ORPHANED POLLUTION

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ABSTRACT

Orphaned pollution is persistent environmental contamination from a source for which the responsible party cannot be identified or no longer exists. How can the law encourage those best suited to remediate orphaned pollution to take responsibility for a problem for which they are not responsible? Often, the parties best suited to address orphaned pollution are "classical model firms." Classical model firms are for-profit firms that derive their book value substantially from tangible assets, like mining or energy companies. These companies have the expertise and resources to effectively address orphaned pollution, and can even profit from rehabilitated assets affected by orphaned pollution. Law, however, often poses obstacles that discourage voluntary remediation of orphaned pollution by classical model firms. Furthermore, some commenters have argued that, even absent these legal obstacles, classical model firms lack incentives to engage in voluntary socially-beneficial projects like remediation of orphaned pollution. Relying on the example of abandoned mine remediation, this Article proposes regulatory reforms to remove legal obstacles preventing classical model firms from addressing orphaned pollution, and also argues that, without these obstacles, classical model firms have compelling incentives to address orphaned pollution.

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INTRODUCTION

Haunted Canyon meanders picturesquely through Tonto National Forest, where it drains into Pinto Creek. Pinto Creek ultimately empties into Roosevelt Lake, an important drinking water reservoir for the growing population in central Arizona. The small creek is lined with mesquite and sycamore trees, and supports a biologically rich desert riparian habitat—a literal oasis in the Sonoran Desert. It is hard to imagine a place appearing less "haunted." Yet ghosts of past centuries haunt the area to this day.

Haunted Canyon, like many watercourses, is contaminated due to pollution from abandoned mines, some dating back more than a century.[1] These mines were often abandoned long before enactment of environmental protection laws, with the responsible parties impossible to determine or locate, if even alive.[2] Abandoned mines pose significant threats to the environment and human health because of their impact on water quality, threats of burst dams, and even spontaneous combustion of mine wastes.[3] With no responsible party, to whom should society look to solve the dangerous, complicated, and resource-intensive task of addressing past pollution haunting current ecosystems?

Abandoned mines are only one example of what this Article calls "orphaned pollution." Orphaned pollution is persistent contamination of natural resources from sources for which no party can be held financially liable for clean-up costs.[4] Orphaned pollution is a wide-ranging and varied problem, including lead contamination from ancient sources in the harbor of

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1. JAMES S. LYON ET AL., BURDEN OF GILT 3–12 (1993); *see also* Mary J. Hackett, *Remining and the Water Quality Act of 1987: Operators Beware!*, 13 COLUM. J. ENVTL. L. 99, 102 (1987); International Institute for Environmental and Development (IIED), *Mining for the Future—Appendix C: Abandoned Mines* C-3 to C-20 (Mining, Minerals and Sustainable Development, Working Paper no. 28, 2002), *available at* http://pubs.iied.org/pdfs/G00882.pdf [hereinafter *IIED Appendix C*]; *see also* U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION 9, Total Maximum Daily Load for Copper in Pinto Creek, Arizona (April 2001) at p. 2; available at http://www.epa.gov/region9/water/tmdl/pinto/pinto.pdf.

2. LYON ET AL., *supra* note 1, at 1.

3. *See, e.g.*, FRED G. BELL & LAURANCE J. DONNELLY, MINING AND ITS IMPACT ON THE ENVIRONMENT 50–492 (2006); J. STEPHEN KROLL-SMITH & STEVEN ROBERT COUCH, THE REAL DISASTER IS ABOVE GROUND: A MINE FIRE & SOCIAL CONFLICT 1 (1989); Nelia P.C. Maramba et al., *Environmental and Human Exposure Assessment Monitoring of Communities Near an Abandoned Mercury Mine in the Philippines: A Toxic Legacy*, 81 J. ENVTL. MGMT. 135, 136 (2006); J. Denis N. Pone et al., *The Spontaneous Combustion of Coal and its By-Products in the Witbank and Sasolburg Coalfields of South Africa*, 72 INT'L J. COAL GEOLOGY 124, 125 (2007).

4. *See, e.g.*, J. Kelly Brown, *Contaminated Site Liability in Saskatchewan: On the "Right Track" to Remediation?*, 12 J. ENVTL. L. & PRAC. 55, 65 (2003).

Marseilles, to underground kerosene tanks on farms abandoned in Oklahoma during the 19th Century "Dust Bowl."[5] In each instance of orphaned pollution, the challenge for policymakers is determining who is best suited to address the problem, and how to encourage that party to take responsibility for a problem for which they are not responsible.

Often, for-profit firms are best suited to address orphaned pollution.[6] This is particularly true of for-profit firms specializing in natural resource development, like energy companies and mining companies.[7] These firms have the necessary resources and expertise to effectively remediate orphaned pollution. However, legal and regulatory obstacles, including permitting requirements and strict liability "polluter pays" statues, often prevent effective voluntary engagement by for-profit firms in environmental remediation.[8]

Additionally, those firms best suited to address orphaned pollution arguably lack the incentives to voluntarily engage in environmental remediation, even without legal and regulatory obstacles.[9]

Voluntary engagement in socially-beneficial projects, like remediation of orphaned pollution, is often labeled "corporate social responsibility" ("CSR"). CSR has been defined as a corporate strategy incorporating "practices that improve the workplace and benefit society in ways that go above and beyond what companies are legally required to do."[10] While this definition is problematic and potentially over-broad, it does include voluntary remediation of orphaned pollution. CSR is often a central corporate strategy for "new paradigm firms."[11] New paradigm firms derive

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5. Gael Le Roux et al., *Lead Pollution in the Ancient Harbours of Marseilles*, 104 J. MEDITERRANEAN GEOGRAPHY 31, 33–34 (2005); RICHARD LOWITT, AMERICAN OUTBACK: THE OKLAHOMA PANHANDLE IN THE TWENTIETH CENTURY 87 (2006).

6. *See generally* Thomas P. Lyon and John W. Maxwell, *Corporate Social Responsibility and the Environment: A Theoretical Perspective*, 2 REV. OF ENVTL. ECON. & POL'Y 240 (2008).

7. Michael E. Porter & Mark R. Kramer, *The Competitive Advantage of Corporate Philanthropy*, HARV. BUS. REV., Dec. 2002.

8. *See, e.g.*, Charles de Saillan, *The use of Imminent Hazard Provisions of Environmental Laws to Compel Cleanup at Federal Facilities*, 27 STAN. ENVTL. L.J. 43 (2008); Jodi L. Short, *The Paranoid Style in Regulatory Reform*, 63 HASTINGS L.J. 633 (2012).

9. *See, e.g.*, Ralph Hamann & Paul Kapelus, *Corporate Social Responsibility in Mining in Southern Africa: Fair Accountability or Just Greenwash?*, DEV. Sept. 2004, at 85, 88.

10. DAVID VOGEL, THE MARKET FOR VIRTUE: THE POTENTIAL AND LIMITS OF CORPORATE SOCIAL RESPONSIBILITY 2 (2005); *see also* WILLIAM B. WERTHER, JR. & DAVID CHANDLER, STRATEGIC CORPORATE SOCIAL RESPONSIBILITY: STAKEHOLDERS IN A GLOBAL ENVIRONMENT 5 (2006) (stating that "CSR covers the relationship between corporations (or other large organizations) and the societies in which they interact"); Cheryl L. Wade, *Lessons from a Prophet on Vocational Identity: Profit or Philanthropy?*, 50 ALA. L. REV. 115, 119 (1998).

11. *See generally* Gordon L. Clark & James Salo, *Corporate Governance and Environmental Risk Management: A Quantitative Analysis of "New Paradigm" Firms*, in

their book value substantially from intangible assets, like brand name or reputation, which are enhanced or rehabilitated by CSR initiatives.[12] For-profit firms deriving their book value substantially from tangible assets, like energy companies or mining companies, are "classical model firms."[13] Classical model firms have an attenuated relationship with consumers because they are remote in the chain of production from finished products.[14] As such, these firms are arguably less concerned with their reputation and brand name, and thus less likely to engage in CSR.[15]

This Article uses the example of abandoned mines to illustrate how the law poses obstacles to remediation of orphaned pollution by classical model firms, to propose regulatory reforms to remove those obstacles, and to argue that, without those obstacles, classical model firms have compelling incentives to voluntarily remediate orphaned pollution. This Article proceeds in three parts. Part I describes the challenges and opportunities presented when classical model firms attempt to address orphaned, using the example of remediation of abandoned mines.

Part II proposes reforms to facilitate remediation of orphaned pollution by classical model firms. These reforms include (1) incorporation of the concept of "net ecological benefit" in the permitting of environmentally beneficial projects, like remediation of orphaned pollution;[16] (2) implementation of "Good Samaritan Permits" to shield companies from liability associated with remediation of orphaned pollution, so long as they comply with permit conditions;[17] and (3) adoption of environmental credit markets to incentivize remediation of orphaned pollution by classical model firms, similar to the "cap and trade" approach advocated by many to

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PENSIONS AT WORK: SOCIALLY RESPONSIBLE INVESTMENT OF UNION-BASED PENSION FUNDS (J. Quarter, I. Carmichael, and S. Ryan eds., 2008).

12. *Id*. For example, the National Football League depends heavily on its brand name for its book value, and engages in CSR initiatives like its "Play60" program directed at childhood obesity, which both enhances its brand value and voluntarily benefits society.

13. *Id.*

14. *Id*.

15. *Id*. *See generally* BARUCH LEV, INTANGIBLES: MANAGEMENT, MEASUREMENT AND REPORTING (2001) (describing economic factors leading firms to pursue investment in intangible assets).

16. J.B. Ruhl, *Harmonizing Commercial Wind Power and the Endangered Species Act Through Administrative Reform*, 65 VAND. L. REV. 1769, 1770 (2012); *see also* David S. Baron, *Water Quality Standards for Rivers and Lakes: Emerging Issues*, 27 ARIZ. ST. L.J. 559, 590–91 (1995).

17. Bart Lounsbury, *Digging Out of the Holes We've Made: Hardrock Mining, Good Samaritans, and the Need for Comprehensive Action*, 32 HARV. ENVTL. L. REV. 149, 151 (2008).

mitigate the effects of global climate change.[18] Such reforms clear the path for classical model firms to act on their existing incentives to address orphaned pollution.

Part III postulates four incentives for classical model firms to address orphaned pollution. First, CSR initiatives for classical model firms improve relations with key regulators.[19] Second, implementing voluntary industry standards through CSR initiatives achieves uniformity over global production networks for classical model firms.[20] Third, CSR initiatives meet the increasingly common social responsibility requirements from large institutional investors and lenders financing classical model firms.[21] Fourth, incorporating CSR initiatives into classical model firm corporate strategies can facilitate rehabilitation of tangible assets and make them profitable.[22]

The resource and expertise of classical model firms gives them a comparative advantage over government agencies or non-profit organizations in addressing orphaned pollution. A clear understanding of the incentives these firms have to voluntarily engage in these projects, and implementation of regulatory reforms to facilitate that engagement, will most effectively address the challenge of orphaned pollution haunting ecosystems like Pinto Creek around the world.

I. HAUNTED CANYON AND ORPHANED POLLUTION

Orphaned pollution takes many forms, but one of the most ubiquitous and dangerous examples of orphaned pollution is contamination from abandoned mines. Pollution from abandoned mines represents a serious threat to human health and the environment across the globe.[23] This Part briefly discusses the scope and severity of the abandoned mine threat,

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18. *See, e.g.*, Victor B. Flatt, *"Offsetting" Crisis?—Climate Change Cap-and-Trade Need Not Contribute to Another Financial Meltdown*, 39 PEPP. L. REV. 619, 621 (2012).

19. Robert H. Cutting, Lawrence B. Cahoon, Jefferson F. Flood, Laura Horton, & Michael Schramm, *Spill the Beans: Goodguide, Walmart, and EPA Use Information as Efficient, Market-Based Environmental Regulation*, 24 TUL. ENVTL. L.J. 291, 310 (2011); *see generally* Kurt A. Strasser, *Do Voluntary Corporate Efforts Improve Environmental Performance?: The Empirical Literature*, 35 B.C. ENVTL. AFF. L. REV. 533 (2008).

20. David P. Angel & Michael T. Rock, *Global Standards and the Environmental Performance of Industry*, 37 ENV'T & PLAN. A. 1903, 1907 (2005).

21. Gordon L. Clark & Tessa Hebb, *Why Should They Care? Corporate Responsibility and Global Standards*, 37 ENV'T & PLAN. A 2015, 2021 (2005).

22. Porter & Kramer, *supra* note 7; *see also* M. Todd Henderson & Anup Malani, *Corporate Philanthropy and the Market for Altruism*, 109 COLUM. L. REV. 571, 572–73 (2009).

23. Scott Fields, *The Earth's Open Wounds: Abandoned and Orphaned Mines*, 111 ENVTL. HEALTH PERSP. 154, 155 (2003), *available at* http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1241402/pdf/ehp0111-a00154.pdf.

illustrates the challenges confronting corporate remediation of abandoned mines in the case of Haunted Canyon, and compares the case of Haunted Canyon to a similar instance of corporate abandoned mine remediation in Romania.

A. Classical Model Firms and Environmental Risk: Abandoned Mines

Virtually every corner of the globe deals with the problem of inventorying and remediating abandoned mine sites, with varying degrees of success.[24] Mining operations have existed on virtually every inhabited continent for centuries.[25] Since the environmental movement of the 1970s, many nations have moved toward long-term management of mining sites, including imposing closure requirements and compliance with standards through long-term monitoring, remediation, and reclamation efforts.[26] Prior to that time, most mining operations simply ceased production and abandoned the site, leaving mine wastes, shafts, chemicals, and equipment exposed and unmanaged.[27] Where mines no longer actively operate, but where a responsible party is identifiable and regulations impose long-term management or reclamation requirements, these sites are called "inactive."[28] Where the owner or operator of such sites cannot be identified, the sites are considered "orphaned" or "abandoned."[29] The sub-part briefly discusses the threat posed by abandoned mines, the need to address that threat, and how the threat might be addressed through remediation and re-mining.

Abandoned mines have devastating impacts on water supplies, because stormwater runoff and percolation into groundwater from these sites often contain toxic levels of heavy metals, including arsenic, copper, and mercury, as well as acid mine drainage ("AMD") impacting pH levels in surface water.[30] AMD is particularly serious: it arises, persists, and grows in severity over decades and centuries, covering vast, hydrologically complex

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24. *IIED Appendix C*, *supra* note 1, at C-3.

25. *See generally* CEDRIC E. GREGORY, A CONCISE HISTORY OF MINING 3 (1980).

26. Mariaan Webb, *Creating a Sustainable Legacy*, MINING WEEKLY, Oct. 21–27, 2005, at 15; *see also* DANIÈLE BARBERIS, NEGOTIATING MINING AGREEMENTS: PAST, PRESENT AND FUTURE TRENDS 185–86 (1998).

27. Courtney B. Kramer, *Reclaiming Reclamation: The Benefits and Costs of Hard Rock Mining*, 19 COLO. J. INT'L ENVTL. L. & POL'Y 293, 295 (2008).

28. Fields, *supra* note 23, at 156; *see also* Paul Stokstad, *Structuring a Reclamation Program for Abandoned Noncoal Mines*, 25 ECOLOGY L.Q. 121 (1998) at n.4.

29. Fields, *supra* note 23, at 156.

30. M.C. Navarro et al., *Abandoned Mine Sites as a Source of Contamination by Heavy Metals: A Case Study in a Semi-Arid Zone*, 96 J. GEOCHEMICAL EXPLORATION 183, 183 (2008); *see also* David Banks et al., *Mine-water Chemistry: The Good, the Bad, and the Ugly*, 32 ENVTL. GEOLOGY 156, 157 (1997).

basins.[31] AMD and heavy metals pollute water sources impacting fragile ecosystems, endangered species, and community drinking water supplies.[32] Studies have shown that air pollution from exposed abandoned mine materials blown by winds has caused lung cancer.[33] Some communities around abandoned mines have suffered adverse health effects from lead, cadmium, arsenic and mercury poisoning, impacting liver functioning, and causing increased respiratory problems and cancer.[34]

Impacts from abandoned mines go beyond human health to affecting entire ecosystems. AMD has altered distribution and concentrations of fish populations in lakes in Canada, decimated aquatic flora and fauna in rivers in South Africa, and killed terrestrial species in the Ural Mountains of Russia.[35] Some abandoned coal mines have been known to spontaneously combust, causing dangerous and unpredictable explosions resulting in ecosystem impacts, damaged property, and death.[36] Dams constructed to contain mine wastes at abandoned mines have gone neglected and burst, with devastating impacts to downstream ecosystems and human communities.[37]

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31. LYON ET AL., *supra* note 1, at 13; Hackett, *supra* note 1, at 102; *see also* Jeffrey A. Kodish, *Restoring Inactive and Abandoned Mine Sites: A Guide to Managing Environmental Liabilities*, 16 J. ENVTL. L. & LITIG. 381, 383–84 (2001).

32. *See generally* Daniel Peplow & Robert Edmonds, *The Effects of Mine Waste Contamination at Multiple Levels of Biological Organization*, 24 ECOLOGICAL ENGINEERING 101 (2005).

33. *See, e.g.*, A.J. de Villiers & J.P. Windish, *Lung Cancer in a Fluorspar Mining Community: I. Radiation, Dust, and Mortality Experience*, 21 BRIT. J. INDUS. MED. 94, 94 (1964); John S. Neuberger & Joseph G. Hollowell, *Lung Cancer Excess in an Abandoned Lead-Zinc Mining and Smelting Area*, 25 SCI. TOTAL ENV'T 287, 287 (1982).

34. *See, e.g.*, Olga N. Mayan et al., *Health Survey Among People Living Near an Abandoned Mine. A Case Study: Jales Mine, Portugal*, 123 ENVTL. MONITORING & ASSESSMENT 31, 31 (2006); Daniel Peplow & Robert Edmonds, *Health Risks Associated with Contamination of Groundwater by Abandoned Mines Near Twisp in Okanogan County, Washington, USA*, 26 ENVTL. GEOCHEMISTRY & HEALTH 69, 69 (2004); Marcello M. Veiga & Jennifer J. Hinton, *Abandoned Artisanal Gold Mines in the Brazilian Amazon: A Legacy of Mercury Pollution*, 26 NAT. RESOURCES F. 15, 18–19 (2002).

35. *See* Jose Azcue & Jerome Nriagu, *Impact of Abandoned Mine Tailings on the Arsenic Concentrations in Moira Lake, Ontario*, 52 J. GEOCHEMICAL EXPLORATION 81, 81 (1995); F.G. Bell et al., *Environmental Impacts Associated with an Abandoned Mine in the Witbank Coalfield, South Africa*, 45 INT'L J. COAL GEOLOGY 195, 214–216 (2001); V. Udachin et al., *Assessment of Environmental Impacts of Active Smelter Operations and Abandoned Mines in Karabash, Ural Mountains of Russia*, 11 SUSTAINABLE DEV. 133, 137–141 (2003).

36. *See, e.g.*, J. Denis N. Pone, *supra* note 2, at 128; *see also* D. Barrie Johnson, *Chemical and Microbiological Characteristics of Mineral Spoils and Drainage Waters at Abandoned Coal and Metal Mines*, 3 WATER, AIR, & SOIL POLLUTION: FOCUS 47, 52 (2002).

37. Ian von Lindern et al., *Remediation of Legacy Arsenic Mining Areas in Yunnan Province, China*, 1 BLACKSMITH INST. J. HEALTH & POLLUTION 26, 31 (2011); *see also* Denis Binder, *Dam Safety: The Critical Imperative*, 14 LAND & WATER L. REV. 341, 342 (1979).

These threats of abandoned mines are not geographically isolated, though their exact scope is hard to determine. In Australia, states are only beginning to inventory abandoned mines.[38] In recent years, the New South Wales Department of Mineral Resources has included 500 sites in its admittedly incomplete database.[39] In Western Australia, the Department of Minerals and Energy identified 23,000 abandoned mine hazard sites (i.e., sites located near populations centers or tourist attractions), corresponding to 40% of all sites inspected.[40] Canada has an incomplete inventory of over 10,000 abandoned mine sites, with only 60% physically assessed.[41] The United Kingdom has required the recording of abandoned mines since 1874, but because of the long history of tin mining in Cornwall, even the relatively comprehensive list of over 10,000 abandoned mines is incomplete.[42] In the United States, one study estimates over 557,650 abandoned hard rock mining sites in 32 states, and that study has been criticized as incomplete.[43] The state of Arizona alone estimates as many as 27,000 abandoned mines within its territory.[44] Japan, Sweden, South Africa, and Chile have all conducted surveys of abandoned mines, uncovering hundreds, and sometimes thousands, of previously unknown and potentially dangerous sites.[45]

Abandoned mine contamination typically results in persistent heavy metal contamination that cannot be effectively remediated through natural attenuation, necessitating active remedial intervention.[46] Such remediation efforts can include soil treatments, pumping, treating, and re-injecting contaminated groundwater, or use of interceptor wells to prevent spread of contamination.[47] Importantly, technology innovation related to enhanced metals recovery allows for re-mining of wastes at abandoned mine sites,

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38. *See IIED Appendix C*, *supra* note 1, at C-5.
39. *Id.*
40. *Id.* at C-5 to C-6.
41. *Id.* at C-6.
42. *Id.* at C-6 to C-7.
43. *Id.* at C-7; *see also* LYON ET AL., *supra* note 1, at 6.
44. *IIED Appendix C*, *supra* note 1, at C-8.
45. *Id.* at C-9 to C-10.
46. Keisuke Fukushi et al., *A Natural Attenuation of Arsenic in Drainage from an Abandoned Arsenic Mine Dump*, 18 APPLIED GEOCHEMISTRY 1267, 1277 (2003); N.F. Gray, *Environmental Impact and Remediation of Acid Mine Drainage: A Management Problem*, 30 ENVTL. GEOLOGY 62, 65 (1997); D. Barrie Johnson & Kevin B. Hallberg, *Acid Mine Drainage Remediation Options: A Review*, 338 SCI. TOTAL ENV'T 3, 3 (2005).
47. George H. Berghorn & George R. Hunzeker, *Passive Treatment Alternatives for Remediating Abandoned-Mine Drainage*, 11 REMEDIATION J. 111, 117–23 (2001); J.R. Pichtel et al., *Comparison of Amendments and Management Practices for Long-Term Reclamation of Abandoned Mine Land*s, 23 J. ENVTL. QUALITY 766 (1992). *See generally* REMEDIATION AND MANAGEMENT OF DEGRADED LAND 3–4 (M.H. Wong et al. eds., 1999).

which has proven profitable in many instances and helps avoid the necessity of developing new mines in pristine areas.[48] However, for re-mining to be cost-effective, the metals in abandoned mine wastes or remaining ore in abandoned stockpiles must be of sufficient quality and not too far from a potential processing facility to avoid excessive transportation costs.[49]

B. The Case of Abandoned Mine Remediation in Haunted Canyon

Pinto Creek is one of countless watercourses throughout the world haunted by contamination from abandoned mines. The corporate strategy, administrative process, and litigation surrounding the development of the mine near Pinto Creek acutely illustrates this global problem in the context of U.S. water quality regulation. This sub-part summarizes the background and implications of the *Friends of Pinto Creek* case arising from abandoned mine remediation and redevelopment by Carlota Copper Company in Haunted Canyon.[50]

1. Summary of United States Water Quality Regulatory Structure

To understand the background of the Carlota Copper Mine development near Haunted Canyon, it is essential to understand the basic framework of water quality regulation in the U.S. Under the Clean Water Act ("CWA"), the U.S. Environmental Protection Agency ("EPA") regulates water quality throughout the U.S. in surface waters deemed "waters of the United States."[51] The terms are typically given a broad meaning by courts and regulatory agencies, and surface waters (even ephemeral arroyos) generally fall within CWA jurisdiction, so long as they have a "significant nexus" with a traditional navigable watercourse.[52]

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48. Julia Starr Ferguson, *Cyanide Disaster in Romania Pollutes Eastern European Freshwater*, 2000 COLO. J. INT'L ENVTL. L. & POL'Y 251, 254 (2000); Lynn M. Kornfeld, *Reclamation of Inactive and Abandoned Hardrock Mine Sites: Remining and Liability under CERCLA and the CWA*, 69 U. COLO. L. REV. 597, 599 (1998).

49. *See Barriers to the Cleanup of Abandoned Mine Sites: Hearing Before the Subcomm. on Water Res. and Env't of the H. Comm. on Transp. and Infrastructure*, 109th Cong. 61 (2006) (statement of Patricia Limerick, Ph.D., Professor, University of Colorado, Boulder); *see also* Lounsbury, *supra* note 17, at 167–68.

50. Friends of Pinto Creek v. EPA, 504 F.3d 1007, 1009–10 (9th Cir. 2007).

51. 33 U.S.C. § 1362(7) (2012).

52. In 2006, in *Rapanos v. United States*, the United States Supreme Court held in a plurality decision (meaning a decision in which no single holding garnered the support of a majority of the Court) that a watercourse falls within CWA jurisdiction under certain circumstances. 547 U.S. 715, 715 (2006). The plurality opinion, written by Justice Antonin Scalia, held that CWA jurisdiction adheres only to traditional navigable waters, relatively

The CWA is administered by the EPA.[53] However, the EPA delegates certain authority under the CWA to state governments.[54] In particular, state governments establish surface water quality standards ("SWQS") for each surface watercourse within their states, under CWA jurisdiction, with EPA oversight and approval.

Once a state has established SWQS, the state assesses each watercourse for compliance with the applicable SWQS.[55] Surface watercourses which fail to meet SWQS are deemed "impaired" for the constituents exceeding standards.[56] The state then establishes for each impaired watercourse a "total maximum daily load" ("TMDL").[57] Under Section 303(d) of the CWA, a TMDL is a calculation of the maximum amount of a pollutant a watercourse can receive and still meet SWQS.[58] The TMDL is then used to establish effluent limitations for discharge permits into the impaired watercourse.[59] These permits, issued under the National Pollutant Discharge Elimination System ("NPDES") of Section 402 of the CWA, authorize point source discharges of pollutants to CWA-jurisdictional waters.[60]

Under regulations adopted by the EPA with respect to NPDES permits, no new discharges may be permitted under NPDES to an impaired water "if the discharge from its construction or operation will cause or contribute to the violation of water quality standards," unless the EPA demonstrates that

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permanent tributaries to traditional navigable waters, and wetlands directly abutting traditional navigable waters. *Id.* at 733–34. The concurring opinion, authored by Justice Robert Kennedy, held that CWA jurisdiction adheres so long as a water body has a "significant nexus" to a traditional navigable water. *Id.* at 759; *see generally* U.S. ENVIRONMENTAL PROTECTION AGENCY, CLEAN WATER ACT JURISDICTION FOLLOWING THE U.S. SUPREME COURT'S DECISION IN RAPANOS V. UNITED STATES & CARABELL V. UNITED STATES (2008), *available at* http://www.usace.army.mil/Portals/2/docs/civilworks/regulatory/cwa_guide/cwa_juris_2dec08.pdf (noting that regulatory agencies will typically consider any water jurisdictional so long as it has a significant nexus to a traditional navigable water).

53. Clean Water Act, 33 U.S.C. § 1251 *et seq*. (2012).

54. For an overview of the CWA and its implementing regulations, see OLIVER A. HOUCK, THE CLEAN WATER ACT TMDL PROGRAM: LAW, POLICY, AND IMPLEMENTATION 3 (2d ed. 2002).

55. *See, e.g*., Michael C. Blumm, *The Amphibious Salmon: The Evolution of Ecosystem Management in the Columbia River Basin*, 24 ECOLOGY L.Q. 653 (1997); *see also* 33 U.S.C. § 1313.

56. *See e.g*., Jan G. Laitos & Heidi Ruckriegle, *The Clean Water Act and the Challenge of Agricultural Pollution*, 37 VT. L. REV. 1033 (2013); *see also* 40 C.F.R. § 130.2(j); 33 U.S.C. §§ 1311 and 1313(c)–(d).

57. 33 U.S.C. § 1313(c)–(d).

58. *Id*.

59. *Id*.; *see, e.g*., K. Kilbert, T. Tisler & M. Hohl, *Legal Tools for Reducing Harmful Algal Blooms in Lake Erie*, 44 U. TOL. L. REV. 69 (2012).

60. Federal Water Pollution Control Act Amendments of 1972, 33 U.S.C. § 1342(a) ((2008).

(1) the watercourse can handle the new discharge and still comply with SWQS; and (2) that specific plans are in place applicable to current dischargers to ensure that the watercourse will ultimately be brought into compliance with SWQS.[61]

Under U.S. law, the decisions of administrative agencies with respect to the interpretation and implementation of their respective enabling statutes (such as the CWA, in the case of the EPA), are afforded substantial deference by courts reviewing agency decisions, and courts should not overturn those decisions unless the agency action is "arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law."[62]

2. Background of Mine Development in Haunted Canyon

The development of a large open-pit copper mine in the U.S. typically implicates virtually every regulatory component of the CWA. This was the case with the development of the Carlota Copper Mine near Miami, Arizona.

The area around Miami, Arizona is one of the world's richest copper reserves, with over a century of copper mining, and two large currently-operating copper mines.[63] Carlota Copper Company ("Carlota"), a subsidiary of Canadian international mining company Quadra Mining Ltd., petitioned the EPA for a NPDES permit to authorize discharges associated with exploration and mine development in 1998.[64] Initially, the NPDES permit would have been a relatively simple and inexpensive, authorizing only unimpacted stormwater run-off from the mine site.[65]

However, in connection with the development of the Environmental Site Assessment and approval of Carlota's NPDES permit, the EPA negotiated additional permit conditions, including Carlota's agreement to remediate an abandoned mine upstream of Carlota's mine, called the Gibson Mine.[66] Because of the discharges associated with remediation activities, Carlota was required to obtain the more stringent individual NPDES permit, requiring a public notice and comment period under the U.S. Administrative Procedures Act and heightened Environmental Site Assessment scrutiny

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61. 40 C.F.R. § 122.4(i) (2013).

62. Chevron U.S.A., Inc. v. NRDC, 467 U.S. 837, 844 (1984); *see also* Administrative Procedures Act, 5 U.S.C. § 706 (2012).

63. *See generally* Nyal Niemuth, *Arizona Mining Update – 2007*, ARIZ. DEP'T OF MINES AND MINERAL RESOURCES (2008), *available at* http://www.admmr.state.az.us/Info/mining_update2007.pdf.

64. Friends of Pinto Creek v. EPA, 504 F.3d 1007, 1010 (9th Cir. 2007).

65. *Id.*

66. *Id.*

under the National Environmental Policy Act ("NEPA") than would have been required with solely the general industrial stormwater permit.

Carlota's motivation for agreeing to remediate the Gibson Mine could be attributed to CSR efforts, as they were not necessarily required by law to engage in either activity.[67] However, Carlota's interests and the interests of the EPA aligned in a manner that allowed both parties to agree to the additional NPDES permit conditions relating to the remediation of the Gibson Mine.[68]

The reason for the alignment of industry and regulator interests was the water quality in Pinto Creek, the watercourse in Haunted Canyon that would receive Carlota's discharges. Pinto Creek had been listed under Section 303(d) of the CWA as impaired because the creek exceeded the SWQS for copper.[69] Several factors likely contributed to the elevated levels of copper in the creek: runoff and air depositions from the presence of two large operating copper mines, the natural background of the watercourse in a copper-rich geological setting, and the presence of the Gibson Mine.[70] The Gibson Mine had been abandoned for over a century and had no pollution control measures, meaning runoff from waste dumps, and AMD ran directly to the creek.[71]

The EPA wanted to improve the water quality in the creek not only for ecological reasons. The EPA also wanted to remove the creek from the impaired waters list because of the significant administrative costs associated with developing, implementing, and enforcing a TMDL. Carlota wanted to improve the water quality in the creek, knowing that it would be unable to obtain a permit for any discharges to the creek if the watercourse was impaired. As such, Carlota and EPA agreed that, as a condition of issuance of Carlota's NPDES permit, Carlota would conduct remediation activities at the Gibson Mine to improve the water quality in Pinto Creek enough to allow for Carlota's discharge.[72] Carlota was not legally required

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67. Vt. Yankee Nuclear Power Corps. v. Natural Res. Def. Council, 435 U.S. 519, 558 (1978).

68. *See generally* U.S. ENVTL. PROT. AGENCY, RESPONSE TO COMMENTS CARLOTA COPPER MINE PROJECT SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT (2002), *available at* http://www.epa.gov/region9/water/npdes/pdf/carlota/carlotartc0202.pdf.

69. *Friends of Pinto Creek*, 504 F.3d at 1011.

70. For information on the contribution of dissolved copper to Pinto Creek, *see* ARIZ. DEP'T OF ENVTL. QUALITY, TOTAL MAXIMUM DAILY LOAD FOR COPPER IN PINTO CREEK, ARIZONA, (2007), *available at* http://www.azdeq.gov/environ/water/assessment/download/pinto.pdf.

71. John Fialka, *Friars Who Owned Polluted Mine Get All Sorts of Help: They Risked Costly Fines Over Arizona Toxic Waste; Prayer and a Good Lawyer*, WALL ST. J., Apr. 20, 2007, *available at* http://online.wsj.com/article/SB117703444674176413.html.

72. *Friends of Pinto Creek*, 504 F.3d at 1010.

to engage in this remediation.[73] Carlota likely could have obtained a general NPDES permit for stormwater discharges or designed the facility to be a zero-discharge facility at relatively little cost, because Carlota would only have had unimpacted stormwater discharges and not a large wastewater treatment and discharge point source.[74]

Based on this agreement with the EPA, Carlota engaged in a $2.5 million dollar cleanup of the Gibson Mine, including the removal of 120,000 tons of mine wastes.[75] The result of the cleanup of the Gibson Mine was a dramatic improvement of the copper loading and overall water quality in Pinto Creek.[76] Because of the improved water quality in Pinto Creek, EPA issued to Carlota its NPDES permit, following a public notice and comment period, on July 24, 2000.[77]

On April 1, 2002, Friends of Pinto Creek, a coalition of environmental protection organizations, filed a petition with the EPA for a review of Carlota's NPDES permit.[78] In its petition, Friends of Pinto Creek argued that the EPA had violated its own CWA regulation by issuing a new permit for discharges to an impaired water without demonstrating that the receiving watercourse had sufficient assimilative capacity (i.e., how much pollution a watercourse can absorb without compromising its ecological integrity) for the discharge and ensuring all dischargers to the creek were subject to compliance schedules to bring the creek into compliance with SWQS.[79]

The EPA reviewed and denied the petition, holding that the agency was not required to make the two demonstrations for new discharges to impaired waters, because such demonstrations only apply when the discharge causes or contributes to a violation of SWQS.[80] As the net effect of the discharge from Carlota resulted in improvement of the water quality in Pinto Creek (due to remediation of the Gibson Mine), according to the EPA, the

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73. *Id*.

74. *See generally*, Jeffrey M. Gaba, *Generally Illegal: NPDES General Permits under the Clean Water Act*, 31 HARV. ENVTL. L. REV. 409, 419–28 (2007); for a discussion on zero-discharge facilities, see U.S. ENVTL. PROT. AGENCY, EPA AND HARDROCK MINING: A SOURCE BOOK FOR INDUSTRY IN THE NORTHWEST AND ALASKA 17–18 (2003).

75. *See* Nyal Niemuth, *Arizona Mining Update – 2006*, ARIZ. DEP'T OF MINES AND MINERAL RESOURCES 1, 4 (2007), *available at* http://www.admmr.state.az.us/Info/mining_update2006.pdf.

76. Michael C. Ford, *Ninth Circuit Impairs NPDES Permitting*, 6 ARIZ. J. ENV'T MGMT. 16, 17 (2008), *available at* http://ehshomepage.com/COLUMNandARTICLES/MichaelCFordBK31FebMar2008.htm.

77. *Friends of Pinto Creek*, 504 F.3d at 1010.

78. *Id.*

79. *Id.*; 40 C.F.R. § 122.4(i) (2013).

80. *Friends of Pinto Creek*, 504 F.3d at 1011–12.

additional demonstrations were not required, as they neither caused, nor contributed, to a violation of the SWQS.[81] Indeed, according to the EPA, the net effect of Carlota's permit was the improvement of water quality in the creek.[82]

Friends of Pinto Creek then brought a claim against the EPA in federal district court, making the same argument regarding a violation of the EPA's regulation on new permits to impaired waters.[83] The district court upheld the EPA's decision, deferring to the agency's expertise and interpretation of its own regulation in accordance with the U.S. Supreme Court precedent.[84]

However, on appeal, the decision was reversed and Carlota's NPDES permit was vacated.[85] The appellate court held that the plain language of the EPA's regulations required the agency to make the demonstrations related to the assimilative capacity of the creek and compliance schedules for existing dischargers, regardless of whether the new permitted discharger improved water quality.[86] The U.S. Supreme Court denied Carlota's appeal of the appellate court's decision, and the EPA declined to seek further review.[87]

Ultimately, the decision in *Friends of Pinto Creek* presents a challenge for both regulators and classical model firms. EPA would presumably want to pursue a similar strategy in other permitting contexts—a quid pro quo where a permit is issued partially in exchange for a mining companies' assistance in remediating abandoned mines. Assuming the permit effluent limits are appropriate, any pollution from new mining operations will be offset by improvements in water quality from abandoned mine remediation. Such an effect would be achieved with agency oversight and company resources and expertise, with minimal expenditures of taxpayer dollars compared to government-initiated remediation. Mining companies would see such a quid pro quo arrangement as beneficial—improve relationships with a key regulatory agency and the public, facilitate development of a new mine by increasing the assimilative capacity of the receiving water body, and potentially profit from re-mining activities on the abandoned mine site. However, the decision in *Friends of Pinto Creek* precludes such a bargain for both the agency and the company, at least where the receiving water body is impaired (i.e., the places most in need of remediation).

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81. *Id.* at 1012.
82. *Id*.
83. *Id.*
84. *Id.*
85. *Id*. at 1009.
86. *Id.* at 1012.
87. *See* Carlota Copper Co. v. Friends of Pinto Creek, 555 U.S. 1097 (2009).

C. The Global Relevance of Haunted Canyon

The administrative process and litigation related to Pinto Creek have far-reaching implications for companies interested in remediation of abandoned mines and for governments seeking cooperation of the mining industry in that remediation. The outcome in *Friends of Pinto Creek* represents an instance where a court ill-equipped to make decisions on complicated regional environmental policy considerations overrode the decisions of an agency created for the very purpose of providing expertise in precisely those types of regional environmental policy considerations.[88]

Even more fundamentally, however, *Friends of Pinto Creek* creates unnecessary obstacles to remediation of abandoned mines. Mining companies will be reluctant to risk exposure to potential environmental liability by engaging in abandoned mine remediation unless they can rely on *quid pro quo* assurances from the agency. Governmental agencies will lose an important bargaining tool in permit negotiations that facilitates abandoned mine remediation with minimal expenditure of public funds. This sub-part places the challenges illustrated in the case of Haunted Canyon within the global context by providing another example of the potential and pitfalls of abandoned mine remediation initiated by international mining companies.

On January 20, 2000, the tailing dam at the ancient, but still operating, Aurul Mine near Baia Mare, Romania overflowed, resulting in over 100,000 cubic meters of mine waste (with elevated levels of cyanide) discharges into the Tisza River.[89] This catastrophe resulted in significant political backlash against mining companies in Romania.[90] But the catastrophe is aggravated by a narrow focus on precluding permitting of mining companies from remediating and re-mining abandoned mines.

The Apuseni Mountains located just south of Baia Mare contain abandoned mines dating back more than 2,000 years. AMD from these abandoned mines reached the Tisza River as well.[91] Canadian company Gabriel Resources has sought permits to remediate and re-mine the Apuseni Mountains' abandoned mines, but has met with considerable (and

88. *See* Chevron, U.S.A., Inc. v. Natural Res. Def. Council, Inc., 467 U.S. 837, 844–45 (1984) (holding that, in the absence of clearly expressed Congressional intentions within the statute, courts afford deference to federal agency's reasonable interpretation of the statutes they administer, in part because of the agency's superior expertise).

89. Fritz Balkau, *Learning from Baia Mare*, 3 ENV'T & POVERTY TIMES, Jan. 2005, at 4–5; *see also* Ferguson, *supra* note 48.

90. Krista Harper, *"Wild Capitalism" and "Ecocolonialism": A Tale of Two Rivers*, 107 AM. ANTHROPOLOGIST 221, 221 (2005).

91. D. Kirk Nordstrom, *Advances in the Hydrogeochemistry and Microbiology of Acid Mine Waters*, 42 INT'L GEOLOGY REV. 499 (2000).

understandable, given the Aurul Mine catastrophe) obstacles from government and civil society, including from the neighboring downstream government of Hungary.[92] As in the case of Haunted Canyon, opposition to mine development has led to legal claims against Gabriel Resources involvement in remediation efforts in the Apuseni Mountains.[93]

The legal obstacles faced by Gabriel Resources in Romania are similar from those posed to Carlota in Arizona. European Union (E.U.) law includes permitting programs for discharges from mining operations not unlike those implemented by the EP and states in the U.S.[94] E.U. law would similarly prohibit discharges to waters exceeding applicable SWQS, and effective permitting would depend upon remediation of receiving waters.[95] Just as with Carlota in Haunted Canyon, Gabriel Resources would not have been legally required to obtain a discharge permit if it could have avoided impacted discharges, but had incentives to partner with regulators to improve water quality. Gabriel Resources also faced liability concerns similar to those of Carlota in Haunted Canyon. E.U. law also includes a strict liability "polluter-pays" principle similar to that imposed by the Superfund statute under U.S. environmental law.[96] The "polluter-pays" principle also has found some acceptance as a binding principle of

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92. Stephen Stec & Alexios Antypas, *Globalising Hazardous Activities: An Instrument for Investor Risk and Responsibility*, 34 ENVTL. POL'Y & L. 125, 129 (2004); *see also* Neil Barnett, *Romanian Gold Project Stalled*, INST. FOR WAR & PEACE REPORTING (Aug. 2, 2005), http://iwpr.net/report-news/romanian-gold-project-stalled; WITOLD J. HENISZ ET AL., ROSIA MONTANA (A): POLITICAL AND SOCIAL RISK MANAGEMENT IN THE LAND OF DRACULA 1, 8–9 (2009), http://www-management.wharton.upenn.edu/henisz/Rosia(A)i.pdf.

93. Aron Buzogány, *Stairway to Heaven or Highway to Hell? Ambivalent Europeanization and Civil Society in Central and Eastern Europe*, *in* PROTEST BEYOND BORDERS: CONTENTIOUS POLITICS IN EUROPE SINCE 1945, at 69, 75 (Hara Kouki & Eduardo Romanos eds., 2011); Press Release, Alburnus Maior, Anticipating Surprise—Assessing Risk, Investors Guide to Gabriel Resources Rosia Montana Mine Proposal (Oct. 8, 2004), http://www.rosiamontana.org; Press Release, Alburnus Maior, Romania's Persistent Gabriel Resources Rebel: Prime Minister Adrian Nastase (July 10, 2003), http://www.rosiamontana.org.

94. *See* Council Directive 96/61, Annex I, 1996 O.J. (L 257) 26, 34–36 (EC); *see also* Neil Emmott, *An Overview of the IPPC Directive and Its Development*, *in* INTEGRATED POLLUTION PREVENTION AND CONTROL: THE EC DIRECTIVE FROM A COMPARATIVE LEGAL AND ECONOMIC PERSPECTIVE 23, 34–35 (Chris Backes & Gerrit Betlem eds., 1999). *See generally* RENÉ SEERDEN, COMPARATIVE ENVIRONMENTAL LAW IN EUROPE: AN INTRODUCTION TO PUBLIC ENVIRONMENTAL LAW IN THE EU MEMBER STATES 432 (René Seerden & Michiel Heldeweg eds., 1996).

95. David M. Trubek & Louise G. Trubek, *New Governance & Legal Regulation: Complementarity, Rivalry, and Transformation*, 13 COLUM. J. EUR. L. 539, 554 (2007).

96. First Environmental Action Programme, 1973 O.J. (C 112); *see also* Markus G. Puder, *The Rise of Regional Integration Law (RIL): Good News for International Environment Law (IEL)?*, 23 GEO. INT'L ENVTL. L. REV. 165, 183 (2011). *See generally* JAN H. JANS & HANS H.B. VEDDER, EUROPEAN ENVIRONMENTAL LAW 3–50 (3d ed. 2008).

international environmental law.[97] Under both U.S. and international law, mining companies engaged in abandoned mine remediation could face liability for contamination associated with remediation activities, even if the net effect of their work is to improve environmental conditions.

Political and legal obstacles to abandoned mine remediation and reclamation, like those faced by Gabriel Resources, increase the risk of more catastrophes like the release at Aurul. The challenge of permitting discharges to already polluted water bodies, and the risk of incurring liability for contaminated associated with the abandoned mine, may prove insuperable obstacles for mining companies to engage in abandoned mine remediation. If mining companies are in the best position to address abandoned mines, then, the political and regulatory obstacles to corporate remediation, like those presented in the case of the Apuseni Mountains and Haunted Canyon, should be removed. The question remains whether mining companies, even with their path cleared of these obstacles, would engage effectively in remediation of abandoned mines.

II. REGULATORY REFORM TO ENCOURAGE REMEDIATION OF ORPHANED POLLUTION

These examples of abandoned mine remediation illustrate the legal and regulatory obstacles that preclude effective engagement by those best positioned to address the problem. The lack of effective engagement in abandoned mine remediation by mining companies can be, at least partially, attributed to the failure of the law to facilitate such initiatives.

As illustrated in the example of Carlota and Haunted Canyon, current regulatory frameworks often provide unnecessary obstacles, unclear or unreliable incentives, and uncertain risks of liability with respect to remediation work on abandoned mines. The quid pro quo bargain struck in the case of Haunted Canyon also illustrates how regulators can work with

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97. Rahim Moloo & Justin Jacinto, *Environmental and Health Regulation: Assessing Liability under Investment Treaties*, 29 BERKELEY J. INT'L L. 1, 34 n.184 (2011); *see, e.g.*, Comprehensive Environmental Response, Compensation, and Liability Act, 46 U.S.C. §§ 9601–9675 (2013) (U.S. law imposing strict liability for releases of hazardous substances to the environment); *see also* United Nations Conference on Environment and Development, Rio de Janeiro, Braz., June 3–14, 1992, *Rio Declaration on Environment and Development*, U.N. Doc. A/CONF.151/26/Rev.1 (Vol. I), Annex I (Aug. 12, 1992), Principle 16 ("[T]he polluter should, in principle, bear the cost of pollution, with due regard to the public interest and without distorting international trade and investment."). *But see* PHILIPPE SANDS, PRINCIPLES OF INTERNATIONAL ENVIRONMENTAL LAW 280 (2d ed. 2003) ("It is doubtful whether [the polluter-pays principle] has achieved the status of a generally applicable rule of customary international law, except perhaps in relation to states in the EC, the UNECE, and the OECD.").

classical model firms to facilitate CSR initiatives uniquely suited for the expertise and resources of these firms. Regulators need not impose sanctions on firms to discourage irresponsible behavior, but instead regulators can achieve greater results by facilitating socially-responsible firm behavior that is already in the firm's best interests.[98]

This Part proposes three regulatory reforms which facilitate abandoned mine remediation. The three proposed reforms are (A) adoption of "net ecological benefit" considerations in issuance of discharge permits and the approval of variances from achievement of water quality standards; (B) adoption of "Good Samaritan" discharge permits, which provide liability shields for parties engaged in abandoned mine remediation; and (C) adoption of water quality credit trading markets.

A. "Net Ecological Benefit"

The central issue of *Friends of Pinto Creek* was whether or not the discharge permitted by the EPA caused or contributed to an exceedance of a SWQS. The outcome of *Friends of Pinto Creek* could have been avoided with clear regulatory language acknowledging that some discharges may have a "net ecological benefit."[99]

In cases where the remediation would have a net ecological benefit on the receiving watercourse (i.e., the ecological value of the project taken as a whole exceeds the ecological cost associated with the project), the permitting agency should expedite the permit and, if necessary, issue a temporary variance from applicable SWQS for the duration of the remediation work (or a site-specific standard where SWQS are not achievable due to elevated natural background of the constituent at issue).[100]

The "net ecological benefit" approach is similar to other approaches taken in land use and development law. For example, in *Nollan v. California Coastal Commission*, the U.S. Supreme Court held that conditioning the issuance of a rebuilding permit to a private citizen on the agreement of that citizen to donate property for a public easement was an

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98. *See generally infra* note 181.

99. *See* Richard Meyerhoff et al., *Water Resource Conflicts: The Need for an Alternative Approach to Permitting in Effluent Dependent Ecosystems*, 2001 WATER ENVTL. FED. PROC. 561. *See generally* Mark Buckley & Brent M. Haddad, *Socially Strategic Ecological Restoration: A Game-Theoretic Analysis Shortened: Socially Strategic Restoration*, 38 ENVTL. MGMT. 48 (2006).

100. For proposals incorporating the concept of net ecological benefit in "effluent dependent waters" (i.e., waters that exist only because of effluent from anthropogenic sources of water), see David S. Baron, *Water Quality Standards for Rivers and Lakes: Emerging Issues*, 27 ARIZ. ST. L.J. 559, 591 (1995).

unconstitutional taking.[101] In that case, for such a condition to withstand constitutional scrutiny, there must be a nexus between the harm caused by the permit (in that case, obstructing the public view) and the harm mitigated by the permit condition.[102] Because there was no nexus between obstructing a public view and providing a public walkway, the Court found the condition unconstitutional.[103] The relevant legal principle to be abstracted from *Nollan* is that for "a regulation to count as protecting the public from harm, the regulation must mitigate the harm."[104] The "net ecological benefit" concept builds on this legal principle. Where permits associated with mining operations are issued, those permits may be appropriately conditioned upon full mitigation of the project's ecological impacts. This general rule is reflected in other countries and international law.[105]

Several jurisdictions have successfully adopted "net ecological benefit" polices along these lines, usually to support effluent-dependent waters (i.e., aquatic and riparian ecosystems dependent upon regular effluent discharges).[106] In instances where riparian habitat would be harmed by denying a permit to a discharge that is essentially maintaining the habitat, the permitted discharge is considered to have a "net ecological benefit," even if it exceeds effluent limits.[107] This approach to permitting is often employed in projects conserving water through use of recycled wastewater, including wetlands restoration and artificial groundwater recharge of depleted aquifers.[108] Comparable programs have been applied to climate change mitigation measures and wind and solar energy projects, where the benefits to the environment from employment of renewable energy sources are seen as offsetting impacts to the environment by these projects, thus justifying relaxed permitting program or land use restrictions.[109] A similar

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101. Nollan v. Cal. Coastal Comm'n, 483 U.S. 825, 841–42 (1987).

102. *Id.* at 837; *see also* ROBERT COOTER & THOMAS ULEN, LAW & ECONOMICS 182–83 (6th ed. 2012).

103. *Nollan*, 483 U.S. at 841.

104. COOTER & ULEN, *supra* note 102, at 182.

105. *See, e.g.*, Iron Rhine Railway (Belg. v. Neth.), 27 R.I.A.A. 41, 44 (Perm. Ct. Arb. 2005); *see also* Gabcikovo-Nagymaros Project (Hung. v. Slovk.), 1997 I.C.J. 7 (Sept. 25, 1997); Cymie Payne, *Mastering the Evidence: Improving Fact Finding by International Courts*, 41 ENVTL. L. 1191, 1217–18 (2011).

106. *See, e.g.*, REBECCA TUDEN, DAVID SMITH & MARIA REA, GUIDANCE OF MODIFYING WATER QUALITY STANDARDS AND PROTECTING EFFLUENT DEPENDENT ECOSYSTEMS: EPA REGION 9: INTERIM FINAL (1992); *see also* ARIZ. ADMIN. CODE R18-11-106 (2012).

107. Ginette Chapman, *From Toilet to Tap: The Growing Use of Reclaimed Water and the Legal System's Response*, 47 ARIZ. L. REV. 773, 788 (2005).

108. *Id.*; *see generally* Baron, *supra* note 100.

109. *See, e.g.*, J.B. Ruhl, *Harmonizing Commercial Wind Power and the Endangered Species Act Through Administrative Reform*, 65 VAND. L. REV. 1769, 1783 (2012); *see also*

rationale applies to discharges associated with orphaned pollution remediation activities. The permitting of a discharge from a remediation project (for example, effluent from wastewater treatment or stormwater runoff) should be expedited with temporarily relaxed effluent limits, so long as impacts from the discharge are offset by the improvements to the ecosystem achieved through remediation.

The "net ecological benefit" approach can prove problematic, however, where ecological costs and benefits of a project are often difficult to determine and compare. Furthermore, the "net ecological benefit" concept can provide loopholes to facilitate pollutant loading when there is a questionable basis for net ecological benefit. Any regulatory finding of "net ecological benefit" therefore should be subject to scientific scrutiny and public comment, with government liability for arbitrary or unscientific findings of net ecological benefit. One approach, which has been adopted in certain projects approved by the U.S. Forest Service, is to require permit applicants relying on "net ecological benefit" to demonstrate to the agency by a preponderance of scientific evidence that the project indeed benefits the ecosystem when taken as a whole.[110]

B. "Good Samaritan Permits"

Beyond the concerns for permitting and compliance costs addressed through the "net ecological benefit" reform proposed above, many CSR initiatives directed at abandoned mine remediation stagnate over concerns of liability. In many jurisdictions throughout the world, strict liability adheres to environmental contamination (i.e., the owner or operator of the contaminating site is liable for contamination and remediation costs, regardless of negligence or compliance with legal obligations).[111] Many companies are reluctant to assume that liability risk in exchange for the

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Tyler McNish, *Carbon Offsets are a Bridge Too Far in the Tradeable Property Rights Revolution*, 36 HARV. ENVTL. L. REV. 387, 399 (2012).

110. Kyle J. Aarons, *The Real World Roadless Rules Challenges*, 109 MICH. L. REV. 1293, 1323 (2011).

111. *See*, *e.g.*, Comprehensive Environmental Response, Compensation, and Liability Act ("CERCLA"), 42 U.S.C. §§ 9601–9675; *see also* Convention on Civil Liability for Damage Resulting from Activities Dangerous to the Environment, June 21, 1993, 32 I.L.M. 1228; Imperial Oil Ltd. v. Quebec (A.G.) (on behalf of Min. of Envir.), [2003] 2 S.C.R. 624 at para. 23 (Can.); A. Dan Tarlock, *Exclusive Sovereignty Versus Sustainable Development of a Shared Resource: The Dilemma of Latin American Rainforest Management*, 32 TEX. INT'L L.J. 37, 45–46 (1997); Hyun S. Lee, *Post Trusteeship Environmental Accountability: Case of PCB Contamination on the Marshall Islands*, 26 DENV. J. INT'L L. & POL'Y 399, 413–14 (1998) (acknowledging the growing role of strict liability polluter-pays rules in international environmental law).

strategic benefits of CSR initiatives directed at abandoned mine remediation.

A special permitting scheme for remediation activities could provide liability protection for companies engaged in remediation without amounting to a full license to pollute. Such a "Good Samaritan" permit would authorize discharges from the remediation site in compliance with prescribed effluent limits and best management practices.[112] So long as the remediating party complies with its "Good Samaritan" permit, it is shielded from all liability associated with the historic contamination from the abandoned mine. Several attempts have been made to reform the CWA to include a "Good Samaritan" permit through legislative amendments, but have so far proved unsuccessful.[113]

This permit would be available to any "Good Samaritan," defined as a person that, with respect to abandoned mine contamination, had no role in the creation of the contamination and is not liable under any law for the remediation of the historic contamination. The permit's liability protection would extend equally to a "cooperating person," defined as any person (including any government entity) assisting the permittee in the remediation so long as the cooperating person also falls within the definition of a "Good Samaritan." The permit would only be available for remediation of abandoned or orphaned mine sites, which would not include facilities owned or operated by existing mining corporations in temporary shutdown or entering mine closure, reclamation, or inactive phases. Given the similarities between the CWA and foreign water quality regulatory regimes, similar "Good Samaritan" permits could possibly be implemented in other regions.[114]

"Good Samaritan" permits promote altruistic measures with significant positive externalities by protecting them from otherwise strict liability for inherently dangerous, but important, projects. Nevertheless, the permits still allow governmental oversight to ensure compliance with applicable environmental standards. Negligent, irresponsible remediation efforts would still be punishable and expose parties to strict liability. Negligent, irresponsible remediation efforts are more likely to occur when directed by

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112. *See* Lounsbury, *supra* note 17, at 175; *see also* Kodish, *supra* note 31, at 395–96.

113. Lynn M. Kornfeld, *Reclamation of Inactive and Abandoned Hardrock Mine Sites: Remining and Liability under CERCLA and the CWA*, 69 U. COLO. L. REV. 597, 624–25 (1998)

114. *See, e.g.*, Dawn Winalski, *Cleaner Water in China? The Implications of the Amendments to China's Law on the Prevention and Control of Water Pollution*, 24 J. ENVTL. L. & LITIG. 181, 183 (2009); *see also* Nancy D. Perkins, *Form and Norm: The Transformative Potential of Sub-National Environmental Solidarity*, 20 FORDHAM ENVTL. L. REV. 469, 491–92 (2010); M. Rosegay-Kott, *The Impediments to Effective Regulation of Oil Tanker Traffic in United States Waters*, 51 U. COLO. L. REV. 77, 83 (1979).

parties other than mining companies, who have superior expertise and resources related to mine remediation.

For example, the abandoned Penn Mine in Calaveras County, California discharges pollutants, including AMD, into a river flowing into a municipal reservoir. No mining companies were willing to assume the potential liability associated with remediation, so the local municipality assumed liability for remediating the Penn Mine site, without a Good Samaritan permit program.[115] The remediation was so poorly performed, ultimately aggravating pollution problems, that the municipality assumed significant liability and became a major proponent for Good Samaritan permit legislation.[116]

Mining companies have also been major proponents of "Good Samaritan" permit legislation. John Mudge, Director of Environmental Affairs at Newmont Mining Company, stated: "There seems to be a view among some that, merely by having engaged in mining at other sites, the mining company in question is somehow 'morally culpable' for the pollution caused at the [abandoned mine] by someone else. That simply makes no sense."[117] Mining companies have been vocal in supporting "Good Samaritan" legislation and on their qualification as "Good Samaritans" in abandoned mine remediation.[118] There has been a growing movement toward recognizing "Good Samaritan" permits under the Clean Water Act by the EPA, and successful implementation of similar permitting programs in discharge permits authorized by state agencies.[119] Indeed, a

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115. Lounsbury, *supra* note 17, at 157–62.

116. *Id.*

117. *Id.* at 164; *see also Barriers to the Cleanup of Abandoned Mine Sites: Hearing Before the Subcomm. On Water Res. and Env't of the H. Comm. On Transp. and Infrastructure*, 109th Cong. 78 (2006) (statement of John Mudge, Director, Environmental Affairs, Newmont Mining Corporation).

118. *Barriers to the Cleanup of Abandoned Mine Sites: Hearing Before the Subcomm. On Water Res. and Env't of the H. Comm. On Transp. and Infrastructure*, 109th Cong. 78 (2006) (statement of John Mudge, Director, Environmental Affairs, Newmont Mining Corporation); *see also Opportunities for Good Samaritan Cleanup of Hard Rock Abandoned Mine Lands: Oversight Hearing Before the Subcomm. on Energy and Mineral Res. of the H. Comm. On Res.*, 109th Cong. 64 (2006) (statement of Harold P. Quinn, Jr., Senior Vice President and General Counsel, National Mining Association).

119. *See, e.g.*, U.S. ENVTL. PROT. AGENCY, CLEAN WATER ACT § 402 NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT REQUIREMENTS FOR "GOOD SAMARITANS" AT ORPHAN MINE SITES (2012), *available at* http://water.epa.gov/action/goodsamaritan/upload/2012-good-samaritan-memo-signed.pdf; *see also* COLORADO DEP'T OF ENVTL. QUALITY, GOOD SAMARITAN ABANDONED OR INACTIVE MINE WASTE REMEDIATION ACT SUMMARY, *available at* http://www.colorado.gov/cs/Satellite?blobcol=urldata&blobheadername1=Content-Disposition&blobheadername2=Content-Type&blobheadervalue1=inline%3B+filename%3D%22Summary+of+Good+Samaritan+Aband

"Good Samaritan" permit is merely an extension of the concept of "permit shields" already implemented under CERCLA to avoid conflicts between polluter-pays strict liability on the one hand, and federally-permitted discharges on the other.[120] However, these permit shields have been interpreted narrowly in some instances, arguably requiring the more expansive "Good Samaritan" approach to facilitate high-risk, high-capital investment projects like abandoned mine remediation.[121]

The challenge of implementing a "Good Samaritan" permit program is establishing a baseline of environmental conditions at the site, in order to differentiate where historic contamination ends, and where contamination from negligent or reckless remediation or re-mining activities begins.[122] The establishment of such baselines and the issuance of "Good Samaritan" permits must therefore also be subject to public notice and comment scrutiny, as well as effective and transparent environmental site assessments by qualified environmental engineers.[123]

C. Environmental Remediation Credit Markets

In addition to nuanced permitting and SWQS requirements to facilitate remediation and shield remediating parties from inappropriately applied liability, abandoned mine remediation CSR can be incentivized through implementation of water quality credit trading markets. Such an approach is comparable to that advocated to address climate change; i.e., the establishment of the greenhouse gas cap and trade market to incentivize reductions in greenhouse gas emissions through market incentives. Such an approach to environmental regulation has been argued to improve both

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120. Kurt M. Rylander, *Saving a Disappearing Exemption to CERCLA Liability*, 4 N.Y.U. ENVTL. L.J. 238, 248–51 (1995).

121. Jeffrey M. Gaba, *Generally Illegal: NPDES General Permits under the Clean Water Act*, 31 HARV. ENVTL. L. REV. 409, 444 (2007); *see also* Joshua D. Sarnoff, *Cooperative Federalism, the Delegation of Federal Power, and the Constitution*, 39 ARIZ. L. REV. 205, 268–70 (1997).

122. *See generally* Judith G. Tracy, *Beyond Caveat Emptor: Disclosure to Buyers of Contaminated Land*, 10 STAN. ENVTL. L.J. 169, 193 (1991); *see also* Michael Ray Harris, *Promoting Corporate Self-Compliance: An Examination of the Debate over Legal Protection for Environmental Audits*, 23 ECOLOGY L.Q. 663, 670–73 (1996).

123. *See, e.g.*, Sierra B. Weaver, *Local Management of Natural Resources: Should Local Governments Be Able to Keep Oil Out?*, 26 HARV. ENVTL. L. REV. 231, 259 (2002).

regulatory efficiency and democratic responsiveness in natural resource policy.[124]

For example, where a mining company engages in remediation of an abandoned mine, and thereby increases the assimilative capacity of the receiving watercourse, the mining company could benefit economically by selling that increased assimilative capacity (minus a margin of safety) to other potential dischargers.[125] Water quality credit trading markets have become an increasingly utilized regulatory mechanism in several jurisdictions, and have succeeded in encouraging remediation and decreasing pollutant loading.[126] For example, some have argued for nutrient reduction efforts facilitated by water quality credits in the Mississippi River as part of an integrated effort to respond to the Deepwater Horizon catastrophe in the Gulf of Mexico.[127] A similar proposal has been proffered under international law for remediation of oceanic oil spills.[128]

Implementing these markets, however, poses several challenges. The most difficult challenge likely is determining the reasonable price for a credit.[129] Companies engaging in remediation could auction off credits, but this would require careful evaluation by mining companies as to the likelihood of recouping costs and making profit of credits arising from remediation in order to preserve the incentive. The cap and trade market-

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124. Bruce A. Ackerman & Richard B. Steward, *Reforming Environmental Law: The Democratic Case for Market Incentives*, 13 COLUM. J. ENVTL. L. 171, 182–84 (1988).

125. "Assimilative capacity" refers to the ability of a water body to clean itself or its capacity to absorb pollution without impacts to the environment. *See* Peter Montague, *Foreword* to MARY O'BRIEN, MAKING BETTER ENVIRONMENTAL DECISIONS: AN ALTERNATIVE TO RISK ASSESSMENT, at vii, viii (2002).

126. *See, e.g.*, Susan A. Austin, *Designing a Nonpoint Source Selenium Load Trading Program*, 25 HARV. ENVTL. L. REV. 337, 342–44 (2001); HANNA L. BREETZ ET AL., WATER QUALITY TRADING AND OFFSETS INITIATIVES IN THE U.S.: A COMPREHENSIVE SURVEY (2004), *available at* http://www.dep.state.fl.us/water/watersheds/docs/ptpac/DartmouthCompTradingSurvey.pdf.

127. Carrie Presnall, Laura López-Hoffman & Marc L. Miller, *Can the Deepwater Horizon Trust Take Account of Ecosystem Services and Fund Restoration of the Gulf*, 40 ENVTL. L. REP. NEWS & ANALYSIS 11129, 11131 (2010); *see also* Gary E. Marchant, *Freezing Carbon Dioxide Emissions: An Offset Policy for Slowing Global Warming*, 22 ENVTL. L. 623, 627 (1992) (referring to water quality trading markets in the Fox River in Wisconsin and the Dillon Reservoir in Colorado); Jennifer Yelin-Kefer, *Warming Up to an International Greenhouse Gas Market: Lessons from the U.S. Acid Rain Experience*, 20 STAN. ENVTL. L.J. 221, 234 (2001).

128. Michael A. de Gennaro, *Oil Pollution Liability and Control under International Maritime Law: Market Incentives as an Alternative to Government Regulation*, 37 VAND. J. TRANSNAT'L L. 265, 294 (2004).

129. William Boyd, *Ways of Seeing in Environmental Law: How Deforestation Became an Object of Climate Governance*, 37 ECOLOGY L.Q. 843, 911 (2010); *see also* Christine A. Klein, *The Environmental Deficit: Applying Lessons from the Economic Recession*, 51 ARIZ. L. REV. 651, 661 (2009).

based approach to climate change has received significant criticism, alleging both that offset certification is not sufficiently protective of the environment and that environmental protections established by regulators are too onerous on carbon market participants.[130] Furthermore, environmental credit markets based on offsets make certain assumptions about the fungibility of resources and their commodification.[131]

Additionally, building a representative and inclusive stakeholder process and finding consensus within that group of stakeholders in the watercourse basin, not only with respect to price, but also the appropriate margin of safety below the assimilative capacity, would likely prove challenging.[132] There would also be significant scientific uncertainty with respect to attribution and causation (i.e., to what extent were the particular remediation activities the cause of improved water quality).[133] Finally, the administrative and transaction costs associated with the development and maintenance of such markets could be prohibitive, particularly in negotiating a common currency for environmental benefits.[134]

Nevertheless, the command-and-control alternative to environmental regulation has received at least as much criticism as market-based approaches.[135] Furthermore, environmental credit markets have proven successful in several instances, including encouraging scrapping high-polluting vehicles, restoring the Everglades, and improving air quality in Los Angeles.[136] Water quality credit trading markets have been successfully implemented and maintained in many instances to manage non-point source nutrient loading from agriculture.[137] Additionally, water quality credits have led to improvements in the Fox River in Wisconsin and the Dillon

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130. Tyler McNish, *Carbon Offsets are a Bridge Too Far in the Tradable Property Rights Revolution*, 36 HARV. ENVTL. L. REV. 387, 390–91 (2012).

131. Boyd, *supra* note 129.

132. Fred Bosselman, *Swamp Swaps: The "Second Nature" of Wetlands*, 39 ENVTL. L. 577, 577 (2009).

133. Andrew A. Ferrer, *Excuses, Excuses: The Application of Statutes of Repose to Environmentally-Related Injuries*, 33 B.C. ENVTL. AFF. L. REV. 345, 365–66 (2006).

134. David M. Driesen, *Sustainable Development and Market Liberalism's Shotgun Wedding: Emissions Trading under the Kyoto Protocol*, 83 IND. L.J. 21, 65 (2008).

135. Barton H. Thompson, Jr., *The Search for Regulatory Alternatives*, 15 STAN. ENVTL. L.J. vii, viii (1996); *see also* Richard B. Stewart, *Controlling Environmental Risks through Economic Incentives*, 13 COLUM. J. ENVTL. L. 153, 153 (1988). *But see* David M. Driesen, *Is Emissions Trading an Economic Incentive Program? Replacing the Command and Control/Economic Incentive Dichotomy*, 55 WASH. & LEE L. REV. 289, 290–91 (1998).

136. Vivian Foster & Robert W. Hahn, *Designing More Efficient Markets: Lessons from Los Angeles Smog Control*, 38 J.L. & ECON. 19, 20 (1995).

137. *See, e.g.*, Richard D. Horan, *Differences in Social and Public Risk Perceptions and Conflicting Impacts on Point/Nonpoint Trading Ratios*, 83 AM. J. AGRIC. ECON. 934, 934–35 (2001).

Reservoir in Colorado.[138] The lessons learned from these programs can be effectively applied to similar schemes to encourage remediation of abandoned mines and other types of orphaned pollution.

III. CLASSICAL MODEL FIRMS AND CORPORATE SOCIAL RESPONSIBILITY

The obstacles to addressing orphaned pollution illustrated in the Apuseni Mountains and in Haunted Canyon could be removed or mitigated by adopting these regulatory reforms. However, the question remains how abandoned mine remediation fits into the responsibilities mining companies owe their shareholders and the responsibilities they owe society in general. Why would companies like Carlota and Gabriel Resources engage in voluntary remediation of abandoned mines if regulatory obstacles and liability concerns were removed? This Part discusses the incentives which would motivate mining companies and similar for-profit firms to address abandoned mines in the absence of these legal obstacles. Such voluntary engagement by for-profit firms in the remediation of orphaned pollution could fall under the definition of "corporate social responsibility."

A. Defining Corporate Social Responsibility

Before examining CSR in the context of raw materials companies, it is first essential to address the definitional problem of corporate social responsibility.[139] After all, each corporation does something that benefits society in some way, or at least provides some service or product demanded by society. Indeed, it can be "almost impossible to distinguish between acts of corporate social responsibility and acts of long-term profit maximization."[140] For purposes of this Article, CSR can be distinguished from pure corporate profit maximizing strategy by three factors: (1) CSR is not required by laws; (2), CSR meets a social demand for altruism; and (3) CSR reduces costs that would otherwise be internalized by society, whether in the form of pollution or state-funded initiatives, and the positive externalities of CSR initiatives flowing to society in general exceed the tangible benefits reaped by the corporation, its employees, officers, directors, and assets.

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138. Marchant, *supra* note 127.

139. There are myriad of definitions of corporate social responsibility. *See, e.g.*, Alexander Dahlsrud, *How Corporate Social Responsibility is Defined: An Analysis of 37 Definitions*, 15 CORP. SOC. RESP. & ENVTL. MGMT. 1, 1 (2008).

140. Ronald J. Gilson, *A Structural Approach to Corporations: The Case Against Defensive Tactics in Tender Offers*, 33 STAN. L. REV. 819, 823 (1981).

The first distinction between CSR and other corporate initiatives is that CSR must not be driven by concerns over legal sanctions. Some scholarship suggests that corporate officers and directors should be solely concerned with profit maximization and shareholder value, because "such conduct is socially efficient given that general legal sanctions do or can redress any harm that corporate or noncorporate businesses inflict on others."[141] However, even "optimal legal sanctions are necessarily imperfect and require supplementation by social and moral sanctions to fully optimize conduct."[142] Indeed, excessive reliance on law can have perverse consequences. The more we rely on law to control corporate behavior, the more likely law will result in overdeterrence.[143] This seems to be the case with both Carlota and Gabriel Resources, where law poses a deterrent to extra-legal responsible behavior by corporations.

The second distinction between pure corporate profit maximizing strategy and CSR is that CSR must meet social demand for altruism. Executives directing corporate resources toward philanthropic endeavors are individuals, as are the shareholders with profit expectations and board members with oversight responsibilities.[144] The reason individuals engage in philanthropy is altruism: "People feel good when others' lives are improved."[145] Indeed, altruism, along with voluntarism, has been described as the *sine qua non* of corporate social responsibility.[146] Altruism is not necessarily in tension with profit maximization.[147] Indeed, there is a market

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141. Einer Elhauge, *Sacrificing Corporate Profits in the Public Interest*, 80 N.Y.U. L. REV. 733, 733 (2005).

142. *Id.*

143. Christopher D. Stone, *Corporate Social Responsibility: What It Might Mean, If It Were Really to Matter*, 71 IOWA L. REV. 557, 567 (1986) ("Nourishing a sense of social responsibility, conceived of as a looser, more trusting (self-imposed) form of control, may provide an environment that strikes a better balance between deterring hazard and encouraging innovation.").

144. M. Todd Henderson & Anup Malani, *Corporate Philanthropy and the Market for Altruism*, 109 COLUM. L. REV. 571, 572–73 (2009).

145. *Id.* at 572; *see also* Herbert A. Simon, *A Mechanism for Social Selection and Successful Altruism*, 250 SCIENCE 1665, 1668 (1990).

146. David L. Engel, *An Approach to Corporate Social Responsibility*, 32 STAN. L. REV. 1, 3 (1979) ("[T]he basic question of corporate social responsibility is not whether we wish to compel or forbid certain kinds of corporate conduct by legislative command, for example, but rather whether it is socially desirable for corporations organized for profit voluntarily to identify and pursue social ends where this pursuit conflicts with the presumptive shareholder desire to maximize profit. I will, simply as a convention, refer to any such corporate activity as a form of *voluntarism* or *altruism*.").

147. Susan S. Kuo & Benjamin Means, *Corporate Social Responsibility After Disaster*, 89 WASH. U. L. REV. 973, 977 (2012); *see also* Kenneth B. Davis, *Discretion of Corporate Management to Do Good at the Expense of Shareholder Gain—A Survey of, and Commentary*

for altruistic corporate behavior.[148] Corporate altruism can be understood in terms of the "stakeholder theory" of corporate governance, meaning that corporations should use their power not solely to maximize shareholder value, but for the benefit of stakeholders within their community.[149]

The third distinction between CSR and pure corporate profit maximization is the degree to which positive externalities flow to society in general, as compared to benefits flowing purely for internal corporate benefit. Some scholarship attempts to distinguish between CSR initiatives conducted without a view to maximizing profits from other corporate actions which may have socially-beneficial effects but which were driven by concerns for profits.[150] A mining company may view an abandoned mine site as an undervalued asset in which it invests to improve at a profit. Some argue that the fact that such investment is profitable, even if there are positive externalities to the environment and human health, renders that investment ineligible for the CSR label.[151] If a computer company donated computers to underserved schools, or a drug company donated vaccines to a developing country, even if such donation ultimately opened new markets for products or engendered brand loyalty in new consumers, scholars still would apply the CSR label to those initiatives.[152]

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on, the U.S. Corporate Law, 13 CAN.-U.S. L.J. 7, 8 (1988) ("In the final analysis, considerable altruism may be accomplished under the banner of 'enlightened' profit maximization.").

148. Henderson & Malani, *supra* note 144, at 571.

149. Ilias Bantekas, *Corporate Social Responsibility in International Law*, 22 B.U. INT'L L.J. 309, 311 (2004) ("'Stakeholder theory,' especially as propounded in the United States, recognizes various forms of relationships between the enterprise and its stakeholders: primary (employees, customers, investors, suppliers) and secondary (all others)."); *see also* Sarah Krakoff, *Planetarian Identity Formation and the Relocalization of Environmental Law*, 64 FLA. L. REV. 87, 90–93 (2012) (discussing the scope of community identity in environmental law).

150. *See, e.g.*, Oren Perez, *Private Environmental Governance as Ensemble Regulation: A Critical Exploration of Sustainability Indexes and the New Ensemble Politics*, 12 THEORETICAL INQUIRIES L. 543, 563 (2011) (distinguishing between "economically justified CSR" or "strategic CSR" and "altruistic CSR," which would require a firm to forgo profits); *see also* VOGEL, *supra* note 10, at 17–24 (distinguishing "new" CSR, in which firms engage in socially-beneficial projects with an eye to profit maximization, from "old" CSR, which involves philanthropy unrelated to corporate strategy); Henderson & Malani, *supra* note 144, at 573 n.9 (declining to rely on a distinction between "pure altruism," or the desire to see lives improve regardless of who contributes to the improvement, and the "warm glow" or "impure altruism," meaning the desire to contribute to the improvement.); Thomas P. Lyon & John W. Maxwell, *Corporate Social Responsibility and the Environment: A Theoretical Perspective*, 2 REV. ENVTL. ECON. & POL'Y 240, 241 (2008).

151. *See* H. MANNE & H. WALLICH, THE MODERN CORPORATION AND SOCIAL RESPONSIBILITY 4 (1972); *see also* Blumberg, Goldston & Gibson, *Corporate Social Responsibliity Panel: The Constituencies of the Corporation and the Role of the Institutional Investor*, 28 BUS. L. 177 (1972).

152. *See* Wade, *supra* note 10, at 120–21.

In each of these instances, a firm has invested resources motivated at least in part by a desire to benefit society and at least in part by a speculative return on investment. In each instance, positive externalities flow beyond the firms' customers, investors, markets, or assets. What matters for purpose of distinguishing CSR from pure corporate profit-maximizing strategy is not speculative nature of the investment nor the degree of risk on return of the investment, but the extent to which positive externalities flow to society in general as compared to tangible benefits flowing directly to customers, shareholders, employees, officers, or assets. Corporations have incentives to conserve resources and implement sustainable development initiatives, by using fuel-efficient vehicles or recycling wastewater, for example, simply as a means of the long-term viability of the business and short-term cost reduction.[153] But the tangible benefits of resource conservation and sustainable development flowing to the stakeholders exceed the long-term viability and short-term cost reductions enjoyed by the corporation, its management, and its shareholders.

For purposes of this article, CSR includes corporate actions taken beyond the scope of legal obligations, and driven at least in part by altruistic motives, that result in positive externalities to society in general which exceed tangible benefits received by the corporation itself, its shareholders, employees, officers, directors, and assets.

B. The Limits of Corporate Social Responsibility

Economist Milton Friedman wrote that "there is one and only one social responsibility of business—to use its resources and engage in activities designed to increase its profits so long as it stays within the rules of the game."[154] Friedman's view of the responsibility of corporations mirrors much of the law on the fiduciary duty owed by directors and officers of corporations to their shareholders and to the business enterprise.

The legal manifestation of Friedman's view is often referred to as "shareholder primacy," where shareholder interests in profitability take priority over all other corporate considerations.[155] One of the most famous

153. David Millon, *Two Models of Corporate Social Responsibility*, 46 WAKE FOREST L. REV. 523, 523–33 (2011) (noting the synergies between profit and sustainable development for many corporations).

154. MILTON FRIEDMAN, CAPITALISM AND FREEDOM 133 (40th ed. 2002).

155. *See, e.g.*, Stephen M. Bainbridge, *Participatory Management Within a Theory of the Firm*, 21 J. CORP. L. 657, 717 (1996) (arguing that "the shareholder wealth maximization norm . . . has been fully internalized by American managers"). *But see* D. Gordon Smith, *The*

cases illustrating shareholder primacy is *Dodge v. Ford Motor Company*.[156] In *Dodge*, the court held in favor of shareholders who opposed the plans of company's president and majority shareholder, Henry Ford, to end payments of large dividends to shareholders and instead focus on investing profits in new plants.[157] Ford had justified this strategy by stating that his "ambition [was] to employ still more men, to spread the benefits of this industrial system to the greatest possible number, to help them build up their lives and their homes."[158] In deciding against Ford and in favor of the minority shareholders, the court stated that a "corporation is organized and carried on primarily for the profit of the stockholders. The powers of the directors are to be employed for that end."[159]

The principle of shareholder primacy is reflected in the fiduciary duties which officers and directors owe to their respective enterprises in the U.S. Judicial opinions interpreting this duty speak in terms which echo shareholder primacy, stating that "corporate directors have a fiduciary duty to act the in the best interests of the corporation's shareholders."[160] This principle is reflected in at least some other nations' corporate laws.[161]

The potentially broad implications of the shareholder primacy principle are largely tempered by the view that corporate officers and directors may consider the long-term interests of shareholders.[162] Additionally, courts often apply the business judgment rule, under which courts defer to officers or directors in their judgments so long as there are no conflicts of interest

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Shareholder Primacy Norm, 23 J. CORP. L. 277, 290–91 (1998) (providing a background of the development of the shareholder primacy principle, but arguing that this principle has become largely irrelevant in ordinary business decisions in modern corporations).

156. Dodge v. Ford Motor Co., 170 N.W. 668, 681 (Mich. 1919).

157. *Id.* at 670–72.

158. *Id.* at 683.

159. *Id.* at 684.

160. *See* Unocal Corp. v. Mesa Petroleum Co., 493 A.2d 946, 955 (Del. 1985) ("[O]ur analysis begins with the basic principle that corporate directors have a fiduciary duty to act in the best interests of the corporation's stockholders."); *see also* N. Am. Catholic Educ. Programming Found., Inc. v. Gheewalla, 930 A.2d 92, 99 (Del. 2007) ("It is well established that the directors owe their fiduciary obligation to the corporation and its shareholders.").

161. Martin Gelter, *The Dark Side of Shareholder Influence: Managerial Autonomy and Stakeholder Orientation in Comparative Corporate Governance*, 50 HARV. INT'L L.J. 129, 151–52 (2009) (noting the role of shareholder primacy in corporate law in the United Kingdom); *see also* Florence Shu-Acquaye, *Corporate Governance Issues: United States and the European Union*, 29 HOUS. J. INT'L L. 583, 616–19 (2007) (noting the role of shareholder primacy in Austria and Canada, and its growing influence in the European Union).

162. *See* Smith, *supra* note 155, at 285 ("[T]he best interests of the corporation are generally understood to coincide with the best long-term interests of the shareholders."); *see also* Stephen M. Bainbridge, *In Defense of the Shareholder Wealth Maximization Norm: A Reply to Professor Green*, 50 WASH. & LEE L. REV. 1423, 1439 (1993).

and decisions are reasonable and made in good faith.[163] Legal scholarship has argued that the law allows considerable discretion to corporate officers and directors precisely because pure profit maximization is socially inefficient and would ultimately harm shareholder value.[164]

As application of the business judgment rule has hedged in (or perhaps promoted) the shareholder primacy principle, CSR has begun to flourish despite its arguable inconsistency with corporate fiduciary obligations. For example, the American Law Institute's ("ALI") Principles of Corporate Governance state that, despite a corporation's objective to enhance "corporate profit and shareholder gain," corporations may still "take into account ethical considerations that are reasonably regarded as appropriate to the responsible conduct of business; and may devote a reasonable amount of resources to public welfare, humanitarian, educational, and philanthropic purposes."[165] Thus, CSR is not action taken contrary to shareholder primacy or profit maximization. CSR is the orientation of a for-profit firm that, while honoring obligations to shareholders and seeking to maximize profits, the firm avoids externalizing the costs of doing business to the community and society at large, and integrates addressing social problems into its mission when the firm has a comparative advantage in addressing those social problems and when addressing those social problems is consistent with the firm's expertise and resources.

Four justifications have typically been given for CSR initiatives: (1) moral obligation; (2) sustainability; (3) license to operate; and (4) reputation.[166] The "moral obligation" justification poses that corporations have some ethical responsibility no different than individuals to simply "do the right thing."[167] For example, the Business for Social Responsibility, a nonprofit business association aimed at promoting CSR in the U.S., provides that its members "achieve commercial success in ways that honor

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163. *See* Jill E. Fisch, *Measuring Efficiency in Corporate Law: The Role of Shareholder Primacy*, 31 J. CORP. L. 637, 651 (2006) ("Although *Dodge v. Ford* is frequently cited, no modern court has struck down an operational decision on the ground that it favors stakeholder interests over shareholder interests."); *see also* Joy v. North, 692 F.2d 880, 885–86 (2d Cir. 1982) (setting forth rationales in support of the business judgment rule).

164. Elhauge, *supra* note 141, at 733–34.

165. A.L.I. PRINCIPLES OF CORP. GOVERNANCE: ANALYSIS AND RECOMMENDATIONS § 2.01 (1994); *see also* Judd F. Sneirson, *The Sustainable Corporation and Shareholder Profits*, 46 WAKE FOREST L. REV. 541, 552 (2011).

166. Michael E. Porter & Mark R. Kramer, *Strategy & Society: The Link Between Competitive Advantage and Corporate Social Responsibility*, HARV. BUS. REV., Dec. 2006, at 78, 80.

167. *Id.*; *see also* Marya N. Cotten & Gail A. Lasprogata, *Corporate Citizenship & Creative Collaboration: Best Practices for Cross-Sector Partnerships*, 18 J.L. BUS. & ETHICS 9, 14 (2012).

ethical values and respect people, communities, and the natural environment."[168]

The sustainability justification focuses on resource stewardship, posing that firms have an obligation to utilize resources without compromising the ability of future generations to make use of those same resources.[169] The sustainability justification has been framed as well in fiduciary terms not unlike those imposed by law against corporate officers and directors in favor of shareholders.[170] This trust relationship imposes on a generation a fiduciary duty, including "certain planetary obligations to conserve the natural and cultural resource base for future generations and also gives each generation certain planetary rights as beneficiaries of the trust to benefit from the legacy of their ancestors."[171]

The "license to operate" justification relies on a relationship of reciprocity between corporations and the state, where corporations accept, expressly or implicitly, certain obligations *vis-a-vis* society in exchange for state sponsorship of the corporate entity and all that it entails, including limited liability and corporate personhood.[172] CSR initiatives "are increasingly regarded as a necessary prerequisite to securing a social license to operate."[173] The problem with the "license to operate" justification, as well as the sustainability and moral obligation justifications, is that they arguably violate the principle of shareholder primacy.

When motivated primarily by considerations unrelated to shareholder interests, CSR initiatives can easily devolve into unlawful transfers of shareholder investments to officer or director pet projects.[174] The business

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168. Porter & Kramer, *supra* note 166, at 78; *see also Frequently Asked Questions*, BUSINESS FOR SOCIAL RESPONSIBILITY, https://www.bsr.org/en/about/faq (last visited Sept. 24, 2013).

169. Porter & Kramer, *supra* note 166, at 78; *see also* Karl S. Coplan, *Public Trust Limits on Greenhouse Gas Trading Schemes: A Sustainable Middle Ground?*, 35 COLUM. J. ENVTL. L. 287, 329 (2010) (discussing the public trust doctrine as it relates to sustainability, i.e., that current generations hold natural resources in trust for future generations, with a fiduciary-like duty to manage those resources sustainably).

170. *See generally* EDITH BROWN WEISS, IN FAIRNESS TO FUTURE GENERATIONS: INTERNATIONAL LAW, COMMON PATRIMONY, AND INTERGENERATIONAL EQUITY (1989).

171. *Id.* at 2; *see also* Daniel A. Farber, *From Here to Eternity: Environmental Law and Future Generations*, 2003 U. ILL. L. REV. 289, 305–06 (2003).

172. Porter & Kramer, *supra* note 166, at 80; *see also* Cotten & Lasprogata, *supra* note 167, at 14.

173. Gare A. Smith, *An Introduction to Corporate Social Responsibility in the Extractive Industries*, 11 YALE HUM. RTS. & DEV. L.J. 1, 4 (2008).

174. *See, e.g.*, Faith Stevelman Kahn, *Pandora's Box: Managerial Discretion and the Problem of Corporate Philanthropy*, 44 UCLA L. REV. 579, 586 (1997) (arguing that the expanded license given to directors and officers under the business judgment rule results in "corporate senior executives [having] a blank check to make corporate charitable contributions

judgment rule requires that officers and directors tie corporate actions to some strategy which could reasonably relate to ultimately increasing shareholder value.[175] While the business judgment rule has been largely applied to defer to corporate directors and officers decisions to engage in CSR as benefiting shareholders, this deference does not absolve directors and officers of the duty to reasonably tie CSR initiatives to shareholder value.

Furthermore, even though the business judgment rule has diluted the potency of the shareholder primacy principle in "vertical" corporate disputes (i.e., disputes between shareholders and officers or directors) the principle remains more relevant in "horizontal" corporate disputes (between shareholder and non-shareholder constituencies).[176] Even in vertical disputes, corporate officers and directors must comply with the legal prohibition against self-interested behavior and their general fiduciary duty of care, or as usually formulated, "in a manner [the officer or director] reasonably believes to be in the best interests of the corporation."[177]

The "reputation" justification for CSR has become an increasingly important concern for many corporations as an element of corporate strategy to maximize shareholder value and comply with the general duty of care. The reputation justification thus aligns itself best with the principle of shareholder primacy and the duty of care, and is arguably a more sustainable approach to CSR than approaches based on other justifications. Other justifications for CSR too often devolve into "arm's length checkbook philanthropy," disconnected from overall corporate strategy, unrelated to core corporate functions and expertise, and difficult to evaluate.[178] As such, these approaches to CSR are unlikely to survive

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independent of both business objectives and shareholder preferences"); *see also* Jayne W. Barnard, *Corporate Philanthropy, Executives' Pet Charities and the Agency Problem*, 41 N.Y.L. SCH. L. REV. 1147, 1160–64 (1997).

175. *See, e.g.*, Shlensky v. Wrigley, 237 N.E.2d 776, 781 (Ill. App. Ct. 1968) (upholding corporate decision not to install lights at Wrigley field in the face of shareholder derivative suit claiming such installation would increase shareholder value by allowing for night games, because neighborhood preservation could be reasonably calculated to benefit shareholders); *see also* A.P. Smith Mfg. Co. v. Barlow, 98 A.2d 581, 590 (N.J. 1953) (holding that charitable gift of plumbing supplies was permissible use of corporate funds because reasonably calculated to benefit shareholders).

176. *See* Smith, *supra* note 155, at 285; *see also* Lawrence E. Mitchell, *A Theoretical and Practical Framework for Enforcing Corporate Constituency Statutes*, 70 TEX. L. REV. 579, 591 (1992).

177. *See* Smith, *supra* note 155, at 285; *see also* MODEL BUS. CORP. ACT ANN. § 8.30(a) (1996).

178. Sylvia Maxfield, *Reconciling Corporate Citizenship and Competitive Strategy: Insights from Economic Theory*, 80 J. BUS. ETHICS, 367, 367–77 (2008).

beyond mere pet projects of current management or boards and cast aside with officer and director turnover.

Unlike other justifications which lead to arm's length checkbook philanthropy, the role of the reputation justification has taken precedence in arguments in favor of CSR. Many international companies are becoming increasingly concerned with management of intangible assets, like brand image and reputation.[179] This concern with intangible assets often aligns shareholder interests with CSR initiatives in a paradigm shift away from classical models based on Friedman's concept of CSR.[180] New paradigm firms are those with a closer relationship to consumer because they provide services, produce finished products, or act as retailers.[181] Furthermore, because a large portion of their value is in intangible assets, the market value for new paradigm firms is often set at a premium as compared to the book value of the firm's tangible assets.[182] For these firms, brand image and reputation are paramount, and as such they engage in CSR to manage or rehabilitate such intangible assets.[183] The fiduciary duty which new paradigm firms owe to their shareholders thus substantially overlaps with corporate responsibilities to engage in socially or environmentally beneficial initiatives beyond the requirements of law, because such initiatives contribute to the value of a core "intangible" asset.

Raw materials providers—such as mining companies—are "classical model" firms, with business based on products and tangible assets.[184] Unlike new paradigm firms, the market value of classical model firms is closer to that of their book value. Because their relationship with consumers is attenuated and their names remote from the brands of finished products, and because no such market premium is traditionally given for intangible assets of classical model firms, these firms are arguably less willing to invest in

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179. *See generally* Lutz Kaufmann & Yvonne Schneider, *Intangibles: A Synthesis of Current Research*, 5 J. INTELLECTUAL CAPITAL 366 (2004).

180. *See generally* Gordon L. Clark & James Salo, *Corporate Governance and Environmental Risk Management: A Quantitative Analysis of "New Paradigm" Firms*, *in* PENSIONS AT WORK: SOCIALLY RESPONSIBLE INVESTMENT OF UNION-BASED PENSION FUNDS (Jack Quarter et al. eds., 2008).

181. New paradigm firms "tend to be firms producing consumer products with high public profiles. Thus, Coca Cola or Pepsico will value their public image and want to reduce waste generated by their products and any pollution caused by their manufacture. Demand for these products is fairly elastic and may thus be more sensitive to consumer pressure through boycott." Peter A. Appel, *Improving Corporate Environmental Performance: Encouraging Sustainable Commerce Through Regulatory and other Governmental Action*, 7 (Univ. Oslo Fac. L. Legal Stud., Paper Series No. 2011-27, 2011).

182. BARUCH LEV, INTANGIBLES: MANAGEMENT, MEASUREMENT AND REPORTING 8 (2001).

183. *See* Appel, *supra* note 181.

184. Clark & Salo, *supra* note 11.

intangible assets as their "new paradigm" counterparts.[185] Thus, classical model firms lack an overlap of shareholder value and CSR initiatives comparable to that of new paradigm firms. Classical model firms would thus be expected to invest more in tangible assets and production than in burnishing intangible assets through investments in CSR.

It is not difficult to cite instances like those in Baia Mare, where mining practices have failed to provide adequate environmental safeguards.[186] These instances tarnish the reputation of the mining industry. But classical model firms would be theoretically less concerned with tarnishing their reputation with consumers as with meeting shareholder demands for profitability. With other justifications leading to unsustainable arm's length checkbook philanthropy, and without the compelling reputational concerns of new paradigm firms, the question remains—"Why should classical model firms engage in CSR?"

C. Corporate Social Responsibility for Classical Model Firms

As illustrated in the case of new paradigm firms and the ALI's articulation of corporate engagement with public welfare, Friedman's view of the responsibility of business has been challenged by increasing moves toward a broader vision of CSR. "The purpose of business, in other words, is not to make a profit, full stop. It is to make a profit so that the business can do something more or better. That 'something' becomes the real justification for the business."[187] CSR as such is not an either/or question—either the corporation engages in socially-beneficial activities or it makes a profit. Indeed, recent studies suggest that CSR contributes to a firm's bottom line and can provide a competitive advantage.[188] While different in their respective reliance on intangible assets, both classical model firms and new paradigm firms face the challenge of directing their efforts toward that "something" which justifies their business and also makes a profit.

For new paradigm firms, the connection between their "something," their duty to shareholders, and their responsibility to society are rather obvious. The profitability of new paradigm firms depends on their brand image and

185. *Id.*

186. *See* INDUS. & MINING DIV. & INDUS. & ENERGY DEP'T, WORLD BANK TECHNICAL PAPER NO. 345, A MINING STRATEGY FOR LATIN AMERICAN AND THE CARIBBEAN 6 (1996); *see also* OXFAM AMERICA & FRIENDS OF THE EARTH—US, *Glamis Gold: A Case Study of Investing in Destruction* 1 (2003), http://www.oxfamamerica.org/files/OA-Glamis_Gold_English.pdf.

187. Charles Handy, *What's a Business For?*, HARV. BUS. REV., Dec. 2002, at 49–55.

188. Porter & Kramer, *supra* note 7, at 57, 59 ("[S]ocial and economic goals are not inherently conflicting but integrally connected . . .").

reputation, which is burnished or rehabilitated by CSR initiatives.[189] But the "something" which animates corporate endeavors and informs CSR initiatives should be unique to each firm. The "something" of a new paradigm firm, whether selling computers to better connect society or making drugs for sick people, should direct CSR initiatives. For the computer company, a CSR initiative could be donating computers to underprivileged schools. For the drug company, a CSR initiative could be the donation of vaccines to developing countries. The National Football League, for example, invests significantly in its "Play60" campaign against childhood obesity. In each instance, the new paradigm firm connects its "something" with its CSR strategy, which allows CSR initiatives to be grounded in firm expertise and aligns CSR initiatives with overall corporate strategy.[190]

With muted reputational concerns, classical model firms must take a slightly different approach to CSR. The "something" for the classical model firms, like those of the mining industry, is the environmentally-conscious and sustainable production of high-quality, competitively priced raw materials. The question remains how CSR initiatives contribute to that mission without detracting from shareholder value or violating fiduciary duties. Contrary to the seeming disparity in incentives to engage in CSR between new paradigm and classical model firms, CSR initiatives used by classical model firms would comply with fiduciary duties and enhance shareholder value.

CSR initiatives allow classical model firms to better meet their fiduciary duties and enhance shareholder value for four reasons: (1) CSR initiatives improve relations with regulators, which facilitates permitting and inspections; (2) incorporation of industry standards through CSR initiatives allows for uniformity in global production networks, reducing costs and resulting in a "race to the top"; (3) CSR initiatives serve to meet increasing requirements from large institutional investors in classical model firms for demonstrated performance in environmental stewardship; and (4) CSR initiatives, if consistent with firm capabilities and appropriately directed, can be profitable and provide a competitive advantage.

First, exceeding regulatory requirements, and implementing effective self-auditing and self-reporting procedures based on industry standards, improves relationships of trust with regulators and community stakeholders.

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189. *See* Paul A. Argenti & Bob Druckenmiller, *Reputation and the Corporate Brand*, 6 CORP. REPUTATION REV. 368, 372–73 (2004); *see also* Peter W. Roberts & Grahame R. Dowling, *Corporate Reputation and Sustained Superior Financial Performance*, 23 STRATEGIC MGMT. J. 1077, 1090 (2002).

190. Henderson & Malani, *supra* note 144, at 597.

A history of robust CSR initiatives will engender closer working relationships with regulators which could mitigate liability in instances of accidental noncompliance. The idea that a history of good voluntary environmental stewardship should weigh against heavy-handed environmental penalties underlies the broad support from both industry and regulators for "voluntary environmental programs," which are voluntary programs for environmental protection or remediation under regulatory oversight.[191] Voluntary environmental programs have also helped improve relationships with surrounding community stakeholders.[192] Improved relationships with regulators and community stakeholders lower costs associated with responding to environmental inspections, enforcement, and stakeholder concerns. These lower costs align CSR initiatives with the principle of shareholder primacy.

Second, industry or "firm-based" standards are an outgrowth of concern for reputational capital, but also driven in part by global production networks, where a method of production must be reproducible in any part of the world, and thus there is a "race to the top" rather than the "race to the bottom."[193] In this case, classical model international firms seek to avoid costs associated with complying with diverse local regulatory requirements by instead adopting best practices and auditing facility compliance with those internal standards. "For growing numbers of multinational firms it is becoming more profitable to tailor production practices and attendant environmental outcomes to a single set of internal firm-based standards than to a diverse set of local and national regulatory conditions" in an effort to meet "the regulatory expectations of all of the markets in which they operate."[194] Firms do this because they increasingly design production networks to meet "end-market regulatory conditions rather than point-of-production regulatory conditions" and also to "realize learning economies through the implementation of firm-wide global best practices."[195]

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191. Thomas P. Lyon & John W. Maxwell, *Self-Regulation, Taxation and Public Voluntary Environmental Agreements*, 87 J. PUB. ECON. 1453, 1454 (2003); *see also* Robert H. Cutting et al., *Spill the Beans: Goodguide, Walmart, and EPA Use Information as Efficient, Market-Based Environmental Regulation*, 24 TUL. ENVTL. L.J. 291, 310 (2011); *see generally* Kurt A. Strasser, *Do Voluntary Corporate Efforts Improve Environmental Performance?: The Empirical Literature*, 35 B.C. ENVTL. AFF. L. REV. 533 (2008).

192. *See, e.g.*, Afra Afsharipour, *Directors as Trustees of the Nation? India's Corporate Governance and Corporate Social Responsibility Reform Efforts*, 34 SEATTLE U. L. REV. 995, 1014 (2011).

193. David P. Angel & Michael T. Rock, *Global Standards and the Environmental Performance of Industry*, 37 ENV'T & PLAN. A 1903, 1907 (2005).

194. *Id.* at 1904.

195. *Id.*

Third, the growing importance of socially responsible investing and lending provides an important impetus for international mining companies to engage in environmentally responsible CSR initiatives.[196] Institutional investors and lenders are increasingly concerned with transparency and environmental stewardship, not only from a social conscience perspective, but from a volatility- and risk-reduction standpoint.[197] Essentially, this is a variation on the reputational benefits received by new paradigm firms, but with investors and lenders replacing customers and clients. A good reputation serves as a signal to financial markets that the corporate value is high and likely stable over the future, and can serve as a way of minimizing intrusion of corporate governance specialists into matters of manager discretion.[198] Large institutional investors and lenders respond to these signals, and even insist upon them from companies within their portfolios. For example, Newmont Mining Corporation reinstated water quality management plans and compliance with strict water quality standards only when pressured by banks threatening to withdraw financing based on Newmont's failure to comply with water quality standards in one of its copper and gold mines in Indonesia.[199]

Fourth, CSR initiatives can be economically, and even profitably, integrated with that "something" justifying the business of classical model firms in a manner more sustainable than the "arm's length checkbook philanthropy" approach. Just as the drug manufacturer donating vaccines to a developing company may also be opening up a new market for its products, and the computer company donating computers to a school may be concurrently marketing to potential future buyers, so too may classical model firms synergize CSR initiatives with corporate strategy. Evidence suggests that CSR initiatives generate profits and provide for corporate competitive advantage, particularly where CSR initiatives are consistent with core corporate expertise and functions.[200] However, this profit-

196. Appel, *supra* note 181, at 4 ("Shareholders are a mixed assortment of investors from socially conscious mutual funds that have particular aims other than share value on which they rate companies; to pension funds, which might be interested in long-term value of the corporation . . . Thus, when it comes to efforts such as enhancing a firm's environmental agenda, sometimes shareholders will take the lead and other times management will.").

197. *See, e.g.*, Paul Cox, Stephen Brammer, & Andrew Millington, *An Empirical Examination of Institutional Investor Preferences for Corporate Social Performance*, 52 J. BUS. ETHICS 27, 29 (2004).

198. Gordon L. Clark & Tessa Hebb, *Why Should They Care? The Role of Institutional Investors in the Market for Corporate Responsibility*, 37 ENV'T & PLAN. A 2015, 2021 (2005).

199. Marina A. Welker, *"Corporate Security Begins in the Community": Mining, the Corporate Social Responsibility Industry, and Environmental Advocacy in Indonesia*, 24 CULTURAL ANTHROPOLOGY 142, 169 n.11 (2009).

200. Porter & Kramer, *supra* note 7, at 88.

generating competitive advantage is achieved through CSR when CSR initiatives relate to core corporate functions, i.e., where the corporation has a clear advantage over other firms, non-profit entities, and governments making it uniquely qualified to address the particular societal problem at which the CSR initiative is directed.[201]

Classical model firms make the most meaningful contributions to social welfare when that contribution is based on the firm's unique expertise and resources, while at the same time meeting fiduciary duties and maximizing shareholder value. An example of this approach is the involvement of mining companies in abandoned mine remediation.

D. Applying CSR to Orphaned Pollution

International mining corporations should adopt CSR measures for the four reasons addressed above: to improve relationships with regulators, comply with uniform industry or firm-specific standards for more efficient global production networks, to minimize risk and volatility for investors and lenders, and to make a profit and secure a competitive advantage. The question remains, however, what type of CSR initiatives should international mining corporations adopt, where they have a comparative advantage over other potential public or private problem-solvers in terms of resources, expertise, and economic incentives promoting sustainable long-term initiative investment.

Michael Porter and Mark Kramer argue that "a company must integrate a social perspective into the core framework it already uses to understand competition and guide its business strategy."[202] Essentially, they argue that CSR initiatives should be directly related to the "something more" that Charles Handy argues should be the ultimate aim of a corporation. Corporations should therefore invest in CSR initiatives directly related to their respective "core framework," thereby reaping reputational benefits, mitigating risk, and gaining competitive advantage. Furthermore, implicit in Porter and Kramer's "core framework" CSR strategy is the idea that CSR initiatives directly related to the corporate core framework will be more sustainable, more easily justified to shareholders, and more likely to carry through successions of boards and officers, than mere "arms-length models of checkbook philanthropy."[203]

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201. Henderson & Malani, *supra* note 144, at 575.

202. Porter & Kramer, *supra* note 7, at 84.

203. Sylvia Maxfield, *Reconciling Corporate Citizenship and Competitive Strategy: Insights from Economic Theory*, 80 J. BUS. ETHICS 367, 367 (2008).

For international mining corporations, the "something" of Handy or the "core framework" of Porter and Kramer is the environmentally-conscious production of high quality, competitively priced metals and mineral products. A sustainable and profitable CSR initiative by the international mining industry should be directly related to this core framework. Some may argue that what Carlota did for Pinto Creek was not a CSR initiative—it was part of a quid pro quo relationship with the agency whereby Carlota remediated the Gibson Mine to obtain a permit for a new discharge. Porter and Kramer, however, would likely argue that Carlota was engaged in "core framework" CSR—Carlota improved water quality while at the same time gaining a competitive advantage. Indeed, Professors Todd Henderson and Anup Malani argue that "corporations should only engage in philanthropy when they have a comparative advantage over nonprofits and the government."[204]

Remediation of abandoned mine sites has the potential to serve as an ideal "core framework" CSR initiative for the mining industry, in which the mining industry has a decided comparative advantage over any other potential participant in remediation activities. Remediation of abandoned mines is enormously expensive, with costs of remediating abandoned hardrock mines estimated at between $32.7 and $71.5 billion dollars in the U.S. alone.[205] However, remediation can be profitable. For example, re-mining abandoned mines using state-of-the-art metals recovery systems can make re-mining and reclamation profitable for the mining industry while reducing pollutant loading from abandoned mines at the same time, all with no cost to taxpayers.[206]

Despite this potential for strategic synergy between the global mining industries' interest in re-mining, increased assimilative capacity, and the benefits of CSR initiatives discussed above, and the public interest in abandoned mine remediation, little progress has been made in addressing contamination from abandoned mine remediation.[207] Several factors likely contribute to the lack of progress, including an insufficient appreciation by mining companies for the potential benefits from a CSR initiative directed at abandoned mine remediation. However, many mining companies are keenly aware of the positive externalities and potential profit-making role of abandoned mine remediation, as evidenced by the efforts of Gabriel

204. Henderson and Malani, *supra* note 144, at 571.

205. LYON, *supra* note 1, at 3.

206. Hackett, *supra* note 1, at 100; *see also* Thomas C. Reed, *Remining Previously Mined Lands—The Most Effective Form of Reclamation*, 7 ENERGY MIN. L. INST. CH. 8, § 8.03[2][b] (1986).

207. Fields, *supra* note 23, at 156.

Resources in Romania and Carlota in Haunted Canyon. As seen in both these instances, however, regulatory obstacles may preclude the type of synergistic CSR initiatives at which classical model firms should direct their unique skills and resources.

CONCLUSION

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From Pinto Creek in Arizona to the Tisza River in Romania, abandoned mines haunt canyons, creeks, and communities throughout the world. But the ghosts of historic mine contamination cannot be exorcised without first addressing the regulatory and corporate governance obstacles preventing remediation by mining companies. These obstacles are symptomatic of the relationship between classical model firms and orphaned pollution in general. Regulators must remove obstacles that discourage remediation of orphaned pollution by those firms best positioned to effectively and sustainably address the contamination.

This Article relies on the example of the mining industry and abandoned mine remediation to illustrate the potential for CSR initiatives undertaken by classical model firms. Additional research could explore the potentials and obstacles CSR in other classical model firms, including those in the fishing, lumber, or energy industry. For example, carbon sequestration and underground injection are already used in enhanced oil and gas recovery and hydraulic fracturing operations. Salt dome caverns and mined coal seams can provide the ideal geologic conditions for carbon sequestration, and the rehabilitation of these properties into productive uses is comparable to the remediation of orphaned pollution as ideal classical model firm CSR endeavors. The expertise and technology associated with these operations uniquely positions energy companies to meet the growing market for climate change mitigation measures, much like a mining company is uniquely positioned to address abandoned mines to meet the demand for remediating orphaned pollution. This Article hypothesizes that classical model firms will have compelling incentives to engage in CSR where such firms have a comparative advantage over others in CSR initiatives uniquely suited to their resources and expertise, and where there exists a strong social demand for the CSR initiative. Regulatory reform will be required to accentuate these incentives and encourage those firms best positioned to address society's demands for solutions to these environmental challenges.