Regulation of Construction Site Stormwater Runoff: We Can Do Better Than This

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Introduction

Stormwater discharge from construction sites poses a challenging problem. Unlike the classic image of a ne'er-do-well corporate giant spewing toxic destruction through big smokestacks and metal pipes, stormwater discharge, a nonpoint source of pollution,[1] is not so easily vilified. We typically do not see black air or thick sludge from construction site stormwater runoff, but that does not mean it is not a serious environmental threat. Whether an activity contributes to the adulteration of our natural resources does not depend upon the image of that pollution mechanism. The impact on the environment can still be significant. The question of what to regulate is not what we can easily see; rather, the question is whether our natural resources are being degraded. Proof of that degradation from nonpoint sources such as construction site stormwater runoff abounds.[2]

Our streams, lakes, and rivers are not as healthy as they could be, and the most disheartening aspect of that pollution is that at least some of the sources could be controlled rather easily.[3] One important origin of nonpoint source pollution is sediment from construction sites.[4] Sedimentation of harbors, rivers, lakes, and streams can preclude usage of our natural resources.[5] Further, clogged waterways exact a societal cost in the form of flood damage and the resulting cleanup.[6]

This Note addresses the concerns of regulating stormwater discharges "associated with industrial activities" within the meaning of the Clean Water Act (CWA),[7] with particular emphasis on the regulation of construction sites. The CWA's main objective is "to restore and maintain the chemical, physical, and biological integrity of the Nation's

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1. The EPA has never formally defined "nonpoint source," but one author suggests that a nonpoint source is: "1. [g]enerated by diffused land use activities . . . 2. [c]onveyed to waterways through natural process such as storm runoff or ground water seepage, rather than be [sic] deliberate, controlled discharge, and 3. [n]ot susceptible to 'end-of-pipe' treatment." Richard A. March et al., *Nonpoint Source Water Pollution and Section 208 Planning: Legal and Institutional Issues*, 1981-1982 Agric. L. J. 324, 333.

2. *See infra* Part I.

3. *See infra* Part IV.B.

4. One study indicates that erosion sediment is the primary source of nonpoint source pollution, and construction activities contribute the most sediment pollution per acre. Dean T. Massey, *Land Use Regulatory Power of Conservation Districts in the Midwestern States for Controlling Nonpoint Source Pollutants*, 33 Drake L. Rev. 35, 38-39 (1983-1984).

5. *See generally* Office Of Water, U.S. Envtl. Protection Agency, EPA No. 841-R 94-001, National Water Quality Inventory: 1992 Report to Congress (March 1994) [hereinafter National Water Quality Inventory] (states' assessments of water quality within their borders).

6. *See infra* notes 21-23 and accompanying text.

7. 33 U.S.C. §§ 1251-1387 (1988 & Supp. V 1993). For a discussion of the meaning of "associated with industrial activities," see *infra* notes 60-66 and accompanying text.

waters."[8] The current regulatory framework is not, however, accomplishing this objective and a change is needed to correct the focus of the stormwater program.

Part I of this Note discusses the negative impacts of sedimentation on water quality. Part II provides an overview of the federal regulatory attempts in response to congressional initiatives regarding water pollution legislation. Part III illustrates the various state approaches to regulation of construction site stormwater. Part IV proposes significant changes to the current regulatory framework. Finally, this Note concludes by offering some recommendations on how the stormwater program can successfully address nonpoint source pollution from construction sites. Specifically, Congress needs to rekindle the notion of state-run water pollution control programs that rely heavily on local regulation. The current federal program regulations are inadequate and ignore the local nature of sediment discharges. Mandatory state frameworks incorporating local ordinances can remedy the shortcomings of the current system.

I. How Sedimentation Degrades Our Waters

Although nonpoint source pollution is currently the leading cause of water quality degradation in the United States,[9] its the impact was poorly understood until fairly recently.[10] Nonpoint pollution is less obvious, and the corresponding sense of urgency may be lacking because of the image differences. Unlike point source effluent, where a discrete discharge can be identified, nonpoint source pollution is not so easily recognized. The transport mechanism that conveys point source pollution—a pipe—is replaced in nonpoint pollution by natural processes like rainfall. Point sources are more easily identified and regulated by end-of-pipe technologies.[11]

When legislators formulated the 1972 CWA, some believed that regulation of point sources alone would be sufficient to protect our nation's waters from pollution.[12] As more point source regulation was promulgated, however, the quality of water was not

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8. 33 U.S.C. § 1251(a) (1988). The primary goal is generally stated as restoring and maintaining fishable, swimmable waters. *See, e.g.*, A. Myrick Freeman III, *Water Pollution Policy*, *in* Public Policies For Environmental Protection 97, 106 (Paul R. Portney ed., 1990).

9. 57 Fed. Reg. 41,344, at 41,344 (1992).

10. R. C. Loehr, *Characteristics and Comparative Magnitude of Nonpoint Sources*, 1974 J. Water Pollution Control Fed'n 45, 46 (1974).

11. Robert D. Fentress, Comment, *Nonpoint Source Pollution, Groundwater, and the 1987 Water Quality Act: Section 208 Revisited?*, 19 Envtl. L. 807, 813-14 (1989).

12. *See* Leonard Shabman & J. Walter Milon, *Economic Perspectives on Nonpoint Source Pollution: New Directions for Federal Policy*, *in* The Off-Site Costs of Soil Erosion 81, 83 (Thomas E. Waddell ed., 1985). However, evidence showing the nonpoint source impact on water quality did exist before the 1972 Act was implemented, but policy-makers chose not to legislate controls for nonpoint sources. *See* Freeman, *supra* note 8, at 109.

necessarily improving.[13] In fact, some waters worsened.[14] The federal government soon realized that the very purpose of the water pollution control legislation would not be achieved without addressing nonpoint sources.[15]

Nonpoint source pollution from erosion is unique in that, unlike many point sources, the transport of the pollutants tends to occur in peak flows.[16] Heavy rainfall or melting snow can carry appreciable concentrations of pollutants by running over construction sites and other industrial activities.[17] The effect of erosion is felt both on-site, through the loss of productive soils, and off-site, by degrading water quality, impairing biological communities, silting streams, and causing localized flooding.[18] This Note, however, focuses on policy answers to the impact caused by construction site sediment transported off-site.

The impacts from erosion and sediment are fairly well-known. Degraded water quality affects many natural and man-made processes.[19] The costs to society are indeed great: One scientist estimates that the costs of off-site damages are over $7 billion per year.[20] The effects are felt in many different areas, both economically and aesthetically. The direct economic impacts of sedimentation include water storage losses, flooding, dredging costs, water treatment and use, and damage to fisheries.[21] Water-based recreation also suffers damage from sedimentation, including both direct economic and aesthetic losses due to destruction of fish habitat, siltation of recreational facilities, and eutrophication of waterways.[22] Additionally, the quality of our drinking water is

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13. Without point source control, however, water quality may have drastically worsened because of more complex, more concentrated pollutants entering bodies of water. Freeman, *supra* note 8, at 120. Unfortunately, there is no way to meaningfully measure in what condition our waters would be if point source control had not taken place. *Id.*

14. *Id.* at 118.

15. *Id.* at 141.

16. *Id.* at 140.

17. *Id.*

18. Peter C. Meyers, *Off-Site Effects of Soil Erosion: What We Can Do*, *in* THE OFF-SITE COSTS OF SOIL EROSION 103, 104 (Thomas E. Waddell ed., 1985).

19. In terms of natural impacts, over eighty percent of all waters are degraded by sediment-laden runoff to the extent of impairing fish communities. Edward T. LaRoe, *Instream Impacts of Soil Erosion on Fish and Wildlife*, *in* THE OFF-SITE COSTS OF SOIL EROSION 171, 175 (Thomas E. Waddell ed., 1985). Erosion also distributes toxins throughout our environment; for instance, DDT, a pesticide now banned in the United States, was spread in large part by sediment transport. *Id.* at 174. Impacts on man-made processes are discussed *infra* notes 21-26 and accompanying text.

20. Marc O. Ribaudo, *Regional Estimates of Off-Site Damages From Soil Erosion*, *in* THE OFF-SITE COSTS OF SOIL EROSION 29, 45-46 (Thomas E. Waddell ed., 1985). Another scientist estimated costs may be as high as $13 billion per year. Edwin H. Clark II, *National Estimates of the Off-Site Damages of Erosion*, *in* THE OFF-SITE COSTS OF SOIL EROSION 15, 17 (Thomas E. Waddell ed., 1985).

21. Damages in 1983-adjusted dollars per year are estimated at: $1.1 billion for loss of water storage capacity; almost $900 million each for flooding and dredging; over $1.2 billion for water treatment and use by cities and industries; and over $400 million for fisheries. Ribaudo, *supra* note 20, at 35-44.

22. The economic and aesthetic water recreation losses are estimated in 1983 dollars at $1.9 billion nationwide, with $534 million for the Corn Belt region alone. *Id.* at 31-33. It is interesting to note that the Corn

threatened by nonpoint sources as chemicals typically adsorb to sediment particles that are in turn carried to local rivers and reservoirs.[23]

The existence of some economic impact is widely accepted, but the quantification of damages is problematic.[24] The loss of aesthetic value is difficult to determine because the valuation relies heavily on individual assessments of value.[25] A similar difficulty is the depreciation of property values due to the degradation of water quality. While some of the damage from erosion and sedimentation may not be easily quantifiable, it is widely accepted within the environmental and legislative communities that significant damage does in fact occur.[26]

Studies have shown the impact of degradation by determining the percentage of use impairment for rivers, lakes, and estuaries caused by each form of nonpoint source pollution.[27] Nonpoint pollution is considered the largest contributor to the degradation of all three of these water resources, and the individual impact of construction sites is significant.[28] The most alarming fact in construction site erosion damage is that a relatively small percentage of land mass is disturbed for construction purposes at any given time, yet its contribution to water quality degradation is far greater than other sources on a per acre basis.[29]

The bottom line is that our water resources are being degraded despite existing control programs. Nonpoint source pollution must be more meaningfully addressed in order to improve water quality and meet the CWA's express goals. In particular, the pollution attributed to construction sites must be better regulated.[30] Significant damage has occurred and will continue to occur unless a better regulatory framework is implemented.

II. Overview of Federal Regulatory Attempts

A. Previous Legislation

The federal stormwater program evolved from water pollution control legislation

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Belt suffers the most water-based recreation damage, yet at least one state in that region is lax in its erosion and sediment control. *See infra* text accompanying notes 94-105.

23. LaRoe, *supra* note 19, at 173.

24. *See supra* note 5. For an argument proposing increased property values by thoughtfully planned stormwater management techniques, see J. Toby Tourbier, *Open Space Through Stormwater Management: Helping to Structure Growth on the Urban Fringe*, 49 J. Soil & Water Conservation 14, 17 (1994).

25. For a discussion of the benefits and liabilities of contingent valuation, see generally Charles J. Cicchetti & Neil Peck, *Assessing Natural Resource Damages: The Case Against Contingent Value Survey Methods,* Nat. Resources & Env't, Spring 1989, at 6 (many studies have utilized contingent valuation to estimate societal costs, but many limiting factors detract from the estimate's credibility).

26. *See* Clark, *supra* note 20, at 26.

27. National Water Quality Inventory, *supra* note 5, at 5.

28. 55 Fed. Reg. 47,990, at 47,991 (1990).

29. Massey, *supra* note 4, at 39.

30. The reasoning for why construction site runoff is the best choice on which to build a model regulatory framework is discussed *infra* Part IV.B.

dating back to 1899.[31] The Refuse Act of 1899, often considered the first legislation to address water pollution, protected navigable waters from unauthorized discharges.[32] Later, the Federal Water Pollution Control Act of 1948 (FWPCA), which was subsequently amended and called the CWA,[33] authorized research and investigation of water pollution problems, but this Act withheld from government the authority to establish water quality standards, control discharges, or engage in enforcement activities.[34] While the original FWPCA provided little more than a federal funding mechanism for municipal wastewater treatment facilities,[35] its amendments made it the centerpiece of water quality legislation.

The Water Quality Act of 1965[36] was the first step toward mandating state action in water pollution control policy.[37] States were to set water quality-based standards, determine allowable pollutant discharges, and enforce the penalties for noncompliance.[38] The lawmakers apparently realized that state control of water pollution was the best option, but their efforts failed because water quality-based guidelines were unwieldy, enforcement tools were ill-defined, and states differed widely in their commitment and ability to enforce the standards.[39]

In 1972, Congress sought to remedy the failures of the 1965 Act by adopting technology-based guidelines and restoring power to the federal government.[40] The 1972 amendments[41] via section 208 specifically addressed nonpoint sources as an important

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31. The Refuse Act of 1899, although primarily aimed at keeping channels from becoming unnavigable, tangentially improved water quality via bans on dumping in public waters. *See* 33 U.S.C. § 407 (1988). *See also* FREDERICK R. ANDERSON ET AL., ENVIRONMENTAL PROTECTION: LAW AND POLICY 338-39 (1984). The Act made it unlawful "to throw, discharge, or deposit . . . refuse matter of any kind or description whatever other than that flowing from streets and sewers and passing therefrom in a liquid state," unless the discharger had a permit from the Secretary of the Army. 33 U.S.C. § 407 (1988).

32. 33 U.S.C. § 407 (1988). Over time, the normal meaning of "navigable" was altered as Congress utilized existing terms and phrases to regulate for a different purpose—to protect water quality, not navigability. *See* Quivira Mining Co. v. United States EPA, 765 F.2d 126, 130 (10th Cir. 1985), *cert. denied*, 474 U.S. 1055 (1986). The *Quivira Mining* court interpreted the CWA "to cover, as much as possible, all waters of the United States instead of just some," and to regulate to the fullest extent possible under the commerce clause. *Id.* at 129-30. The result was a distortion of the meaning of "navigable" to include nearly all waters that may eventually connect to a navigable water, even small brooks and arroyos that are usually dry. *Id.* at 130.

33. Federal Water Pollution Control Act of 1948, Pub. L. No. 80-845, 62 Stat. 1155 (codified as amended at 33 U.S.C. §§ 1251-1387 (1988 & Supp. V 1993)). The 1972 amendments brought with them the "CWA" name tag. *See infra* notes 40-46 and accompanying text. Congressional authority to regulate water pollution under the CWA was upheld as a viable exercise of power under the commerce clause and protection of health and welfare in United States v. Ashland Oil & Trans. Co., 504 F.2d 1317, 1328-29 (6th Cir. 1974).

34. Freeman, *supra* note 8, at 99.

35. ANDERSON ET AL., *supra* note 31, at 339-40.

36. Pub. L. No. 89-234, 79 Stat. 903 (repealed 1972).

37. Freeman, *supra* note 8, at 99.

38. *Id.* at 102.

39. *Id.* at 102-03.

40. *Id.* at 103.

41. Federal Water Pollution Control Act Amendments of 1972, Pub. L. No. 92-500, 86 Stat. 816

factor in degrading water quality.[42] Unfortunately, section 208 offered little in the way of progress because it was not accompanied by nonpoint program requirements.[43] The new provision, a voluntary program, asked the states to formulate waste treatment management programs that identified nonpoint sources of pollution.[44] It also suggested that states draft regulatory procedures to control those pollution sources via land use planning tools.[45] Section 208 has since been abandoned and is no longer used,[46] but it did provide a stepping stone for future nonpoint source program improvement.

B. The Water Quality Act of 1987

Congress realized that section 208 was insufficient to handle nonpoint pollution problems and responded with the Water Quality Act of 1987 (WQA).[47] With this Act, a new goal was added to the CWA: "[I]t is the national policy that programs for the control of nonpoint sources of pollution be developed and implemented in an expeditious manner so as to enable the goals of [the CWA] to be met through the control of both point and nonpoint sources of pollution."[48] Two new sections—section 319[49] and section 402(p)[50]—were also created in part to shore up the inefficiencies of section 208's waste management plans.

From section 319 a two-pronged state-based framework for nonpoint source regulation began to develop.[51] This legislation called for: (1) state assessment of current water quality throughout each state, and (2) state management plans aimed at preventing further degradation.[52] The first prong required present water quality studies nationwide and provided an informational foundation for addressing nonpoint pollution.[53] The states were required to assess both waters in need of some action to curb nonpoint pollution and nonpoint sources that were significantly contributing to the degradation of those waters.[54] Section 319's second prong purported to build state and local-based regulatory

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(codified as amended at 33 U.S.C. §§ 1251-1387 (1988 & Supp. V 1993)).

42. 33 U.S.C. § 1288 (1988).

43. Fentress, *supra* note 11, at 818-19.

44. 33 U.S.C. § 1288(a) & (b) (1988).

45. *Id.* § 1288(b). For discussions of harnessing land use planning to solve nonpoint pollution, see generally Philip S. Sussler, *Trends in Water Quality Regulation: The Greening of Land Use Practices and Controls*, 37 BOSTON B. J. 5 (1993), and Daniel R. Mandelker, *Controlling Nonpoint Source Water Pollution: Can It Be Done?*, 65 CHI.-KENT L. REV. 479 (1989).

46. Funding was cut off in 1980. J. A. Jurgens, *Agricultural Nonpoint Source Pollution: A Proposed Strategy To Regulate Adverse Impacts*, 2 J. LAND USE & ENVTL. L. 195, 201 (1986).

47. Pub. L. No. 100-4, 101 Stat. 7 (codified as amended at 33 U.S.C. §§ 1251-1387 (1988 & Supp. V 1993)).

48. 33 U.S.C. § 1251(a)(7) (1988).

49. *Id.* § 1329.

50. *Id.* § 1342(p).

51. *Id.* § 1329(a) & (b).

52. *Id.*

53. *Id.* § 1329(a)(1)(C) & (D).

54. *Id.* § 1329(a)(1)(A) & (B).

frameworks for controlling specific nonpoint sources.[55] The federal government also made funds available via section 205, a provision created to finance the state requirements for nonpoint source programs.[56]

In creating section 319, the federal government suggested that states are at least the best choice to study nonpoint pollution, if not the cornerstone on which to build the new nonpoint source regulatory framework. However, requiring the states to only formulate a plan made little sense unless specific regulatory programs were to be implemented in the future. The legislators thus dropped the ball by requiring only formulation of the management plan and leaving the critical detail of implementation to each state's discretion.[57]

Section 402(p), the WQA's other salient addition, did offer some mandatory regulation of nonpoint sources, but it was based on national—not state—administration.[58] Section 402(p) enabled the National Pollutant Discharge Elimination System (NPDES) permitting process to be applied to stormwater discharges.[59] The new stormwater permitting program adapted the NPDES permits, originally designed to regulate point sources, to runoff discharges "associated with industrial activity."[60] Construction site operations disturbing greater than five acres were included in the definition.[61]

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55. *Id.* § 1329(b)(2).

56. *Id.* § 1329(h). To help implement state programs, Congress authorized $400 million for four years. *Id.* § 1329(j). However, only a fraction was appropriated. *See, e.g.,* H.R. REP. No. 297, 101st Cong., 1st Sess. 29 (1989).

57. Fentress, *supra* note 11, at 825. Congress did give some control to the EPA via plan review and approval. *Id.* at 824. Section 319 monies are doled out according to EPA approval of the projects implemented, but only 60% of the cost can be federally funded. *Id* at 824-25.

58. 33 U.S.C. § 1342(p) (1988 & Supp. V 1993). NPDES authority is delegated to states willing to run the program, but the administration responsibilities are federal in nature. *See infra* notes 82-84 and accompanying text.

59. 33 U.S.C. § 1342 (p) (1988 & Supp. V 1993).

60. *Id.* § 1342(p)(2)(B). Currently the permits are required for eleven categories of industrial activity: (l) facilities subject to stormwater effluent guidelines, new source performance standards, or toxic pollutant effluent standards; (ii) certain lumber, paper, chemicals, petroleum, leather, concrete, metal, and ship building facilities; (iii) certain mining and oil and gas extraction facilities; (iv) hazardous waste treatment, storage, and disposal activities; (v) landfills, land application sites, and open dumps receiving industrial waste; (vi) recycling facilities for metal, batteries, auto parts, and other materials; (vii) steam electric power generating facilities; (viii) certain transportation facilities; (ix) sewage treatment works; (x) construction activities unless operations disturb less than five acres which are not part of a larger common plan or development for sale; and (xi) certain food, tobacco, textile, furniture, paper, printing, drugs, paints, plastics, glass, machinery, electrical, warehousing, and other facilities. 1 OFFICE OF WATER, U.S. ENVTL. PROTECTION AGENCY, EPA No. 833 F-93-002, NPDES STORM WATER PROGRAM: QUESTION AND ANSWER DOCUMENT 1-17 (March 1992) [hereinafter EPA QUESTION & ANSWER DOCUMENT]. For exact classifications of each regulated industry see 40 C.F.R. § 122.26 (1994). Originally only 10 categories were promulgated, but a Ninth Circuit Court opinion modified the tenth category by striking down the five-acre limit and added the eleventh category. Natural Resources Defense Council (NRDC) v. United States EPA, 966 F.2d 1292, 1304-06 (9th Cir. 1992). The case is discussed more fully *infra* notes 62-66 and accompanying text.

61. EPA QUESTION & ANSWER DOCUMENT, *supra* note 60, at 15. The five-acre minimum size will likely

The recent Ninth Circuit decision, *NRDC v. United States EPA*, however, altered Section 402(p)'s guidelines for defining what is to be regulated under industrial activity.[62] The five-acre minimum size for regulating construction site runoff [63] was invalidated by the Natural Resources Defense Council's (NRDC) challenge because the EPA had based its acreage limit on administrative concerns instead of legitimate environmental concerns.[64] Until further promulgation, however, the EPA has stated that it will not require permits for construction operations under five acres.[65] The court also invalidated the EPA's exclusion of certain light industries from regulation unless stormwater comes in contact with equipment or other materials, thereby creating an additional category for regulation.[66]

Category (x) of the NPDES permitting system for construction activities is the primary concern of this Note. The EPA has promulgated rules for obtaining permits for this particular industrial activity.[67] For all industrial activities three types of permits are available: individual, group, and general.[68] The general permit is favored by both industry and the regulating agencies due to its simple application requirements and lessened administrative burden.[69] Because of these qualities, the general permit is the

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be changed soon. *See infra* note 65.

62. *NRDC*, 966 F.2d at 1309-10.

63. *See supra* note 60 for a definition of category (x).

64. *NRDC*, 966 F.2d at 1306. The standard for overturning an agency decision is whether the action was arbitrary or capricious. 5 U.S.C. § 706(2)(A) (1994). The EPA admitted in the Federal Register that even small sites can cause significant impacts if left unregulated, yet they set the five-acre limit to decrease the number of permits to be processed. 55 Fed. Reg. 47,990, at 48,033 (1990). Because the EPA's only reason was administrative burden, the court held the decision was arbitrary and must be invalidated. *NRDC,* 966 F.2d at 1305-06.

65. The existing regulations are called "Phase I" of the stormwater program. *See* OFFICE OF WATER, U.S. ENVTL. PROTECTION AGENCY, EPA No. 833-E-93-001, STORM WATER GENERAL PERMITS BRIEFING 23 (Sept. 1992) [hereinafter EPA GENERAL PERMITS BRIEFING]. The next step will be "Phase II," or, alternatively, an elimination of Phase II requirements and expansion of Phase I. *Id.* at 27. When the new regulations are implemented, a new construction site acreage limit should be set. *Id.* at 28.

66. The court ruled the EPA's exemption was arbitrary because, unlike other industrial activities, the companies in the light industry class were excluded on the basis of whether they were likely to be discharging pollutants, not on whether they fit a certain industrial definition. *NRDC,* 966 F.2d at 1304-05. Category (xi) is discussed *supra* note 60.

67. 40 C.F.R. § 122.26 (1994). The EPA plans to continue promulgating by creating Phase II or expanding Phase I of the stormwater program. EPA GENERAL PERMITS BRIEFING, *supra* note 65, at 27-28. The second phase may change the statutory exemptions of Phase I by considering regulation of all municipalities, additional industrial activities, commercial activities like dry cleaning and gas stations, large parking lots, residential property, recreational areas, additional livestock facilities, and greenhouses and nurseries. *Id.* at 29.

68. For information on the individual and group permits, *see generally* OFFICE OF WATER, U.S. ENVTL. PROTECTION AGENCY, EPA No. 833-F-93-001, OVERVIEW OF THE STORM WATER PROGRAM (March 1993) [hereinafter EPA OVERVIEW OF THE STORM WATER PROGRAM] (provides requirements for compliance).

69. *See* EPA GENERAL PERMITS BRIEFING, *supra* note 65, at 5. A general permit, or permit-by-rule, sets standardized requirements for compliance; no site-specific requirements are added to the basic form. EPA OVERVIEW OF THE STORM WATER PROGRAM, *supra* note 68, at 3.

overwhelming choice for construction activities.[70]

Contractors may obtain a general permit when they comply with the standard requirements called a Notice of Intent (NOI).[71] A fundamental requirement of the NOI is a promise by the contractor to follow the regulations concerning stormwater discharges.[72] The NOI must be sent to the EPA at least two days before construction begins.[73] In addition to the NOI, the contractor is responsible for preparing a pollution prevention plan that is kept on-site and is available to the agency upon demand.[74] The plan, which includes a list of sediment control measures called best management practices (BMPs),[75] is the most important requirement of a general permit because the plan must be "tailored to the site specific conditions, and designed with the goal to control the amounts of pollutants in stormwater discharges from the site."[76] Once these two steps are taken, the contractor has a permit to discharge into the nation's waters.[77] The federal stormwater NPDES permitting system, however, does not require sampling or inspections, and lacks any enforcement actions, sanctions, reprimands, or critical review of the permit application process.[78] In sum, this federal program provides no impetus to substantively comply because there is no fear of repercussions.

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70. Individual permits also apply, but the construction site requirements are very similar to the general permit and the application deadline is tougher to meet; thus, operators choose the general permit form. EPA OVERVIEW OF THE STORM WATER PROGRAM, *supra* note 68, at I-2, V-1. The group permit does not apply because construction projects are not usually grouped together. *See id.* at 3.

71. The NOI for construction activities must contain: (1) street address or latitude and longitude; (2) name, address, and telephone number of the operator(s) and status as federal, state, private, public or other entity; (3) permit numbers of any existing NPDES permits; (4) name of the receiving waters; (5) indication of whether any available quantitative data describing the pollutant concentrations in the discharges is available; (6) estimated start and completion dates and number of acres disturbed; and (7) certification that a stormwater pollution prevention plan has been prepared for the site. *Id.* at V-1. NOIs are handled somewhat differently according to the agency handling the permits. *See infra* notes 82-83. This discussion is referring to the federal requirements.

72. EPA OVERVIEW OF THE STORM WATER PROGRAM, *supra* note 68, at V-1.

73. *Id.*

74. The pollution prevention plan must include: (1) a description of the nature of the construction activity; (2) a sequence of major construction activities; (3) estimated total area of the site and area to be disturbed; (4) estimated runoff coefficient after the construction is complete; (5) any existing data on the quality of stormwater discharges and the soil types of the site; (6) name of the receiving water; (7) and a site map indicating drainage and slopes after completion, areas of soil disturbance, outline of the area to be disturbed, location of stabilization measures and controls, and surface waters at discharge points. *Id.* at V-1. For more detailed information and sample plans see generally OFFICE OF WATER, U.S. ENVTL. PROTECTION AGENCY, EPA No. 832 R-92-005, STORM WATER MANAGEMENT FOR CONSTRUCTION ACTIVITIES: DEVELOPING POLLUTION PREVENTION PLANS AND BEST MANAGEMENT PRACTICES (Sept. 1992) [hereinafter EPA CONSTRUCTION POLLUTION PREVENTION PLANS AND BEST MANAGEMENT PRACTICES].

75. BMPs are methods, measures, or practices that help control nonpoint pollution. 40 C.F.R. § 130.2 (1994). Structural or nonstructural controls and operation or maintenance procedures all can be BMPs. *Id.*

76. EPA OVERVIEW OF THE STORM WATER PROGRAM, *supra* note 68, at V-1.

77. *Id.*

78. *See, e.g.*, Esther Bartfeld, *Point-Nonpoint Source Trading: Looking Beyond Potential Cost Savings*, 23 ENVTL. L. 43, 63 (1993).

Throughout the federal legislative attempts, Congress has acknowledged the importance of state involvement,[79] yet states' exclusive responsibilities have been taken away each time they were granted. The 1965 WQA, which failed because of ill-devised quality-based standards, gave states control only to have it removed by future legislation.[80] In addition, the 1987 WQA's section 319 was aimed at giving states control, but the legislation did not require the states to implement management programs.[81] In both cases, the legislations' requirements are to blame for the failures, yet Congress has never required nonpoint programs exclusively at the state level.

III. States' Approaches To Regulation Of Construction Sites

A. Failure of Most State Programs

Independent of the current EPA regulations for construction site stormwater discharges, every state has discretion in adopting additional measures for regulating stormwater runoff. States with primacy are required to administer the NPDES program and can also adopt state measures.[82] States without primacy cannot administer the NPDES permitting system[83] and the EPA-run program, which offers little enforcement of the federal mandate, controls the administration of the NPDES system in those states.[84] Even in some state-created programs, no substantive inspection or enforcement exists to ensure compliance, thus frustrating the entire purpose of stormwater regulation.[85]

Several of the NPDES-authorized states attempted to model their permits after the federal regulations instead of creating an additional, independent system, only to appear disorganized and ill-informed because of the long delays and confusion in federal permit promulgation.[86] If states then depended solely on the EPA as a model for their state programs, the resulting regulation—fraught with uncertainties—became merely a burden to both the regulating agencies and the regulated industries. Resources were wasted by

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79. *See generally* Metropolitan Sanitary Dist. v. United States Steel Corp., 332 N.E.2d 426, 432 (Ill. App. Ct. 1975), *cert. denied*, 424 U.S. 976 (1976) (the CWA shows the continuing intention of Congress to encourage municipalities and states to regulate water pollution).

80. *See supra* text accompanying notes 36-39.

81. *See supra* text accompanying notes 47-61.

82. Currently 38 states have primacy—the federal agency's delegation of authority to a state for regulating a substantive area. *See infra* note 83 for a list of states without primacy. The authority to delegate primacy is found in 33 U.S.C. § 1342(a)(5) & (b) (1988).

83. 12 states—Alaska, Arizona, Florida, Idaho, Louisiana, Maine, Massachusetts, New Hampshire, New Mexico, Oklahoma, South Dakota, and Texas—and the District of Columbia are lacking primacy at this time. *See* 57 Fed. Reg. 41,176, at 41,176 (1992); 57 Fed. Reg. 44,412, at 44,412 (1992).

84. *See supra* note 83.

85. *See infra* notes 92-105 and accompanying text.

86. *See, e.g.*, *Many May Miss Permit Deadline for Storm Water Runoff, Analysts Say*, Daily Rep. for Exec. (BNA) No. 172, at D-22 (Sept. 3, 1992). After numerous delays, the EPA promulgated the final NPDES stormwater general permits for construction sites and other industrial activities less than three weeks before compliance was required, giving industry a very short time to acquaint itself with the regulations and compile the information necessary to complete a pollution prevention plan and file a Notice of Intent. *Id.*

government and industry alike. The end result was punishment for businesses responsible enough to follow permit application recommendations and discouragement for states willing to have primacy but lacking regulation separate from the NPDES system.[87]

Some of the blame, however, can be attributed to state disorganization. Many state programs do not coordinate their efforts with an echelon of local government regulation.[88] Local efforts may not be encouraged by the state, and the local activities that do occur often go unnoticed.[89] The state, meanwhile, tries to administer its own stormwater programs without any assistance from the governmental units most familiar with the actual construction activities—the counties and municipalities.[90]

For states that do not have a successful stormwater permitting program one commonality exists—a lack of funding.[91] The federal appropriations for the stormwater management programs are insufficient to accomplish meaningful, effective regulation of nonpoint source pollutants—the leading cause of water quality degradation[92]—and states often cannot find enough funding to finance their own stormwater program.[93] One example of a state with poor organization in its stormwater program is Indiana.

Before the federal promulgation in 1990, Indiana had no stormwater requirements and had developed little expertise in managing construction sites.[94] Indiana has primacy,[95] and it set forth a statute with clear administrative regulations in response to the federal mandate.[96] The statute is modeled after the EPA system of NOIs and the five-acre minimum size.[97] Unfortunately, Indiana's construction site regulations have had little or

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87. *See, e.g.*, Bradford S. White, *Michigan's Storm Water General Permit Has Been Issued*, MICH. LAW. WKLY., at 5 (May 30, 1994). Michigan waited for general permits to be issued by the EPA instead of formulating its own. Some responsible companies tried to comply early by submitting group or individual permits, only to be told to resubmit for a general permit closer to the deadline. *Id.*

88. Indiana is a prime example. *See infra* notes 91-105 and accompanying text.

89. *See infra* text accompanying note 100.

90. The reasoning for why local entities are the most appropriate regulatory choices is discussed *infra* Part IV.C.1.

91. *See generally* 1 DEPT. OF CIVIL ENGINEERING - N.C. STATE UNIV. & DEPT. OF CITY AND REGIONAL PLANNING, UNIV. OF N.C. AT CHAPEL HILL, EVALUATION OF THE NORTH CAROLINA EROSION AND SEDIMENTATION CONTROL PROGRAM VIII-5 to VIII-11 (1990) [hereinafter NORTH CAROLINA STUDY].

92. *See supra* note 8 and accompanying text. The little funding available is for § 319 only; money is not appropriated for administration of § 402. Greg Lindsey, *Managing Implementation of Environmental Programs: The Case of Erosion and Sediment Control*, 18 PUBLIC PRODUCTIVITY & MGMT. REV. 247, 251 (1995).

93. Funding options are discussed *infra* Part IV.C.3.

94. An interesting aside is that the Indiana Department of Natural Resources does have expertise in construction operations, but that agency does not have control of the stormwater program, evidencing Indiana's internal disorganization. Lindsey, *supra* note 92, at 254.

95. Indiana did, however, plan on returning responsibilities for NPDES permits to the EPA in 1993 because of fiscal problems. Kyle Niederpruem, *More Funds Sought for Pollution Regulation*, THE INDIANAPOLIS STAR, Aug. 12, 1993, at B1. Thus, the commitment of the responsible agency, Indiana Department of Environmental Management, to the NPDES program during this period is questionable.

96. IND. ADMIN. CODE tit. 327, r. 15-5-1 to 15-5-11(Supp. 1995).

97. *See id.* r. 15-5-1.

no impact on sediment control.[98] Funding sources were not available when the state program was created.[99] The state permit program did not take advantage of existing local programs or encourage additional local efforts.[100] Currently, the Indiana Department of Environmental Management (IDEM) has no real educational tools for informing the regulated community.[101] Also, the submitted sediment control plans are rarely reviewed for their adequacy.[102] There is no formal inspection program set up at the state level, and enforcement has been nonexistent.[103] As a result, construction sites are not effectively regulated, bringing into question whether compliance is actually taking place.[104] In this type of state regulatory environment the stormwater regulation is little more than a burden for the agency and industry alike.[105]

B. Maryland's Erosion and Sediment Control Regulations

A few states do, however, have effective stormwater management programs for construction site runoff. Those states do not rely exclusively on the federal framework; they instead have an independent statutory framework with strong enforcement mechanisms.[106] Of the success stories Maryland is arguably the best model for

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98. *See* Lindsey, *supra* note 92, at 255-56. A good case study that exemplifies Indiana's failures is found in CENTER FOR URBAN POLICY AND THE ENVIRONMENT, INDIANA UNIVERSITY, MAKING EROSION CONTROL WORK: A CASE STUDY IN ENFORCEMENT (1994) [hereinafter CASE STUDY] (developer allowed to move stream, neglect stabilization of the site for over a year, and defy state regulations).

99. A new funding mechanism subsequently has been passed. Lindsey, *supra* note 92, at 255-56.

100. *Id.* at 255.

101. When construction site sediment controls are installed, the types of BMPs chosen often are not the best choices for preventing pollution, demonstrating that contractor training is lacking. For instance, the most commonly used BMPs, which capture sediment after it has been eroded, are less effective than the erosion-reducing BMPs which mitigate sediment transport in the first place. *See id.* at 259.

102. *See id.* at 255-56.

103. IDEM has not imposed any penalties. *Id.* at 256. IDEM's only enforcement actions taken are notices of noncompliance with no follow-up procedures to ensure compliance. *See, e.g.*, CASE STUDY, *supra* note 98, at 23.

104. *See* Lindsey, *supra* note 92, at 256. Perhaps better regulation is not pursued because the general public perceives no problem with water quality. Sadly, people often expect brown water with impaired biological communities, primarily because they have not seen the clean water comparison in their lifetimes. For an example of degradation significant enough to spark action, see generally James T. B. Tripp & Michael Oppenheimer, *Restoration of the Chesapeake Bay: A Multi-State Institutional Challenge*, 47 MD. L. REV. 425 (1988) (Virginia, Maryland, the District of Columbia, and Pennsylvania trying to save this critical resource).

105. A North Carolina study placed state programs into three categories according to their structure and corresponding probability of success. NORTH CAROLINA STUDY, *supra* note 91, at VIII-1 to VIII-3. Indiana is in the bottom tier of programs. *Id.* at VIII-3. For a more complete view of the categories and a detailed description of North Carolina's strong program, see *id.* at VIII-1 to VIII-11.

106. Florida, Maryland, North Carolina, Virginia, and Pennsylvania, considered the strongest programs, all have independent regulations. NORTH CAROLINA STUDY, *supra* note 91, at VIII-3. For a discussion of certain management criteria that demonstrate a successful administrative program, see Lindsey, *supra* note 92, at 247-50.

implementing a complete program.[107] Maryland's strong legislation dates back to 1970[108]—seventeen years before the Water Quality Act was passed.[109] Maryland's program emphasizes local regulation of sediment discharges. The local programs are mandatory, but a locality's authority to manage a program will return to the state's regulatory agency, the Department of the Environment's Water Management Administration (WMA), if the local efforts are too lax.[110] The state reviews the history of enforcement and the quality of sediment control plans approved by a locality in determining whether the authority will remain delegated.[111] The state does not, however, merely criticize the local efforts; it seeks to improve the regulation's effectiveness, and periodic delegation review is simply a constructive approach to strengthen the overall program.[112] Unlike the federal general permit system, Maryland requires contractors to submit and obtain approval for a site-specific sediment control plan.[113] The plans, which are reviewed by the local soil conservation district, county agency, or the WMA, clear the way for the needed building or grading permit.[114] Over 18,000 permits were issued in Maryland during 1993.[115]

In terms of enforcement tools, fines are common reminders of Maryland's sincerity in protecting its water resources. The criminal provisions allow for fines up to $5,000 and one year imprisonment for each day of violation, and civil sanctions are also available.[116] In 1993, for instance, Maryland's noncomplying parties suffered over one half million dollars in fines.[117] Maryland dedicated these monetary penalties to (1) correcting the operator's failure to implement and maintain sediment controls, and (2) administrative costs of the sediment control program.[118]

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107. The regulations are found in MD. CODE ANN., ENVIR. §§ 4-101 to 4-215 (1993 & Supp. 1994). Other states have effective programs, but Maryland is one of the oldest and most-accomplished. *See* NORTH CAROLINA STUDY, *supra* note 91, at VIII-3.

108. Only temporary controls were in place until 1982. OFFICE OF WATER, U.S. ENVTL. PROTECTION AGENCY, EPA No. 833-F-94-001, SUMMARIES OF 104(B)(3) GRANTS: MARYLAND MODEL CONSTRUCTION GENERAL PERMIT 1 (April 1994) [hereinafter MARYLAND MODEL PERMIT].

109. *See supra* note 47.

110. MD. CODE ANN., ENVIR. §§ 4-103, 4-202 (1993 & Supp. 1994).

111. *Id.* §§ 4-103, 4-206.

112. WATER MGMT. ADMIN., MARYLAND DEPT. OF THE ENV'T, EROSION AND SEDIMENT CONTROL ENFORCEMENT AUTHORITY DELEGATION CRITERIA 1 (1993) [hereinafter EROSION AND SEDIMENT CONTROL ENFORCEMENT].

113. MD. CODE ANN., ENVIR. § 4-103 (1993 & Supp. 1994).

114. *Id.* Note that Maryland's system actually reviews site-specific information, whereas the federal system reviews only the standardized NOI. *See supra* notes 71-78 and accompanying text.

115. MARYLAND DEPT. OF THE ENV'T, STATE AND LOCAL EROSION AND SEDIMENT CONTROL INSPECTION AND ENFORCEMENT DATA 1 (1993) [hereinafter INSPECTION AND ENFORCEMENT DATA].

116. MD. CODE ANN., ENVIR. §§ 4-116, 4-215 (1993). The federal penalty provisions under the CWA theoretically allow for even tougher penalties: for negligent violations, up to $25,000 for each day and one year imprisonment and for knowing violations, up to $50,000 for each day and three years imprisonment. 33 U.S.C. § 1319 (1988 & Supp. V 1993).

117. INSPECTION AND ENFORCEMENT DATA, *supra* note 115, at 1.

118. *See* MD. CODE ANN., ENVIR. § 4-116(c)(4) (1993 & Supp. 1994).

The structure of Maryland's program allows for a three-tier system of penalty provisions. Where the locality has received delegated authority, the local ordinance can have its own fine structure subject to the state's maximum amounts.[119] Therefore, local, state, or federal penalty provisions can be utilized, although usage of more than one would be limited to the most egregious violations.[120] For situations where the state has not delegated its authority, only two levels of provisions would be available—state and federal.[121]

Maryland also has other enforcement tools available that can be used at any time in the enforcement process. Notices of violations are used to inform parties of noncompliance.[122] If reasonable corrections are not made, a stop work order can be issued.[123] Bond forfeiture, withholding of additional sediment plan approvals, property liens, and withholding of use and occupancy of the land are all tools that can be applied to an enforcement action.[124] The contractor may even be required to mitigate the environmental impact of its failed sediment control agreement if deemed necessary by the inspector.[125] The Maryland legislature made explicit reference to the need for effective, adaptive enforcement mechanisms in order to achieve the statute's purpose,[126] and it followed through by enabling all of these tools.

Maryland's successful commitment to regulation of sediment discharges is also demonstrated by its large staff of state and local inspectors. In 1993 alone, over 120 inspectors, employed solely to enforce the sediment and erosion control law, conducted in excess of 130,000 inspections.[127] Inspections take place an average of once every two weeks, thus ensuring the proper BMPs are maintained throughout the construction process.[128] The inspectors are given the authority to enter the premises whenever necessary and have the discretion to require improved methods of erosion control if

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119. EROSION AND SEDIMENT CONTROL ENFORCEMENT, *supra* note 112, at 1.

120. In Maryland, for instance, the locality or state could use enforcement tools against the violator. MD. CODE ANN., ENVIR. §§ 4-116, 4-215 (1993). In addition, federal provisions could be available because the violation of the state regulations may also constitute a separate federal NPDES permit violation. 33 U.S.C. § 1319 (1988 & Supp. V 1993).

121. The enforcement options would be under the state and federal statutes, but the locality would have no provisions without an ordinance. *See* MD. CODE ANN., ENVIR. § 4-103(e) (1993 & Supp. 1994).

122. *Id.* §§ 4-109, 4-209.

123. *Id.* § 4-110.

124. INSPECTION AND ENFORCEMENT DATA, *supra* note 115, at 2.

125. *Id.*

126. MD. CODE ANN., ENVIR. § 4-101 (1993). The statute reads:

> Because of the great potential for harm to the waters of the state if soil erosion and sediment control measures are not properly implemented and maintained and because of the cumulative effect on the environment of violations whether the project creating the violations is large or small, it is necessary for the protection of the waters of [Maryland] to provide procedures for obtaining immediate compliance with the law, when violations occur.

127. INSPECTION AND ENFORCEMENT DATA, *supra* note 115, at 1.

128. EROSION AND SEDIMENT CONTROL ENFORCEMENT, *supra* note 112, at 2. Other areas with less inspections cannot ensure that controls are maintained after installation. *See, e.g.*, Lindsey, *supra* note 92, at 259.

current efforts are insufficient.[129] Further, the system incorporates a certain level of flexibility by allowing changes to the site's sediment control plan provisions when better or more cost-efficient control devices are available.[130] Also, inspection is done in light of three different stages within the construction process; pre-development, construction, and post-construction phases are all regulated to ensure that major sediment loss does not occur simply because the actual construction is not currently taking place.[131] The three-stage approach recognizes that erosion before and after the building process can be just as devastating.[132] To that end, the inspection system pays close attention to sediment control throughout the process until the plot of land is permanently revegetated or stabilized.

A key element in the Maryland program's success is its inclusion of most earth-disturbing projects. The program has only four exemptions from regulation: (1) agricultural land management practices and structures, (2) single family residences on two or more acres of land where the total disturbed area is less than one-half acre, (3) clearing or grading that disturbs less than 5,000 square feet and less than 100 cubic yards of earth, and (4) clearing or grading which is subject to state approval under state law.[133] The size cutoff of 5,000 square feet, or less than one-eighth acre, casts a fairly wide net to include most activities.[134] Maryland's approach is to regulate both small and large disturbances alike, although the methods used to control sediment often differ according to the size of disturbance.[135] The program reflects the idea that even small sites can discharge significant amounts of sediment if left unchecked.[136] The result is regulation of any site that can emit significant quantities of sediment, thus controlling stormwater runoff pollution from construction sites.

IV. Changing The Current Structure Of Regulatory Programs

A. Balancing Regulation of Point and Nonpoint Sources

Point source regulation via the technology-based NPDES permitting system has existed since the 1972 amendments.[137] The regulations in that arena of pollution control have had ample time to develop into a relatively strong, demanding framework.[138] Controls are precisely spelled out and tailored to specific industrial classifications.[139] The

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129. Erosion and Sediment Control Enforcement, *supra* note 112, at 3.

130. *Id.*

131. *See* Inspection and Enforcement Data, *supra* note 115, at 2.

132. *Id.*

133. Erosion and Sediment Control Enforcement, *supra* note 112, at 1.

134. Compare Maryland's one-eighth acre minimum to the EPA five-acre limit originally set. *See supra* note 60 and accompanying text.

135. *See generally* EPA Construction Pollution Prevention Plans and Best Management Practices, *supra* note 74 (describing different BMPs and their use limitations, including size of site).

136. *See also* 55 Fed. Reg. 47,990, at 47,992 (1990).

137. *See supra* note 42 and accompanying text.

138. *See* Shabman & Milon, *supra* note 12, at 82-83.

139. *See* 40 C.F.R. app. D, § 122 (1994).

NPDES point source permits are often individual permits with site-specific information and require routine reporting in order to remain in compliance.[140] In fact, the point source requirements may have gone too far in relation to the overlooked nonpoint source program.

A significant amount of water pollution is attributable to nonpoint sources, yet the regulatory framework shows little reflection of that fact.[141] The cost-efficiency of requiring point source controls is lessened relative to the potential impact of nonpoint source controls; each additional dollar spent on point sources is a relatively inefficient use of the money.[142] A better approach may be to ease some point source controls while greatly strengthening nonpoint controls.[143] However, in watersheds where point sources are not significant polluters tradeoffs between point and nonpoint sources are not available to solve pollution problems. An alternative proposal would be to continue adding nonpoint controls without compromising existing point source control programs.[144] Regardless of the approach taken, increased attention to nonpoint pollution is fundamental to improving water quality.

B. Relative Ease of Regulating Sediment from Construction Sites

Sediment pollution from construction sites is one of the easiest forms of pollution to control. Removal of sediment is relatively simple and the costs are reasonable. Unlike diffuse runoff from industrial plants, where chemical contaminants are often carried into surface and possibly groundwater,[145] pollution from construction sites is more easily removed. Removal of chemical pollutants from industrial plant runoff may require complex techniques and training in place of the simpler construction site BMPs.[146] For construction the primary concern is particle transport, not chemical transport,[147] and sediment removal is relatively easy compared to chemical removal. BMP effectiveness for construction site sediment control is questionable only to the extent that the site operator does not properly select, install, and maintain the control devices.[148]

The interaction of surface water with groundwater—a dilemma prevalent in controlling many pollutants—is also minimized when sediment is the main concern. Nonpoint pollution policy-makers struggle with the dynamic interactions between surface

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140. *Id.* § 123.45.

141. Shabman & Milon, *supra* note 12, at 83-84.

142. Freeman, *supra* note 8, at 142 & n.60.

143. For a detailed discussion on point-nonpoint source trading, a new idea to provide for nonpoint regulation while lessening regulation of point sources, see Bartfeld, *supra* note 78.

144. *See* Shabman & Milon, *supra* note 12, at 87-91.

145. *See* Fentress, *supra* note 11, at 835.

146. *See* OFFICE OF WATER, U.S. ENVTL. PROTECTION AGENCY, EPA No. 832 R-92-006, STORM WATER MANAGEMENT FOR INDUSTRIAL ACTIVITIES: DEVELOPING POLLUTION PREVENTION PLANS AND BEST MANAGEMENT PRACTICES 4-32 to 4-36 (Sept. 1992) [hereinafter EPA INDUSTRIAL POLLUTION PREVENTION PLANS AND BEST MANAGEMENT PRACTICES].

147. *See* EPA CONSTRUCTION POLLUTION PREVENTION PLANS AND BEST MANAGEMENT PRACTICES, *supra* note 74, at 1-3.

148. *Id.* at 5-4.

water and the water table when the surface water runoff contains substantial chemical pollutants. In such a case, improving surface water quality may actually degrade groundwater quality.[149] Groundwater recharge from a detention pond to the water table can cause contamination if the collected surface water runoff contains substantial chemical pollutants.[150] The pollutants are stopped from entering a stream or lake, but the pollutant may now penetrate the groundwater by infiltrating the soils above the water table.[151] A policy consideration then arises: Which priority prevails, protection of groundwater or surface water?[152]

With sediment the groundwater recharge aspect of the problem is minimal. Except for any chemicals adsorbed to particulate in the runoff, the materials retained by structural BMPs on construction sites will not significantly affect the water table via recharge or infiltration.[153] In fact, construction sites utilizing permanent structural BMPs may benefit groundwater by providing for increased recharge rates compared to similarly developed parcels of land without structural BMPs.[154] Thus, the policy tradeoff does not occur with control of construction site sediment.

Removal of sediment is typically less costly than removal of other nonpoint source pollutants. Many sediment pollution situations can be remedied by fairly inexpensive control devices. Seeding, mulching, sodding, and leaving buffer zones of vegetation are examples of low-cost BMPs.[155] On the other hand, sophisticated devices for chemical removal of pollutants can be very costly.[156] The relatively low cost of preventing sediment pollution means that construction projects will not be unfairly burdened to the point of economic infeasibility. For the few situations where these BMPs would be too costly, the stormwater regulations could act as a means for preventing projects where the utility of the land use is outweighed by the social cost of pollution and its corresponding cost of prevention.[157]

Because nonpoint source sediment control regulations for construction sites do not significantly affect groundwater issues and are less costly than other regulations,

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149. Mandelker, *supra* note 45, at 485.

150. *Id.*

151. *Id.*

152. *Id.* at 485-86.

153. The adsorbed chemicals could pose a problem if present in high concentrations. *See* EPA CONSTRUCTION POLLUTION PREVENTION PLANS AND BEST MANAGEMENT PRACTICES, *supra* note 74, at 4-4 to 4-6. However, good housekeeping BMPs could remedy that concern. *Id.* at 4-3.

154. The increased impervious area associated with finalized construction prevents water from infiltrating the surface and replenishing groundwater. *See* Tourbier, *supra* note 24, at 16. Structural BMPs that facilitate recharge help compensate for the loss of pervious area. *Id.* at 19.

155. EPA CONSTRUCTION POLLUTION PREVENTION PLANS AND BEST MANAGEMENT PRACTICES, *supra* note 74, at 3-12 to 3-25.

156. EPA INDUSTRIAL POLLUTION PREVENTION PLANS AND BEST MANAGEMENT PRACTICES, *supra* note 146, at 4-32 to 4-36.

157. The costs of pollution are always present, but regulating the pollution can internalize at least some of the costs; thus, society bears a lower cost because the contractor is paying for what would otherwise be externalized. For a discussion on internalizing costs, see JESSE DUKEMINIER & JAMES E. KRIER, PROPERTY 52-57 (1st ed. 1983).

formulation and implementation of an effective regulatory plan is relatively simple. In addition, building a framework for construction site runoff regulation cannot wait for a system addressing all forms of nonpoint source pollution. Complete regulation of all nonpoint sources will take exhaustive efforts to become a reality. Conversely, regulation of construction site discharges is a definable problem that can be addressed separately from the entire nonpoint regulatory framework. Regulation of construction sites should be pursued and implemented now, instead of waiting for further developments in other nonpoint programs.[158] Also, agencies need a successful model to foster respect from the regulated community and to create a workable prototype for other regulation. When the focus shifts to other nonpoint programs, the sediment control regulations could be incorporated into a larger framework, thus serving both the environmental and governmental needs for effective regulation of sediment pollutants.

C. Framework for Implementing Changes

1. Short-term Program.—In regulating sediment discharges from construction sites, both short and long-term solutions should be implemented to provide steady and deliberate growth. The short-term goals should raise awareness and provide experience, while the long-term solution should ensure that the CWA's objectives are attained.

In the short-term, the federal role should include legislating change to the current stormwater system. The current federal NPDES system should be kept only as a potential enforcement tool, with efforts otherwise focusing away from the current permit system. Section 402(p) should strip down the general permit to its barest form—a contractor's promise to comply. Also, the original NOIs and pollution prevention plans should not be required unless the states and localities specifically mandate the information in them.

Without the section 402(p) administrative requirements, the EPA and NPDES-authorized states could then shift their efforts to mandating section 319-like goals of state and local control and ensuring compliance with new state and local regulations. A new section 319 legislative provision mandating state statutes could lay a foundation on which to build an effective, independent solution.[159] Also, the state statutes could embody tailored stormwater programs that fit the individualized needs of the geographic characteristics of different localities.

Although many states may initially choose to enact relatively weak legislation, any formal effort would raise awareness and demonstrate increased sincerity of the state in addressing this pollution problem. Statutes should require site-specific information review, routine inspection provisions, and strong yet flexible enforcement tools.[160] The state, in turn, should also encourage local ordinances from its cities and counties.[161]

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158. The Phase II creation or Phase I expansion is intended to address many different areas, including many commercial activities and municipal separate storm sewers in smaller cities. EPA GENERAL PERMITS BRIEFING, *supra* note 65, at 30.

159. *See supra* Part III.B.

160. *See supra* Part III.B.

161. *See* Peter H. Lehner, *Act Locally: Municipal Enforcement of Environmental Law*, 12 STAN. ENVTL. L.J. 50, 53-55 (1993). For a counterargument asserting that private landowners often fall prey to overzealous local government regulation, see Sally Burgin, *Local Governments Taking Charge Of Water Quality—Is It a Good*

For many local governments, the enactment of local measures requires little encouragement. Often local units of government prefer to handle local matters without state or federal intervention, provided adequate funding is available.[162] A local sediment control ordinance could afford this opportunity. Also, because local governments are creatures of the state and derive most of their powers from the state, their dependence on budget allocations could encourage them to follow the state's recommendations for enacting local ordinances.[163] Once a statute is in place, the state's role in the short term would be to provide technical support and training for construction contractors and local governments in formulating and implementing their local sediment controls.

Focusing on the local governmental level of construction regulation is the ideal choice for many reasons. First, the land use aspect of the construction regulation lends merit to treating this issue as a local matter.[164] Land use questions have always been local issues, and the federal government is hesitant to step in and change that local power.[165] Second, questions tied to land use suit the expertise of local government. The strength of local government lies in its understanding of its constituency's needs and concerns. Local government officials, unlike those at other levels, regularly interact with and provide services for their populations. Therefore, they are generally better informed on matters that directly impact their constituency.[166] For societal problems such as pollution, the public's reaction is more closely viewed by local governments.[167] Because little insulation exists between the constituency and the local policy-makers, the regulatory response may be less tempered and more reflective of real public concerns.[168]

For many pollution problems, including sediment loading, the impact is at least partially felt by the population where the pollution occurs.[169] The constituents' vested interests in the quality of their immediate environment should dictate local construction regulation. Local government officials are geared toward serving as experts on what takes place locally; intricate political structure, physical land and water characteristics, and growth and development trends are noticed on a local scale.[170] Conversely, state knowledge of local dynamics would probably have to be supplied by the local government, and federal awareness would be even further removed without active, local efforts to inform the federal agencies.[171] Local government is simply better suited to observe and respond to matters in its own backyard; even the EPA realized this when it

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Idea?, NAT. RESOURCES & ENV'T, Spring 1991, at 19, 59.

162. *See infra* Part IV.C.3.

163. *See* Lehner, *supra* note 161, at 52-53.

164. *See* Mandelker, *supra* note 45, at 486.

165. Fentress, *supra* note 11, at 814.

166. Lehner, *supra* note 161, at 54-55.

167. *Id.*

168. *Id.* A common criticism of local government is the little insulation between the municipality and local industry, particularly when one company is a major employer. *Id.* at 53. Local industry can be a strong lobby, so other levels of regulatory oversight should be available. *See infra* text accompanying notes 194-99.

169. Lehner, *supra* note 161, at 55.

170. *Id.*

171. *Id.* at 58-59.

acknowledged that local control of the stormwater program would be the best choice.[172]

A prime example of the local nature of sediment control is the soil conservation district system. Soil conservation district engineers are equipped with personal knowledge of the historical, current, and future trends of an area.[173] District engineers know of individual sites where the land is disturbed and have more than a contour map to determine what impact the site runoff and sediment loading will impart.[174]

National control by Congress may not be the optimal choice because current national point source controls are often seen as too rigid and inefficient.[175] Construction site runoff, because of its local nature, may not respond well to a similar structure. Local government is better qualified to decide tradeoffs between point and nonpoint source regulatory programs.[176] Also, local regulation now may mean less federally enforced regulation in the future.[177] Congress tends to legislate when current practices are insufficient, especially when it thinks the problem has been solved by prior legislation.[178]

In addition, the flexibility associated with prosecutorial discretion is strongest at the local level. Prosecutorial decisions by municipalities concerning which cases to pursue and what remedies to seek may be more even-handed because of the vested interests in losing the industries being regulated.[179] The local law departments can also deter future pollution discharges by making an example out of a particularly noncompliant industry.[180] In addition, companies would have ample incentive to avoid direct federal involvement in favor of a familiar, flexible local entity filling the void before a federal agency can step in.[181] Another advantage is that the county or municipality, because it enacted the ordinance, will be more familiar with the local regulations than ordinarily is the case with federal regulations imposed on the local level.[182] When the enforcing agency has direct familiarity with a regulation, it is more likely to act on it.[183] Utilizing existing specialized local entities will translate to increased efficiency and less expansion at the federal level.

2. *Long-term Program.*—As a long-term strategy, federal involvement should be similar to the short term program. The EPA should, however, activate a prosecuting mechanism for utilizing NPDES penalty provisions when state or local violations occur but are not prosecuted. The federal duties should also require a minimum threshold of

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172. Freeman, *supra* note 8, at 142-43 & n.62.

173. John B. Braden & Donald L. Uchtmann, *Soil Conservation Programs Amidst Faltering Environmental Commitments and The "New Federalism"*, 10 B. C. ENVTL. AFF. L. REV. 639, 676 n.213 (1982).

174. *Id.*

175. Freeman, *supra* note 8, at 142.

176. *See* Shabman & Milon, *supra* note 12, at 89.

177. Lehner, *supra* note 161, at 61.

178. For instance, the WQA addressed inefficiencies of § 208 when most states chose not to implement their management plan. *See supra* text accompanying note 47. Another example is the Clean Air Act Amendments of 1990, Pub. L. No. 101-549, 104 Stat. 2399, which were passed to address the cities' failure to meet air quality goals. Lehner, *supra* note 161, at 61-62.

179. Lehner, *supra* note 161, at 58-59.

180. *Id.* at 58.

181. *Id.*

182. *Id.* at 52.

183. *Id.*

regulation by the state programs. The state's role, however, should be intensified to a level of higher involvement than for the short-term goal realization. Active local efforts need very little additional assistance from the state to function properly.[184] Consequently, the state's participation in those localities should be minimal.

For those areas where no local government program exists, the state should gear up for enforcing the state statute in order to provide a minimum level of enforcement throughout the state.[185] In this type of framework, the state would not have to police its entire area to ensure proper compliance with the statute; the state government need only be active in areas where the local governmental unit decided not to enact and enforce an ordinance.[186] By leaving the active local unit alone, the state saves critical resources and the proactive local entity enjoys the autonomy it deserves. Also, states should not become active in enforcement until the local programs have operated for a period of time. The local successes and failures could then be utilized to better structure the state efforts. While the state would be responsible for enforcement in those areas lacking a construction site permitting program, the state could encourage participation by the local entities through inspections and enforcement actions, thereby creating some local interest in administering the program.[187]

The benefits of this type of structuring are significant. First, basing the new regulation on a familiar framework eases apprehensions about how it will function. Because the delegation-of-responsibility system has demonstrated its strengths and weaknesses, the construction permitting system can build upon that history to create an improved hierarchy.

Second, states that withhold authority and delegate to only those counties or municipalities qualified to administer the program ensure a minimum level of regulation for sediment control.[188] The regulated businesses also enjoy some level of certainty in terms of what is expected for compliance; therefore, businesses can spend less resources on determining what is expected of them and concentrate more on compliance.[189] In addition, the state could give local units the discretion to enforce more stringent provisions to protect critical natural resources.[190]

Third, allowing local governments to actively participate in environmental regulation may change their traditional role in environmental matters, particularly regarding lawsuits. Cities and counties are often sued as a result of the "dirty" services they provide.[191] Because municipalities are frequently defendants, significant resources are expended to address their legal obligations. Much of their efforts are allocated to defending actions

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184. *See, e.g.*, NORTH CAROLINA STUDY, *supra* note 91, at VIII-2 to VIII-3.

185. *See supra* text accompanying notes 110-112.

186. *See generally* INSPECTION AND ENFORCEMENT DATA, *supra* note 115 (state conducts inspections only where local programs are not in force).

187. *See supra* text accompanying notes 182-83.

188. One author argues that inconsistency is an unfair burden on business. Burgin, *supra* note 161, at 22. For the view that uniformity may not be desirable, see Freeman, *supra* note 8, at 144.

189. *See supra* notes 86-87 and accompanying text.

190. Cost-efficiency of regulations can be enhanced if local units have discretion in protecting areas more sensitive to pollution. Freeman, *supra* note 8, at 132.

191. Lehner, *supra* note 161, at 52.

instead of planning future program directions.[192] A more active role in environmental regulation can lead to less backpedaling in response to being sued and more activism in terms of legal actions and program goals.[193]

Fourth, state supervision of local regulation actions can offer another tier of enforcement available for pursuing legal remedies against noncomplying construction contractors.[194] If local entities with permitting programs are too bashful to punish a violator, the state can have discretion in enforcement actions.[195] When a noncomplying business supplies a large portion of the local economic base and the county or municipality will not punish for fear of repercussions, the state may have to act for the local unit. Similarly, if a state's interests are such that enforcement against a large employer cannot withstand political pressure, then the federal tier of enforcement is still available under CWA provisions.[196] Here, the insulation between local political power and the federal framework provides a benefit to the stormwater program.

Finally, the state can act as a coordinator of local efforts. When pollution problems cross jurisdictional boundaries, a dilemma prevalent in water pollution,[197] the state can step in to facilitate the efforts of local governmental units. Cooperation among equal units of government, although extremely beneficial in cases of pollution prevention or cleanup, is difficult to achieve. Pooling of efforts saves limited resources from being wasted on duplicative services. The state's role in both short-term and long-term phases of implementation should include providing technical guidance and communicating to local units the undertakings of other jurisdictions' efforts.[198] If relationships between local governments preclude cooperation, the state should serve as a facilitator between the local units or even take over a project if deemed necessary to bring the purpose of environmental efforts back into focus.[199] The end result is a multi-level governmental system that encourages local participation, mandates state participation, and provides fifty different laboratories to test varying stormwater regulation approaches.

3. Funding Mechanisms.—Funding, an omnipresent concern for new regulatory approaches, should be the federal government's primary role in construction site runoff regulation. While local and state agencies may be better suited to administer the stormwater permitting program, the funding allocations should flow primarily from federal sources. Although some states already dedicate sufficient resources to implement and maintain effective stormwater programs,[200] those currently without programs would not

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192. *Id.*

193. *Id.*

194. One court held that the CWA was intended to create a web of interrelated regulatory programs. United States v. Holland, 373 F. Supp. 665, 668 (M.D. Fla. 1974).

195. *See, e.g.*, MD. CODE ANN., ENVIR. §§ 4-114(b), 4-215(f) (1993).

196. *See supra* note 119 and accompanying text.

197. *See generally* Tripp & Oppenheimer, *supra* note 104 (noting that multi-state effort was needed to improve Chesapeake Bay's water quality).

198. *See, e.g.*, MD. CODE ANN., ENVIR. § 4-107 (1993), showing that state assistance for localities is a priority in a good regulatory framework.

199. Federal involvement came about in the 1930s and 1960s in part to coordinate multi-state efforts. Freeman, *supra* note 8, at 143. Coordination at the state level should occur for analogous reasons.

200. North Carolina, for instance, spent nearly $4 million for local programs in 1991. NORTH CAROLINA

have funds available. Because a state would be required to have a program by the long-term phase of implementation, some federal assistance would be necessary. In addition, the CWA's legislative purpose is to control point and nonpoint sources of water pollution,[201] and funding should logically flow from the entity legislating the need for funding.[202] The vehicle for funding is, however, not certain. Funding could derive from state and local permit fees, provided the amounts are not too burdensome on the construction industry. Other sources of income, however, would likely be necessary. A wholly new funding mechanism could be created along with the amended changes for section 402(p) and section 319.

Congress often resists new financing, especially where other monies already spent within the CWA have had arguably little impact on satisfying the legislation's goals.[203] The states could be left to fend for themselves in terms of receiving grants under previously existing sources like the section 104 program.[204] These grants, however, are not meant for widespread assistance to the state programs. Instead, section 104 grants are geared toward aiding model projects that alter or streamline current methods of CWA regulation.[205] A funding mechanism that could supply sufficient revenues may be point-nonpoint source trading.[206] Current funding for point source programs could be intermingled with nonpoint program funds to provide additional finances.[207] For instance, federal assistance for municipal wastewater treatment programs available under the CWA[208] currently provides little additional pollution control, but allowing usage for nonpoint programs could yield significant pollution reduction and increased cost-efficiency.[209]

Perhaps the most appropriate method of funding would be to increase section 319 funds already available to states for implementing general nonpoint programs, not just stormwater regulation. Currently, section 319 operates as a minor funding mechanism for state programs with appropriations only amounting to a small fraction of what was initially authorized.[210] Under present conditions the two different programs—section 319 general nonpoint state programs and section 402(p) stormwater permitting for industrial activities—fall appreciably short of their goals.[211] By utilizing money available under section 319 to fund new state and local-based frameworks, both programs will move

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STUDY, *supra* note 91, at V-1.

201. 33 U.S.C. § 1251(a) (1988).

202. *See* Shabman & Milon, *supra* note 12, at 86.

203. *See supra* text accompanying notes 78-81.

204. 33 U.S.C. § 1254(b)(3) (1988).

205. *Id.* § 1254(a). For instance, Maryland received a § 104(b)(3) grant to draft a model general permit and streamline processing of NOIs. MARYLAND MODEL PERMIT, *supra* note 108, at 1.

206. *See generally* Bartfeld, *supra* note 78 and accompanying text. *But see supra* note 143.

207. Shabman & Milon, *supra* note 12, at 89.

208. 33 U.S.C. § 1281(g)-(l) (1988). Now the assistance is in the form of revolving fund loans. Freeman, *supra* note 8, at 138.

209. Shabman & Milon, *supra* note 12, at 89.

210. *See supra* note 56.

211. *See supra* Part II.B.

toward achieving their objectives. Section 319 calls for state nonpoint source programs,[212] and mandating states to effectively regulate stormwater runoff from construction sites and other industrial activities will further section 319's purpose while specifically addressing the existing section 402(p)'s mandate. Although some additional monies would be needed for the section 319 mechanism, no new funding program would be created or required. The new usage of section 319 funds could effectively utilize formerly unproductive dollars to realize the CWA's mandates. Also, the federal agencies would not be burdened with new regulation; the better-suited local and state governments would handle the implementation efforts.

CONCLUSION

The current federal regulatory framework for construction site runoff is not accomplishing the goals set forth in the CWA. The importance of state involvement has been recognized, yet no framework requiring fully implemented, independent state programs has been established. Section 319, although a positive step toward the state-local nonpoint pollution control framework, is not enough. The federal system, section 402(p)'s NPDES permitting system for construction site discharges, is failing because states and localities are better suited to regulate in this area. The current programs may address the letter of the CWA, but the intent of that Act is definitely not accomplished.

Under the current system, states have discretion to enact their own measures to address stormwater discharges from construction sites. Although a few states have responded effectively, the majority of states either partially or solely rely on the federal framework to cure the degradation by nonpoint source pollution. Further, these states do not utilize municipalities and counties, levels of government that are best qualified to administer a construction site runoff program. Efforts operated wholly on a state or federal level are not suited to the local nature of stormwater regulation. In addition, insufficient funding—a common thread running throughout the unsuccessful programs—demonstrates the states' persistent lack of sincerity and commitment under the current regulatory framework.

A change is needed to correct the stormwater program's current path. The best approach is congressionally required state control primed by a short-term strategy of amending current federal legislation and encouraging local efforts. NPDES permits for stormwater would be effectively replaced by state and local regulation, although federal penalty provisions could be salvaged via the NPDES general permit's promise to comply with the local and state regulations. The federal short-term role would be limited to technical assistance and information dissemination. The state's role, in addition to encompassing the federal duties, would include the enactment of a statute to allow for a state program foundation. The local regulatory proving grounds can provide the basis for each state's stormwater program.

In the long run the federal role should switch to limited administration of the states' mandatory stormwater programs. The EPA would then be in the business of active enforcement only in egregious cases. A continued commitment, however, to providing adequate funding to the states will be a primary federal responsibility. Those funds can

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212. *See supra* notes 51-57 and accompanying text.

reside in expanded section 319 allocations, where usage of that funding can attain the goals of both section 319 and section 402(p), or in new funding mechanisms like point-nonpoint source trading, if sufficient need arises. The states, on the other hand, are needed to support the actual regulatory programs. States would provide more enforcement tools and act as the prime facilitator for the local governments. Further, states can provide some uniformity to assure a minimum level of compliance while allowing for more stringent local ordinances to protect certain resources. More importantly, though, state-based construction site runoff programs will keep federal agencies out of a regulatory area where local and state abilities are better suited. The result is a more adaptive and effective stormwater discharge regulatory framework to curtail the otherwise inevitable impact of construction activities on our environment.