

March 1979

Economically Responsible Environmental Control

Scott C. Whitney

Follow this and additional works at: <https://scholarship.law.wm.edu/wmlr>



Part of the [Environmental Law Commons](#)

Repository Citation

Scott C. Whitney, *Economically Responsible Environmental Control*, 20 Wm. & Mary L. Rev. 441 (1979), <https://scholarship.law.wm.edu/wmlr/vol20/iss3/3>

Copyright c 1979 by the authors. This article is brought to you by the William & Mary Law School Scholarship Repository.

<https://scholarship.law.wm.edu/wmlr>

ECONOMICALLY RESPONSIBLE ENVIRONMENTAL CONTROL

SCOTT C. WHITNEY*

During the seventies, the quality of the environment in the United States has continued to decline. Increased population, expanding urbanization and industrialization, and increased resource exploitation are the causes of this condition. Regulatory efforts to protect and restore the environment have fallen short of the original goals set by Congress.¹

During this same period, the economy of the United States has deteriorated, and the prognosis for significant recovery is discouraging. One consequence of this economic deterioration is that the feasibility of costly environmental protection programs becomes questionable. Thus the problem of how to finance environmental protection given the limits on economic resources has become one of the most important concerns of policymakers in the United States.

This Article is not intended to describe in detail the status of the United States economy; rather, the intent is to describe briefly the general economic context in which environmental problems must be resolved and then to suggest specific measures necessary to provide the capital required to fund the environmental protection goals mandated by Congress. Congress and the executive branch have recognized the importance of this economic dimension to environmental protection, but their efforts to provide economic resources to finance environmental protection have been inadequate.²

* Professor of Law, College of William and Mary.

1. For example, Congress in 1977 enacted Subpart D, Plan Requirements for Nonattainment Areas, Pub. L. No. 95-95, tit. I, § 129(b), 91 Stat. 745 (codified at 42 U.S.C.A. §§ 7501-7508 (West 1978)), to amend the Clean Air Act, 42 U.S.C. §§ 7401-7642 (1976), in order to cope with the fact that under the Clean Air Amendments of 1970, Pub. L. No. 91-604, 84 Stat. 1676, the vast majority of the nation's Air Quality Control Regions had failed to attain primary standards as to one or more air pollutants. The Clean Air Act Amendments of 1977 also further postponed the statutory deadlines for attainment of various mobile source emission goals. Compare 42 U.S.C.A. § 7521(b) (West Supp. 1978) with 42 U.S.C. § 7521 (1976). The Clean Water Act of 1977, 33 U.S.C.A. § 1311 (West 1978), likewise postponed deadlines related to water quality. Compare 33 U.S.C. § 1311 (1976).

2. For a discussion of America's efforts to finance environmental protection as of 1976, see Whitney, *Capital Formation Options to Finance Pollution Control*, 3 COLUM. J. ENV'T'L L. 42 (1976). For a discussion of the impact of environmental costs on American foreign trade, see Whitney, *The Trade Act of 1974: Coping with Unequal Environmental Control Costs*, 16 B.C. INDUS. & COM. L. REV. 577 (1975); and Whitney, *The Trade Act of 1974 Revisited: The Need for Further Reform*, 19 B.C. L. REV. 839 (1978).

THE ECONOMIC CONTEXT

The International Economic Situation

International economic developments significantly influence the United States economy and the country's ability to finance the capital expenditures needed to meet the environmental standards set by Congress. The steadily worsening balance-of-trade and payments deficits sustained by the United States³ interfere with the conduct of domestic policy, including environmental reform. These deficits have resulted in a reduced valuation of the dollar relative to other currencies, which, in turn, causes a rise in the costs of goods imported into the United States. This increase in the cost of imported goods has contributed to increased inflation.⁴ Inflation then increases the cost of the environmental facilities mandated by federal legislation.

Imports of crude oil from the Organization of Petroleum Exporting Countries (OPEC) have exacerbated the balance-of-trade and payments deficits, and thus contributed to inflation in the United States. Imports of oil from OPEC continue to increase; however, OPEC members lack the capacity to absorb the increased flow of dollars into their economies or to "recycle" these dollars by importing goods and services from the United States in a sufficient quantity to offset the increased demand for imported oil by the United States.⁵ As this dollar-flow deficit depreciates the value of the dollars held by the OPEC countries, the governments of OPEC are pressured to increase the price of their oil, thereby establishing a self-perpetuating cycle of increased oil prices and declining dollar value.

Moreover, overall American exports and imports have grown rapidly relative to the gross national product (GNP) and now comprise ten percent of the total GNP.⁶ The level of United States international trade, which determines the balance-of-trade and payments, depends not only on OPEC, but on the economic condition of major American trade partners. Unfortunately, the prospects for the international economy are no more encouraging. International economic

3. REPORT OF THE JOINT ECONOMIC COMMITTEE, CONGRESS OF THE UNITED STATES, REVIEW OF THE ECONOMY 5 (October, 1978) [hereinafter cited as JEC REPORT].

4. *Id.*

5. *Id.* at 119.

6. *Id.* at 52. This is nearly the amount of fixed investment by United States business.

growth in 1977 was sluggish, and the Organization for Economic Cooperation and Development (OECD) forecasts real GNP growth for the OECD area as a whole in 1979 will be only about 3.5 percent.⁷ Any reduction in international economic growth will be reflected in the level of international trade of the United States, which will reduce the growth of the nation's GNP.

The combination of stagnation in the economies of the trading partners of the United States and increased prices for oil indicate that the deficits in trade and payments and the downward pressure on the dollar probably will continue into the near future.⁸ The result of this trend will be increased inflation in the domestic economy and a reduction in the share of GNP growth attributable to international trade. Thus, the costs of environmental protection equipment will be rising, while at the same time the supply of capital available to finance the purchase of such equipment will decline.

The Domestic Economy

In addition to international problems, the attainment of environmental goals has been hampered by the performance of the United States economy. A decline in labor productivity in the private sector, measured by output per worker hour, has created significant problems. During the decade of the fifties, labor productivity increased at an average annual rate of 3.4 percent. In the sixties, the average annual rate of increase declined to 3.0 percent. Productivity between 1967-1977 increased at a rate of only 1.6 percent per year;

7. OECD ECONOMIC OUTLOOK, BUDGET INDICATORS, No. 23 (July, 1978).

8. The Joint Economic Committee of Congress has summarized the world economic situation as follows:

During the 1970's the world economy has been beset by a series of major shocks. One set of shocks was the tremendous currency revaluations that were the legacy of the rigid Bretton Woods system. Another shock was the inflationary monetary expansion that accompanied the reluctance of several major countries to accept the floating rate system. A third shock was very poor harvests that plagued world agriculture during the early 1970s. Perhaps the most damaging shock was the quadrupling of oil prices by OPEC nations in 1974. This created enormous dislocations and structural problems that have still not been ironed out. Furthermore, the problems of the 1970's have been compounded by the circumstance that the world business cycle is out of phase. . . . [T]his has been responsible for the sluggishness of our export growth and this has accounted for much of our current account deficit since 1977 and therefore for the pressure on the dollar.

JEC REPORT, *supra* note 3, at 73.

and in the first quarter of 1978, productivity declined at an annual rate of 4.7 percent.⁹ Even in a period of static labor costs, declining productivity increases unit labor costs. However, labor costs have been far from static; in the private business sector, increases in social security taxes and the minimum wage rate have combined to produce a 17.6 percent increase in unit labor costs in the first quarter of 1978.¹⁰ The consequences of this trend are clear: inflation is worsening, and real GNP is declining.¹¹

These trends affect the supply of capital available in the economy to meet both conventional and environmental capital requirements. During this period of declining labor productivity, the rate of growth in net capital stock, excluding environmental capital, has dwindled from an average annual rate of 4.8 percent per year in the 1947-1957 period to only 2 percent per year between 1973-1977.¹² Thus, the United States economy is allocating too few resources to capital expansion.¹³ The difficulty is that declining productivity yields less return and thereby diminishes the amount of profit available for capital investment. As capital gaps develop, productivity declines further, and a self-perpetuating cycle ensues. The result is that responsible financial forecasters are predicting that massive capital gaps will occur in the near future.¹⁴

Expenditures required to meet pollution abatement requirements constitute an added demand on the capital supply of the economy. The magnitude of this demand remains unknown. In 1977, the President's Council on Environmental Quality estimated that total pollution abatement expenditures from 1976 to 1985 will be \$554.3 billion, of which \$357.3 billion will be incurred by the private sector.¹⁵ This estimate, however, is useful solely as a lower parameter of environmental capital demand because it accounts for the costs

9. *Id.* at 124.

10. *Id.* at 125.

11. *Id.* For example, had worker productivity maintained the annual rate of growth experienced during the 1950-1967 period, the GNP would be 20% higher than present.

12. *Id.*

13. *Id.* at 133.

14. For a detailed discussion of America's capital requirements, see Whitney, *supra* note 2, at 43-44. The New York Stock Exchange forecasts a capital gap of \$650 billion during the 1974-1985 period, not counting environmental capital requirements.

15. COUNCIL ON ENVIRONMENTAL QUALITY, ENVIRONMENTAL QUALITY: THE EIGHTH ANNUAL REPORT OF THE COUNCIL ON ENVIRONMENTAL QUALITY 334 (1977). This estimate is expressed in terms of 1976 dollars and thus does not reflect cost increases resulting from inflation.

of only seven of the many federal environmental programs and none of the state or local environmental regulations.¹⁶ To comprehend fully the scope of the capital demand caused by environmental regulation, the scope and stringency of recent environmental legislation must be examined.

THE ENVIRONMENTAL CONTEXT—THE TREND TOWARD STRICTER AND MORE COSTLY REGULATIONS

Since the end of World War II, environmental regulation in the United States has increased in the number of laws and regulations, the scope of protection, and the stringency of standards. Although the quality of the environment undoubtedly would be worse absent these laws and regulations, nearly all major environmental programs have fallen short of mandatory statutory goals. For purposes of cost assessment, environmental laws may be classified into two basic categories: programs of comparatively long-standing duration that have been amended recently to strengthen their provisions, to achieve more stringent standards, or to include additional environmental objectives; and totally new programs regulating activities affecting the environment that formerly have not been the object of federal regulation.

*Long-Established Environmental Programs*¹⁷

Major federal air pollution control legislation dates from 1955¹⁸

16. For example, the estimate does not include the cost of regulation of, *inter alia*, pesticides, toxic substances, and hazardous waste; nor does it include the cost of protecting occupational safety and health, nor protection against consumer hazards.

17. The Federal Water Pollution Control Act, 33 U.S.C.A. §§ 1251-1376 (West 1978), and the Clean Air Act in 1963. Pub. L. No. 88-206, 77 Stat. 392 (codified at 42 U.S.C.A. §§ 7401-7642 (West 1978)), best illustrate the cost augmentation tendency in American environmental programs. Accordingly, this discussion will be confined to these two important programs.

18. The first congressional action in this area consisted of an Act to provide research and technical assistance to state and local governments. Pub. L. No. 84-159, 69 Stat. 322 (current version at 42 U.S.C.A. § 7403 (West 1978)). This Act was supplanted by the enactment of the Clean Air Act in 1963. Pub. L. No. 88-206, 77 Stat. 392 (codified at 42 U.S.C.A. §§ 7401-7642 (West 1978)). Subsequent legislation on this subject, despite differing titles, constituted amendments to the Clean Air Act, including the Motor Vehicle Air Pollution Control Act, Pub. L. No. 89-271, tit. I, 79 Stat. 992 (codified at 42 U.S.C.A. § 7521-7525 (West 1978)); the Clean Air Act Amendments of 1970, Pub. L. No. 89-675, 80 Stat. 954 (codified at 42 U.S.C.A. § 7405 (West 1978)); the Air Quality Act of 1967, Pub. L. No. 90-148, 81 Stat. 485 (codified in scattered sections of 42 U.S.C.); the Clean Air Amendments of 1970, Pub. L. No. 91-604, 84 Stat. 1676 (codified in scattered section of 42 U.S.C.); the Energy Supply and Environmen-

and was amended most recently in 1977.¹⁹ During the early seventies, the Environmental Protection Agency (EPA) undertook to achieve the national primary and secondary air quality standards²⁰ established pursuant to the provisions of the 1970 Clean Air Amendments.²¹ By the mid-1970s, the EPA became aware that these standards would not be achieved even as to the six air pollutants on which the agency had focused its primary regulatory attention.²² In response to this failure, Congress enacted *Subpart D, Plan Requirements for Nonattainment Areas* as a part of the 1977 Clean Air Act Amendments.²³ This provision requires areas not attaining the national ambient air quality standards to promulgate a plan for the attainment of these standards by December 31, 1982. It also requires the issuance of permits for the construction of new or modified stationary sources of pollution upon a showing that such new sources will not contribute to emissions in excess of the national standards.

In addition, Congress undertook to address new air quality problems, including the prevention of significant deterioration of air quality in areas possessing air cleaner than that required by secondary standards,²⁴ the protection of visibility in certain national parks and wilderness areas,²⁵ and ozone protection.²⁶ Thus, the 1977 amendments not only increased the regulatory pressure to attain long-established air quality goals, thereby increasing the cost of attainment, but also substantially expanded the scope of clean air goals. The cost consequences of these expanded goals have not been considered and are unknown.

The history of clean water legislation parallels that of the clean

tal Coordination Act of 1974, Pub. L. No. 93-319, 88 Stat. 246 (codified in scattered sections of 42 U.S.C.); and the Safe Drinking Water Amendments of 1977, Pub. L. No. 95-190, 91 Stat. 1393 (codified in scattered sections of 42 U.S.C.).

19. The Clean Air Act Amendments of 1977, Pub. L. No. 95-95, 91 Stat. 745 (codified in scattered sections of 42 U.S.C.).

20. National Primary and Secondary Ambient Air Quality Standards, 40 C.F.R. §§ 50.1-11 (1977).

21. 42 U.S.C.A. § 7409 (West 1978).

22. These six pollutants were sulphur, carbon monoxide, hydrocarbons, nitrogen oxides, photochemical oxidants, and suspended particulates.

23. Pub. L. No. 95-95, tit I, § 129(b), 91 Stat. 745 (codified at 42 U.S.C.A. §§ 7501-7508 (West 1978)).

24. 42 U.S.C.A. §§ 7470-7479 (West 1978).

25. *Id.* § 7491.

26. *Id.* §§ 7450-7459.

air legislation. Major federal water pollution control legislation dates from 1948²⁷ and also was amended extensively in 1977.²⁸ By 1972, the basic goals of the water pollution legislation²⁹ and the regulatory format³⁰ for addressing the problem of water pollution in the United States had been established. By the mid-1970s, Congress became convinced that additional provisions must be enacted to achieve these national goals. The result was the Clean Water Act of 1977, which placed the highest priority on regulation and prohibition of discharges of toxic pollutants.

The basic philosophy of the Act is that any discharge of any pollutant is objectionable and should be regulated.³¹ A discharge is especially objectionable if the pollutant is toxic or if it harms aquatic life.³² But even if it is nontoxic and has not been shown to

27. The first legislation in this area was the Water Pollution Control Act, Pub. L. No. 845, 62 Stat. 1155 (current version at 33 U.S.C.A. §§ 1251-1376 (West 1978)). Prior to 1977, all legislation on this subject constituted amendments to this Act, including the Water Pollution Control Act Amendments of 1956, Pub. L. No. 660, 70 Stat. 498; the Federal Pollution Control Act Amendments of 1961, Pub. L. No. 87-88, 75 Stat. 204; the Water Quality Act of 1965, Pub. L. No. 84-234, 79 Stat. 903; the Clean Water Restoration Act of 1966, Pub. L. No. 89-753, 80 Stat. 1246; and the Federal Water Pollution Control Act Amendments of 1972, Pub. L. No. 92-500, 86 Stat. 876.

28. The Clean Water Act of 1977, Pub. L. No. 95-217, 91 Stat. 1566 (codified in scattered sections of 33 U.S.C.).

29. Section 101 of the Federal Water Pollution Control Act Amendments of 1972, Pub. L. No. 92-500, 86 Stat. 816, established as "national goal[s]" the achievement of a level of water quality that provides for the protection and propagation of fish, shellfish, and wildlife and for recreation in and on the water by July 1, 1983; and the elimination of the discharge of pollutants into navigable waters by 1985.

30. The regulatory format established by the Federal Water Pollution Control Act Amendments of 1972 includes the establishment of technology-based effluent limitations for both existing and new industrial facilities, 33 U.S.C. § 1311(b)(1)(A) (1976), effluent limitations for publicly owned treatment works, *id.* (b)(1)(B), with a system of pretreatment requirements for industrial users of such works, *id.* § 1317(b), water quality based effluent limitations to all discharges into certain waterways, *id.* § 1312, all of which is controlled by a nationwide discharge permit program bolstered by inspection, monitoring, and enforcement powers to assure that discharges are made only pursuant to conditions imposed by the permit system. *Id.* §§ 1318-1319, 1341-1342, 1344-1345.

31. See 33 U.S.C.A. § 1251(a) (West 1978).

32. *Id.* (a)(2)-(3). The Act provides:

The term "toxic pollutant" means those pollutants, or combinations of pollutants, including disease-causing agents, which after discharge and upon exposure, ingestion, inhalation or assimilation into any organism, either directly from the environment or indirectly by ingestion through food chains, will . . . cause death, disease, behavioral abnormalities, cancer, genetic mutations, physiological malfunctions (including malfunctions in reproduction) or physical deformations, in such organisms or their offspring.

harm aquatic life, a pollutant is nonetheless objectionable and must be regulated by means of the discharge permit system.³³ With respect to toxic or "priority" pollutants, the 1977 Act established a three-tiered regulatory system. The first tier consisted of technology-based effluent limitations on toxic substances, similar to those already used to regulate "conventional" pollutants,³⁴ and of treatment standards for industrial discharges into publicly owned treatment works.³⁵ Secondly, the legislation authorized segment-by-segment water quality regulation of waterways, which imposes more stringent effluent limitations when necessary to protect aquatic life.³⁶ Finally, the Act adopted a chemical-by-chemical approach that requires formulation of stringent pollution limitations, including zero discharge for toxic pollutants that may cause death, disease, cancer, genetic mutations, malfunctions, or deformities in any organism that may be exposed to the pollutant.³⁷

Thus, successive amendments to the relatively long-established environmental programs have resulted in increasingly stringent standards. In the case of air quality, the first goal is to attain and maintain primary standards necessary to protect public health and to meet secondary standards necessary to protect the public from any known or anticipated adverse effects associated with the presence of such pollutants in the ambient air.³⁸ In the case of water quality, Congress established by the 1972 Act a mandatory progression from the best practical control technology currently available to the best available technology economically feasible that will further the national goal of eliminating all discharges of pollutants.³⁹

Id. § 1362(13).

33. *Id.* §§ 1342-1345.

34. 33 U.S.C. § 1311(b)(1)(A) (1976); *see* 40 C.F.R. §§ 401.10 to 460.12 (1977). "Conventional" pollutants include organic carbon, dissolved solids, and suspended non-filterable solids.

35. 33 U.S.C.A. § 1317(b) (West 1978); *see, e.g.*, 40 C.F.R. §§ 405.14, 405.16, 405.24, 405.26, 405.34, 405.36 (1977).

36. 33 U.S.C. § 1312 (1976).

37. 33 U.S.C.A. §§ 1311(b)(2)(A), 1317(a)(2) (West 1978); Toxic Pollutant Effluent Standards, 40 C.F.R. §§ 129.1-105 (1978).

38. 42 U.S.C. § 7409(b)(1)-(2) (1976).

39. 33 U.S.C.A. § 1311(b) (West 1978).

*Newly Established Environmental Protection Programs*⁴⁰

In addition to buttressing existing environmental regulations, Congress has established a variety of new environmental goals. These new environmental protection programs will contribute significantly to the increased cost of environmental regulation.

The Toxic Substances Control Act,⁴¹ effective January 1, 1977, established a regulatory scheme whereby the EPA will obtain from the chemical industry adequate data of the effect on the health and environment of all "chemical substances" manufactured or processed in the United States. The EPA then will regulate the production and use of those substances that present an unreasonable risk of injury to health or the environment.⁴² Implementation of this Act by the EPA will be done in three stages. The EPA is presently compiling an inventory of chemicals manufactured or processed in the United States, or imported into the United States in bulk or in mixtures. This inventory is to be based on reports filed with the EPA by manufacturers, processors, and importers of chemical substances on or before June 30, 1978. As of January 1, 1978, production records of these reported substances must be kept.⁴³

Chemical substances that are not reported by the deadline will not be included in the inventory of existing chemicals and will be subject then to premanufacturing notification requirements. Before unlisted chemicals, or listed chemicals that are being used in a substantially new way, can be sold in commerce, the EPA must be given ninety days "premanufacturing notification" to provide time for evaluation of the new chemical or new use before marketing is lawful.⁴⁴ The EPA can extend this ninety-day period for an addi-

40. This discussion will be confined primarily to the Toxic Substances Control Act of 1976, 15 U.S.C. §§ 2601-2629 (1976), and the Resource Conservation and Recovery Act, Subchapter III, 42 U.S.C. §§ 6921-6931 (1976).

41. 15 U.S.C. §§ 2601-2629 (1976).

42. *Id.* § 2601(b).

43. *Id.* § 2607; see Toxic Substance Control—General Provisions and Inventory Reporting Requirements, 42 Fed. Reg. 13130 (1977) (to be codified at 40 C.F.R. §§ 700, 710). The EPA extended informally the deadline for inclusion of products on the inventory until June 30, 1979. On April 12, 1977, the EPA published a "candidate list" of chemical substances to be included in the inventory, the purpose of which was to simplify reporting and listing of these substances by use of code numbers. 42 Fed. Reg. 19298 (1977). See also 42 C.F.R. 21639 (1977).

44. 15 U.S.C. § 2604(a)(1) (1976).

tional ninety days for good cause shown.⁴⁵ This premanufacturing notification must include extensive descriptive data and, in certain circumstances, detailed test data.⁴⁶ Prior to forty-five days before the expiration of the notification period, the EPA is empowered to require additional data and can prohibit or limit manufacture, distribution, use, or disposal of the substance pending acquisition of what it considers to be adequate data.⁴⁷

The second phase of implementation involves scrutiny of the completed inventory by a committee of appointees from various federal agencies to set a priority list of substances for which testing requirements should be established.⁴⁸ The priority given each substance is to be determined by the quantity in which the substance is or will be manufactured; the quantity in which it enters the environment; the extent to which humans are exposed to the substance either in its manufacture or use; and the likelihood that the substance will prove to be dangerous.⁴⁹ Based on the recommendations of this committee, the EPA may compel testing of a substance by the manufacturer or processor to determine its effects on the environment or health. Such testing may be directed upon a showing that the substance may create an unreasonable risk to health or to the environment; that there is substantial human or environmental exposure to the substance; that there is insufficient data to determine or forecast the effects of the substance on health or the environment; and that testing is necessary to develop such data.⁵⁰

The EPA also has authority to require the manufacturer or processor of a chemical substance to maintain records and to report on the categories of use of the substance, the quantity manufactured for each use, the number of workers exposed to the substance, and

45. *Id.* (c).

46. *Id.* (b).

47. *Id.* §§ 2604(d), 2607(a)(2)(A)-(D),(F)-(G).

48. *Id.* § 2603(e). The committee consists of members from the EPA, sections of the Department of Labor engaged in activities under the Occupational Safety and Health Act, the National Institute for Occupational Safety and Health, the National Institute of Environmental Health Sciences, the National Cancer Institute, the National Science Foundation, the Department of Commerce, and the Council On Environmental Quality. *Id.* (e)(2)(A).

49. *Id.* (e)(1)(A).

50. *Id.* (a)(1)(A)-(B). On January 31, 1978, the EPA promulgated in the Federal Register specific testing requirements for four substances and six categories of substances given high priority by the Toxic Substances Control Act Interagency Testing Committee. 43 Fed. Reg. 4073 (1978) (to be codified at 40 C.F.R. §§ 730.1-.8).

the duration of exposure.⁵¹ This information is necessary in order to set priorities among substances on the chemical inventory for the establishment of testing requirements. The EPA also can require reports concerning by-products of the manufacture, processing, use, or disposal of the substance, and including all existing data on the environmental or health effects of this substance.⁵²

The final stage in the implementation of the Act arises when evaluation of data submitted by the manufacturer or processor, or data developed by the testing requirements of the EPA, indicates that a substance creates an unreasonable risk to health or the environment. In such circumstances, the EPA can exercise its rulemaking power to ban, limit, or restrict the use, transport, or disposal of the chemical substance.⁵³ The EPA also can order the imposition of stringent labelling, notice, and recordkeeping requirements;⁵⁴ require changes in manufacturing processes; and direct recalls or repurchases of products.⁵⁵ This relief may be sought against specific manufacturers, processors, or distributors by means of a civil action in federal district court.⁵⁶ If rulemaking could not protect against the risk due to the imminent nature of the threat, the EPA can issue a proposed rule prohibiting the manufacture, processing, or distribution of the substance, which would take effect upon its publication in the Federal Register;⁵⁷ issue a proposed order effective on the expiration of the premanufacturing notice period;⁵⁸ or seek an injunction in federal district court.⁵⁹

This regulatory scheme imposes significant costs on the manufacturer at each stage of the implementation process. The costs of recordkeeping, reporting, and performing the required tests on the chemical substances must be borne by the manufacturer or processor. In addition, the manufacturer must bear the expense of participation in the rulemaking proceedings and hearings before the EPA, or of defending civil actions in the federal courts.

51. *Id.* § 2607(a)(2)(B)-(C), (F).

52. *Id.* (D)-(E).

53. *Id.* § 2605(a)(1)-(2), (5)-(6).

54. *Id.* (3)-(4).

55. *Id.* (b).

56. *Id.* § 2606.

57. *Id.* § 2604(f)(2).

58. *Id.* (3)(A)(i).

59. *Id.* (ii).

Yet another potentially costly piece of recent environmental legislation is Subchapter III of the Solid Waste Disposal Act, enacted as a part of the Resource Conservation and Recovery Act of 1976.⁶⁰ The program was intended to protect the environment from improper disposal of hazardous wastes.⁶¹ The EPA estimates that in 1976, municipal trash and garbage approximated 145 million tons, industrial wastes about 260 million tons, mining wastes 1.7 billion tons, agricultural wastes 2.3 billion tons, and sewage sludge some 5 million tons.⁶² All of these categories of waste contain hazardous materials that adversely affect the environment in many ways, including the leaching of hazardous substances into groundwater aquifers and discharge of pollutants into the air and water. The EPA forecasts that the tonnage of hazardous waste will increase by thirty percent in the next decade, due largely to the implementation of other environmental strategies that have diminished and increasingly will reduce emissions into the air, waterways, and oceans, but that result in solid wastes.⁶³ Increased population and a corresponding increase in consumption and the growth of agricultural, mining, and manufacturing activity undoubtedly will increase substantially the total amount of solid waste and hazardous waste that must be disposed of in an environmentally acceptable manner. The Hazardous Waste Management program first attempts to identify and list substances constituting hazardous waste.⁶⁴ The program then requires the EPA to promulgate performance standards applicable to generators of hazardous wastes,⁶⁵ transporters of such wastes,⁶⁶ and owners or operators of treatment, storage, or disposal facilities.⁶⁷ These standards relate to recordkeeping; use of appropriate containers with proper labeling for storage of wastes; use of a manifest system to ensure the proper transport of the waste materials; the location, design, and construction of waste treatment, storage, or disposal facilities; the development of contingency plans to minimize unanticipated damage from such facilities; and requirements

60. Pub. L. No. 94-580, 90 Stat. 2795 (codified at 42 U.S.C. §§ 6901-6987 (1976)).

61. 42 U.S.C. § 6902 (1976).

62. *Implementing the Resource Conservation and Recovery Act of 1976, EPA Release: Words into Deeds* (August, 1977); see [1976] U.S. CODE CONG. & AD. NEWS 6253.

63. *Id.*

64. 42 U.S.C. § 6921 (1976).

65. *Id.* § 6922.

66. *Id.* § 6923.

67. *Id.* § 6924.

as to ownership, continuity of operation, training for personnel, and financial responsibility of such facilities.⁶⁸

The program also requires each person owning or operating a waste treatment, storage, or disposal facility to secure a permit from the EPA. In order to obtain this permit, the applicant must furnish information concerning the composition, quantity, and concentrations of the hazardous waste to be disposed of; the frequency, time, or rate of disposal, treatment, transport, or storage; and the location where the waste is treated, disposed of, stored, or transported to.⁶⁹ The statute provides for enforcement by both civil compliance orders and criminal penalties.⁷⁰

Once the foregoing regulatory provisions have been established, any person generating or transporting hazardous waste, or owning or operating a facility for treatment, disposal, or storage, must file a "preliminary notification" within ninety days with the EPA, or corresponding state agency if there is an approved state program. This notification must state the location and general description of the activity and list the hazardous wastes handled. Without this notification, no identified hazardous waste may be transported, treated, stored, or disposed of.⁷¹

This description of these new regulatory programs illustrates that compliance with both the Toxic Substances Control Act and the Hazardous Waste Management Program will be very costly. These added costs underscore the need to devise a means for the private sector to finance the capital expenditures necessary to comply with the broad range of environmental programs.⁷² This environmental capital is in addition to, and to a great extent competitive with, the "conventional" demand for capital. The availability of capital to meet the progressively stricter environmental requirements will af-

68. See notes 63-65 *supra*.

69. 42 U.S.C. § 6925 (1976).

70. *Id.* § 6928.

71. *Id.* § 6930.

72. In addition to new programs and the expansion of existing programs, environmental costs also can be significantly increased by the exercise of agency discretion. For example, the EPA in 1978, proposed a more stringent National Ambient Air Quality Standard for photochemical oxidants. 43 Fed. Reg. 26962 (1978). The EPA estimated that the cost of meeting this new and stricter standard would be between \$6.9 and \$9.5 billion per year. The Council on Wage and Price Stability, however, concluded that a more accurate estimate of the cost would be between \$14.3 and \$18.8 billion per year. *Review Group, Council on Wage and Price Stability* 2 (Oct. 16, 1978).

fect the amount of conventional business investment in the means of production and thus the performance of the economy as a whole.

Although protection of public health and the environment is an important national goal, there is little doubt that the regulatory schemes to attain these goals have not been conducted in a manner designed to minimize the adverse economic impact of these programs. Increasing attention has been devoted to analyzing the economic impact of government programs. The proliferation of laws and regulations governing health, safety, and pollution control has been identified as a significant impediment to productivity growth.⁷³ Various efforts have been undertaken to monitor federal regulatory activity, including environmental regulation, to eliminate wasteful overregulation and to minimize the cost and inflationary impact of government regulation. To date these efforts have proven ineffective.⁷⁴

The cost of environmental regulation, including the required expenditures on capital equipment to meet environmental standards and the added expense attributable to overregulation, has had a significant overall impact on the nation's economy. In 1976, the Council on Environmental Quality attempted to assess the economic impact of environmental regulation. It forecasted that in 1983, the Consumer Price Index will be four percent higher than if environmental costs were absent.⁷⁵ The gross national product will

73. Studies have shown that such laws and regulations reduced the growth of labor productivity by 0.26 percent in the 1969-1975 period and by 0.47 percent in the 1973-1975 period. Denison, *Effects of Selected Changes in the Institutional and Human Environment Upon Output Per Unit*, 58 SURVEY OF CURRENT BUS. 21-44 (January, 1978).

74. For example, the Council on Wage and Price Stability was created within the Executive Office of the President and was authorized to intervene in governmental rulemaking and rulemaking proceedings to assess the economic impact of such regulation. Council on Wage and Price Stability Act, Pub. L. No. 93-387, 88 Stat. 750. The Regulatory Analysis Review Group within the Council, however, lacks power to do more than study and report on a limited number of especially profligate regulatory activities. *Id.* § 3(a).

President Carter issued an executive order entitled *Improving Government Regulations*, which attempts to eliminate unnecessary burdens on the economy caused by excessive or unclear government regulations by requiring an economic analysis of regulations identified as "significant." Executive Order 12044, 43 Fed. Reg. 12661 (1978). A regulation is deemed significant if it results in an annual effect on the economy of \$100 million or more, or a major increase in costs or prices for individual industries, geographical regions, or levels of government. *Id.* § 3(a). The effectiveness of this order in curbing unnecessary federal regulation is as yet undetermined.

75. COUNCIL ON ENVIRONMENTAL QUALITY, ENVIRONMENTAL QUALITY: THE SEVENTH ANNUAL REPORT OF THE COUNCIL ON ENVIRONMENTAL QUALITY 148 (1976).

be 2.2 percent lower due to the effects of environmental regulation, the Council predicted,⁷⁶ and the interest rate on new issues of corporate bonds will be slightly more than one percent higher than would otherwise be expected.⁷⁷ Unless a means to lessen the adverse impact of environmental regulation on the private sector is found, the nation's economic performance clearly will continue to fall short of its potential.

SPECIAL TAX PROVISIONS FOR FINANCING POLLUTION CONTROL

Congress has recognized that federal tax legislation offers one important means of enabling the private sector to form the capital necessary to comply with the foregoing environmental requirements.⁷⁸ The earliest congressional recognition of the need for tax concessions to help finance acquisition of pollution control facilities was demonstrated in 1968 when, although it eliminated the tax exempt treatment of most industrial development bonds under section 103 of the Internal Revenue Code, Congress nonetheless continued tax exempt treatment for bonds to finance pollution control facilities.⁷⁹

In the Tax Reform Act of 1969, Congress enacted section 169 of the Internal Revenue Code, which authorized a five year deduction for qualifying pollution control facilities.⁸⁰ When Congress reenacted the investment tax credit provisions in 1971, however, it imposed a choice between use of the investment credit and the accelerated depreciation provision.⁸¹ The result was that election of normal depreciation and the investment credit was more beneficial than rapid amortization under section 169.

76. *Id.* at 150.

77. *Id.* As bad as these predictions appear, they are subject to the same factors leading to understatement noted with respect to the Council's forecast for pollution control expenditure. See notes 17-20 *supra* & accompanying text.

78. There are two basic approaches to forming the capital necessary to finance mandated environmental goals: (1) some form of federal assistance, e.g., grants, subsidies, tax incentives, or "tax expenditures" of various kinds; or (2) "internalization" of environmental costs by inclusion of the environmental increment into the pricing of goods and services to the consumer. For a discussion of the unsoundness of the latter approach and the related question of what form federal action should take, see Whitney, *supra* note 2, at 47-51.

79. Revenue and Expenditure Control Act of 1968, Pub. L. No. 90-364, § 107, 82 Stat. 266 (codified at I.R.C. § 103).

80. Pub. L. No. 91-172, § 704, 83 Stat. 667 (codified at I.R.C. § 169).

81. Revenue Act of 1971, Pub. L. No. 92-178, § 104(f), 85 Stat. 502 (current version at I.R.C. § 48(a)(8)).

Congress attempted to correct this situation in the Tax Reform Act of 1976 by permitting taxpayers to elect the five-year deduction and to receive an environmental investment credit of fifty percent of the conventional investment credit or five percent.⁸² In virtually every instance, however, normal depreciation and the full investment tax credit were more beneficial to taxpayers, with the result that the accelerated depreciation and environmental credit were rarely used and thus did not achieve the purpose Congress intended.

The Revenue Act of 1978 partially corrected this difficulty by amending the Code to permit five-year amortization and the ten percent environmental investment tax credit.⁸³ Unfortunately, Congress adopted the House version of the bill,⁸⁴ which provides that to the extent that qualifying property is financed by the proceeds of industrial development bonds within the meaning of section 103(b)(2), the interest on which is tax exempt, such property shall be eligible for only half of the ten percent investment credit.⁸⁵

NEEDED FURTHER TAX REFORM TO FINANCE POLLUTION CONTROL

During the upcoming session, Congress should consider further tax measures to help form the capital necessary to finance the expenditures required to meet environmental goals. Given the magnitude of the combined environmental and conventional capital requirements, Congress should adopt a policy of maximizing the capital formation capability of the private sector through further reform of the tax structure. Such a policy can best be achieved by enactment of several amendments to the Internal Revenue Code.

Congress should reconsider the position it adopted when it accepted the House version of the Revenue Act of 1978, which accords only a five percent environmental investment credit to property financed by tax exempt industrial development bonds.⁸⁶ Pollution control bonds are an important source of capital for industry, comprising about eighty percent of all industrial development bonds.⁸⁷ The tax exempt interest feature is attractive to large investors and

82. Pub. L. No. 94-455, § 212, 90 Stat. 1905 (current version at I.R.C. § 46(c)(5)).

83. Pub. L. No. 95-600, § 313, 92 Stat. 2826 (codified at I.R.C. § 46(c)(5)).

84. See H.R. CON. REP. No. 95-1800, 95th Cong., 2d Sess. 225, *reprinted in* [1978] U.S. CODE CONG. & AD. NEWS 7190, 7226-27.

85. I.R.C. § 46(b)(5)(B).

86. See notes 89-90 *supra*.

87. Transcript of Senate Finance Committee Hearing (Sept. 27, 1978).

results in a greater demand for the bonds and thus a lower interest rate, and lower cost of capital to meet pollution control requirements. The present provision limits the use of these bonds by forcing industry to elect between the benefits of the lower interest rates on these bonds and use of the investment tax credit. Accordingly, Congress should repeal this provision and adopt the position previously approved by the Senate, which would provide the full ten percent environmental investment credit regardless of the source of the capital.⁸⁸

Given the magnitude of the forecasted capital gap during the next five years,⁸⁹ Congress should increase substantially the amount of the environmental investment tax credit. This capital gap will impair significantly the ability of the American economy to attain the level of productivity necessary to contain inflation and unemployment, and also to realize the national environmental objectives. For Congress to enact stringent and costly environmental goals and then ignore the problem of generating the economic resources to achieve these goals without serious adverse effect on the national economy is irresponsible. Thus, Congress should fix the level for the environmental investment credit at a minimum of twenty percent and should devise a sliding scale system whereby the amount of credit can be increased if necessary without recourse to legislation.⁹⁰

One of the most important reforms that Congress should adopt is a simplified and more comprehensive definition of the facilities that qualify for the environmental tax credit. The present definition is unnecessarily complex and restrictive.⁹¹ In order to obtain the in-

88. See S. REP. NO. 95-1263, 95th Cong., 2d Sess. 114, *reprinted in* [1978] U.S. CODE CONG. & AD. NEWS 6761, 6877.

89. See note 16 *supra* & accompanying text.

90. For discussion of the sliding scale concept, see Whitney, *supra* note 2, at 52-54. Enactment of § 312 of Tax Reform Act of 1976, which authorizes tax credit eligibility in 1982 up to 90 percent of the amount of tax due, is a step in the right direction toward maximizing capital supply. Section 312, which would authorize a tax credit exceeding \$25,000, is a start in this direction. Pub. L. No. 15-600, § 317, 92 Stat. 2824.

A good example of a provision that imposes an unjustified restriction is I.R.C. § 169(f), which provides that only assets with a 15 year or less life are eligible for accelerated depreciation. There is no defensible basis for such a restriction. Repeal of § 169(f) would render § 169(g) superfluous, and its repeal would contribute to the simplification of the Act.

91. I.R.C. § 169(d)(1) provides:

(d) Definitions.—For purposes of this section—

(1) Certified pollution control facility.—The term “certified pollution control facility” means a new identifiable treatment facility which is used, in connec-

vestment credit, the taxpayer must obtain federal certification that the facility serves to further federal pollution abatement policy⁹² and, in addition, must show that the facility does not significantly "increase the output or capacity, extend the useful life, or reduce the total operating costs of such plant or other property . . . or . . . alter the nature of the manufacturing or production process or facility."⁹³ Congress should amend this provision to allow a facility to qualify for the environmental investment credit if the "primary purpose" of the facility is to comply with an identified federal pollution control requirement. This can be accomplished simply by deleting the language in the present definition requiring a showing that the facility does not improve the efficiency of the manufacturing process significantly. Such a reform would eliminate the unnecessary complexities of attempting to determine the secondary effects of pollution facilities on the manufacturing process. By eliminating this source of doubt as to the qualification of a proposed pollution treatment facility for the tax credit, Congress would encourage investment in such treatment facilities.

In addition, Congress should broaden the untenable definition of

tion with a plant or other property in operation before January 1, 1976, to abate or control water or atmospheric pollution or contamination by removing, altering, disposing, storing, or preventing the creation or emission of pollutants, contaminants, wastes, or heat and which—

(A) the State certifying authority having jurisdiction with respect to such facility has certified to the Federal certifying authority as having been constructed, reconstructed, erected, or acquired in conformity with the State program or requirements for abatement or control of water or atmospheric pollution or contamination;

(B) the Federal certifying authority has certified to the Secretary (i) as being in compliance with the applicable regulations of Federal agencies and (ii) as being in furtherance of the general policy of the United States for cooperation with the States in the prevention and abatement of water pollution under the Federal Water Pollution Control Act, as amended (33 U.S.C. 466 *et seq.*), or in the prevention and abatement of atmospheric pollution and contamination under the Clean Air Act, as amended (42 U.S.C. 1857 *et seq.*); and

(C) does not significantly—

(i) increase the output or capacity, extend the useful life, or reduce the total operating costs of such plant or other property (or any unit thereof), or

(ii) alter the nature of the manufacturing or production process or facility.

92. *Id.* (2)(B)(ii).

93. *Id.* (1)(C).

a "new identifiable treatment facility" found in the statute. The present definition is limited to tangible property and includes only those buildings which are exclusively treatment facilities.⁹⁴ These limitations not only lack policy justification but fail to achieve environmental goals in an economically optimal manner. The credit should be available not only for pollution abatement equipment and buildings that are entirely pollution abatement facilities, but also those serving multiple functions but the primary purpose of which is pollution control. If reform objectives are to be realized, the credit should extend to environmentally designed production facilities and processes as well. In the future, when the national air and water quality goals have been reached, the predominant regulatory objective will be the maintenance of these standards. With anticipated growth in population and industrial activity, air and water quality maintenance objectives will be feasible only through fundamental redesign of many plants and processes. Extension of investment credits for plants would provide a needed stimulus to phase out existing operations that are costly and not optimally feasible to modify, and to replace these with environmentally designed plants better capable of achieving future standards at acceptable maintenance and operation cost levels. The incremental cost of achieving higher levels of environmental purity mounts steeply as stricter goals are met and maintained. Thus, in the long run, conversion to

94. I.R.C. § 169(d)(4) provides:

(4) New identifiable treatment facility.—

(A) In general.—For purposes of paragraph (1), the term "new identifiable treatment facility" includes only tangible property (not including a building and its structural components, other than a building which is exclusively a treatment facility) which is of a character subject to the allowance for depreciation provided in section 167, which is identifiable as a treatment facility, and which is property—

(i) the construction, reconstruction, or erection of which is completed by the taxpayer after December 31, 1968, or

(ii) acquired after December 31, 1968, if the original use of the property commences with the taxpayer and commences after such date.

In applying this section in the case of property described in clause (i) there shall be taken into account only that portion of the basis which is properly attributable to construction, reconstruction, or erection after December 31, 1968.

(B) Certain plants, etc., placed in operation after 1968.—In the case of any treatment facility used in connection with any plant or other property not in operation before January 1, 1969, the preceding sentence shall be applied by substituting December 31, 1975, for December 31, 1968.

plants and processes that have been designed to achieve a high degree of environmental protection will be cheaper than continuing to modify existing plants to meet and maintain increasingly stricter standards.

The present tax law limits credits to pollution control facilities that are required in order to comply with the Federal Water Pollution Control Act or with the Clean Air Act.⁹⁵ To be fully effective, tax credits should be available for any control facility or abatement procedure required by federal law. The rationale for providing tax credit relief for investment to meet air and water requirements while failing to provide comparable relief with regard to noise, toxic substances, pesticides, and other congressionally regulated areas of environmental concern is difficult to discern. Thus, Congress should adopt not only the "primary purpose" rule but should broaden the basis of eligibility to encompass pollution control expenditures resulting from compliance with any federal environmental law.

Finally, the restriction in the environmental investment credit provisions that the facility must be a part of, or used in connection with, plants or other property in operation before January 1, 1976, should be removed.⁹⁶ As noted earlier, the key to effective environmental reform is a comprehensive plan designed to effect reforms in existing industrial facilities and practices. Of equal importance, however, is a plan to provide incentives for utilization of the best available technologies and design in new industrial facilities in order to avert pollution problems in the future. By making these credits available to new industrial facilities, Congress would be reducing the start-up capital costs of new industry, thereby encouraging expanded productive capacity and employment in the general economy. Congress therefore should amend section 169 of the Internal Revenue Code to eliminate these qualifying dates.

CONCLUSION

Powerful economic constraints arising from conditions in the world and American economies necessitate a "new realism" on the part of Congress. This "new realism" must recognize that enactment of progressively more stringent and comprehensive environmental goals is pointless unless Congress also addresses the issue of

95. *Id.* (1)(B)(ii).

96. *Id.* § 169(d)(1). See also *id.* § 169(d)(4).

how to finance the required pollution control measures. Failure to coordinate financing with pollution control programs not only will assure nonattainment of important national environmental goals but also will burden further an already beleaguered economy.

No single solution exists to provide the capital required to meet present environmental goals. Improved and increased environmental investment credits and accelerated depreciation measures are two of the principal methods Congress can employ effectively. To increase the effectiveness of these methods, Congress, working from the 1978 amendments, should enact several reforms of the tax code. Congress should adopt the "primary purpose" rule as described herein for purposes of identifying facilities qualifying for the environmental investment tax credit. Also, the definition of the qualifying facilities should be expanded to include investment the "primary purpose" of which is to comply with any federal environmental law. The environmental investment credit should be increased to twenty percent with a sliding scale procedure to increase the amount of credit to adjust to capital shortages. The various ill-advised provisions that would grant only a five percent credit to environmental investment produced by development bonds with tax free interest should be repealed.

Although these measures will not resolve the ongoing problem of financing pollution control, they constitute an indispensable first step. In the formulation of environmental legislation, Congress also must assess more carefully the feasibility and cost of attaining desired environmental goals rather than leaving economic impact-assessment to the implementing agencies. By tolerating over-regulation and mandating unattainable or economically unrealistic environmental goals, Congress not only overstrains an already troubled economy but significantly jeopardizes attainment of important environmental goals.