THE CONCEPT OF WATER POLLUTION IN THE UNITED STATES

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INTRODUCTION

This paper seeks to identify in conceptual terms the prevailing notion of water pollution in the U.S.A. as reflected in the legislative, judicial and administrative attitudes towards water pollution control. The concept of water pollution that is formulated in this manner, may be interpreted in the light of theories relating to representative government, as being, in effect a crystallised version of the popular notion on the subject in the U.S.A. This concept formulation process is not intended to be a mere academic exercise. It serves the purpose of indicating in broad conceptual terms the legal ramifications associated with the term "water pollution" and also provides an insight into the legislative trends towards water pollution control.

A. Historical factors that contributed to the moulding of the present concept of water pollution in the United States.

The *Rivers and Harbors Act* of 1899[1] heralded the American awakening as to the potential dangers of water pollution. The ideas embodied in the *Act* had their origins in section 6[2] of the *Rivers and Harbors Act* of 1890. Congress passed the 1890 *Act* in response to the U.S. Supreme Court's decision in *Williamette Iron Bridge Co. v. Hatch*[3] emphasizing the necessity for a direct statute to bring obstructions and nuisances in navigable rivers within the area of federal judicial review, as there was "... no common law of the United States which prohibits obstructions and nuisances in navigable rivers"[4]. Although there was considerable evidence of injury to navigable waters from discharges of various substances[5], prosecutions were conducted under the *Act*, in terms of "physical obstructions" to navigability and, until the case of *LaMerced*[6] in

1. 33 U.S.C.A. § 407, also referred to as the *Refuse Act* of 1899.

2. Sec. 6 of the *Act* read in part:
   "It shall not be lawful to place, discharge or deposit, by any process or in any manner, ballast, refuse, dirt, ashes, cinders, mud, sand, dredgings, sludge, acid, or any other matter of any kind other than that flowing from streets, sewers, and passing therefrom in a liquid state, into the waters of any harbor or river of the U.S. ...".

3. 125 U.S. 1 (1888).

4. *Ibid.*, at p. 8.

5. See D.A. Eames, *"Refuse Act of 1899; Its scope and role in control of water pollution" (Comment)* (1970), 58 California Law Review 1444 at 1449.

6. 84 F. 2d 444 (9th Circ. 1936).

1936, the influencing and motivating factors that lay behind the enactment of the *Act* were thrust into the background. In contrast to the earlier attitude of the courts, which visualized the *Refuse Act* as primarily a statute dealing with obstructions to navigation, the court in *LaMerced* stressed the pollution and nuisance control aspects which were in effect the motivating factors behind the enactment of the statute.

The court stated that if section 13 of the *Refuse Act* was read literally it could be said that it prohibited two acts: The first being the discharge of "any refuse matter of any kind or description whatever... into any navigable waters of the U.S.", the other act prohibited being the discharge of "material of any kind in any place on the bank of any navigable river... whereby navigation shall or may be impeded or obstructed". Thus the first prohibited act was not made dependent on the fact that the refuse matter had to impede or obstruct navigation. Hayney J. stated that any other meaning given to the section, would amount to a "... construction that is not interpretation, but perversion"[7]. The court went on to say that the *Oil Pollution Act of 1924* contemplated the relevance of the *Refuse Act* to pollution control when it made specific provision in section 8, that the *Act* (i.e. *the Oil Pollution Act*) was an addition to laws existing prior thereto for the preservation and protection of navigable waters.

The *LaMerced* case was the first direct attempt by the courts to utilise the *Refuse Act* for pollution control purposes. The court in this case thought it fit to consider the discharge of oil as coming within the term "refuse", and saw no reason for limiting refuse to such matter as would impede or obstruct navigation.

Though this federal legislative initiative (i.e. the *Refuse Act*) was applied to a narrower field than it was intended to cover, it still had an indirect bearing on pollution control even at that stage. A good illustration may be found in the treatment meted out to discharges into non-navigable and navigable waters by the *Refuse Act*. In the latter instance discharges are permitted under a permit system. In the former waters there is an absolute prohibition on discharges. The court in *Kalur v. Resor*[8] interpreted this as an indication of Congressional disapproval of industrial plants being

7. *Ibid.*, at p. 446.

8. (1972) 3 E.R.C. 1458 at 1464-65, footnote 38.

located in the vicinity of non-navigable rivers, as the discharges of such industries could have ultimately impeded navigation in navigable rivers. This in effect had an indirect bearing on pollution control. The *Act* was the first federal response to the problem, and was a beacon in the wilderness of *laissez-faire* thinking in relation to the environment, that had continued to persist in spite of the obvious indications of the impending water pollution crisis during the past seventy years.

1948 to 1970 were the years of federal grants for sewage constructions under state supervision, alongside the acceptance of state responsibility for pollution control. State inactivity and the arrival of the long foreseen crisis, forced the federal government to intervene and formulate more effective pollution control legislation. The 1970 *Federal Water Quality Improvement Act* with its emphasis solely on water quality standards was replaced by the *Federal Water Pollution Control Act of 1972*[9]. The *FWPCA* emphasizes a licensing system, regulated by considerations of water quality to protect specified uses.

The establishment of a federal licensing system in relation to effluent discharges was also indicative of a more assertive assumption of federal responsibility as regards water pollution control.

The federal licence is issued on the certification of approval of a discharge by the state concerned. However, if such certification or licensing of the discharge should affect the quality of the waters of another state, the administrator may hold a public hearing, and "condition such licence or permit in such manner as may be necessary to insure compliance with applicable water quality requirements"[10]. If such compliance is considered impossible by the applicant for the licence, no permit will be issued[11]. This federal assumption of control in maintaining water quality levels and directing licensing methods is an essential cornerstone of the pollution control program as outlined in the *Act*.

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9. 33 U.S.C. § 1251 et seq. (Supp. 1973), hereinafter referred to as *FWPCA*.

10. Sec. 401(a) (1) of the *FWPCA* of 1972.

11. *Ibid.*, sec. 401(a) (2).

The essence of the present concept of water pollution in the U.S.A. is embodied in the *FWPCA* of 1972 and the judicial decisions that derive therefrom. The *Act* presents a definite break from the past attitude of federal vacillation, and in an effort to offset the possibilities of a "usable water" shortage in the near future[12], lays down deadlines as to the achievement of effluent limitations in relation to major pollutants such as industrial and municipal waste, and prohibits absolutely the discharge of forms of radiological, hydrocarbon and chemical elements_a step indicative of the urgency for a solution and the necessity for an innovative approach to the problem. Though the essence of the concept of water pollution in the U.S.A. is condensed in the *FWPCA* and the judicial decisions interpreting it, the significance and scope of the concept may be realised only by a consideration of the application of other relevant Acts which overlap with the *FWPCA* in covering certain areas of water pollution control.

B. The aspect of "form" identification in pollution control

Due to the critical urgency of the water pollution crisis the *Act* makes an effort to concentrate on specific forms of water pollutants, and avoids attempting to provide for categories of sources as was the approach under the *Clean Air Act.* Moreover, the identification of water pollutants under a generalised compartmentalisation of sources, would have been impossible due to the varied effects of water pollutants on the environment. A discharge of human waste from a "marine sanitary device" cannot be placed in the same category as a discharge from a municipal sewage treatment plant, though both may be "point sources". A "point source" is defined in the *Act* as

> "any discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, *container,* rolling stock, concentrated animal feeding operation, *or vessel* or *other floating craft,* from which pollutants are or may be discharged"[13].

The emphasis on forms is shown by the manner in which the statute deals with the various forms of pollutants. It classifies them into "point sources", "non-point sources", toxic pollutants, oil and

12. *Time,* 10.5.68 at p. 50.

13. Sec. 502(14) of *FWPCA.*

hazardous pollutants, marine sanitation pollutants, thermal discharges, aquacultural pollutants, discharge of dredged or fill material, disposal of sewage sludge and ocean discharges. Another factor that tends to point to the emphasis on "forms" of pollutants is the different criteria used, for the imputation of liability and the assessment of damages. In the establishment of effluent limitations from sewage treatment plants, the *Act* recommends that the administrator should hold a public hearing to take into consideration "the social costs" of such limitations and factors relating to the availability of adequate technology[14] . The discharger is exempted from the effluent limitation deadline if he shows that he is unable to use the best technology available as it is not within his economic capability[15] . However in the case of oil or hazardous discharges no such "laxity" is provided. Absolute liability, as distinct from strict liability (as in effluent discharges from sewage treatment plants), is imposed in regard to discharges of oil or hazardous substances. In the case of oil and hazardous substances the *Act* limits the area of laxity to the assessment of damages. For example, factors relating to the "... operators ability to continue in business, and the gravity of the violation..."[16] are given consideration in charging a penalty for discharges of oil into the waters of the contiguous zone in excess of the amounts permitted under Article IV of the *International Convention for the Prevention of Pollution of the Sea by Oil* of 1954 and the discharge limitations as determined by the President[17] .

Absolute liability is imposed as regards the discharge of warfare agents and "high level" radioactive wastes[18] , and in contrast the administrator is given the discretion to impose restrictions on the discharge of toxic pollutants[19] . The statute specifies methods of control of effluence from point sources, marine sanitary devices[20] and thermal plants[21] . However, it offers no effective suggestion for the control of "discharges" from non-point sources. It assigns to the administrator the function of providing "information" and

14. *Ibid.*, sec. 302(b) (1) of the *FWPCA*.
15. *Ibid.*, sec. 301(c).
16. *Ibid.*, sec. 311(b) (6).
17. *Ibid.*, sec. 311(b) (3).
18. *Ibid.*, sec. 301(f).
19. See sec. 307 in general of *FWPCA*.
20. *Ibid.*, sec. 312(b) (1).
21. *Ibid.*, sec. 303(d) (1) (D).

"guidelines" for "identifying and evaluating the nature and extent of non-point sources of pollutants" and procedures for control[22]. Non-point sources of water pollution include run offs and silting from agricultural, silvicultural, mining and construction activities. Pollution resulting from disposal of pollutants in wells or in subsurface excavations and salt water intrusion resulting from reductions of fresh water in excavation, irrigation and diversion processes is also regarded as originating from "non-point sources". Here again the emphasis is on "forms" of pollution, despite the use of the rather uncertain term "non-point source".

No inkling of an idea whatsoever is provided in the *Act* as to how these "forms" of pollution could be controlled. Moreover the *Act* specifically seems to consider the control of agricultural run off pollutants as a long term policy[23].

However the *Federal Environmental Pesticide Control Act* of 1972[24], enacted after the *FWPCA*, indicates the trends in the federal control approaches to pollution from non-point sources. It gives the administrator authority to restrict the use of pesticides by regulatory means if there is a possibility of "... unreasonable adverse effects on the environment, including injury..."[25] to the person who uses the pesticide. The use of fertilizers however may not be covered by the definition of "pesticide"[26], though such definition refers to the use of all "plant regulators". "Plant regulators" however is defined as not including "... plant nutrients, trace elements, nutritional chemicals, plant inoculants and soil amendments"[27]. This in effect excludes fertilizers. The federal approach seems to indicate a regulatory licensing trend in regard to the control of the use of substances that may cause pollution from "non-point sources".

Thus the different approaches to water pollution control in relation to specified forms of pollutants is itself an indication as to the emphasis on form. This approach is in keeping with the treatment method emphasized throughout the statute. The problems that arise in this method of identification of forms specifically for

22. *Ibid.*, sec. 304(e).
23. *Ibid.*, sec. 104(P).
24. Public Law 92-516 (1972).
25. *Ibid.*, sec. 3(6) (1) (c).
26. *Ibid.*, sec. 2(u).
27. *Ibid.*, sec. 2(v).

treatment *cum* licensing processes, are also associated with problems of the adequacy and limitations in the treatment process. In other words, a treatment strategy based on "forms", should also provide for suitable alternatives in areas where treatment cannot be effected. The *Act* seems to operate on the premise that the discharge of inadequately treated or untreated sewage is the major cause of water pollution. Therefore it has formulated a system, the treatment *cum* licensing system, to control pollution caused by the discharge of sewage. In the process it has left the back door wide open, in failing to suggest effective means of controlling situations in which the treatment method cannot apply (as in pollution from non-point sources) or is ineffective. Such cases may arise when pollutants not subject to a treatment process are discharged into a treatment plant or when treatment processes are unable to expand to cater to the needs of a growing society, due to a short supply of funds for purposes of sewage construction facilities. Since the deadline which the *Act* sets for the restoration and maintenance of the "chemical, physical and biological integrity of the nation's waters" is 1985[28], the non-provision of suitable alternatives in situations not subjected to treatment will not only limit the effectiveness of the costly treatment *cum* recycling project contemplated, but it may also convert the recycling process into a potential source of pollution rather than an instrument of pollution control.

The absence of clear provisions for control of "non-point source" pollution only adds to the problem of pollution, for it provides an incentive to produce from recycling machines, products that could cause water pollution when applied to activities which lead to pollution from "non-point sources". The use of a recycling system to produce fertilizers containing chemicals identifiable as potential pollutants for agricultural purposes is a good example of how an effluent could yet end up being a pollutant due to the identification of forms of pollutants with a particular system of control in disregard for other possible complimentary and alternate methods of control, in case of non-applicability or failure of the major control method, and the ramificative nature of pollution. The answer to the American dilemma of water pollution control may be a primary stress on treatment supplemented by a prohibition on the use of elements that may contribute to pollution in another form as a result of the recycling process and also in the restrictive use of methods and chemical elements that may contribute to non-point forms of pollution.

28. *Ibid.*, sec. 101(a) (1).

The need for a method of control supplementary to the treatment process is being gradually recognized in U.S.A. This is particularly noticeable in the methods adopted to prevent the eutrophication of watercourses. Thus in *Soap Detergent Association v. Clark*[29], an ordinance banning the use of phosphates in detergents was held by the court to be constitutionally valid and a proper mode for the control of water pollution that afflicted the watercourses of the region. 90% of the detergent content used for marketing in this instance contained phosphorus. Phosphorus being a nutrient is regarded as a major contributory element for the excess growth of algae. Such excess growth leads to the formation of a blanket on the surface of the water, resulting in the prevention of sunlight reaching the aquatic plants which are a part of the oxygen production cycle in watercourses. The court suggested that in situations where sewage treatment systems are inadequate or unavailable, the best method of control would be the removal of the major element contributing to pollution.

However in the recent decision of *Soap and Detergents Association v. Chicago*[30] , the court disapproved of a total ban placed on the use of phosphates in the production of detergents, on the ground that the ban "unreasonably and unjustifiably interferes with their (i.e. Plaintiffs) normal distribution and sale of these products in interstate commerce". The city's argument that the river would be subjected to eutrophication due to the use of phosphates was rejected by the court, which even went to the extent of disapproving the 8.7% limitation imposed on phosphates prior to the total ban. The court's reasoning was that there would be no eutrophication whatsoever in the river under consideration due to its excessive turbidity and the periodic flushing caused by high water, which inhibited the growth of algae. On the production of aerial photographs as evidence of the growth of algae the court brushed it aside as having been taken at sites along the river where the tributaries containing algae flowed into the river. Surprisingly the court went no further in its reasoning. Though the algae may have flowed in from the tributaries, the court ignored the possibilities of its continued existence in the river thereafter and the growth that may occur as a result of the discharge of phosphate containing effluence that may be discharged in the future.

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29. (1972) 3 E.R.C. 1075.

30. (1974) 5 E.R.C. 1119.

The same lackadaisical approach was adopted by the court in its other arguments "substantiating" its conclusions:

> 1) The phosphate content used in the detergents manufactured by the plaintiffs was roughly within the 25% range. The plaintiffs who were seeking to set aside the ban on the use of phosphates argued that it was harmless and the ban had caused them a loss of $5,200,000 in sales, within a period of a year. The court said that the present rate of effluence did not cause a "significant amount" of algae and therefore was harmless. Eutrophication is a slow process. The early stages of such eutrophication can produce seemingly beneficial results - such as increased fish productivity. It is only at the advanced stages that dissolved oxygen levels are lowered and algae growth endangering water quality is noticeable[31] . Thus in fact what may have seemed to the court to be harmless may have been a potentially dangerous state of eutrophication. The court seemed to favour the "cure is better than prevention" method which has been a canker in American thinking on pollution control. Moreover the court's concern for the contribution of the detergent industry to the economy by way of gross sales exceeding $2 billion a year and the promotion of commerce in general seemed to have outweighed the city's claim to benefits that may have resulted from the ban.
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> 2) The court admitted that the river concerned (i.e. the Illinois River) contained one of the highest percentages of phosphates amongst the rivers in U.S.A. At a selected point, downstream tests had shown that the river contained four times as much phosphates as is necessary to sustain algae, of which the city's detergents contributed 25%. The court however, on the basis of two down stream laboratory tests *conducted by the plaintiffs*, which identified nitrogen as the sole cause for the growth of algae, concluded that the elimination of phosphates (the ban had been in effect for four months) had had no effect on the reduction of algae[32] and therefore the ban was unjustified. Even though the ban may have been in operation, yet the court completely discounted the existence of the 75% phosphate content in the waters, which amounted to three times the

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31. V. J. Yannacone Jr. and B.S. Cohen: *Environmental Rights and Remedies* (1972), Vol. II at p. 508.

32. At p. 1123.

> amount needed to sustain algae growth according to the city's tests, as possibly having contributed to the growth of the algae after the ban. The court however did not even explain the nature of the laboratory tests conducted by the plaintiffs and moreover as they were conducted by the plaintiffs in the absence of witnesses, it leaves room to doubt the veracity of such tests and perhaps the validity of the admission of such evidence for the purposes of establishing a relevant fact. Neither did the court suggest a reason for the origins of the "excessive" nitrogen that it attributed to as having caused the algae growth.

Thus the court's "whimsical reasoning" itself stands testimony to the most retrogressive decision to date in regard to water pollution control from non-point sources, and may also have a bearing on the "polluter pays for his pollution" principle (discussed below), in that commercial and economic factors may completely negative the necessity for the fulfilment of the obligations of the polluter.

The *Refuse Act* seems to provide a means to cover the gap as regards pollution that may result from non-point sources, for which the *FWPCA* has made no control provision. Thus in *U.S. v. Genoa*[33], it was clearly indicated that the most effective prevailing remedy in water pollution control from non-point sources lay in Section 13 of the *Refuse Act*. In this case, where a creamery discharged liquid containing milk wastes and wash water with suspended solids, through underground pipes to the bottom of a hill where it emerged into an open ditch and flowed under a highway to a river, it was held that this constituted a violation of Section 13 of the *Refuse Act*. The court refused to accept that this discharge fell under the statutory exception provided in Section 13 as regards refuse matter "flowing from streets and sewers and passing therefrom in a liquid state into any navigable water". It was held that this applies only to municipal sewage and not industrial waste.

The *FWPCA* bars the issuance of permits under the *Refuse Act*, in instances where it has made provision for the issuance of permits[34]. The *FWPCA* however does not recommend any form of direct control measure as regards pollution that could occur from non-point sources. This in effect means that the *Refuse Act* could be

33. (1973) 4 E.R.C. 1040.

34. Sec. 402(a) (5) of the *FWPCA*.

applied to pollution that may be caused from non-point sources. As the court in *Brown v. Ruckelshaus*[35] said, Section 505 of the *FWPCA*, which provides for citizen suits against violations of effluence limitations and the improper grant of permits by the administrator in the performance of a non-discretionary duty, does not override the remedies available under any other law. Thus the *Refuse Act* may be utilised to control discharges and run offs from mining, agricultural and silvicultural activities as well.

Apart from the aspect of control of pollution from non-point sources, precautionary steps may also be taken in providing courts the authority to identify forms, unidentified by the *Act* and to provide standards in situations of extreme need. Section 2(2) of the *Michigan Environmental Protection Act of 1970*[36] for instance authorizes the court to set an acceptable standard if it finds existing standards unreasonable or deficient. The courts have deemed this to be a valid exercise of judicial power[37] . As to whether courts could identify a particular discharge as a "form" and establish standards therein, in situations of urgency is still a matter to be decided upon.

As aspect that may pose problems in regard to water pollution control through the identification of forms, particularly in regard to non-point and toxic pollutants is the establishment of a causal link between the polluting activity and the discharge. For instance in *A.P. Weaver v. Sanitary Water Board*[38] , in an issue as to whether the acidity of a tributary was a result of violations of the conditions under which a mine drainage permit was granted, the court held that there was no "substantial evidence" showing that there was a causal connection between the polluting activity and the mining operations. The court held that the administrative body's decision to cancel the permit was based on an "assumption"[39] even though the facts clearly indicated that the tributary had doubled in its acidity over what it was prior to the mining. The court also pointed out that the entire inquiry and adjudication of the administrative body was directed towards one particular discharge, that of the mine drainage under consideration, and seemed to uphold the argument of the defendant, that the spring was polluted by various other sources as

35. (1974) 5 E.R.C. 1803 at 1807.

36. See Sec. 691.1202 of *Michigan Compiled Laws Annotated* (1970).

37. *Lakeland Property Owners v. Township of Northerfield* (1972) 3 E.R.C. 1893.

38. (1972) 3 E.R.C. 1497.

39. *Ibid.*, at p. 1501.

well, although the administrative body's samples indicated pollution of such waters was the result of mining operations. The court seemed to think that wherever a "violation" of a standard involved an imposition of quasi-penal charges "... strict proof of the operator's responsibility ought to be required..."[40]. The court defined a decision on "substantial evidence" as a decision where

> "... on the facts, upon an examination of the entire record, the evidence, including inferences therefrom, is found to be such that a reasonable man, acting reasonably, might have reached the decision; but on the other hand, if a reasonable man, acting reasonably, could not have reached the decision from the evidence and its inferences then the decision is not supported by substantial evidence and it should be set aside"[41].

The stringency of the application of this widely stated general principle can be observed from the manner in which the court applied the principle to the facts, which seemed to strongly indicate that the discharger too was a contributer to the pollution. Though this case was not decided under the *FWPCA* of 1972 (which also contains quasi-penal provisions), it is difficult to see how the licensing system can be effective, if the court is to seek what it calls "strict proof" of the causal nexus for violations.

C. The Aspect of "water quality" as viewed in the U.S.A. water pollution control program.

The *FWPCA* of 1972 permits water quality standards established prior to 1972, to exist so long as they are not inconsistent with the provisions of the 1972 *FWPCA* (s. 303(a)(1) and (2)). In other words, as long as they are not in conflict with the effluent limitations imposed by the administrator they are permitted to remain. However the question that arises is, when an individual polluter violates an effluent limitation but has not violated the overall water quality standard, whether "pollution" comes into being? The *FWPCA* seems to emphasize in section 303 (a)(1), (2) and (3) that the regulations relating to effluent limitations have priority over the established water quality standards in situations of inconsistency. Moreover the *Act* emphasizes effluent limitations

40. *Ibid.*, at p. 1499.

41. *Ibid.*, pp. 1499-1500.

as the basis for its pollution control problem in section 301. In this context it is submitted that in the event of a violation of an effluent standard, the activity ascertained as "water pollution" comes into being.

Another question that arises is what the term "water quality" signifies in the American approach to water pollution control. The term "water quality" which the *FWPCA* refers to, relates to the interests it seeks to protect. The *Act* specifies interests such as the propagation of fish, shell fish, recreation, wildlife (s. 101(2)), public health or welfare (s. 304(a)(1)), forestry (s. 107(a)), public water supplies (s. 303(c)(2)), navigation (s. 303(e)(2)), agriculture and industry (s. 303(c)(2)), for purposes of immediate protection from the adverse effects of water pollution. The *Act* on the other hand, also seeks to take into consideration "the relationship of the economic and social costs of achieving any... limitation or limitations, including any economic or social dislocation in the affected community or communities, and the social and economic benefits to be obtained..." (sec. 302(b)(1)) technological adequacy and the financial burden on the polluter in meeting the limitation standards, and the quality of the equipment facilities already installed, (s. 304(b)(1)(B)), in determining matters relating to water quality.

Thus in *Businessmen for the Public Interest v. Resor*[42], (an action to compel the re-adjustment of the effluent standard to the best technology standard attainable), the court said the establishment of water quality and effluent standards, are not governed by the availability of the best available technology to control effluence, but by the best technology standard feasible. In refusing the readjustment of the prevailing effluence limitation to a stricter standard, the court said every decision concerning the issuance or denial of a permit would be a compromise between the desirable extent of water purity needed and the social costs involved.

> "In a sense, the existing water quality standards are standards established to demand of industry not the best technology available, but rather the best technology feasible at this time, taking into consideration the economic and social, as well as the technical factors which must be considered in determining how fast an industry will be required and can be required to ultimately eliminate all deletirious effects upon the environment which its waste products may have"[43].

42. (1972) 3 E.R.C. 1216.

43. *Ibid.*, p. 1222.

In adopting this approach towards the determination of the required water quality level, the court seemed to ignore the fact that a river or a lake (it was dealing with Lake Michigan) is all pervasive and is usually interconnected with a network of watercourses, which may include, tributaries, rivulets, rivers and other lakes. Therefore if the best possible means to prevent pollution are not applied in one area, it may perhaps nullify the best efforts of another district through which the interconnecting tributaries and rivers may flow, to the additional costs of the citizens of the latter state. Therefore it is submitted that in situations of this nature where social costs and economic considerations are involved, the court in its restraint should not completely overlook the possibilities of establishing definite dates for the installation of better technology and higher standards. With the limited rights provided to individuals and groups in questioning administrative discretion under the *FWPCA*, the court's role in pollution control is not merely to sit back and as an umpire, merely resolve adversary contentions. Rather it must itself take the initiative in considering environmental values at every distinct stage in implementing the legislature's will. The court in this case, for instance, considered Lake Michigan to be in a state of "accelerated degradation"[44] and thereafter made no provision whatsoever for the implementation of the legislature's will at any distinct stage after the making of this environmental "value judgment".

Under the *FWPCA* of 1972 aesthetic interests are treated as being irrelevant for the determination of water quality levels. For instance in *Scenic Hudson Preservation Conference v. Diamond*[45], (a case decided under the *FWOIA* of 1970 which contains the same "interests" provisions as in the *1972 Act*), the court cited salt water contamination, damages to aqueducts, thermal pollution, and the effect on the fish population as factors that should be considered in determining water quality levels, in regard to discharges from a "pumped storage hydro-electric generating facility", and expressly cast aside the consideration of aesthetic interests. Aesthetic interests may yet be relevant in determining water quality levels, though such interests may be limited to areas which the *Refuse Act* is still applicable. The court in *Kalur v. Resor*[46] stated that aesthetic factors were within the zone of interests protected or regulated by

44. *Ibid.*, at p. 1224.

45. (1974) 5 E.R.C. 1113.

46. (1972) 3 E.R.C. 1458.

the *Refuse Act,* and ordered the prevention of dumping of refuse into waters used for "aesthetic, conservational and recreational"[47] purposes. However section 402(a)(5) of the *FWPCA* seems to supersede the permit granting provisions under the *Refuse Act,* for it prohibits the grant of permits for discharges into navigable rivers under section 13 of the *Refuse Act.* Thus it seems aesthetic considerations protected before the enactment of the *FWPCA* are no longer of any relevance in determining effluent discharges that are subjected to a permit system under the *FWPCA*. However the *Act* states that the permits already issued under section 13 of the *Refuse Act,* shall continue in force until their term expires (s. 402 (a)(4)). This means aesthetic factors are still protected, though in a limited sense, by the permits already provided for under the *Refuse Act,* and any breach of such permit, may result in claims stemming from deprivation of aesthetic enjoyment facilities.

Another situation in which aesthetic factors may have a relevance in determining liability for pollution and the specification of water quality levels is where the *FWPCA* is treated as being inapplicable to the facts of the situation. Thus in a case[48] where an unlawful strike was initiated by union leaders that led to pollution due to the stoppage of work at treatment plants and in the disposal of garbage, the court ignored statutes imposing strict liability on persons in "control" of the discharging units (in this case a municipality) and sought to identify liability with the union leaders for their "malicious" acts leading to the infringement of a "substantial right"[49] . Aesthetic factors too were indicated as coming within the range of "substantial public rights". Does this indicate that where there is no affixing of strict liability on the controlling body and the court seeks a remedy in common law, aesthetic factors too will be treated as being relevant in the determination of damages and the identification of liability? The *FWPCA* does not contemplate liability in the above fact situation either for the infringement of public aesthetic interests or where a third party brought about pollution by an effluent discharge. The court in order to provide for a "demonstrated wrong"[50] sought a remedy in formulating a new tort in the midst of statutes identifying liability with the "owner or operator". (The *FWPCA* which was enacted after this case too affixes

47. *Ibid.*, p. 1461.

48. *Caso v. Gotbaum* (1972) 3 E.R.C. 1061.

49. *Ibid.*, at p. 1063.

50. *Ibid.*, at p. 1063.

liability on the "owner or operator" for breach of its provisions). The court said "just as new torts have emerged with new technology, new torts must emerge with changing population pressures and acknowledged social responsibilities"[50]. It is therefore submitted that aesthetic interests may be protected in situations where liability is identified with a third party as distinct from the "controlling" party, who is normally specified as being the "owner" or "operator".

The issue may also arise as to what principles the court would adopt in resolving conflicts of interests that may occur, in its efforts at maintaining the water quality levels necessary to safeguard the interests protected by the *Act*. In *Czipott v. Fleigh*[51] , where there was a conflict of interests resulting from the use of water in a common well for domestic purposes by the plaintiff (including drinking purposes), and the maintenance of horses by the defendant in the vicinity of the well which lead to the contamination of the water in an arid area where water was scarce, the court held as the well's "... preservation is necessary to the general welfare", that the plaintiff's use should prevail. It was argued by the defendant that the plaintiff could have an alternative source of water by the drilling of a well in the vicinity. The court refused to consider the possibilities of alternate means as a basis for resolving the conflict in this particular case, for by the contamination of any well "the underground water supply of an arid area such as that of Clark County" would have been "endangered". The principle that seems to evolve from the case is that water quality is not determined essentially by the availability of feasible alternative methods to serve a conflicting interest, but by looking to the nature of the use for which the water could be most beneficially utilised.

In a situation of conflict in interests where a group of persons are physically endangered due to the existence of a dangerous situation, the courts have permitted pollution even though this may relegate recreation to the secondary position. Thus in *Sanitary Water Board v. Harmar Coal*[52] , the court permitted the pumping of mine water from an abandoned mine, which endangered the lives of miners in an adjacent mine, to a rivulet, even though it meant an increase in the iron concentration of the receiving waters in excess of the standards prescribed. The significance of this decision is that the statute prescribing the establishment of standards limits mine

50. *Ibid.*, at p. 1064.

51. (1972) 3 E.R.C. 1383.

52. (1972) 3 E.R.C. 1705.

drainage, to very narrow exceptions, as the state of Pennsylvania has "more miles of water polluted mine drainage than any state in the nation"[53]. Despite this the court seemed to view water quality as a factor subject to the interests that it may have to serve.

Where there has been a conflict between interests, one of which involved the protection of exhaustible natural resources, the courts have shown no reluctance whatsoever to enforce an absolute prohibition prescribed by statute, even though the polluting activity may have been permitted in exceptional circumstances under the statute by the grant of a permit. The decision in *Potomac Sand and Gravel v. Mandel*[54] strongly indicates this approach, though in this case the dredgers were only awaiting the approval of their application for permits to conduct dredging and filling for sand and gravel in tidal waters and marshlands adjacent to their lands, the court disapproved strongly of this particular use, so as to further the purposes of protection of fish and aquatic plants in the waters referred to above. The court said the dredging:

> "increases the water's turbidity. Turbidity is the suspension of dirt particles in the water. A high turbidity reduces the amount of sunlight which reaches aquatic plants, which through photosynthesis produce oxygen for fish. The plants themselves are a food source for fish which would be reduced both due to the failure of plants to reproduce and by the smothering of plants by dirt particles"[55].

The issue may arise as to whether a form of activity not identified by the *FWPCA* of 1972, could be subjected to control, if it is repugnant to water quality standards and the interests the *Act* seeks to protect. For instance log driving and the pollution that it may cause by the settling of bark and water soaked logs on the bottom of the river may not be covered by the *FWPCA* as a "form" of pollution. The counsel in *U.S. v. Kennebec*[56] in fact agreed the *FWOIA* of 1970 did not cover the above situation. The 1972 amendments (i.e. the *FWPCA* of 1972) too, does not seem to consider the above activity as constituting a polluting "form". It is submitted however that pollution control by the identification of "forms", and water quality levels associated with interests subjected to statutory protection are two different

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53. *Ibid.*, at p. 1709.

54. (1972) 3 E.R.C. 1723.

55. *Ibid.*, at p. 1728.

56. (1974) 5 E.R.C. 1146.

segments in the pollution control program. The identification of forms is only a means to maintain water quality levels, which in turn are necessary to protect certain specified interests. Thus situations may arise where water quality levels may be disturbed, even though it may not be by an identified form, particularly so, if an "interest" is affected. In such situations remedies may be sought outside the framework of the statute, for the whole control program contemplated by the *Act* is essentially directed towards the protection of specified interests. If the program is not treated as constituting two segments that are interrelated and not interdependent on one another in their common purpose of protecting the interests stipulated by the *Act*, the aims of the control program may be defeated. Thus even though the *FWPCA* of 1972 does not provide a control method, if an interest stipulated by it is affected, an action may be sustained as in the above fact situation under a remedy outside the framework of the statute, such as section 13 of the *Refuse Act* which makes it unlawful to deposit in navigable waters "any refuse matter of any kind or description whatever".

Therefore "water quality" refers to the interests that the *FWPCA* and the courts seek to protect. That is, the quality of the water should be such that it would serve the purposes of specified interests adequately. The "water quality" that is required to serve various interests is determined and regulated by factors such as oxygen demands for putrification of wastes, (i.e. BOD), persistency of acids, presence of toxic elements, salt water sedimentation and radiological combinations in the water[57].

D. The commitment to the treatment process: The effects it may have on the water pollution control program and the concept of water pollution in the United States.

The American obsession[58] with the treatment process dates back to the *Federal Water Pollution Control Act* of 1956. The authorization of large grants for sewage construction without any attempt whatsoever at control being directed towards the roots of the "malady" of water pollution was based on the till recently respectable "cure is better than prevention" policy that has dominated American thinking on the subject.

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57. See *Scenic Hudson Preservation Conference v. Diamond,* (1974) 5 E.R.C. 1113 at 1116; see also Lewin and Hartelius, *Law and the Municipal Ecology* (1970) at p. 121.

58. S.W. Schroeder, *Pollution in Perspective: A Survey of the Federal Effort and Case Approach,* (1971) 4 Natural Resources Lawyer 381 at 395. Moreover the *FWPCA* contemplates water pollution control through treatment systems for the next twenty years. See sec. 208(b) (2) (A).

From the point of view of litigation however, the treatment process offers the advantages of reduction of litigation and a swifter method of identification of the polluter. If the *FWPCA*'s strategy is to provide non-polluted waters by 1985, then as the court said in *U.S. v. Douglas County*[59]:

> "The purposes of Congress cannot be achieved by limiting the sanctions of the *Act* to authorization of innumerable individual actions against persons allegedly causing pollution. To do so would be to render meaningless the carefully conceived provisions of the development of comprehensive corporate programs for the control and elimination of pollution, the negotiation and consummation of interstate compacts, the funding and sponsoring of research, investigations and experimentations and grants in aid of pollution control[60].

Treatment and the placement of responsibility in those entrusted with the control of the treatment and ultimately the emission process seemed to be the only answer.

Moreover, the treatment process attempts to prevent illegal dumping of waste and sewage into rivers, usually at nights, by providing for central sewage systems catering for industrial and domestic sewage. It also helps in providing a thrust to the "polluter should pay for his pollution" concept by affording opportunities to place responsibilities as to breaches of water quality and effluence discharge standards on an identifiable body or person. As the court said in *U.S. v. Douglas County*[61] any success in the treatment process

> "... cannot be accomplished by limiting the meaning of "violator" to one who causes the discharge of pollution...
> In our view, a violator is any person or agency who has failed in his or its responsibility to fulfill the approved plan for implementation of water quality standards".

Identifying the polluter however is just one aspect of an effective water pollution control program based on the treatment process. Problems relating to enforcement and standing to sue, may arise due to the restrictive interpretations by courts of suits brought

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59. (1974) 5 E.R.C. 1577.

60. *Ibid.*, at 1580.

61. *Ibid.*, at p. 1580.

by citizens either collectively or individually. Thus in *Brown v. Ruckelshaus*[62] where an individual filed action on behalf of himself and all other California citizens and residents against the administrator for irregular allotment of funds appropriated for the construction of sewage treatment plants, the court on a most ingenious interpretation rejected it as a "class action". The court said a class action involves 1) an identification of group of people whose interests have been damaged, 2) identification of the amount, 3) allocation of any damages recovered.

Moreover according to the court, section 505 of the *FWPCA* of 1972 refers only to the commencement of civil actions by the citizen only "on his own behalf" (s. 505(a)), and in no way covers "class actions" as above expounded. Though the present action may not fall under the category of a class action as conceived in this case, it is submitted a remedy may still be found in section 505(a)(2) in situations involving class or individual actions, either in instances of violations of effluence standards (s. 505 deals with this aspect too) or failure by the administrator to carry out non-discretionary duties under the law. Section 505(a)(2) states "The district courts shall have jurisdiction, without regard to the amount in controversy or the citizenship of the parties... to order the administrator to perform such act or duty..." under the *Act*, which is not of discretionary nature. The court seems to have completely overlooked this provision. As the court's comments regarding citizen suits were made after a determination that the case involved a matter relating to the discretion of the administrator, it may be said that they were made obiter. Thus the judicial tendency to erode the limited rights provided in respect to individual and group participation in water pollution control litigation may in fact nullify the advantages of a speedy identification of the polluter that the treatment process offers.

Being aware of the possibilities of a usable water shortage within the next three decades, the U.S.A. had either to reduce its rate of production in relation to water use or place its faith in processes such as storage, treatment and recycling to restore and then maintain the quality of its waters. Moreover the idea of treatment is in keeping with the American view that water exists for a particular use or uses, and if such use or uses could be served by the maintenance of a certain water quality level and the costs for such maintenance could

62. (1974) 5 E.R.C. 1803.

be placed on an identifiable user, the success of any pollution control program would be assured. This method of thinking is based on two fallacies:

1. that "uses" are constant and they may remain so even in the future,
2. that by treatment all forms of pollutants could be subjected to effective treatment in the foreseeable future.

The following hypothetical example illustrates the fallacy in (1) above. Thus for instance a discharge of municipal sewage during the 1920's, causing destruction to the oyster beds and aquatic life in the vicinity was treated as a normal use of the water courses in the public interest[63] . The water so subjected to discharges, may have been utterly worthless or even detrimental for public consumption (that is, drinking purposes) by 1950. The damage to the watercourse may have been already complete, its oxidation process, *inter alia,* so necessary to maintain its quality, destroyed, and the water full of complex chemicals in small but lethal quantities, not easily identifiable, will not give even the most advanced treatment process a fair chance as to "purification". This is in fact the tale behind the predicted "usable" water shortage crisis in U.S.A., and a major cause for the ineffectiveness of the sewage construction program begun in 1956. The *FWPCA* of 1972 offers a wide range of interests to be protected, sets deadlines and lays down rules of strict liability as regards certain forms of pollutants, and also provides exceptions in the form of social and economic considerations as regards the discharge of certain forms of pollutants. As to whether this regulative *cum* treatment approach will have any success is a factor dependent on the rate of economic development and the forms by which such development may take place. As needs vary, uses too will change. An urgently needed "use" uncontemplated by the *Act* could arise in the future, and water quality levels as presently conceived may not be of the required standard for such use, due to the accumulation of a long ignored chemical or radiological substance which may not have disturbed the water quality levels and effluence limitations as presently applied.

For instance an interest identified with the protection of the food chain may arise in the future and water quality levels, along with

63. See L.J. Roos, *Private Remedies to Abate Water Pollution in Virginia and New Theories in Evironmental Law,* (1971-2) 13 William and Mary Law Review 477 at 500.

effluent limitations may have to be geared to meet the demands of this new interest. A good illustration of the problems that overdependence on the treatment method may create is amply shown in the effects of oil particles on marine plant life. For instance,

> "the diatoms on which oysters feed will not grow where there is even a slight trace of oil on the water. The effect of oil on such microscopic marine plant life may be of great importance, because it is estimated that it takes as much as ten pounds of plant matter to produce one pound of fish"[64].

The discharges from treatment plants though they may satisfy present water quality and effluent control standards, may yet discharge particles of oil originating from industrial sewage, which by long term accumulation could cause harm to aquatic life resulting in a disruption of the food chain.

Secondly, it is contemplated that water quality levels could be "maintained" and "improved" by developments in treatment methods. With the increase in industries, population and the production of complex products, treatment methods too may have to change. As to whether such changes in treatment methods could be sustained throughout a continuous period of time is a matter of doubt. Inadequacies in the treatment process may lead to overflows from time to time, so often that it may result in danger to the public health. The court in *Roy v. Water Supply and Pollution Control Commission*[65] refused to set aside an administrative ruling denying a proposed extension of a sewer to include an apartment complex, even though the possibilities of an overflow were limited on a reasonable assessment to only once a year. The court felt that public health should be the predominant factor in making determinations as to matters relating to the application of the treatment processes, and that in this instance even the once a yearly overflow could do substantial harm. Though this may not be so in all instances, the case emphasized the dangers of the "periodic overflows", which "are a hazard to health and are getting worse with time"[66], thus throwing a doubt on the efficacy of the treatment process as a sole means of control as to water pollution that may result from industrial and municipal sewage.

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64. *Askew v. Americal Waterways Operators,* (1974) 5 E.R.C. 1209 at 1212.

65. (1972) 3 E.R.C. 2035; see also *Berkson v. Morton,* (1972) 3 E.R.C. 1121 at 1123.

66. *Ibid.,* at p. 2037.

Moreover the installation of sewer systems are conditioned by the availability of suitable topographical and soil conditions. In areas where there are rock and hilly terrain the installation of central sewer and water systems will be inhibited, and the alternative may be to construct wells and septic tanks. As to whether this is a suitable remedy, even in a limited sense, for purposes of pollution control is rather doubtful. Effluence from septic tanks could seep in to the water source of the homeowner or drain into an area in a lower terrain polluting the waters which are normally used for domestic and other purposes[67].

Even the most modern treatment plants to date have failed to effect sufficient purification in regard to certain known harmful forms of pollutants, such as mercury[68]. The commitment to the treatment process on the belief that its operators would draw up an effective schedule for effluence control of future unknown complex pollutants as the need arises amounts to nothing but a leap into the dark. Moreover the technological changes that may have to be implemented to cope with changes in pollutant forms itself may increase the need for funds, already in short supply[69], and unable to cope with present needs. Moreover the conflict between the executive and Congress as to the sums to be appropriated for the purposes of construction of sewage treatment facilities may tend to hinder the whole water control program. Section 207 of the *FWPCA* of 1972 provides for appropriations to the extent of $5 billion during the first year ending on June 30th, 1973, $6 billion for the next year ending on June 30th, 1974, and $7 billion on the third year ending on June 30th, 1975. The President in his message explaining his veto of the bill (which was overruled by Congress) said that he intended making full use of the provision for spending discretion and flexibility conferred upon the President by the *Act*, if he is forced to put the brakes on "budget wrecking expenditures", which are of an "inflationary nature". He said that even if these discretionary powers were not used,

> "the law would still exact an unfair and unnecessary price from the public. For I am convinced ... that the pressure for full spending under this bill would be so intense that funds approaching the maximum

67. *Salamar Builders v. Tuttle* (1972) 3 E.R.C. 1267.

68. A.W. Reitze, *Environmental Law* (1972) Vol. 1, p. 4, 81 to 82.

69. *Ibid.*, p. 4, 54.

> authorized amount could ultimately be claimed and paid out, no matter what technical controls the bill appears to grant the Executive"[70].

Thus in *New York City v. Ruckelshaus*[71], this approach of the executive towards spending on construction of treatment facilities led to a suit against the administrator, who on the President's direction had failed to allot the full sum authorized to be appropriated under section 207. The court however ruled that the full sum authorized should be allotted. The court quoting Congressman Harsha (Ohio) a major sponsor of the *Act* said:

> "It is essential that the states, interstate agencies and the cities have both the ability for and a basis for long range planning, construction scheduling and financing waste treatment plants, including the sale of bonds that they have to sometimes negotiable. And where there is uncertainty concerning how much will be alloted in a given year, municipalities cannot properly plan the scale of projects for which to seek federal funding"[72].

In *Campaign Clean Water v. Ruckelshaus*[73], however, though the administrator's refusal to allott $6 billion of the total $11 billion that was authorized by the 1972 *FWPCA* to be appropriated in fiscal years 1973 and 1974 for sewage treatment plant construction was considered "a violation of the spirit, intent and letter of the *Act* and a flagrant violation of executive discretion"[74], the court said, on an interpretation of sections 205(a) and 207, the *Act* in fact provides for administrative discretion in allotting the funds. The court adopted the same trend of thought in *Brown v. Ruckelshaus*[75], the latest decision to date on this issue, and considered the previous decisions denying the existence of any administrative discretion in the allocation of funds authorized to be appropriated under section 207, as incorrect and stated that an appropriation does not tantamount to a mandate to spend.

> "The appropriation of a given amount for some project constitutes only a ceiling upon the amount which should be expended for that activity ... (It is the) responsibility (of every Government official) to so control

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70. *New York City v. Ruckelshaus* (1974) 5 E.R.C. 1305 at 1310-11.
71. *Ibid.*
72. *Ibid.*, at p. 1307.
73. (1974) 5 E.R.C. 1441.
74. *Ibid.*, at p. 1447.
75. (1974) 5 E.R.C. 1803.

> and administer the activities under his jurisdiction as to *expend as little as possible* out of the funds appropriated. Thus an appropriation places an upper limit on spending, but not a floor"[76].

Given the present attitude of the executive towards expenditure on treatment facilities, even the slightest delay or "brake application" as the President called it, could have a decisive and detrimental impact upon treatment plant development planning, and ultimately on the whole water pollution control program.

Wherein lies the remedy? The case of *Stanley Manufacturing v. Pollution Control Board*[77], effectively exposes the problems associated with the application of the treatment process as the sole facility for water pollution control that results from sewage, and seems to offer a suitable framework within which the treatment process could operate alongside other control methods. Thus where an industry was discharging inadequately treated effluence into a municipal sewage system, the court rejecting the argument of the defendant that the extent of control of effluent discharge is limited to the point where they reach the waters, said that it is possible to regulate not only those contaminants that are discharged directly into state waters but also contaminants discharged by a manufacturing plant into its own sewer that in turn flows into a central sewage system. The court said,

> "there is a realistic and practical nexus between controlling what flows into a sewer treatment plant and what flows out of that plant and pollutes the waters of the state... The efficiency, sufficiency, adequacy and capacity of the specified sewer treatment plant are (sic) obviously controlled and patently affected by what goes into such plant"[78].

And hence the need for control of what initially enters the sewage complex. This system of control at the source, has also the added advantage of inducing the industry to change its manufacturing system.

However the *FWPCA* of 1972 in its references to the pre-treatment processes refers only to the pre-treatment of toxic pollutants (S. 301(b) (1) (B)). In other words the success of the treatment system as conceived by the *Act*, revolves solely around the extent of control exercised at the point of ultimate discharge. This limitation of control to treatment by a central plant, is the very bane

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76. *Ibid.*, at p. 1810.

77. (1973) 4 E.R.C. 1393.

78. *Ibid.*, at p. 2026.

of the treatment program. The treatment process by itself may not satisfy the requirements of water quality levels, it needs other means of control accessory to it to supplement its final efforts. The remedy it seems lies in the adoption of control measures to either eliminate the possibilities of creation of pollutants in the first place, or if that is not feasible to place the responsibility on the polluter to lessen the content of pollutants he discharges. The mere identification of responsibility with the person who treats the sewage, can at most be only a short term remedy.

An additional control measure may lie in the imposition of a manufacturing tax instead of treatment charges, with instructions that it be indicated in the receipt to the purchaser of the goods as a factor separate from the true cost of the finished goods. This will not only result in public exposure of the polluting capacity of the industry, but also have a powerful impact on the purchaser, both as to the dent in his wallet and the pollution caused, and will also provide a strong incentive to the industry concerned to change its manufacturing process to avoid public hostility towards itself and its goods.

It is conceived in the U.S.A. that an emphasis on the treatment process may in effect promote the maintenance of water quality levels to protect the uses identified in the *FWPCA*. The trend of thought throughout the statute seems to indicate that pollution comes into being once water quality levels identified in relation to particular uses are adversely affected. If the treatment process is to be the main mechanism through which the required water quality levels are to be maintained, and if such process fails due to reasons of technological and financial short-comings, it could in effect be stated that pollution is a state of activity dependent more on the effectiveness of the treatment process, rather than on the alterations in water quality to the detriment of protected uses. *Prima facie* the statute seems to make it clear that it is the latter factor that will govern the identification of situations of pollution. However the courts when faced with a situation of breach of water quality levels to the detriment of a use may well have to take into account the limitations of the treatment process in making pronouncements as to either the existence of pollution or exceptions to activities resulting in pollution. Thus the limitations and shortcomings in the treatment process may in effect have a bearing on judicial decisions relating to the identification of pollution.

E. Water pollution and the aspect of attribution of costs for damages and clean up programs.

The development of the idea that a polluter should pay for the consequences of his acts causing or resulting in pollution is closely identified with the approach in the *FWPCA* which attempts to isolate forms of pollutants for purposes of control. The polluter may have to pay the costs of removal of the pollutants that he had brought into being either at the stage of discharge or after discharge. Industrial and municipal sewage covers the first category, and oil and hazardous substances relate to the second. In other words, in a situation where there is provision made for the litigant to enforce "payments", pollution may be deemed to be in existence. "Payments" may be made either in penal or pecuniary terms. In the U.S.A., unlike in Canada, due to the licensing requirement for the specified forms of discharges (Sec. 401 of *FWPCA*), and the provision of opportunities to compel the issuance of an order for payment in instances where it is the administrator's mandatory duty to prescribe payments on the grant of licenses, the "polluter pays for his pollution" concept has assumed a wider connotation. For, the concept in the U.S.A. covers "payment" situations envisaged in both categories above mentioned.

There are generally two ways to impose a charge on the polluter in the case of the first category. That is, either by a "user charge" system or a tax on the effluence after disposal into the river. The *FWPCA* adopts the former system (See S. 204(b) (1) and (2)), which in effect means that the dischargers into the sewage system must pay the costs of the operation, maintenance and replacement of sewage treatment plants financed with federal grants, in proportion to their use; the cost being determined on the basis of administrative guidelines. This process may cause problems in the assessment of payments from polluters. Issues may arise as to whether the rates are to be calculated from the amount of the discharge treated as per polluter or by the overall expenditure involved in treating a particular discharge taking into consideration the maintenance and expansion of treatment facilities for new polluting sources. It seems the 1972 *FWPCA* seeks to assess payments on the latter yardstick. The *Act* states that the administrator will determine the charges which "each recipient of waste treatment services will have to pay in proportion to the costs of operation and maintenance (including replacement) of any waste treatment services" (S. 204(b) (1)). How does the *Act* propose to determine this "proportionate share"? Section 204(b) (2) (B) requires the administrator to establish

"criteria against which to determine the adequacy of charges imposed on classes and categories of users reflecting all factors that influence the cost of waste treatment, including strenght, volume and delivery flow rate characteristics of waste". This in effect seems to suggest that in assessing the charges to be levied on the polluter, the administrator should take into account the overall expenditure in addition to the polluter's individual discharge. This could mean that with the passage of years the original dischargers may have to pay more than their "proportionate share" for the discharge and treatment with the entry of other dischargers. The issue may arise whether the administrator could use his discretion to adopt standards so as to charge different rates to "old dischargers" and "new dischargers", and thereby give effect to the "polluter pays for the pollution he brings about" principle reiterated throughout the *FWPCA*.

An extension to the polluter should pay for his pollution was the case of *Caso v. Grotbaum*[79] . In a situation where work stoppage resulted in sewage treatment and garbage disposal facilities being unattended, due to an unlawful strike initiated by union leaders the court held that the public officials of the municipality concerned may bring an action for compensatory and punitive damages. This in effect means that the persons directly responsible for the pollution and not essentially those in control of the machinery or implements causing pollution are liable. In fact, the court will overlook the aspect of immediate liability, which in this situation would normally be the municipality, and seek the persons "maliciously" polluting the environment.

The *FWPCA* refers only to "violations" (S. 309(c) (1) and (d)). It does not refer to causation and responsibility. So too, the provisions relating to the discharge of hazardous substances deal with liabilities of the "owner" or "operator". The above case admits that a new common law rule is being initiated[80] . In those situations of pollution caused by malicious acts, resulting in harm to the public or its "physical setting"'[81] and "in instances where substantial damage *can* be done to the public interest which do not fall within the usual categories of causes of action"[82] , the court will provide a remedy.

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79. (1972) 3 E.R.C. 1061.

80. *Ibid.*, at p. 1064.

81. *Ibid.*, at p. 1063.

82. *Ibid.*, at p. 1063.

This case considered the provisions of the prevailing public health laws and navigation laws, which imposed strict liability on the discharger, and considered the facts as not falling within the range of statutes in this field. Common law provided no immediate remedy. Hence the need for a "new tort". The *FWPCA* too contains provisions of strict liability similar to the public health and navigation laws considered by the court. However it provides an exception from liability only in instances of oil spills caused by the "act or omission of a third party".

It is a moot question as to whether the courts will ignore the *FWPCA* in situations where the "owner" or "operator" is clearly not responsible for the pollution, and seek a remedy in this "new tort". If the general policy of the *FWPCA* emphasizing that the polluter should pay for his pollution is accepted as a functional criterion in the application of the statute, then it is submitted that the common law remedy pronounced in *Caso*'s case will be operative and applicable law despite the enactment of the *FWPCA* of 1972.

The *Act* makes provision for taking into account various factors such as the condition of the machinery (Sec. 304(b) (1) (B)), the financial capabilities of the industry to instal the best available control technology (Sec. 301(c)), and also at times the fault aspect in the identification of responsibility for purposes of payment. The aspect of fault is given more prominence in relation to the payment of clean up costs, in situations where a discharge has already taken place and the discharge is identified with strict liability. Thus for instance where there is a discharge of oil or hazardous substance, the polluter will have to make payments to cover the total costs of the clean up if the discharge was "the result of wilful negligence or wilful misconduct within the privity and knowledge..."[83] of the owner or operator. However if there was no such fault on the part of the polluter the payment of clean up costs is limited to a sum laid down by statute or a sum calculated on the tonnage of the vessel. The amount of liability of a vessel being limited to $100 per gross ton or $14,000,000 whichever being the lesser amount. The liability of an on shore or off shore facility being limited to $8,000,000..[84].

The courts however have extended the American concept of pollution payments not only to the clean up costs but also for damages incurred by a state or individuals irrespective of the

83. Secs. 311(f) (1) and 311(g).

84. *Ibid.*

presence or absence of fault. Thus in *Askew v. American Waterways*[85] the U.S. Supreme Court held that through the *FWPCA* makes provision for the payment of the actual clean up costs incurred by the federal government, this does not preclude the states from enacting their own legislation to cover damages to the state and the private property owners therein. In addition, the court stated that the state could also insist on the payment of the full costs for the clean-up and damages caused to state and private interests, whether or not there was fault on the part of the polluter (even though the *FWPCA* takes fault into account in assessing the clean-up costs)). In the court's view the need for such stringent regulations was mainly due to the increase in oil spills in American waters. In 1970 there were 3,711 oil spills, and in 1971 there were 8,736. Another factor that influenced the court in approving the Florida legislation was the growing use of large oil tankers.

Moreover, the art of oil spill clean up is not very advanced and is less effective in certain areas, as for example in marshlands[86] . This, in fact, is another reason as to the need for more emphasis on the recovery for losses caused to private property, as well as to the interests protected by statute in cases of oil spills.

However, in situations other than oil spills, "the polluter should pay for his pollution" concept signifies only the payment for treatment costs and civil or criminal penalties. It does not relate to payment for purposes of restoration of the polluted condition to the former ecological order, if this being possible. Thus for instance under the *FWPCA* of 1972, the polluter may have to pay a fine of "not less than $2,500 nor more than $25,000" per day of violation and/or may be subjected to imprisonment for a period of not more than a year, in a situation where there is fault (S. 309(c) (1). If there was no fault the maximum penalty being a civil penalty of $10,000 per day of violation (S. 309(d)). This may or may not include the cost of restoration. However the fact to be noticed is that the statute does not stress on payment for restoration costs, even if restoration is possible. This was not the position before the *FWPCA* of 1972 was enacted. In *U.S. v. Moretti*[87] the court held that the activities of a trailer park developer, which included dredging and filling activities

85. (1974) 5 E.R.C. 1209.

86. *U.S. v. Bushey* (1974) 5 E.R.C. 1710 at 1712.

87. (1972) 3 E.R.C. 1052.

detrimental to wildlife and vegetation in the area, should be discontinued and the area restored to conditions existing prior to such activities. Thus the aspect of restoration, even where it is possible, is no longer emphasized by the *FWPCA*.

Conclusion: The Concept of Water Pollution.

Water pollution is an activity on a condition, essentially national in scope identified by the forms or effects of certain incidents that usually have their origins in areas of human conduct, volitional or otherwise, leading to the alteration of the properties of a known body of water either physically, biologically, radiologically or chemically normally as a consequence of the violation of an effluence or discharge limitation, or water quality criterion to the prejudice of uses or interests protected against such conduct by law, resulting in terms of imprisonment or payments by way of civil or criminal penalties, clean up costs, and in addition in instances of oil spills damages to the state and private property owners therein.