>94</sup>

OECA’s FY 2007 Report<sup>95</sup> states that “OECA’s mission is to improve the environment and protect public health by ensuring compliance with the nation’s environmental laws.”<sup>96</sup> As described above, OECA again monetized and emphasized the public health benefits of air enforcement<sup>97</sup> but—as in the assessments for FY 2005 and FY 2006—opted for a quantitative assessment of enforcement in other programs.

For example, enforcement actions against CSOs and SSOs “led to investments of \$3.5 billion in pollution controls to remove 45 million pounds of pollutants,” and “[t]hese investments are more than three times greater than those obtained in FY 2006.”<sup>98</sup> To be sure, OECA did acknowledge that “[w]hen overflows occur, pollutants enter waterways, causing human health risks such as diseases that can range in severity from mild gastroenteritis to

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89. *Id.* at 2; *see also id.* at 14 (emphasizing the results from priority enforcement actions).

90. *See id.* at 9–12 (listing potential public health impacts for all national enforcement priorities except stormwater).

91. *Id.* at 17.

92. *Id.*

93. *Id.* at 18.

94. *Id.* at 19.

95. OFFICE OF ENFORCEMENT AND COMPLIANCE ASSURANCE, U.S. EPA, FY 2007 OECA ACCOMPLISHMENTS REPORT: PROTECTING THE ENVIRONMENT 7–8 (May 22, 2008) (summarizing enforcement efforts by statute), *available at* <http://www.epa.gov/compliance/resources/reports/accomplishments/oeca/fy07accomplishment.pdf> [hereinafter 2007 ENFORCEMENT REPORT].

96. *Id.* at ii.

97. *Id.* at 15.

98. *Id.* at 2.

life-threatening cholera,”<sup>99</sup> but most of its descriptions of Clean Water Act enforcement emphasized the poundage of pollutants reduced and the monetary value of investment in pollution control equipment.<sup>100</sup> As for land contamination:

Superfund enforcement and other remediation agreements committed responsible parties to invest \$688 million last year to clean up contamination and reimburse EPA \$314 million for past response and oversight costs. The parties agreed to clean up a record-setting 79 million cubic yards of contaminated soil, or enough to cover more than 12,000 football fields with 3 feet of dirt. Polluters also agreed to clean up 1.4 billion cubic yards of contaminated water, which is enough to fill more than 425,000 Olympic-size swimming pools.<sup>101</sup>

Finally, even though criminal enforcement “[e]mphasize[d] ‘high-impact’ cases that will yield the greatest environmental and human health benefits and promote significant deterrence,”<sup>102</sup> OECA tended to emphasize quantitative measures of EPA’s enforcement effort—cases initiated, defendants charged, years of sentences, amount of fines, costs of projects, and pounds of pollution reduced—rather than qualitative improvements in environmental quality or public health.<sup>103</sup>

As in the FY 2005 and FY 2006 Reports, therefore, the contrast in rhetorical presentation between Clean Air Act enforcement and enforcement in other programs is stark and gives the distinct impression that only air programs—plus enforcement efforts in Indian country<sup>104</sup> and environmental

99. *Id.* at 13. *See also id.* at 10 (similarly noting that “[w]et weather discharges contain bacteria, pathogens, and other pollutants that can cause illnesses in humans, lead to water quality impairment (including beach and shellfish bed closures), and harm our nation’s water resources.”).

100. *See id.* at 6 (summarizing the same information in essentially the same way), 13 (summarizing the results of Clean Water Act enforcement more generally in terms of 178 million pounds of pollutants reduced and \$3.6 million invested in pollution control), 15 (describing sewer system improvements in terms of \$3.5 billion in investments and 45 million pounds of pollutants reduced and CAFOs in terms of 15 million pounds of pollutants reduced and \$30 million in pollution controls), 26 (describing enforcement at nine Amtrak facilities as preventing almost 400,000 pounds of pollutants from entering waterways), 34–35 (summarizing such numbers by program and by type of enforcement activity).

101. *Id.* at 2. *See also id.* at 5 (tabulating estimated pollutant reduction commitments from FY 2003 to FY 2007), 6 (tabulating investments in pollution control and environmental projects over the same years and also summarizing the same information in essentially the same way).

102. *Id.* at 16.

103. *Id.* at 16–17.

104. *See id.* at 20 (emphasizing that “[i]n FY 2007, EPA’s tribal activities addressed imminent threats to human health[,]” such as drinking water supplies and smoke from a burning open dump).

justice actions<sup>105</sup>—substantially protect public health. More disturbingly, OECA’s presentation of the results of water and land-based enforcement efforts do not even present a clear picture of the ultimate environmental benefits of those enforcement efforts—are stream or meadow ecosystems being restored? Endangered or threatened species benefiting? Fish kills and beach closures avoided? The public benefits of all this cleanup are at best only implicit.<sup>106</sup>

While OECA continued to monetize and describe specifically the public health benefits of Clean Air Act enforcement actions in its FY 2008 Report,<sup>107</sup> as discussed above, it also continued to more generally avoid reporting qualitative assessments of how its enforcement actions in other programs improved environmental quality<sup>108</sup> and/or provided public health benefits,<sup>109</sup> again favoring quantitative measures of its enforcement efforts in those other areas. Moreover, it pursued this rhetorical disjunction despite emphasizing that “OECA’s goal is to ensure that the environmental and public health benefits that are promised by our nation’s environmental laws are realized.”<sup>110</sup> For example, Assistant Administrator Nakayama summarized that:

In FY 2008, EPA concluded civil and criminal enforcement actions requiring polluters to spend an estimated \$11.8 billion, an agency record, on pollution controls, cleanup and environmental projects. This exceeds the FY 2007 amount by approximately \$800 million. This means that each workday OECA was securing agreements from violators to invest an estimated \$47

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105. *See id.* at 21–22 (emphasizing priorities of reducing asthma attacks, reducing exposure to air toxics, reducing incidences of elevated blood lead levels, ensuring that fish and shellfish are safe to eat, and ensuring that water is safe to drink).

106. As David Markell has emphasized, EPA has clear statutory authority, as well as policy and theoretical justifications, for developing such enforcement-related information in great depth through, among other tools, “harm-based” penalty assessments, even though EPA has instead chosen to focus on calculating and recovering the economic benefit that results from environmental law violations. Markell, *supra* note 4, at 562–72.

107. OFFICE OF ENFORCEMENT AND COMPLIANCE, U.S. EPA, OECA FY 2008 ACCOMPLISHMENTS REPORT: PROTECTING PUBLIC HEALTH AND THE ENVIRONMENT 14 (Dec. 4, 2008), available at <http://www.epa.gov/compliance/resources/reports/accomplishments/oeca/fy08accomplishment.pdf> [hereinafter 2008 ENFORCEMENT REPORT]. *But see also id.* at 12–13 (acknowledging public health effects in the wet weather, minerals processing facilities, financial responsibility, and Indian country enforcement priorities).

108. *But see id.* at 15 (describing Agrofos Fertilizer’s fish kill), 19 (explaining that “EPA’s criminal enforcement program addresses all of the environmental statutes and it uses a strategic approach to identify cases with significant environmental and human health impact, cases which enhance deterrence, and cases which advance EPA’s enforcement priorities.”).

109. *But see id.* at 26 (listing health-related priorities for environmental justice actions), 28 (emphasizing actions to protect drinking water in Indian country).

110. *Id.* at 4.

million to achieve compliance. The combined total for the last five years is an estimated \$45 billion (\$5.5, \$11.3, \$5.4, \$11.0, and \$11.8 billion, respectively)—exceeding EPA’s total annual budget over the same period.

After all the complying actions for FY 2008 cases are completed, EPA estimates that 3.9 billion pounds of pollution will be reduced or removed annually from the environment, the highest amount since FY 1999. In the last five years EPA’s record for estimated pollution reductions stood at 1.1 billion pounds for FY 2005. The estimated pollutant reductions resulting from FY 2008 enforcement actions exceed FY 2005 by almost four times. The FY 2008 estimate also exceeds the combined results obtained during FY 2004–2007 by nearly 100 million pounds.<sup>111</sup>

As in the FY 2007 Report, information regarding pounds of pollutants reduced, money spent on compliance, and the value of penalties and environmental projects permeates the FY 2008 Report.<sup>112</sup> Perhaps most tellingly, in a section entitled “Delivering Environmental Results,” OECA emphasized that “[i]n FY 2008, EPA’s concluded enforcement actions will reduce pollutant emissions to air, water and land by an estimated 3.9 billion pounds per year when the pollution controls and other measures required by these actions are installed and operational,” that “[t]hese pollution reductions will result from legally enforceable commitments by violators to invest an estimated \$11.8 billion, the highest amount on record, on installing pollution controls, cleanup and environmental projects,” and that it achieved these results primarily by focusing on its enforcement priorities, which reflected

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111. *Id.* at 2.

112. *See id.* at 6 (providing extensive information about pounds of pollutants reduced), 7 (providing information about the dollar values of investments in pollution-control technology, civil penalties, criminal penalties, and environmental projects), 8 (providing information about entities reached through compliance assistance), 10 (counting inspections and evaluations), 11 (presenting environmental results in terms of pounds of pollutants reduced and pollution control investments), 14 (noting pounds of pollutants reduced and control investments for coal-fired power plants), 15 (noting pounds of pollutants reduced and control investments for storm water and the civil penalties, pounds of pollutants reduced, pollution control investment, and environmental conservation for a wastewater discharge), 16 (summarizing pollutants reduced and pollution control investments by program, plus tabulating civil penalties assessed), 18 (tabulating criminal enforcement results), 19 (emphasizing criminal fines), 21 (presenting figures on volumes of soil and water cleaned up under Superfund, plus emphasizing the amounts spent on such cleanups), 22 (tabulating private party commitments under Superfund), 23–25 (emphasizing penalties assessed against, pounds of pollutants reduced at, and dollar investment in pollution control for federal facilities), 34–35 (listing pounds of pollutants reduced, fines, values of investments in pollution control, and values of investments in environmental projects by program area and type of enforcement).

“areas of significant non-compliance with the nation’s environmental laws across the country that resulted in substantial amounts of illegal pollution.”<sup>113</sup>

B. A Stronger Public Benefit Emphasis in Criminal Enforcement

The discussion in Subpart A demonstrates that rhetorically anemic quantitative measures dominate OECA’s enforcement reports. Nevertheless, occasional descriptions that emphasize the specific public benefits of enforcement actions do occur, particularly in the contexts of criminal enforcement and the enforcement highlights—spotlights on specific enforcement actions in the various programs. In context, however, these more graphic articulations of specific benefits simply render the routine quantitative assessments even more pallid.

OECA has long emphasized the public benefits of the EPA’s criminal enforcement efforts. For example, in its FY 1999 Report, OECA noted that “[o]ur strong criminal enforcement program reflects our goal of punishing those who callously disregard our nation’s environmental laws and who put the public at serious risk when they do so.”<sup>114</sup> Similarly, the EPA’s “compliance monitoring program often entails making a targeted effort to reduce significant noncompliance (SNC) in high-priority areas (i.e., those areas posing the most significant public health and environmental risks),”<sup>115</sup> “EPA gives priority to taking enforcement actions that reduce the greatest risks to human health or the environment and produce maximum environmental benefit,” and OECA’s “enforcement program also acts swiftly to address conditions that may present an imminent and substantial endangerment to human health or the environment.”<sup>116</sup> In FY 2006, Assistant Administrator Nakayama again emphasized that the criminal enforcement program focuses “on cases that have the largest environmental impact,” maximizing the EPA’s “impact in protecting human health and the environment.”<sup>117</sup>

OECA is also often very specific and graphic about the public benefits of the EPA’s criminal enforcement actions. For example, in FY 2001, the EPA “targeted enforcement at sources with high risk for emissions of air toxics,” which are “the most hazardous air pollutants as well as those posing the greatest risks to human health and the environment because they are

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113. *Id.* at 11.

114. 1999 ENFORCEMENT REPORT, *supra* note 57, at 15.

115. *Id.* at 18.

116. *Id.* at 24.

117. 2006 ENFORCEMENT REPORT, *supra* note 80, at 3.

released frequently or in large amounts.”<sup>118</sup> EPA thus criminally punished Koch Industries’ failure “to properly control [emissions of] benzene, a known carcinogen.”<sup>119</sup>

In FY 2004, a hazardous waste prosecution against AAD Distribution and Dry Cleaning Services in California involved “drums of PERC, a cancer-causing hazardous waste,” while Rhodia, Inc.’s illegal storage in Montana of elemental phosphorus-contaminated sludge “posed a serious threat to the environment and human safety since elemental phosphorus waste can spontaneously ignite when exposed to air, creating a risk of explosion.”<sup>120</sup> Similarly, RT Automotive’s illegal disposal of paint was made graphically relevant when “[t]wo police officers and four firefighters required medical evaluation after approaching the trailer because of exposure to fumes.”<sup>121</sup> Saybolt Inc.’s falsification of oxygen tests on gasoline explicitly threatened public health, because sub-standard gasoline causes “[h]igh automobile emissions[, which in turn] lead to high atmospheric ozone levels, which increase the incidence of breathing disorders such as emphysema and asthma.”<sup>122</sup> David van Dyke’s improper handling of sewage sludge at the Warsaw, Indiana, wastewater treatment plant led to “the release of untreated sewage into the creek, which killed thousands of fish in Walnut Creek between late July and early August 2002,” while Industrial Zeolite in Louisiana “released 1.1 million gallons of wastewater exhibiting a high pH into a ditch that flows into the Callahan Bayou,” which “can harm fish and wildlife.”<sup>123</sup>

In an FY 2005 asbestos prosecution against AAR Contractors, “[t]he defendants directed illegal activities of 500 asbestos workers and laboratory officials. As many as 100 former AAR workers are now substantially likely to develop asbestosis, lung cancers or mesothelioma, a fatal form of cancer.”<sup>124</sup> Bouchard Transportation Company’s spill of 98,000 gallons of industrial fuel off of Cape Cod “killed 450 protected birds, forced the closure of thousands of acres of the bay’s shellfish beds for several months for cleanup, and polluted nearly 90 miles of Massachusetts shoreline,” while at Motiva Enterprises:

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118. *Id.* at 27.

119. 2001 ENFORCEMENT REPORT, *supra* note 62, at 26.

120. Office of Enforcement & Compliance Assurance, U.S. EPA, *FY 2004 Criminal Enforcement Highlights*, <http://www.epa.gov/compliance/resources/reports/endofyear/eoy2004/2004criminalhighlights.html> (last updated Jan. 16, 2009).

121. *Id.*

122. *Id.*

123. *Id.*

124. Office of Enforcement and Compliance Assurance, U.S. EPA, *Compliance and Enforcement Annual Results: FY2005 Criminal Enforcement Highlights*, <http://www.epa.gov/compliance/resources/reports/endofyear/eoy2005/2005criminalhighlights.html> (last updated Jan. 16, 2009).

[W]orkers were sent to the refinery's acid tank farm to repair a catwalk connecting the tanks. Flammable vapors ignited, producing an explosion that knocked a 415,000 gallon capacity tank containing spent sulfuric acid off its foundation, killing one worker and injuring numerous others. Additionally, approximately 99,000 gallons of spent sulfuric acid drained into the Delaware River for days after the explosion killing thousands of fish and crabs.<sup>125</sup>

Finally, in FY 2005 Kerrville Painting Company was criminally prosecuted for improperly sandblasting and painting bridges in Arkansas, because “[b]ridge sandblasting and painting typically generates wastes contaminated with lead that must be disposed of properly to avoid exposure of the public, fish and wildlife to lead and lead compounds. Exposure to sufficient quantities of lead can cause neurological and developmental disorders in humans.”<sup>126</sup>

These qualitative descriptions of the risks posed by individual criminal defendants possess a specificity, vividness and immediacy lacking in the OECA's quantitative assessments of environmental enforcement actions. As a consequence, they give the congressional or public citizen reader particularly compelling reasons to support environmental enforcement.

### C. Occasional Qualitative Details in the Enforcement Highlights

Very occasionally, OECA includes general qualitative descriptions of the benefits of environmental enforcement in its annual assessments. For example, in its FY 2002 Report, in addition to commenting on public health impacts from several specific enforcement sectors,<sup>127</sup> OECA took time to articulate more generally the public benefits of “cleaner air,” “purer water,” and “better protected land.” For example:

Air pollution threatens the health of human beings and other living things on our planet. While often invisible, pollutants in the air create smog and acid rain, cause cancer or other serious health effects, diminish the protective ozone layer in the upper atmosphere and contribute to the potential for world climate change. Almost 170 million tons of pollution are emitted into the air

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125. *Id.*

126. *Id.*

127. 2002 ENFORCEMENT REPORT, *supra* note 65, at 22 (power plant sector), 23 (wood products sector), 24 (petroleum refinery sector), 26 (air toxics), 28 (stratospheric ozone), 30 (CAFOs, CSOs, SSOs, and the Safe Drinking Water Act microbial rules), 32–33 (CSOs and SSOs), 34 (stormwater runoff), 36 (CAFOs), 37 (Safe Drinking Water Act), 39 (oil spills), 40 (cruise line discharges), 42–43 (leaking underground storage tanks), 44–45 (RCRA corrective actions), 46 (Superfund and lead removal), 49 (pesticide enforcement), 51–52 (lead paint), 52–53 (asbestos).

each year in the United States. Approximately 133 million people live in areas where monitored air quality is unhealthy.<sup>128</sup>

OECA connected water pollution enforcement to “safe sources of drinking water, edible fish, swimmable beaches, and healthy watersheds.”<sup>129</sup> Finally:

Improper waste handling, management and disposal practices present significant environmental threats. These improper activities also economically undercut facilities that operate in compliance with the provisions of the Resource Conservation and Recovery Act (RCRA) and could lead to future contaminated sites under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA or Superfund).<sup>130</sup>

RCRA in particular “is intended to protect human health and the environment from the hazards posed by handling and disposal of wasters.”<sup>131</sup>

Similarly, in the FY 2004 assessment, a few of the quantitative measures that OECA provided themselves strongly suggested public benefits from environmental enforcement. For example, OECA stressed that “3.4 million cubic yards of contaminated soil and sediment and 9.5 million cubic yards of groundwater will be cleaned up, 1,300 acres of wetlands will be protected, and the drinking water of four million Americans will comply with EPA standards.”<sup>132</sup>

More commonly, however, OECA’s most graphic presentations of the public benefits from civil environmental enforcement appear in select enforcement highlights. For example, in the FY 1999 Report, an agreement between EPA, the City of Manchester, New Hampshire, and the New Hampshire Department of Environmental Services to address the City’s CSO discharges into the Merrimack River include[d] “environmental and public health projects,” such as “a \$500,000 program to reduce childhood asthma and lead poisoning.”<sup>133</sup> A phosphorus facility in Idaho would better manage its

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128. *Id.* at 21.

129. *Id.* at 30.

130. *Id.* at 42.

131. *Id.*

132. Office of Enforcement & Compliance Assurance, U.S. EPA, Press Release: *EPA FY 2004 Enforcement Secures Cleanups Worth a Record \$4.8 Billion Preventing One Billion Pounds of Pollution* (Nov. 15, 2004), available at <http://yosemite.epa.gov/opa/admpress.nsf/b1ab9f485b098972852562e7004dc686/04b3e855d5a0b21785256f4d006bd344!OpenDocument>.

133. 1999 ENFORCEMENT REPORT, *supra* note 57, at 26. See also *id.* at 40 (emphasizing that “[a]nimal waste runoff from animal feeding operations is a major source of water pollution that can cause environmental and public health threats.”).

wastes to prevent the release of “phosphine and hydrogen cyanide, highly toxic gases that can cause serious health and environmental problems”; it also committed to “a \$63 million program to improve air quality in the region and a \$1.65 million public health assessment and education program to investigate the effects of [its contaminants] on human health and the environment, particularly within nearby tribal lands.”<sup>134</sup> New York City entered into a consent decree that required it to filter its Croton water supply, because “filtering drinking water substantially reduces the risk of waterborne disease in surface water systems, which are more susceptible to potential contamination from human and animal wastes and from microbial contaminants.”<sup>135</sup>

In the FY 2001 Report, OECA more generally emphasized that pollutants from concentrated animal feeding operations (CAFOs) “can kill fish, cause excessive algae growth, and contaminate drinking water. In addition, emissions of air pollutants from very large CAFOs may result in significant health effects for nearby residents.”<sup>136</sup> In addition, an emergency order issued against the Tommy Naylor Farm CAFO in North Carolina sought to prevent nitrate contamination of drinking wells, because “[d]rinking water with high levels of nitrate can cause serious illness and even death in infants and small children.”<sup>137</sup>

In its FY 2004 enforcement highlights, OECA noted that coal-fired electric plants illegally emit “pollution that causes smog, acid rain and soot.”<sup>138</sup> Similarly, sewer overflows were acknowledged to have multiple impacts on human health and the environment:

Combined sewer overflows (CSOs) and sanitary sewer overflows (SSOs) typically contain pollutant concentrations that can cause or contribute to violations of water quality standards, precluding the use of the water body for swimming, boating, fishing or such activities. CSOs and SSOs also contribute to beach closings, shellfish bed closures, contamination of drinking water supplies and other environmental damage because they discharge

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134. *Id.* at 28. *See also id.* at 29 (emphasizing the lead present at the Burlington Northern Santa Fe Railroad Company’s railcar cleaning operations and emphasizing that “[l]ead is a highly toxic chemical element that is a known cause of significant neurological and bone diseases.”).

135. *Id.*

136. 2001 ENFORCEMENT REPORT, *supra* note 62, at 21.

137. *Id.* at 22.

138. Office of Enforcement & Compliance Assurance, U.S. EPA, *FY2004 Civil Enforcement Highlights*, <http://www.epa.gov/compliance/resources/reports/endofyear/eoy2004/2004civilhighlights.html> (last updated Jan. 16, 2009).

untreated wastewater that contains microbial pathogens, suspended solids, toxics, nutrients, trash and pollutants that deplete dissolved oxygen.<sup>139</sup>

Enforcement of the Emergency Planning and Community Right to Know Act also had a direct public benefit, because such enforcement “helps ensure that the public has timely access to information about releases of chemicals in the community by providing a stronger incentive for facilities to submit their reports on time,”<sup>140</sup> while Supplemental Environmental Projects achieved a number of different kinds of public benefits:

Lead-based paint abatement and diesel school bus retrofits focused on improving children’s health removing harmful pollutants from their environment. Numerous settlements included emergency response supplemental environmental projects in which hazardous response equipment was provided to local communities. Finally, environmental restoration supplemental environmental projects provided for improved water quality, restoration of wetlands, and conservation of environmentally important properties.<sup>141</sup>

However, such qualitative descriptions were notably lacking for certain enforcement programs important to public health, such as the National Lead-Based Paint Enforcement Program and enforcement of CERCLA.<sup>142</sup>

In FY 2005, OECA noted that, a result of a Clean Water Act enforcement action:

At a cost estimated at \$2 billion, Los Angeles will rebuild at least 488 miles of sewer lines and clean 2,800 miles of sewers annually to reduce by about 46 million gallons the raw sewage discharged annually—by a system that serves 3.8 million people. In addition to a \$1.6 million penalty to be shared equally between the United States and the Los Angeles Regional Water Quality Control Board, Los Angeles will perform \$8.5 million in environmental projects throughout the city to restore streams and wetlands and to capture and treat polluted storm drain flows.<sup>143</sup>

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139. *Id.*

140. *Id.*

141. *Id.*

142. *Id.*

143. Office of Enforcement & Compliance Assurance, U.S. EPA, *Compliance and Enforcement Annual Results: FY2005 Water Case Highlights*, <http://www.epa.gov/compliance/resources/reports/endofyear/eoy2005/2005watercasehighlights.html> (last updated Jan. 16, 2009).

The Louisville and Jefferson County Metropolitan Sewer District in Kentucky agreed to “perform \$2.25 million in environmental projects to provide public health screenings for residents of neighborhoods adjacent to industrialized areas, raise environmental awareness and convert and reclaim a landfill into a public use area” as part of the Clean Water Act enforcement action against it, and “EPA entered into legally binding agreements with 11 major domestic airlines and nine smaller airlines to ensure the safety of the drinking water used by their passengers and crew.”<sup>144</sup> Finally, “Camwest and BP agreed to implement supplemental environmental projects on the Wind River Indian Reservation that will provide significant environmental improvements to the drinking water systems of the Shoshone and Northern Arapaho tribes.”<sup>145</sup>

Thus, while criminal enforcement highlights, to the extent that they provide specific details regarding environmental and public health benefit, tend to emphasize the specific harms that criminal violators cause, civil enforcement highlights—again, to the extent that OECA presents public benefits details at all—tend to emphasize the public health and environmental gains from the enforcement actions themselves: public health SEPs, improved water quality, removal of nitrates and hence avoidance of “blue baby” syndrome. Nevertheless, both kinds of details underscore the importance of environmental regulation and enforcement, making the EPA’s case for continued political and public support.

#### CONCLUSION: COMMUNICATING THE PUBLIC HEALTH BENEFITS OF ENVIRONMENTAL ENFORCEMENT TO CONGRESS AND THE PUBLIC

In a national address in February 2009, President Barack Obama stressed that federal programs will have to prove that they work for the American people. Moreover, in a time of economic downturn, the temptation to scale back on environmental regulation in favor of economic growth may become quite strong. Even without economic distress, moreover, regulated entities have repeatedly resisted the burdens of environmental requirements.

For all of these reasons, the EPA and OECA should be particularly interested in making the public benefits and values of environmental regulation and enforcement vivid and compelling to both Congress and the American

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144. *Id.*

145. Office of Enforcement & Compliance Assurance, U.S. EPA, *Compliance and Enforcement Annual Results: FY2005 Supplemental Enforcement Projects Highlights*, <http://www.epa.gov/compliance/resources/reports/endofyear/eoy2005/2005sepscsehighlights.html> (last updated Jan. 16, 2009).

public.<sup>146</sup> While environmental benefits can generate public support for environmental law, public health benefits provide an immediacy and personal stake that environmental benefits still often do not.<sup>147</sup>

Either way, however, to be meaningful, assessments of these public benefits from EPA enforcement must be qualitative and descriptive: What specific harms did an enforcement action stop, redress, or prevent? What specific benefits did it provide to the affected community or amenity? What can the pollutants at issue actually do to human health and the environment?

To its credit, the EPA has included these qualitative descriptions in its explanations of what its Clean Air Act enforcement actions are accomplishing for the public health, in addition to the raw monetary calculation of that public health benefit. However, qualitative assessments could also better communicate the public health importance of EPA enforcement actions even when the EPA does not or cannot calculate monetary public health benefits.

Indeed, the EPA has used this qualitative rhetoric in setting its national enforcement priorities for the federal pollutant control statutes. For example, in June 2007, the EPA chose to emphasize the Clean Air Act's technology-based national emissions standards for hazardous air pollutants (NESHAPs) as one of six national enforcement priorities for FY2008–FY2010.<sup>148</sup> It emphasized that these standards “regulate the most hazardous air pollutants (HAPs) and those posing the highest degree of risk to human health and the environment. By ensuring compliance with [these] standards, the Agency reduces public exposure to toxic air emissions.”<sup>149</sup> Similarly, under the Clean Water Act, the EPA prioritized “discharges from wet weather events,” which “represent significant threats to public health and the environment.”<sup>150</sup> OECA emphasized that sanitary sewer overflows (SSOs) and combined sewer

146. See, e.g., Markell, *supra* note 4, at 99–109 (discussing the value of “using a public spotlight, including perhaps a scorecard, to facilitate public scrutiny of enforcement-related government performance in order to motivate improvements.”).

147. Other authors have recognized in other legal contexts that shifting rhetorical focus can shift the terms of the debate and public interest in particular kinds of public problems. See, e.g., Timothy D. Lytton, *Using Tort Litigation to Enhance Regulatory Policymaking: Evaluating Climate-Change Litigation in Light of Lessons from Gun-Industry and Clergy-Sexual-Abuse Lawsuits*, 86 TEX. L. REV. 1837, 1845, 1849–58 (June 2008) (tracing the rhetorical efforts and resulting public attention when gun litigation shifted from gun users to gun manufacturers and when sex abuse lawsuits shifted from individual clergy to the Catholic Church itself).

148. OFFICE OF ENFORCEMENT AND COMPLIANCE ASSURANCE, U.S. EPA, FY2008 OFFICE OF ENFORCEMENT AND COMPLIANCE ASSURANCE (OECA) NATIONAL PROGRAM MANAGER GUIDANCE 5 (June 2007, as updated June 2008), available through Office of Enforcement and Compliance Assurance, U.S. EPA, *National Priorities for Enforcement and Compliance Assurance*, <http://www.epa.gov/compliance/data/planning/priorities/index.html> (last updated May 15, 2008).

149. *Id.* at 5.

150. *Id.* at 4.

overflows (CSOs) involve discharges of raw sewage, which contain “bacteria, viruses and other pathogens” and can lead to beach and shellfish bed closures. In addition, wet weather discharges from concentrated animal feeding operations (CAFOs) regularly contain high levels of fecal coliform.<sup>151</sup>

Thus, the EPA’s reports on its enforcement priorities could provide models for addressing the public health benefits of particular enforcement actions, as could those enforcement highlights where OECA details the public benefits of particular enforcement actions. These qualitative descriptions of the public health benefits of pollution control programs make concrete, immediate, and personal the connections between environmental enforcement and public health protection, better educating the public and Congress regarding the true public values of environmental regulation.

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151. *Id.* at 4–5.