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AN EXAMINATION OF THE FEDERAL WATER POLLUTION CONTROL ACT AMENDMENTS OF 1972

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Introduction

On October 18, 1972 the Water Pollution Control Act Amendments of 1972 became law after both Houses of Congress, by almost unanimous action, overrode the President's veto.¹ The pros and cons of P.L. 92-500 and the politics of environment surrounding its passage will long be debated.² Although it has correctly been described as the major environmental legislation of the 92d Congress, and as the most far reaching legislative

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¹*Federal Water Pollution Control Amendments of 1972*, Pub. L. No. 92-500, 86 Stat. 816 (1972) [hereinafter cited as the '72 Act, the Act, or alternatively P.L. 92-500].

The House of Representatives overrode President Nixon's veto of P.L. 92-500 by a vote of 247 to 23 with 160 members not voting. 118 CONG. REC. H10272 (daily ed. Oct. 18, 1972). One day earlier the Senate overrode President Nixon's veto by a margin of 52 to 12 with 36 not voting. 118 CONG. REC. S18554 (daily ed. Oct. 17, 1972).

²The stage for this environmental drama was set in early 1970 when President Nixon, in his State of the Union Message, announced that ". . . the 1970's absolutely must be the years when America pays its debt to the past by reclaiming the purity of its air, its waters and our living environment. It is virtually now or never." The President went on to state that he was committed to putting "modern municipal treatment plants in every place in America where they are needed to make our waters clean again, and to do it now." 118 CONG. REC. H10267 (daily ed. Oct. 18, 1972). In his February 1971 message on the environment, Mr. Nixon repeated his commitment to "adequate funds to insure construc-

attack on water pollution ever undertaken in this country,³ many serious problems of water pollution are only tangentially dealt with in the legislation.⁴ Also, if the lofty goals set by Congress are to be achieved, some Herculean and creative administrative efforts in the initial implementation stages will be required.⁵

Stripped of all verbiage, what Congress has done in P.L. 92-500 is very simple. First of all, and for the first time, Congress has declared water pollution illegal.⁶ That is implicit in the no-discharge goal in section

tion of municipal waste treatment facilities needed to meet water quality standards." *Id.* at H10268.

During the ensuing months the Senate Subcommittee on Air and Water Pollution, under the chairmanship of Senator Edmund Muskie (D. Me.), then a leading contender for the presidential nomination, was busy on its version of water pollution control legislation. On Nov. 2, 1971, the Senate passed the "Muskie" bill (S.2770) over some rather strong objections of the Nixon administration about excessive costs. In April of 1972 the House passed its version of the legislation which was somewhat more to the liking of the administration. The ultimate compromise was not satisfactory however, for the President vetoed P.L. 92-500 on October 17, 1972 describing it as a "staggering, budget-wrecking" piece of legislation. The issue to the President by 1972 was not who most wanted clean water but who most wanted to control inflation and on that issue he chose to "nail my colors to the mast. . . ." *Id.* at H10266.

Less than 24 hours later the Congress overrode the veto by large margins. Among the primary attacks on President Nixon's veto was the assertion that the bill was based on the administration's own estimate of construction needs. Congressman Dellums, (D. Cal.), in speaking against the veto, pointed out that President Nixon's attack on the cost appears to show he feels that "the need for clean water is less important than billion dollar handouts to Lockheed and Penn Central, less important than SST . . . and less important than the myriad of costly, unneeded defense boondoggles." *Id.* at H10270.

Despite the override, and in keeping with his prediction of using all possible means " . . . to put the brakes on budget-wrecking expenditures as much as possible," Mr. Nixon, on Nov. 28, 1972, directed EPA Administrator William Ruckelshaus to allocate for expenditures only \$5 billion of the \$11 billion authorized for construction grant assistance during the first 2 years of the Act. In a letter to Ruckelshaus, President Nixon said, "These amounts will provide for improving water quality and yet give proper recognition to competing national priorities for our tax dollars." 3 BNA ENVIRONMENTAL REG., Current Developments 879 (Dec. 1, 1972). The climax is yet to come, however, as at least four suits have been filed contesting the validity of the President's action and Congress has begun hearings on the impoundment issue. See note 64 and accompanying text *infra*.

³The rhetoric of Senators Randolph (D. W.Va.) and Tunney (D. Cal.) is typical: Sen. Randolph: ". . . the most comprehensive legislation ever developed in its field . . ."; 117 CONG. REC. S17403, (daily ed. Nov. 2, 1971); and Sen. Tunney: ". . . the most significant environmental bill to pass any legislature at any time in history." *Id.* at 17409.

⁴For instance, the non-point source problem is mentioned only twice in the Act and the protection of the groundwater environment is generally left to the states.

⁵For instance, EPA will be required to adopt at least thirty sets of complex regulations dealing with the many implementation provisions. See §§ 303-305 of the '72 Act.

⁶Prior legislative efforts, with the exception of the 1899 Refuse Act, 33 U.S.C. § 407

101; and although the regulatory machinery established in the Act is incapable of implementing this goal, it would be a mistake to regard the zero discharge concept as so much political rhetoric. This legislation represents a fundamental departure from former resource use policies and seems to reflect a conceptual difference with those who view the waste assimilative capacity of water as a resource to be utilized.⁷ Second, and in order to implement this basic decision that the nation's waters are not to be used for waste disposal, Congress established (a) a regulatory and enforcement strategy in the traditional administrative agency mold and (b) a system of subsidies to localities to permit them to achieve the goals of the Act.

To understand the legislation, a brief examination of the national water pollution program prior to the enactment of P.L. 92-500 is necessary. Following that the basic structure of the 1972 legislation will be examined. The reality and wisdom of the course chosen can best be debated by examining the nature of the pollution problem and by comparing the Congressional solution with a highly touted alternative which utilizes a system of effluent charges. A tentative conclusion is that although Congress is once again guilty of overpromise, the basic way in which it has proceeded is preferable to other suggested schemes. Finally, a few brief suggestions for effective implementation of the Act are offered.

A subsequent article will discuss various aspects of the construction grant provisions of the Act (Title II), potentially one of the most important portions of the legislation in terms of public expenditure and expected political impact. The present installment, concerned with more general aspects of the legislation, deals only tangentially with the municipal pollution problem, however.

et seq., which was not thought of as a pollution control statute when it was enacted, have all assumed that the use of watercourses to dispose of waste is an acceptable alternative to proper treatment or recycling. Even the purpose statement in the once highly touted Water Quality Act of 1965, 79 Stat. 903, "to enhance the quality and value of our water resources and to establish a national policy for the prevention, control and abatement of water pollution" was considerably "watered down" from its original form. S. 649, the bill which after some revision was finally enacted in 1965, declared it to be the "purpose of this Act to establish a positive national water pollution control policy of keeping waters as clean as possible as opposed to the negative policy of attempting to use the full capacity of such waters for waste assimilation." This matter is discussed further in the text accompanying notes 13 and 14 *infra*.

⁷Senator Muskie, the principal draftsman of the Act, left little room for uncertainty on this policy: "The use of any river, lake, stream, or ocean as a waste treatment system is unacceptable." 117 CONG. REC. S17397 (daily ed. Nov. 2, 1971). The National Water Commission is most vociferous in its criticism of P.L. 92-500 for this reason. REVIEW DRAFT—PROPOSED REPORT OF THE NATIONAL WATER COMMISSION 4-3 (1972) (hereinafter cited as NATIONAL WATER COMMISSION REPORT).

The National Pollution Program Prior to the 1972 Act

The national water pollution control program prior to the enactment of P.L. 92-500 was defined by two rather recent statutes: The Water Quality Act of 1965 and the Clean Water Restoration Act of 1966.⁸ For a time it looked as if the 1899 Refuse Act,⁹ that outstanding specimen of judicial archaeology, would become an integral part of the national water pollution program also. However, efforts of the Nixon administration to dust off the statute and utilize it as a regulatory device were frustrated first by administrative delay and ultimately by court action.¹⁰ At the time of enactment of P.L. 92-500 less than 20 of the estimated 40,000 Refuse Act permits had been issued.¹¹

One might properly ask why the need for major legislative overhaul

⁸The basic legislation is P.L. No. 84-660 approved July 9, 1956 and amended several times as follows: Federal Water Pollution Control Act Amendments of 1961 (Public Law 87-88) approved July 20, 1961; Water Quality Act of 1965 (Public Law 89-234) approved October 2, 1965; Clean Water Restoration Act of 1966 (Public Law 89-753), approved Nov. 3, 1966; Water Quality Improvement Act of 1970 (Public Law 91-224) approved April 3, 1970. The 1965 Act was P.L. No. 89-234 (Oct. 2, 1965) and the Clean Water Restoration Act was enacted as P.L. No. 89-753 (Nov. 3, 1966).

⁹33 U.S.C. §§ 407 *et seq.* (1899).

¹⁰President Nixon inaugurated the Refuse Act Permit Program (RAPP) by Executive Order 11574 on December 23, 1970. From its inception RAPP was unmanageable, requiring as it did the involvement of both the Corps of Engineers and EPA to process and issue permits to every industrial waste discharger in the nation. As of December 7, 1971, more than 19,000 applications had been filed but only 17 permits issued. 2 BNA ENVIRONMENTAL REP., Monograph No. 11 at 16 (Jan. 28, 1972). Complaints from industry about confusing and contradictory administrative directives were legion. Many environmentalists were not overly enthusiastic about the program either.

In addition to the administrative problems of RAPP, two court decisions further frustrated the program and ultimately sounded its death knell. The Court in *Kalur v. Resor*, 335 F. Supp. (D.D.C. 1971) held that the language of section 13 of the Refuse Act explicitly limits the issuance of permits to discharges in navigable water and that *no* discharge into non-navigable streams is permissible under the Act. RAPP's regulations purporting to allow the issuance of permits to non-navigable tributaries were held to be *ultra vires*, and in the Court's view represented an attempt to shield polluters who were in violation of the "clear" language of the Refuse Act.

A few months later the third Circuit in *United States v. Pennsylvania Industrial Chemical Corp.*, 461 F.2d 468 (3d Cir. 1972) held the defendant company could not be convicted of discharging without a permit when for 70 years no permits had been available. The Court reasoned that while the Refuse Act authorizes the conviction of one who discharges without a permit, it does not authorize such a conviction when no permit is available. These two decisions for all practical purposes ended RAPP's short life.

For a general discussion of the permit program see Rodgers, *Industrial Water Pollution and the Refuse Act: A Second Chance for Water Quality*, 119 U. PA. L. REV. 761 (1971), and Note, *The Refuse Act: Its Role within the Scheme of Federal Water Quality Legislation*, 46 N.Y.U.L. REV. 304 (1971).

¹¹See 2 BNA ENVIRONMENTAL REP., Monograph No. 11 (Jan. 28, 1972).

in less than ten years? Despite the rhetoric surrounding the 1965 Act, which at the time of passage was regarded as far reaching and providing the Federal government with the capability for effective action, the condition of the nation's waters during the ensuing period continued to deteriorate.¹²

Prior legislative attempts were deficient in several respects. The 1965 Act lacked any statement of far reaching goals. Though proclaiming a national policy for the prevention, control and abatement of water pollution,¹³ Congress never declared pollution illegal and in fact left open the possibility that utilization of the full waste assimilative capacity of watercourses was not unacceptable.¹⁴ Without the administrative patchwork of the now famous non-degradation policy, the Congressional action would have permitted existing high quality streams to be polluted so long as they were not reduced below stream standards.¹⁵ The 1965 proclamation of a national policy is even more doubtful when one examines the timid jurisdictional thrust of that legislation. The linchpin of the 1965 Act was the

¹²REPORT OF THE SENATE COMMITTEE ON PUBLIC WORKS, TOGETHER WITH SUPPLEMENTAL VIEWS TO ACCOMPANY S. 2770, S. REP. NO. 414, 92d Cong. 1st Sess. 47 (1971); See generally D. ZWICK & M. BENSTOCK, WATER WASTELAND, chs. 3 & 4 (1971) [hereinafter cited as ZWICK]; Statement by Senator Edmund Muskie, 117 CONG. REC. S17396-17398 (daily ed., Nov. 2, 1971); See also Statement by Senator Edmund Muskie, 118 CONG. REC. S16869 (daily ed., Oct. 4, 1972).

The National Water Commission while generally castigating the Congress for enacting P.L. 92-500 admits that "[i]t can be concluded . . . that pollution control efforts of the past decade have held or gained somewhat on oxygen-demanding wastes, but have steadily lost ground against most other pollutants." NATIONAL WATER COMMISSION REPORT at 4-9 (emphasis added).

¹³33 U.S.C. § 1151 (1965).

¹⁴See note 6 *supra* for the statement of purpose in the legislation as first introduced.

¹⁵In 1966 then Secretary of the Interior Stewart Udall issued certain controversial guidelines [U.S. DEPARTMENT OF INTERIOR, GUIDELINES FOR ESTABLISHING WATER QUALITY STANDARDS FOR INTERSTATE WATERS (1966)] allegedly to assist the states in their standard setting procedures. However, the guidelines in fact attempted to close the gap that Congress had failed to close. Guideline 1 provided that where otherwise high quality water existed, it could not be degraded or polluted down to stream standard. This policy, departing so radically from "traditional" views of waste water management, created a crisis between Government, the states, and industry. The traditional view of waste management, of course, was to maximize the use of the waste dilution and assimilative capacity of water. To his credit Secretary Udall adhered to his position and in fact reaffirmed it in 1968, [see 2 CCH Water Control News No. 38 (Feb. 5, 1968)]. However, to expect that the administrative process could make this policy stick without more enforcement power than Congress provided in the 1965 Act is not realistic. For a criticism of the legality of the Secretary's position, see Dunkelberger and Phillipps, *Federal-State Relationships in the Adoption of Water Quality Standards Under the Federal Water Pollution Control Act*, 2 NAT. RES. J. 47 (1969). For a more thoughtful approach to this entire issue see Hines, *Controlling Industrial Water Pollution: Color the Problem Green*, 9 B.C. IND. & COM. L. REV. 553, at 569-574 (1968). [hereinafter cited as Hines].

establishment of water quality standards on interstate as opposed to navigable waters.¹⁶ More than 90% of the nation's 26,000 water bodies are legally navigable while only some 4,000 are interstate.¹⁷ That Congress could have enacted this legislation based on the more inclusive criteria of navigability is unquestioned.¹⁸

Additionally, because of the two-fold decision to utilize a receiving water standard as the measure of performance as opposed to specific effluent limitations on waste dischargers, and to permit the various states to set these necessary water standards without any clear-policy guidelines, the 1965 Act lacked certainty, uniformity and finality.¹⁹ Basic enforcement was keyed to a violation of water quality standards which were to be established by the states and approved by the Secretary of Interior by 1967.²⁰ Yet final approval of standards submitted by many states was delayed far beyond that deadline because of state and federal bickering over the policy guidelines to be followed in the process of standard setting.²¹ Some earlier approved standards were subsequently re-evaluated by the Secretary and some states received only partial approval of their submissions.²² The impotency of the enforcement provisions of prior legislation is beyond question.²³ This lack of enforcement capability was likewise in large measure a result of the basic decision to adopt a stream standards approach.

The Clean Water Restoration Act of 1966²⁴ authorized a total federal

¹⁶33 U.S.C. § 1160(C) (1965).

¹⁷"By omitting this simple word [navigable], the 1965 amendments raised serious questions about the applicability of water quality standards to some of the Great Lakes and their tributaries; all rivers, streams, and lakes in Alaska, Hawaii, the Virgin Islands and Puerto Rico; international boundaries like the St. Lawrence, Niagara and Lower Colorado Rivers, and water flowing across the borders of the U.S. such as Lake Champlain in New York." ZWICK at 267.

¹⁸U.S. CONST. art. I, § 8(3), *See Gibbons v. Ogden*, 9 Wheat. 1 (1824); Morreale, *Federal Power in Western Waters; The Navigation Power and the Rule of No Compensation*, 3 NAT. RES. J. 1 (1963). *See also Dunkleberger, The Federal Governments Role in Regulating Water Pollution Under the Federal Water Quality Act of 1965*, 3 NAT. RES. J. 3 at 13 (1970) [hereinafter cited as DUNKLEBERGER].

¹⁹*See generally* 117 CONG. REC. S17398 (daily ed. Nov. 2, 1971); 118 CONG. REC. S16870 (daily ed. Oct. 4, 1972) (statements by Senator Muskie).

²⁰*Id.*

²¹Senate Report on S. 2770 *supra* note 12 at 4. *See also*, 117 CONG. REC. S17398 (daily ed. Nov. 2, 1971) (statement by Senator Muskie).

²²*See generally* DUNKLEBERGER at 6.

²³*Hearings on an Oversight of Existing Water Pollution Control Legislation Before the House Comm. on Public Works* 11, 92d Cong. 1st Sess. (1971). (statement by Elmer B. Statts). 117 CONG. REC. S17398 (daily ed. Nov. 2, 1971) (statement by Senator Muskie).

For the history of the enforcement provisions of prior legislation *see* DUNKLEBERGER at 3.

²⁴80 Stat. 1246 § 205 (approved Nov. 3, 1966).

expenditure of \$3.550 billion for assistance to localities in the financing of sewage treatment facilities. Yet the subsequent appropriations by Congress amounted to only \$2.2 billion.²⁵ The eligibility requirements for construction grant assistance were not well thought out and when the cumbersome statutory provisions were coupled with clumsy administration, the entire construction grant program resulted in a rather dismal failure.²⁶

Only a cursory examination of the prior law is needed to illustrate the deficiencies of the 1965 Act. However, by no means can all of the blame for water pollution problems which have occurred since 1965 be laid at Congress' doorstep. The administration of the 1965 Act by the states and the executive branch of the federal government was less than creative. Only a few months after the passage of that legislation, President Johnson's Reorganization Plan No. 2 transferred the Federal Water Pollution Control Administration to the Department of Interior.²⁷ Subsequently in 1970 the Nixon Administration transferred the entire program to the newly created Environmental Protection Agency (EPA).²⁸ These major reorganizations quite naturally further confused and frustrated efforts to develop and achieve clear administrative goals.²⁹

State programs, chronically weak and underfunded, suffered a barrage of complex and sometimes contradictory directives from the national government. Staff and budgetary requirements to implement the states' new responsibilities were staggering. Relations between state administrators on the one hand and the Federal Water Quality Administration (FWQA) on the other, while never free from tension, deteriorated to such an extent that cries of "states rights" were heard from both north and south. The very real threat of the FWQA to withhold federal funding for state programs and construction grants is perhaps the only thing that muted these cries short of interposition. All of this bickering led to additional frustration and "slippage"³⁰ in achieving any national goals.

²⁵117 CONG. REC. S17398 (daily ed. Nov. 2, 1971) (statement by Senator Muskie).

²⁶A. FREEMAN III, R. HAVEMAN, A. KNEESE, *THE ECONOMICS OF ENVIRONMENTAL POLICY* 118-121 (1973) [hereinafter cited as FREEMAN, HAVEMAN & KNEESE]; REPORT TO THE SUBCOMMITTEE ON AIR AND WATER POLLUTION OF THE COMMITTEE ON PUBLIC WORKS UNITED STATES SENATE by the COMPTROLLER GENERAL OF THE UNITED STATES, 91st Cong. 1st Sess., *OPERATION AND MAINTENANCE OF MUNICIPAL WASTE TREATMENT PLANTS* (Comm. Print 1969); ZWICK at Ch. 17.

²⁷3 C.F.R. 1966-1970 Comp. 1021.

²⁸3 C.F.R. 1966-1970 Comp. 1072.

²⁹Since its inception in 1966 the Administration has also had also had four departments heads spin through its revolving doors: James Quigley (1966-68); Joe Moore (1968-69); David Dominick (1969-70); William Ruckleshaus (1970-73). See Gillette, *Environmental Protection Agency: Chaos or "Creative Tension"?* 123 SCIENCE 703 (Aug. 20, 1971).

³⁰Slippage has developed as a word of art to explain delays and inaction within the bureaucracy (both state and federal).

It would unduly lengthen this report and serve no useful purpose to detail further the administrative problems surrounding the 1965 Act. In large measure the inordinate length of the '72 Act reflects a latent distrust of the administrative process, and the numerous statutory deadlines for administrative action represent an attempt to avoid much of the slippage which occurred after the 1965 legislation was enacted.

It was against this background of over promise, under achievement, deficient legislation and administrative confusion, that Congress passed P.L. 92-500.

A Summary of the 1972 Legislation

The '72 Act, although technically amending the Federal Water Pollution Control Act of 1965, for all practical purposes replaces all federal water pollution control statutes. Although the Act is massive, some 89 pages in length, and has an exhaustive legislative history,³¹ its basic structure is surprisingly logical. A close reading of a few of the major sections clearly reveals the thrust of the plan of regulation.³²

³¹*Hearings on H.R. 11896, H.R. 11895, Before the House Comm. on Public Works, 92d Cong., 1st Sess. (1971).*

CONFERENCE REPORT, FEDERAL WATER POLLUTION CONTROL ACT AMENDMENTS OF 1972, H.R. REP. NO. 1465, 92d Cong., 2d Sess. (1972).

REPORT OF THE HOUSE COMM. ON PUBLIC WORKS, ON H.R. 11896, H.R. REP. NO. 911, 92d Cong., 2d Sess. (1972).

Hearings S. 75, S. 192, S. 280, S. 523, S. 573, S. 601, S. 679, S. 927, S. 1011, S. 1012, S. 1013, S. 1014, S. 1015, and S. 1017 Before the Subcomm. on Air and Water Pollution of the Senate Comm. on Public Works, 92d Cong., 1st Sess., Pts. 1-9 (1971).

Hearings on Proposed Amendments to Existing Water Pollution Control Legislation Before the House Committee on Public Works, 92d Cong., 1st Sess. (1971).

REPORT OF THE SENATE COMMITTEE ON PUBLIC WORKS, TOGETHER WITH SUPPLEMENTAL VIEWS TO ACCOMPANY S. 2770, S. REP. NO. 414 92d Cong., 1st Sess. (1971).

House Floor Debate on Amendments to H.R. 11896, 118 CONG. REC. H2478-2546 (daily ed., Mar. 27, 1972).

Senate Floor Debate on S. 2770, 117 CONG. REC. S17396-17464 (daily ed., Nov. 2, 1971).

Id. H2548-2647 (daily ed., Mar. 28, 1972).

Id. H2718-2773 (daily ed., Mar. 29, 1972).

Senate Override of Nixon Veto of S. 2770 118 CONG. REC. S18546-18554 (daily ed., Oct. 17, 1972).

House of Representatives Override of Nixon Veto of S. 2770 and Passage of S. 2770. 118 CONG. REC. H10266-10273 (daily ed., Oct. 18, 1972).

Senate Passage of Conference Report of S. 2770, 118 CONG. REC. S16869-16895 (daily ed., Oct. 4, 1972).

House Passage of Conference Report on S. 2770, 118 CONG. REC. H9114-9135 (daily ed., Oct. 4, 1972).

³²The Act consists of five titles with separate sections within each title. The most important provisions in the Act are: section 101 which sets forth the goals and policies of

What the 1965 Act lacked in terms of legislative declaration may have been more than compensated for by the far reaching declarations in P.L. 92-500. Essentially, the '72 Act calls for the elimination of all pollutant discharges into navigable waters by 1985.³³ By 1983 there is to be achieved an interim goal of water quality which will provide for the protection and propagation of fish, shellfish, wildlife, and recreation in and on navigable waters.³⁴ The Act wisely distinguishes between discharges from industrial establishments and municipal waste treatment plants.³⁵ For the former, a two stage cleanup program is mandated. By July 1, 1977, industrial point source dischargers must meet a level of effluent reduction capable of achievement by "the best practicable control technology."³⁶ The period from July 1977 through July 1, 1983 is directed toward the achievement of even higher levels of effluent reduction. By July 1, 1983 industrial users will be obliged to employ the "best available control technology" in reducing wastes discharged.³⁷ Although the Act does not define the terms "best practicable" and "best available" and a further clarification must await administrative definition, it is clear from the legislative history that the distinction is intended to reflect the need to achieve even higher levels of control during this six year stage.³⁸

the legislation; section 201 which establishes the framework for the construction grant program; section 208, which creates areawide waste management; section 301 which establishes specific effluent limitations to carry out the goals of section 101; section 303 which continues the use of water quality standards; section 309 which establishes federal enforcement capability; and section 402 which establishes the national permit program. Other sections of the statute are extremely important, but for the most part they simply shore up the structure created by the five sections mentioned above. The citizen's suit provision, section 505, is of great importance to those who believe that litigation is the most promising avenue to a clean environment. However, if the Act is properly administered section 505 will be of lesser significance in the overall scheme of regulation than the previously mentioned ones.

³³P.L. 92-500, § 101(a)(1). *See also* 3 BNA ENVIRONMENTAL REP. 41, Current Developments 1240 (Feb. 9, 1973) for the most recent EPA definition of navigable waters.

³⁴"[I]t is the national goal that wherever attainable, an interim goal of water quality which provides for the protection and propagation of fish, shellfish, and wildlife and provides for recreation in and on the water be achieved by July 1, 1983;" § 101(a)(2) '72 Act. This interim goal is significant for it establishes two national parameters or standards of measurement. The most widely accepted measure for determining whether a stream will provide for the "propagation of fish, shellfish and wildlife" is the amount of dissolved oxygen (DO) in the water. The recreation or "swimmable" portion of the standard is most readily measured by a bacteria count.

³⁵§ 301(b) '72 Act.

³⁶§ 301(b)(1)(A) '72 Act. *See also* 118 CONG. REC. S16872 (daily ed., Oct. 4, 1972) (statement by Senator Muskie).

³⁷§ 301(b)(2)(A) '72 Act. 118 CONG. REC. S16873 (daily ed., Oct. 4, 1972) (statement by Senator Muskie).

³⁸118 CONG. REC. S.16870, 16873 (daily ed., Oct. 4, 1972) (statement by Senator Muskie).

For municipal waste discharges, the Act requires secondary treatment by July 1, 1977,³⁹ and the application of even more stringent controls by mid-1983.⁴⁰ This second stage requirement for municipalities is again unclear and will have to await future determination.⁴¹

Although the basic thrust of the legislation is toward the establishment of specific effluent limitations, the concept of receiving stream standards is retained.⁴² Essentially, stream standards on all navigable waters constitute a floor level of quality. If "best practicable" and "best available" treatment will not meet in-stream water quality standards, higher levels of treatment will be required.⁴³

The major mechanisms for insuring these levels of control for both industry and municipalities is a national system of discharge permits patterned after the 1899 Refuse Act permit program.⁴⁴ Permits defining the precise limits of discharge allowed are to be issued by the EPA to all water users: municipal, agricultural and industrial. However, the Administrator of EPA is authorized to delegate to the states the operation of this program if a state requests this delegation and can meet the detailed approval conditions of the Act.⁴⁵

Section 309 is one of the cornerstones of the Act. It, unlike prior federal enforcement statutes, is direct and concise. Its primary focus is on the various effluent limitations established in Title III⁴⁶ and the permit system of section 402. For a violation of either an effluent limitation or a permit condition, the Administrator is entitled to seek relief. In recognition of the states' claims that they be allowed to police their own pollution control programs, the Administrator *may* defer action against a polluter for 30 days if he notifies the state of the violation.⁴⁷ However, if the state does not act with dispatch, the Administrator is compelled to seek injunctive relief.⁴⁸ Wilful or negligent violation of an effluent limitation or permit condition may result in a fine up to \$25,000 per day of violation and imprisonment for up to one year.⁴⁹ The federal enforcement role is

³⁹§ 301(b)(1)(B) '72 Act.

⁴⁰§ 301(b)(2)(B) '72 Act.

⁴¹See § 201(g)(2)(A) '72 Act. Section 201(b)(2)(B) requires publicly owned facilities to meet the requirements of section 201. However, the Administrator has not yet determined the requirements to be imposed under that section.

⁴²§ 303 '72 Act.

⁴³18 CONG. REC. S16873 (daily ed., Oct. 4, 1972) (statement by Senator Muskie).

⁴⁴§ 402 '72 Act. See also note 10 *supra* for a brief discussion of the permit program.

⁴⁵Proposed EPA Reg. § 124, 37 Fed. Reg. 24088 (1972), § 402(b) '72 Act.

⁴⁶Sections 301 (general effluent limitations), 302 (water quality related effluent limitations), 306 (standards of performance for new sources), and 307 (toxic substances) '72 Act.

⁴⁷§ 309(a)(1) '72 Act.

⁴⁸*Id.*

⁴⁹§ 309(a)(3) and § 309(b) '72 Act.

intended to be supplementary to the enforcement efforts of the states. However, if a state seeks to administer the permit program, it must have the same clear enforcement capabilities as those provided in section 309 before the delegation will be granted.⁵⁰

The Act also provides financial assistance to municipalities to enable them to achieve the required effluent reductions and otherwise live up to their responsibilities under the statute.⁵¹ Unlike prior federal legislation, which simply provided construction grant assistance to local governments, the '72 Act recognizes the public utility aspects of sewage systems through sundry requirements, and as a condition to the receipt of construction grant funds requires, *inter alia*, (a) a mandatory system for planning and implementing area-wide waste water management which will consider all pollution sources,⁵² (b) equitable and realistic service charges with the municipal recovery of federal capital investments made for the treatment of industrial waste in municipal systems,⁵³ and (c) pre-treatment of industrial wastes discharged to municipal systems.⁵⁴

The portions of the Act dealing with construction grant assistance to municipalities change the prior matching grant formula for distribution to localities (55% federal grant, 25% state grant and 20% local expenditure)⁵⁵ to provide federal assistance at a flat 75% level regardless of matching state assistance.⁵⁶ In addition to increasing the federal percentage available, the scope of grant eligibility is also broadened.⁵⁷

The Act authorizes \$18 billion for the construction grant program over a three year period.⁵⁸ Funds authorized will be allotted to the states on the basis of identified needs,⁵⁹ rather than on a population formula, thereby requiring the states to maintain a detailed and accurate assessment program to assure a proper share of the allotted funds.⁶⁰ Following

⁵⁰§§ 309(c)(1), 402(b)(7) '72 Act.

⁵¹§ 201 '72 Act.

⁵²§ 208(a) and § 204(a) '72 Act.

⁵³§ 204(b)(1) '72 Act.

⁵⁴§ 307(b) '72 Act.

⁵⁵Section 8 of the former Federal Water Pollution Control Act 70 Stat. 498 (1956), as amended, 86 Stat. 816 (1972) provided for a 70% local—30% federal split if there was no state matching grant.

⁵⁶§ 202(a) '72 Act.

⁵⁷Now eligible for federal assistance are the construction of collection sewers, reconstruction of leaky sewer systems, and the purchase of land used in the treatment process, (§ 212(1) '72 Act).

⁵⁸§ 207 '72 Act.

⁵⁹§ 205 '72 Act.

⁶⁰During the third year of the program Congress will make the allocation on a revised and updated cost estimate. See § 205(a) '72 Act.

the model of the Federal Highway Act,⁶¹ the legislation provides "contract authority" so that funds can be obligated in advance of appropriation by Congress.⁶² Unfortunately the status of the construction grant program will be further confused for the next two years because of the President's decision to impound \$6 billion of the first two years authorization of \$11 billion.⁶³ That whole issue is clouded with bitter recrimination between Congress and the Executive, and numerous suits have already been filed contesting the legality of the President's action.⁶⁴

There are other very important provisions in the Act, but the overall structure is designed to give the states the first opportunity to insure its proper implementation. In the event that a state fails to act with dispatch, federal intervention is a certainty.⁶⁵ The Act is so written that a state which fails to adopt a comprehensive planning program will also lose its "rights" under the multi-billion dollar program for assisting in the construction of municipal waste treatment facilities⁶⁶ and will not be eligible to receive delegation of permit authority.⁶⁷ Thus one could perhaps describe the new federal state relationship as a "partnership," the continuation of which is guaranteed by a veiled fist as opposed to the former "carrot-stick"⁶⁸ method of insuring the continuation of the marriage created in the 1965 Act.

A Critique of the Legislation

A. What is the Goal?

The cost of P.L. 92-500 and the ability to achieve its goals are, of

⁶¹23 U.S.C. § 101 *et seq.* (1958).

⁶²§ 203(a) '72 Act. *See also* CONFERENCE REPORT, FEDERAL WATER POLLUTION CONTROL ACT AMENDMENTS, H.R. Doc. No. 1465, 92d Cong., 2d Sess. (1972).

⁶³3 BNA ENVIRONMENTAL REP., Current Developments 879 (Dec. 1, 1972). § 35-910-1(a), 37 Fed. Reg. 26282 (Dec. 8, 1972).

⁶⁴The City of New York was the first to sue: *City of New York v. Wm. D. Ruckleshaus*, C.A. No. 2466-72 (S.D.N.Y., Filed Dec. 1, 1972). In January, Campaign Clean Water, Inc., a Virginia conservation group, sued in the United States District Court in that state: *Campaign Clean Water, Inc. v. William D. Ruckleshaus*, 18-73-R (E.D. Va., Filed Jan. 15, 1973). Congressman G.E. Brown, Jr. (D. Cal.) also sued in District Court in Los Angeles seeking a release of funds. 2 BNA ENVIRONMENTAL REP. 1191 (Feb. 2, 1973). Similarly two New Jersey legislators have sued claiming that N.J. will lose \$848 million. 3 BNA ENVIRONMENTAL REP. 1100 (Jan. 19, 1973).

⁶⁵For instance, on the speed required for state enforcement action in order to avert federal enforcement see § 309(a) '72 Act.

⁶⁶§ 204 '72 Act.

⁶⁷§ 402(b) '72 Act.

⁶⁸1 CCH WATER CONTROL NEWS 3 (1967) (Statement by Assistant Secretary of the Interior Frank DiLuzio).

course, rather important questions to which varying answers can be given depending on precisely what the Act calls for. That, however, is not totally clear. Congress set a two and perhaps three phase cleanup program in the legislation. The first phase, which began with enactment of P.L. 92-500 and is to continue through mid-1977, requires industrial users to utilize the "best practicable technology" for effluent reduction.⁶⁹ The requirement for municipalities is one of secondary treatment.⁷⁰ Phase Two, commencing in 1977 and culminating in mid-1983 with a requirement for industry to apply the "best available technology,"⁷¹ is designed to achieve the interim goal of section 101.⁷² During this period municipalities will likewise be faced with more stringent but as yet undefined requirements.⁷³ The third phase, to achieve the goal of no discharge by 1985, has no implementing requirement and is not mentioned again following its initial appearance in the first section of the Act.⁷⁴

It is clear beyond doubt that the effluent requirements of phase one are firm and, with some major qualifications, the requirement for use of the "best available technology" in phase two is definite.⁷⁵ However, it is not altogether clear that the interim goal can be achieved by 1983, even with these effluent reductions.⁷⁶ Perhaps the major reason for this note of caution is that the perplexing problem of non-point source pollution may not be solved by that time. However, there is sufficient time to develop some workable strategy for the control of many non-point source

⁶⁹§ 301(b)(1)(A) '72 Act.

⁷⁰§ 301(b)(1)(B) '72 Act.

⁷¹§ 301(b)(2)(A) '72 Act.

⁷²§ 101(a)(2) '72 Act.

⁷³See note 41 *supra*.

⁷⁴§ 101(a)(1) '72 Act and note 81 and accompanying text *infra*.

⁷⁵Section 301(b)(2)(A) '72 Act, provides *inter alia* that by 1983 there shall be achieved effluent limitations which require "application of the best available technology economically achievable . . . which will result in reasonable further progress toward the national goal of eliminating the discharge of all pollutants . . ." Further subsection (c) provides that in individual cases the Administrator may modify the requirements of subsection (b)(2)(A) on a showing by the discharger that less stringent requirements are the maximum he can achieve economically and that they will still result in further waste reduction. Although these qualifications on the basic requirement of "best available technology" do weaken the second phase, they were apparently necessary compromises. The House version (H.R. 11896) had no mandatory second stage and required that specific congressional action was necessary before a second stage could be implemented; see § 301(b)(2)(A) and § 315 of H.R. 11896.

⁷⁶Congress explicitly recognized this possibility by restating the language of section 101 of the Senate bill (S. 2770) to change the status of the 1983 standard from a policy (which presumably has more teeth) to a goal. Likewise section 101(a)(2) of the Act provides that "wherever attainable" the "swimmable standard" is to be achieved by 1983. See also Senator Muskie's comments at 117 CONG. REC. S17399 (daily ed. Nov. 2, 1971).

problems within this time frame, if diligent and creative efforts are undertaken immediately. Thus the 1983 goal is considered to be one which is potentially achievable.

The 1985 goal of no discharge is the focal point for most criticism of excessive cost and unreality.⁷⁷ Certainly if the success of P.L. 92-500 is to be judged against the standard of zero discharge, the Act is doomed to failure at the outset. However, there is a middle ground between the perhaps cynical suggestion that Congress, by calling for no discharge, was engaging in irresponsible political rhetoric and the claim that Congress has started down an unduly expensive and wasteful path which will require the dismantling of the industrial state. The former suggestion involves an inquiry into motives and would not in all likelihood be very productive. It will not be pursued. The latter argument takes the form of a warning against the danger of "buying" too much pollution control.⁷⁸ It is argued that an overly simplified solution such as zero discharge can be expected to have at least two results. First, it would be inefficient and divert scarce resources from other needs.⁷⁹ That is the basic argument of

⁷⁷The proposed report of the National Water Commission is typical. Establishment of such a policy [no discharge] appears to be the 1985 goal under the 1972 Act.

The Commission believes such an abstract and absolute approach to water quality management is as fundamentally unwise as to approach land use with a goal of placing no buildings on land.

NATIONAL WATER COMMISSION REPORT at 4-3.

EPA Administrator William D. Ruckelshaus representing the Administration's position on this issue stated:

The goals of the elimination of all discharges by 1985 and recreation in and on the water by 1981 is practicable only if the costs of achieving them are justified by resulting social benefits. Otherwise the nation would be applying costly technology in an indiscriminate and wasteful manner without regard to discernible social benefits.

Hearings of H.R. 11896, H.R. 11895 Before the House Comm. on Public Works, 92d Cong., 1st Sess., 294 (1971).

Russell Train of the Council on Environmental Policy has also expressed similar views:

H.R. 11896 would require no discharges or best available technology by 1981 with a goal of no discharges by 1985. This sounds like a simple, straight forward, and laudatory goal. But in practice, I believe it would either be very costly compared to the benefits or would in fact, be ineffective.

Id. at 202.

⁷⁸See for instance FREEMAN, HAVEMAN & KNEESE, at 80-95, and 109 and NATIONAL WATER COMMISSION REPORT 4-3 through 4-6.

⁷⁹Adoption of a no discharge policy amounts to the imputation of an extravagant social value to an abstract concept of water purity; a value the Commission is convinced the American people would not endorse if the associated costs were fully appreciated and the policy alternatives clearly understood.

NATIONAL WATER COMMISSION REPORT at 4-5.

those who regard the congressional action as conceptually unsound. Second, the mischief of overpromise will cause an adverse reaction or "environmental backlash" which may do long term harm to environmental cleanup efforts when the 1985 goal is unfulfilled.

The National Water Commission criticizes the Congress on both grounds:

"[T]he no discharge policy holds out a promise of clean water which it cannot redeem. Water quality regulation which loses touch with the reasons people value water is hopelessly adrift and eventually will flounder. When it does, the attendant dashing of public expectation will make it more difficult to marshal public support to reestablish a program with rational objectives."⁸⁰

Perhaps the best response to that rather powerful argument is in the nature of a confession and avoidance. Congress itself did not join the issue, for the regulatory mechanisms established in P.L. 92-500 though impressive, are clearly insufficient to implement the 1985 goal. Senator Muskie, in a moment of refreshing candor, declared that "the 1985 deadline for achieving no-discharge of pollutants is a policy objective. It is not locked in concrete. It is not enforceable."⁸¹

The middle ground, which seems preferable, is that Congress has taken a first innovative and at the same time conservative step. It is innovative because for the first time Congress has stated that the nation's watercourses are no longer available for waste disposal purposes.⁸² It is conservative in that the lack of knowledge of the potentially permanent effects of pollution over a period of time requires an adequate margin of safety, which the stringent requirements of the Act provide.⁸³ Much has been written about the concentration of persistent pollutants, *i.e.*, DDT in the food chain.⁸⁴ Over a period of time small amounts of many water borne wastes may reach toxic levels. Because no one knows when that limit is reached, the most conservative course is to halt further introduction of as many wastes as possible. Certainly subsequent controls would be needed to fully implement a no-discharge policy if that is ultimately found to be either desirable or necessary.⁸⁵

⁸⁰NATIONAL WATER COMMISSION REPORT at 4-6.

⁸¹Remarks of Senator Muskie, 117 CONG. REC. S17399 (daily ed. Nov. 2, 1971).

⁸²See generally text accompanying notes 6 and 7 and 13-16 *supra*.

⁸³Even the critics of Congress admit that they don't know how much pollution is too much. See generally FREEMAN, HAVEMAN & KNEESE at 39-63 and 93.

⁸⁴Of course the classic layman's reference is Rachel Carson's SILENT SPRING (1962). Although portions of the scientific community often challenged Ms. Carson's work in the early 1960's, the scientific establishment turned out in force to support a ban on DDT in the now famous Madison hearings. See H. HANKIN, M. MERTA, & J. STAPLES, THE ENVIRONMENT, THE ESTABLISHMENT AND THE LAW (1971).

⁸⁵See text accompanying note 81 *supra*.

The most constructive interpretation of the Act seems to be that for now Congress has adopted a philosophy which places a heavy burden of persuasion on those who advocate the use of the nation's waters for waste assimilation; accordingly it has taken some very far reaching steps to halt further degradation and improve water quality to something approaching the 1983 goal. If it can be assumed that the 1983 goal is a relatively fixed target, then it is proper to assess the wisdom of that objective. If the objective does not accord with reality *i.e.*, is unachievable, its wisdom is subject to question. If reaching the objective by utilizing the mechanism provided is wasteful, either the objective may be unwise or the means of achieving it should be scrapped.

B. Can We Achieve the 1983 Goal?

To assess effectively the reality of the 1983 goal, a fundamental (although somewhat oversimplified) discussion of the nature of the pollution problem is essential. Many critics of the congressional action have made certain basic assumptions about the scope of the problem and the information available to policy makers seeking to abate water pollution which may not accord with reality.

Pollution, as defined in the legislation, includes "dredged spoil, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rocks, sand, cellar dirt and industrial, municipal and agricultural waste as discharged into water."⁸⁶ This definition is nearly all encompassing and covers all man-induced discharges into the nation's waters.⁸⁷

As would be expected with anything so all encompassing and amorphous as water pollution, there are various methods which are used to describe the nature of the problem. One such system classifies pollutants according to their instream assimilative properties as degradable or non-degradable.⁸⁸ Degradable wastes are reduced in weight and quantity by the biological, physical and chemical processes which occur in natural waters.⁸⁹ Non-degradable wastes on the other hand are not broken down

⁸⁶§ 502(b) '72 Act.

⁸⁷Critics of the congressional rigor have maintained that Congress has established a pre-Columbian 1491 standard of natural water quality. The definition of pollution in § 502 of the Act is even more inclusive, however, for it would include Indian artifacts.

⁸⁸See generally A. KNEESE & B. BOWER, *MANAGING WATER QUALITY, ECONOMICS, TECHNOLOGY, INSTITUTIONS* 13-31 (1968) [hereinafter *MANAGING WATER QUALITY*].

⁸⁹Domestic sewage is the most common degradable waste. However, various organic wastes from industrial discharges *i.e.* the pulp and paper industry and the food processing industry (both degradable) are generally much more concentrated than domestic sewage. An often overlooked, but nevertheless extremely important degradable pollutant, is heat which results from the use of water for cooling.

or assimilated by natural processes and are merely diluted in concentration by receiving waters.⁹⁰ Most commonly used measurements of pollution are applicable only to degradable wastes. Perhaps the most widespread measure of the effect of waste on water quality is that which measures the biological oxygen demand (BOD) of the waste load.⁹¹ Since non-degradable wastes are not affected by biological processes, however, the BOD measurement is useless in describing certain types of wasteloads and highly inaccurate in other instances where non-degradable wastes account for a high percentage of the discharge.

The major sources of pollution—domestic wastes (16%),⁹² industrial wastes (50%)⁹³ and wastes resulting from agriculture (20%)⁹⁴ contain both degradable and non-degradable components. Degradable industrial wastes account for three to four times as much oxygen demand as the domestic sewage from the entire sewered population of the United States.⁹⁵ This figure of course does not even address the effect of the exotic and almost limitless variety of non-degradable wastes from industrial sources. Effluent from municipal sewage systems accounts for 16% of the degradable waste load discharged and, even if that is eliminated by adequate treatment, various nutrients, *i.e.*, phosphorous and nitrogen, which stimulate algae growth with attendant adverse effects, are released.⁹⁶ In addition to domestic sewage, storm runoff from urban areas can and does cause severe localized water pollution problems.⁹⁷ The wastes from agricultural practices accounting for 20% of the pollution load consist of animal wastes from feedlots and runoff from farmlands.⁹⁸ The runoff from farmlands, largely uncontrolled, is nearly all non-degradable and consists of inorganic fertilizers, pesticides and silt.⁹⁹

⁹⁰For example heavy metals (*i.e.* mercury which is extremely toxic) or inorganic fertilizers.

⁹¹W. ECKENFELDER, WATER QUALITY ENGINEERING FOR PRACTICING ENGINEERS 10-11 (1970) [hereinafter cited as ECKENFELDER].

⁹²1971 ADMINISTRATOR OF THE ENVIRONMENTAL PROTECTION AGENCY, ANNUAL REP. S. Doc. No. 23, 92d Cong. 1st Sess., 64 (1971).

⁹³*Id.*

⁹⁴*Id.*

⁹⁵A. REITZE, 1 ENVIRONMENTAL LAW, 4-2 and 2-3 (2d ed. 1972). Also industrial wastes are far more lethal than domestic sewage; ZWICK at 44.

⁹⁶See ECKENFELDER at 214.

⁹⁷Senior officials at EPA have told the authors that one of the major pollution sources of the Occoquan reservoir, a major water supply for the Washington, D.C. metropolitan area, is storm water runoff from heavily urbanized Fairfax County. For a discussion of efforts to control this problem see VIRGINIA STATE WATER CONTROL BOARD, POLICY STATEMENT FOR WATER QUALITY MANAGEMENT IN THE QCCOQUAN WATERSHED (July 26, 1971).

⁹⁸NATIONAL WATER COMMISSION REPORT at 4-14 & 4-15.

⁹⁹*Id.*

A second and perhaps more significant way to examine the sources of pollution is to distinguish between wastes discharged from separate identifiable points (point sources)¹⁰⁰ and wastes which enter watercourses through runoff from land or other diffuse means (non-point sources). Prior legislative efforts have been directed almost solely at controlling the former, and at present non-point source pollution, the most difficult to abate, is almost totally uncontrolled. Although genuinely reliable figures are unavailable, it has been variously estimated that non-point source pollution ranges from 30%¹⁰¹ to 75%¹⁰² of the total pollution load of the nation's waters. In all likelihood the 75% figure is high, (or is localized) and a figure in the range of 30% to 33% for non-point source pollution seems more realistic. The major sources of pollution (67-70%) emanate from point sources, but many of them *i.e.*, urban runoff, are at present subject to little if any control.¹⁰³

These assertions about the nature of the pollution problem have never been disputed by those who are most vocal in their criticism of the congressional approach. Instead, one gets the distinct impression that these facts of pollution may have simply been ignored.¹⁰⁴ A basic problem with most pollution control strategies is that they choose to examine only certain aspects of the problem. Often for clarity of analysis and in order to lay bare the nature of a problem, resolving it into its various components is the most fruitful course toward solution. However, frequently the artificiality of that exercise is forgotten or lost from view and it is only those parts which have been broken out for examination that are used to define the problem. This was clearly the case insofar as prior congressional legislation was concerned. The pollution problem as defined by Congress in 1965 consisted largely of organic wastes discharged from point sources. That seems to be the manner in which some critics of P.L. 92-500 still define the problem.¹⁰⁵

Congress in the '72 Act, however, has made some sweeping declarations of policy which indicate that its perception of the pollution problem has broadened considerably since 1965. It specifically recognized the danger of toxic pollutants and established regulatory machinery to prevent

¹⁰⁰§ 502(14) '72 Act.

¹⁰¹*Hearings on Proposed Amendments to Existing Water Pollution Control Legislation Before the House Comm. On Public Works*, H.R. Doc. No. 16, 92d Cong., 1st Sess. 129 (1971).

¹⁰²Zwick & Benstock estimate from 50-75% of the pollution load comes from non-point sources. ZWICK at 44.

¹⁰³See note 97 *supra* and NATIONAL WATER COMMISSION REPORT 4-12.

¹⁰⁴FREEMAN, HAVEMAN & KNEESE discuss the problem of non-point source pollution in two paragraphs before moving on to postulate an in-depth pollution control policy which neglects the non-point source problem.

¹⁰⁵*Id.*

their discharge to the nation's waters. In a less direct method it took steps to protect the ground water environment and for the first time it addressed the non-point source problem. On this latter issue, the legislation is very cautious and arguably, therefore, deficient. However, because the full nature of the problem is not yet known and because of the primitive state of knowledge concerning alternative control strategies, a massive national legislative program seems particularly unwise at the present time.

The most manageable portion of the pollution problem is the existing point source contribution. That can be solved in large part by the use of that famous American technology which runs shuttles to the moon. However, the intractable portion of the problem is that which does not yield so easily to technological innovation. The human factor is a large part of this equation. How susceptible to change are society's water consumption habits, how willing are humans to change their perception of wise land use practices?

A full utilization of technology should bring about some dramatic improvement in water quality, and that may help instill some change in societal attitudes toward other environmental questions. After all, proper land conservation practices could have a significant impact on the non-point pollution problem.

If the full weight of the technological machine goes to work on the point source problem there is reason to hope that the 1983 goal is one which can be met. However, that is not free from doubt for there are some heavily polluted areas which may well fall short of the 1983 goal. According to estimates of EPA, there are some 66 of the nation's 267 river basins which have high non-point source problems.¹⁰⁶ Using two general criteria of population concentration and severity of pollution problems, EPA has isolated 89 river basins for priority attention under P.L. 92-500. Of these priority basins, 10 have significant non-point problems. The EPA strategy, which is very ambitious in its attack on point source discharges, advocates detailed monitoring and the development of demonstration programs for these 10 basins. There are in addition to the 10 basins on the priority list, at least 56 water courses with high non-point source contributions which are unaffected by the EPA strategy.¹⁰⁷ Thus one should not underestimate the magnitude of the non-point source problem; and it is imperative that some very hard work on this vexing question be undertaken immediately so that the lead time which Congress so wisely provided not be lost.

¹⁰⁶EPA internal memorandum entitled "Water Strategy" January 9, 1973 Table 1 at p. 3, on file with the WASH. & LEE L. REV.

¹⁰⁷*Id.*

C. The Alternative of Effluent Charges

The major criticism levelled at the goals of P.L. 92-500 is that of the economist who maintains that in the act of "buying" a higher quality water than is needed,¹⁰⁸ scarce resources are diverted from other things of greater value.¹⁰⁹ The criterion often utilized for deciding how much pollution to tolerate is the economic welfare of society as a whole. That arrangement of all available resources which results in the greatest good to the greatest number is the most efficient, and the economist tends to think of markets as the best mechanism for this allocation. For the pollution problem then the economic solution is to develop a system of controls utilizing market mechanisms.¹¹⁰ A scheme of effluent charges is recommended to accomplish a given level of cleanup at the least cost.¹¹¹ The basic contention is that to remove the waste assimilative capacity of water from the market place is irrational for it should be treated like other resources such as land, labor and capital. The argument is not one of detail but reflects a conceptual difference with the congressional approach, which the critics maintain is at best inefficient, in that it wastes

¹⁰⁸There is no question that higher levels of control will be expensive. The National Water Commission has estimated that implementation of an abatement policy calling for the use of the "best available" technology by 1985 would cost \$467 billion. This figure is at best only an estimate, for the Commission itself discussed the paucity of information available to develop any genuinely hard numbers (NATIONAL WATER COMMISSION REPORT at 4-23). Assuming for the sake of argument that \$467 billion represents a realistic estimate, it may be helpful to put it in perspective. Over the twelve year period the annual expenditure required is \$39 billion per year, which is less than 16 per cent of the current federal budget. In terms of the gross national product (GNP) the annual expenditure represents only 3.9 per cent of the GNP.

In addition, the cost estimates of the National Water Commission, as well as those of EPA, apparently assume a static technology. One compelling argument for very strict regulatory controls is to force technological innovation. This of course is a variant on the theme "that necessity is the mother of invention." If the American industrial state is as innovative as it is touted to be, and if only a part of the same technological "know how" which went into the space program were put to work in the pollution abatement field, then these estimates might not be so frightening. Finally, one might again refuse to join the argument on cost and insist that the question is more properly what is needed to protect the water environment. At this point in time, that is genuinely unknown and ignorance demands a certain margin of safety.

¹⁰⁹FREEMAN, HAVEMAN & KNEESE at 107. See generally L. RUFF, *The Economic Common Sense of Pollution*, in *ECONOMICS OF THE ENVIRONMENT* 3-20 (R. Dorfman and S. Dorfman ed. 1972) [hereinafter cited as DORFMAN AND DORFMAN].

¹¹⁰FREEMAN, HAVEMAN & KNEESE at 80-81. The Introductory essay in DORFMAN AND DORFMAN, at xiii-xI presents the basic economic argument with clarity and in summary fashion.

¹¹¹See generally A. KNEESE & B. BOWER, *MANAGING WATER QUALITY, ECONOMICS TECHNOLOGY AND INSTITUTION* (1968). See also DORFMAN AND DORFMAN at 3-20.

scarce resources by mandating uniform levels of treatment nationwide.¹¹²

An argument based on economic efficiency is a powerful one, but indiscriminate use of an efficiency principle as the "pole star" for environmental decision making is not without its detractors.¹¹³ The arguments against considering efficiency alone are ably dealt with elsewhere¹¹⁴ and the focus of criticism of the effluent charges concept here is more pedestrian. It is a lawyer's argument and has to do with the facts of the case.¹¹⁵

Several recent articles have urged that economic measures will have a more effective and lasting impact on the pollution problem than a continuation of the massive regulatory machinery generally characteristic of pollution control legislation. Some of these writings are quite provocative,¹¹⁶ while others miss the significance of the issues. However, nearly all of the proponents of pricing mechanisms have one common deficiency: They neglect some hard facts of water pollution. For instance, all of the proposals examined virtually ignore the non-point source problem. One of the better studies advocating a charges scheme is Freeman, Haveman, and Kneese, *The Economics of Environmental Policy*.¹¹⁷ The authors devote a total of three paragraphs to the problem of non-point source pollution and after outlining the problem, conclude by saying:

"[W]e will have little to say about this set of [non-point] problems in the remaining chapters. This is primarily because the range of public policy strategies that are appropriate to point source pollution does not appear to have much value in dealing with major non-point source problems."¹¹⁸

¹¹²See generally DORFMAN AND DORFMAN at 5-8. See also FREEMAN, HAVEMAN & KNEESE at 80-106 and 121-123.

¹¹³Brion, *Virginia Natural Resources and the New Virginia Wetlands Act*, 30 WASH. & LEE L. REV. 19, 59 (1973) (See particularly the sources in note 165).

¹¹⁴*Id.* at 59-60.

¹¹⁵Unfortunately, lawyers cannot always afford the luxury of the economists who in their own words "[l]ike the lilies of the field . . . neither toil nor spin. Their practical task, rather, is to design social instruments and institutions that will guide toiling, spinning, and all other economic activities . . ." [DORFMAN AND DORFMAN p. xxxiii]. However, even economists must on occasion admit that the cold reality of the factual world is a hazard which must be faced. "This issue—the sensitiveness of price allocation versus the bluntness of government regulation—will arise repeatedly throughout the volume. But setting and charging prices for the use of the environment is more easily said than done." DORFMAN AND DORFMAN at 1-2.

¹¹⁶See generally FREEMAN, HAVEMAN & KNEESE at 121-123. See also Krier, *The Pollution Problem and Legal Institutions: A Conceptual Overview* 18 U.C.L.A.L. REV. 429 (1971); DORFMAN AND DORFMAN.

¹¹⁷See generally FREEMAN, HAVEMAN & KNEESE.

¹¹⁸*Id.* at 62.

Most of these studies, in order to demonstrate how an effluent charge would operate on a practical level, proceed to construct examples first by utilizing an economic model for individual behavior (the fisherman and factory owner) and by utilizing one measure of pollution (usually BOD).¹¹⁹ This in turn is expanded to cover aggregate behavior for the length of an entire river basin.¹²⁰ Once a desired level of quality is decided on, each discharger is charged in proportion to the use he makes of the stream, the rental value of the waste assimilative capacity of the watercourse. If he finds it cheaper to utilize a different technology and refrain from discharging, he will presumably do so. If the desired level of quality is higher than that presently existing, a charge will be necessary which will cause reductions by an amount sufficient to reach that level. This of course sounds very attractive yet the difficulties of applying the model are rather significant. For instance, the major pollution indicator is generally BOD which tells one a great deal about the organic content of the waste discharge but almost nothing about heavy metal concentration. Is a "charge" of 10 cents per pound of BOD waste apt to be much of an incentive for a mercury discharger to cut his load?¹²¹ In addition to the difficulties of application, the conceptual limitations in the model are legion.¹²² Perhaps the most serious is the threshold assumption that there is a "safe" level of pollution which can be established with some ease. This safe level is generally assumed to be the waste assimilative capacity of the watercourse. However, that concept is at best tenuous. In all likelihood there is no such thing as *the* waste assimilative capacity of a stream.

¹¹⁹In an essay in DORFMAN AND DORFMAN entitled "A Public Decision Model Applied to a Local Pollution Problem" at 205 by Robert A. Dorfman and Henry D. Jacoby, the authors proceed to construct one of the most realistic models to be found in economic writings. However, they nevertheless limit their specification of water quality to dissolved oxygen (DO) and their pollution measure to BOD. Needless to say the fictional Bow River Basin is likewise free from any non-point source pollution.

¹²⁰See generally FREEMAN, HAVEMAN & KNEESE at 80-107. Even the highly touted Delaware Estuary Comprehensive Study (DECS) undertaken by the predecessor agency to EPA in order to develop a comprehensive program for water pollution control in the Delaware estuary had as its principal focus the dissolved oxygen level throughout the estuary. See L. JAFFE & L. TRIBE, ENVIRONMENTAL PROTECTION, 331-99 (1971).

¹²¹Of course it may be contended that this is an unfair question for mercury pollution is an extreme case. However, when the question was posed by Senator Muskie to Senator Proxmire (D. Wis.), a leading proponent of effluent charges, the only response given was to set a "virtually infinite tax on it—tantamount to an absolute ban." 117 CONG. REC. S17429 (daily ed. Nov. 2, 1971) (remarks of Sen. Proxmire). The point is of course that setting an infinite price is no different than an absolute ban. In either instance some enforcement strategy would be required. Thus one of the highly touted aspects of an effluent charges scheme—that it provides for decentralized decision making and does away with need for a massive regulatory system—is questionable.

¹²²See FREEMAN, HAVEMAN & KNEESE at 91-93.

It is the utilization of dissolved oxygen in a stream to degrade organic waste that gives rise to this oversimplified expression of waste assimilative capacity. However, that concept has no basis in fact for other kinds of pollution. Heavy metals are not assimilated, they may be dispersed by dilution or they may react with other substances and become concentrated. Phosphorous and nitrogen are not assimilated in a watercourse, instead they are nutrients for algae and stimulate their growth with attendant adverse effects on the watercourse.¹²³

It seems that the concept of waste assimilative capacity which at one time was a useful fiction,¹²⁴ has outlived its utility and now simply gets in the way of hard thinking. Recognition that once wastes are discharged into a watercourse the sequence of events is likely to be determined by biological principles and not by extrapolation from a model utilizing one measure of pollution, would be a helpful beginning. Because we do not know how pollutants interact with each other and react in different kinds of watercourses over time, some error is likely in finding how much pollution is to be tolerated.¹²⁵ Lest it be overlooked, it is important to recall the primitive state of knowledge about control strategy. The non-point source problem was never considered in the 1965 legislation and hardly surfaced in the technical literature prior to the late 1960's. Similarly with sewage treatment, only a few years ago a municipality with secondary treatment facilities was considered rather progressive and one of the initial advance waste treatment facilities in the country, the 7.5 million gallon a day Lake Tahoe plant, was first operative in 1968.¹²⁶

The preferred course when one doesn't know the effect of a policy is a conservative one. To proceed in ignorance when there is no other course but even more expensive inaction is understandable and necessary. However, to advocate a pricing mechanism when so little is known about the real costs and how to arrive at them is likely to cause a great deal of mischief. No one knows the level of quality necessary to protect the water

¹²³The adverse changes in many of the Great Lakes, Lake Erie in particular, are caused by nutrient enrichment. Increases in phosphorous and nitrogen with decreased dissolved oxygen content have led to the resultant condition of eutrophication. REPORT OF THE NATIONAL WATER COMMISSION at 4-73 through 4-81.

¹²⁴The use of fictions is a government and time honored technique of the law to aid in thinking through and expressing a new situation by converting the new phenomenon into familiar terms. Fuller defines a fiction as either (a) a statement propounded with complete or partial knowledge of its falsity or (b) a false statement recognized as having utility. L. FULLER, *LEGAL FICTIONS* (1967). Fictions are by no means foreign to science (*Id.* at 71-72, 124-27, 130-33) or to economics (*i.e.*, the "economic man").

¹²⁵Even the proponents of effluent charges admit the possibility of cumulative effects from small amounts of pollution over time. FREEMAN, HAVEMAN & KNEESE at 93.

¹²⁶See generally Culp and Moyer, *Wastewater Reclamation and Export at South Tahoe*, PUBLIC WORKS 87 (Dec. 1968).

environment, and even if that is determined; to set a discharge price high enough to insure that it is reached would be no easy matter.¹²⁷

There is much to commend the adoption of a pricing mechanism in place of the complex regulatory machinery which has so long been the tradition of administrative law in America. However, it is very questionable whether at this stage of water pollution control history a truly effective system could be implemented. Once the information and monitoring requirements of P.L. 92-500 yield their expected harvest and alternative

¹²⁷The exchange set out below between Senators Muskie and Proxmire over this problem is interesting and illustrative of the elusive nature of the effluent charges concept. 117 CONG. REC. S17428-17430 (daily ed. Nov. 2, 1971).

Mr. PROXMIRE. Here is the advantage of the effluent tax. Then, it is up to the corporation itself to minimize its tax and in doing so reduce pollution. They will strive to find the best available technology to do that. They are in the business to make money.

Mr. MUSKIE. What is the test to be applied in the first place so that the judgment of the corporation can be applied? If you have no technology, what is given then for a benchmark?

Mr. PROXMIRE. It can be based on the amount of the damage. The Senator's user charge is based on cost.

Mr. MUSKIE. I understand effluent fee is based on the cost of cleaning. It cannot be related to damage. It has to be related to cost of cleaning up.

Mr. PROXMIRE. If we do not know the cost, it has to be related to damage.

Mr. MUSKIE. Someone has to make an administrative judgment.

Mr. PROXMIRE. Yes, but not on the effluent charge or whether the technology is advanced. That is for the people in the industry.

Mr. MUSKIE. And, if there is no technology available?

Mr. PROXMIRE. Then they have to pay a tax.

Mr. MUSKIE. What tax?

Mr. PROXMIRE. The tax on the basis of BOD, and other pollutants.

Mr. MUSKIE. Is it related to the cost of cleaning up?

Mr. PROXMIRE. It is if they know it, and if they do not, it is related to the cost of damage.

Mr. MUSKIE. That is a new factor introduced in this subject this afternoon. That has never been suggested in any hearings I have conducted. It was always geared to the cost of cleanup.

If a tax is proposed, how much higher is never identified, but higher than cleanup. Now, the Senator is talking about damage. If the Senator has witnesses who can make the connection for us between the environmental damage in the river basin to which the pollution is contributing and to *x* number of polluters—if the Senator has anyone who can tell how to relate the damage provision to a single polluter, we would like to know. We would restructure the bill.

Mr. PROXMIRE. I have said many times that we do have experience and we know it can be worked out. . . .

strategies for the control of particularly troublesome aspects of the pollution problem are forthcoming, there is no reason that a workable effluent charges scheme could not be used to supplement the regulatory mechanisms of P.L. 92-500. Congress has set a goal or standard to be reached by 1983. The most certain way of approaching that goal at this time is through the use of strict effluent limitations. However, as those levels are approached regional waste treatment management agencies should seriously consider utilizing a system of charges to maintain the 1983 standard and to work toward even higher levels if needed.

Suggestions for Implementation

Having concluded, with some qualification, that Congress has established a potentially achievable goal for 1983, it may be appropriate to offer some suggestions for reaching that mark.

Although this article has dealt almost exclusively with the rather specific legislative requirements of the Act, the success or failure of the nation's water pollution program will depend in large measure on the ability of those charged with its administration to seek positive answers to the problems now extant and to be creative in approaching the massive additional workload imposed by the legislation. Inter-governmental relations in the pollution abatement field, federal versus state on the one hand, and state versus local on the other, have all too often been sources of friction, foot dragging and sometimes strident polemic. Will EPA seek to initiate a policy of creative federalism or is the agency a prisoner of its own history which has all too often been a story of act now and consult the states later? Can the state pollution control administrators, most of whom concentrated their all out efforts on wholesale objection to the concept of P.L. 92-500¹²⁸ and who have over the years engaged in constant bickering with EPA, now seek to make this legislation work? It will not be easy to dispel the bitterness and replace the often acrimonious relationship with a working one. However, that is a first step.

In addition to the need for full utilization of all available resources, there is a very desperate need to concentrate resources where they can have the most lasting impact. It should be obvious of course that any water strategy insures that no further degradation takes place. A first priority for cleanup, however, should be to isolate the most severe problems and concentrate federal and state efforts toward their solution. Because of the specific timetables in the legislation, the administrative pro-

¹²⁸The states of Minnesota, Oregon and Virginia were among the minority supporting the legislation. The Virginia position is set out in a letter from Gov. Linwood Holton to the Honorable David Satterfield (D. Va.) appearing in 118 CONG. REC. H2757 (daily ed. Mar. 29, 1972).

cess is not completely free to set its own priorities, of course. However, within the confines of the legislative framework, a major operative strategy should be two-fold: (1) attack the most severe problems first (2) within areas of major population concentration.¹²⁹ Of the nation's 267 water basins, 89 with severe pollution problems containing 65% of the nation's population are being isolated for priority attention by EPA.¹³⁰ Not surprisingly these 89 basins contain 60% of the major industrial dischargers as well.¹³¹ If EPA can successfully elicit state cooperation and not be diverted from this strategy, these will be encouraging signs that the legislation may work.

In those priority basins where the non-point source contribution is minor, all the mechanisms for cleanup provided in the legislation should be utilized. The two most important of those are the construction grant subsidies of Title II and the effluent limitations of Title III. Although a detailed examination of the construction grant program is beyond the scope of this article, these funds should generally be utilized within the severe problem areas to remove the maximum pounds of waste so that water quality standards are met. The effluent limitations of Title III provide two avenues of approach. First, Congress established effluent limitations based on control technology—"best practicable" and "best available." However, if use of the mandated technology will not achieve water quality, then more stringent controls are necessary. Unless it is reasonably certain that stream standards will be met by utilizing an effluent limitation of "best practicable" treatment, then the higher standard should be required. Thus in many heavily polluted streams it will be necessary to establish load limits and issue permits which require industry to go beyond "best practicable" treatment and which require municipalities to install advance waste treatment facilities. What is being advocated here is a partial leapfrogging of the 1977 effluent requirements in certain areas and the adoption of requirements more akin to the 1983 target in order that stream standards can be met. To insist on less would subvert the legislation.¹³²

¹²⁹The propensity of administrative agencies is to aim for quick results which may be easy to achieve but which are of only limited value. These tangible tokens of a "successful" program may gratify the political process, but in the long run are apt to self corrupting. If administrative efforts are concentrated on the minor pollution sources or if a chaotic but superficial attack is undertaken nationwide, the stubborn problems are not apt to yield. On the other hand, if the worst problems can be solved, solutions to the less significant ones should follow with greater ease.

¹³⁰EPA internal memorandum "Water Strategy" January 1973 at 2, on file with the WASH. & LEE L. REV.

¹³¹*Id.*

¹³²The Senate version of P.L. 92-500 (S. 2770) did not continue the

Of the 89 basins isolated for priority attention by EPA, 10 have high non-point source pollution loads.¹³³ Where non-point source pollution is the limiting factor, even the most advanced treatment technology for point source discharges is not likely to bring the watercourse up to standard. Thus in these basins, the major effort at this time should be on monitoring and research to develop control strategies for the non-point source contribution. This portion of the problem is the most intractable, and it is extremely important that an intensive research program be undertaken immediately so that the lead time for achieving the 1983 goal is not lost.

If states have the capability and are willing to assume the responsibility for the permit program, EPA should delegate its permitting authority forthwith. It is essential that major dischargers, both industrial and municipal, be brought within the enforcement provision of the Act as soon as possible, and until permits have been issued there is in effect no federal enforcement capability.

Hopefully, many of the above suggestions are self evident and a genuinely comprehensive strategy for implementation of P.L. 92-500 will soon evolve. The Congress, through its subcommittees of Air and Water Pollution Control in the Senate and House, EPA, state pollution control agencies and interested citizen groups should all be parties to the development and evolution of a comprehensive implementation strategy.

Conclusion

By most objective standards the national water pollution control program has been a failure. Poorly conceived and unduly limited legislation in 1965 created a major stumbling block to success. Nor did unimaginative administration and a seriously eroded federal-state partnership provide much of a crutch. Congress, in 1972, with considerably more citizen interest and support, wrote off most of the past as a failure and embarked on a new, expensive and ambitious course. Its product is far

stream standards approach and the inclusion of section 303 was at the insistence of the House. It is not surprising then that Senator Muskie would seek to play down the significance of section 303. (See Senator Muskie exhibit 1, 118 CONG. REC. S16873 [daily ed. Oct. 4, 1972] filed as legislative history). He attempted to relegate stream standards to secondary importance and urged primary attention be directed to the strict effluent limitations of section 301. However, Senator Muskie was clear that stream standards could be utilized to determine if more restrictive effluent requirements than those found in section 301 should be required. (118 CONG. REC. S16873 (daily ed. Oct. 4, 1972).

¹³³Note 130 *supra*.

from perfect, but it represents a significant improvement over the 1965 legislation.

P.L. 92-500 represents a qualitative and fundamental departure from prior national water pollution control legislation. It has enunciated a policy that the nation's waters are no longer to be available for waste disposal. The national goal of section 101(a)(2) can, with diligent efforts, be achieved. It is a challenging goal, but the two phase approach spread over eleven years should provide time to solve the perplexing problems which now seem rather intractable. Creative efforts from all levels of government will be required. The mandate requires solutions and if those charged with responsibility for administering the Act do not seek answers to the hard questions at an early date, they themselves will surely be major sources of the problem.