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LEGAL RESPONSES TO POLLUTION PROBLEMS—THEIR STRENGTHS AND WEAKNESSES†

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Scientists in many disciplines are conducting the research necessary to identify and describe the factors causing today's deterioration of the natural environment. In the Arctic regions of Alaska and northern Canada, for example, both industry and government are sponsoring research into basic matters such as tundra productivity and technological impacts such as the building of hot oil pipelines over permafrost. The scientists both contribute and respond to the public outcry that the environment be defended. As the news media learn about hazards from the scientists they stoke the fires of public concern. Political action ensues. If a technology for coping with environmental damage is known, lawyers and legislators are asked to devise the legal means for bringing this technology to bear on pollution problems. What can legal science do?

The law can respond in four ways. It can apply the coercive power of the state to the pollution offender; it can manipulate the incentives and disincentives of the economic system to bring pressure on the offender; it can organize the administrative and institutional structures of the state to control the offender; and it can contribute to the consciousness of citizens that the natural environment must not be abused.

COERCIVE POWERS OF THE STATE

Punish the polluter! If a fine is an insufficient deterrent, impose a prison sentence! Penalties for oil spills from tankers are prescribed as high as \$100,000 per day for Arctic waters.¹ Fines in excess of \$1,000,000 were levied on Chevron Oil Company last year for failure to install required down hole safety devices on 90 oil wells off the Louisiana coast in the United States. In addition to penalties, close down the offending operation! An Imperial Oil exploration near Tuktoyaktuk in northern Canada was closed down in the summer of 1971 by government order because of the company's failure to take steps to avoid surface disturbance at its equipment-staging areas.²

†Originally prepared for the Twelfth Pacific Science Congress, Section C 1.3, Legal and Political Problems of Environmental Management.

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1. Arctic Waters Pollution Prevention Act, Can. Rev. Stat. c. 2 (1st Supp. 1970); Canada Shipping Act, Can. Rev. Stat. c. 38 (1970-71), *amending* Can. Rev. Stat. c. 38 (1st Supp. 1970).

2. The Sun (Vancouver, B.C.), Aug. 6, 1971.

The first demand of the alarmed citizen when a pollution crisis occurs is usually resort to the coercive powers of the state. Indeed, the layman often has only this simplistic model of prohibition and penalty in his mind when he thinks of the legal system in relation to the environment.

Nor is his model unrealistic, for modern statutes are replete with penalty provisions. More sophisticated legal measures are needed to cope with pollution problems. Penalties, after all, usually operate after the harm has been done. The initiation of prosecutions is usually sporadic and haphazard rather than planned and coordinated.³ If money penalties are stated in inadequate amounts, they may serve only as cheaply priced licenses to pollute.⁴ They require careful statement and definition because of the criminal law tradition requiring penal statutes be given a strict interpretation in favor of the accused person. Yet, the highly technical nature of pollution problems may preclude such precise and careful definition.⁵ Again, the criminal law tradition presumes in favor of innocence and requires strict proof of an offense. The difficulties of establishing cause and effect between deposits of wastes in a stream and injury to fish, and giving convincing demonstration of an accurate use of the Ringlemann opacity test for air pollution are two current Canadian illustrations of the resistance to successful criminal prosecution inherent in cases where the offense is based on highly complex processes.⁶

Before considering more sophisticated legal responses to pollution problems, something more must be said to place the role of the criminal sanction in proper perspective. While prohibitions and penalties, standing by themselves, can be downgraded as means of dealing with pollution problems, they in fact are incorporated into almost all types of legal responses to pollution whether these responses be manipulation of the economic system or reorganization of the administrative system, or whether they take some other form. In the economic type of response, such as the imposition of effluent charges through a permit system, a penalty is usually imposed for violation of the terms of the permit;⁷ in an administrative response, such as a contingency plan for dealing with oil spills, it is made an offense to fail to report an oil spill to the authorities. The 1971

3. Good, *Anti-Pollution Legislation and Its Enforcement—An Empirical Study*, 6 U.B.C. L. Rev. 271 (1971).

4. *Id.*

5. Difficulties in defining standards for "pure" water and "clean" air are notorious.

6. Lucas, *Legal Techniques for Pollution Control: The Role of the Public*, 6 U.B.C. L. Rev. 167, 174 (1971).

7. Northern Inland Waters Act, Can. Rev. Stat. c. 28, § 32 (1st Supp. 1970).

amendments to the *Canada Shipping Act* contain an array of offenses supporting its scheme for controlling pollution from ships. These include failure to report an accidental spill or the sighting of an oil slick, failure to provide evidence of financial responsibility for clean-up costs and damages resulting from a spill, failure to assist pollution prevention officers in the performance of their duties, failure to have certificates of compliance for ships, failure to comply with regulations respecting ship construction, fittings and supplies, and so on. This profusion of offenses might suggest either a repressive society or a paucity of available legal techniques for gaining compliance with the control regime. In my view neither suggestion provides a full explanation. In a significant number of cases the penalty may be the only practical way of introducing an economic disincentive to harmful conduct. When you add the moral force that a prosecution brings to bear on the offender to the injury that his reputation suffers, the penalty can be an impressive deterrent particularly if the offender cultivates an image as a concerned and responsible citizen. But the chief reason for the pervasive use of the criminal sanction seems to be that it operates as a sort of "fail-safe" mechanism. When all other legal devices for gaining compliance with the control regime fail, there is always the prosecution of an offender to fall back on. Someone can be made to pay! The public conscience can be appeased!

ECONOMIC INCENTIVES AND DISINCENTIVES

A convincing number of experts in a variety of disciplines assert that the main responses to pollution problems must be economic ones.⁸ In language an economist might use, the need is to introduce into entrepreneurial decision-making, whether private or public, some mechanism for costing the impact of decisions on common property resources such as air, water and the other components of the natural environment. A geographer, J. W. MacNeill, observes in a recent Canadian study that "Indeed, some experts view environmental management largely as a problem of 'internalizing' these external costs."⁹ Allen V. Kneese, a well-known United States resource economist, argues that "our present environmental problems, at least their environmental pollution aspects, are primarily a result of failures in our system of economic incentives."¹⁰

The problem seems to be that our market system, to which we

8. See, e.g., U.K. Royal Comm'n on Pollution, Rep. of Feb. 1971.

9. J. MacNeill, *Environmental Management* 16 (1971). Constitutional Study Prepared for the Government of Canada, Information Canada.

10. A. Kneese, *Protecting Our Environment and Natural Resources in the 1970's*, 191 (Resources for the Future Reprint No. 88, 1971).

normally entrust the allocation of natural resources, is not geared to giving recognition to the interest in maintaining a healthy and harmonious environment. In the market trade-off of our many competing and conflicting individual and corporate interests, no one is asserting the environmental interest. Further, even if environmental impacts are taken into account by concerned entrepreneurs, our economic system encourages a short-sighted approach. An adequate return on investment is usually the ultimate arbiter of the entrepreneurial decision, and, unfortunately, natural resource ventures are usually associated with high risks and therefore compel short pay-out periods. If a decision to undertake a venture must be based on a calculated pay-out of investment and profit in ten years (not an unusual period in mining and oil ventures), the entrepreneur cannot be expected to give serious weight to a prognosis that fifteen years from now, his project may have damaging environmental effects. It is a conundrum of our times that our ability to anticipate and plan for the future is in inverse ratio to the rate of technological change; the faster the rate of change, the shorter the future time period when technological circumstances can be predicted as a basis for decision-making today. Natural scientists and engineers may well ponder this conundrum when next they are tempted to berate social scientists and politicians for failing to keep the social system abreast of technological developments. In economic terms, this faster rate of technological change means increasing factors of uncertainty and risk, higher discounts for these factors, shorter investment pay-out periods, and therefore shorter forward planning.

Technology offers new aids to planning which may tend to offset this spiral of uncertainty; indeed, a whole new science of futurology is emerging. Techniques such as computer simulation give the planner the ability to manipulate masses of data, they provide him with probability rankings of the results of such manipulations, and they correct his interpretations of these results by feedback systems.¹¹ But they cannot foretell the future and they cannot by themselves change the time criteria for business investment decisions. Nevertheless, they give promise that decision-making may ultimately catch up with technology.

In a broader sense, the policy being advocated is that decision-making in the market system be given the kind of holistic input that the science of ecology, itself, demands—a consideration of the whole spectrum of internal and external effects over a long range of time.¹²

11. Systems science applications in environmental impact studies are advocated by Robert F. Scott, *Effects of Ecology on Technological Change*, Proceedings of the 20th Alaska Science Conference (1970).

12. It is chastening to note that in putting forward an ideal environmental management

How can this change be accomplished? How can these externalities be introduced into the investment decision? The very definition of the common property resource is that it is not "owned" and therefore no one is pricing it in the marketplace. In the context of pollution control, many suggestions for change have been advanced, from the creation of private property in pollution rights¹³ to the introduction of effluent charges which would amount to publicly administered prices for waste discharge.¹⁴ In terms of protection of elements in the natural environment, significant research work by economists is leading to the ability to place helpful price estimates on such common property resources as wildlife and recreation landscapes.¹⁵ But, obviously, when benefits of an aesthetic nature such as a wilderness solitude or a scene of great natural beauty are bestowed by the environment, values become too subjective for anything but arbitrary pricing.¹⁶

Many scientists react with undisguised hostility to suggestions that economic answers should be sought for pollution problems. After all, it is argued, the main, underlying threat to the environment stems from preoccupation with the dollar and with the claimed necessity of annual increases in the Gross National Product. Such reaction is too simplistic and ascribes to economics that which the discipline denies—a value system. Rather, the concern of economics is to quantify benefits and detriments. It presumes that to the extent that benefits and detriments can be quantified, decision-making can be simplified and improved.

From a lawyer's viewpoint, with his long scan over the history of legal sanctioning of desirable human conduct, the manipulation of economic factors as an answer to pollution problems has one great advantage. This advantage is that the decision to pursue this course or that, to incur this environmental cost or gain that environmental benefit, is a decision by the doer himself, without external coercion, and within the dictates of his own conscience and self-interest. This preference for individual choice may be regarded as merely a reflec-

program, 30 years was considered almost impossibly remote for future planning, *supra* note 9, at 24.

13. J. Dale, *Pollution, Property and Prices* (1968).

14. A. Kneese, *Protecting Our Environment and Natural Resources in the 1970's*, at 195 (Resources for the Future Reprint No. 88, 1970). The Council on Environmental Quality in the United States has advocated pollution charges in its annual report, *see* *The Sun* (Vancouver, B.C.), Aug. 6, 1971.

15. M. Clawson, *Methods of Measuring the Demand for and Value of Outdoor Recreation* (Resources for the Future Reprint No. 10, 1959); Pearse, *Toward a Theory of Multiple Use: The Case of Recreation v. Agriculture*, 9 *Natural Resources J.* 561 (1969).

16. It should not be overlooked that individuals do commonly place money values on mainly aesthetic benefits, as where a fortune is paid for a painting or the owner of land refuses to sell it at a price substantially above the market.

tion of Judaic-Christian values, or it may be categorized as a defense of the so-called free-enterprise, capitalist system. But it should not be construed as either. A lawyer appreciates how difficult it is to regulate his fellow man in all his myriad manifestations of conduct and with all his complex motivations and stratagems to frustrate the regulatory system. Hence the lawyer respects any mechanism that reduces the burden on the legal system of gaining acceptable human conduct, in environmental concerns as in all others.

Nor is the desirability of internalizing environmental costs and benefits into decision-making applicable only to ventures in a private enterprise system. Public enterprises such as hydro-electric power generation are notorious in North America for their myopic vision of costs and benefits when making decisions such as where to locate a dam. They are as needful as private enterprise of mechanisms that will internalize a broader range of cost-benefit criteria in decision-making.¹⁷

What techniques are available to lawyers to manipulate the economic system in these desirable ways? Obvious ones are changes in tax laws to provide incentives for the use of pollution-abatement procedures.¹⁸ Less obvious ones are changes in liability laws. The imposition of legal liability for injury internalizes the cost of the injury, forcing the actor to take into account possible damage claims, at least if he is prudent and has other courses of action. The new amendments in Canada's shipping laws deal with oil spill damage by imposing an absolute liability that cannot be evaded by contract clauses.¹⁹ The more imaginative techniques range from the development of new legal theory that will transform the common property resource into some form of ownership, to the introduction of new administrative systems that will inject cost-benefit considerations of environmental impact into investment decisions.

The new ownership theories will emerge in North America either through legislation or through the evolution of new common law concepts. The Canadian Bar Association is currently studying legislative proposals that would, in effect, create public ownership rights in

17. The Bennett Dam in British Columbia is a classic case. The provincially owned hydroelectric company entirely ignored downstream effects which have resulted in imperilling a major river delta system. See *Death of a Delta* (1970).

18. Lucas, *Legal Techniques for Pollution Control: The Role of the Public*, 6 U.B.C. L. Rev. 167, 177 (1971).

19. Arctic Waters Pollution Prevention Act, Can. Rev. Stat. c. 2, § 6 (1st Supp. 1970); Canada Shipping Act, Can. Rev. Stat. c. 38 (1970-71), *amending* Can. Rev. Stat. c. 38 (1st Supp. 1970). To the extent that damage claims are not satisfied, a Pollution Claims Fund meets the deficiency.

unpolluted air and water by giving individual citizens the right to enforce quality standards through the courts.²⁰ A similar public right has already gained a foothold in the United States both under statute²¹ and at common law.²² Lawyers like Professor Joseph Sax of Michigan argue for a legal conceptualization of air and water as commodities held in trust for the benefit of the entire community of citizens.²³ In consequence, individual citizens, as beneficiaries of this trust, have the right through the courts to defend air and water against invasions by polluters.

A controversial proposal to convert air and water from common property resources into privately owned resources from a pollution standpoint has been made by University of Toronto economist J. H. Dale. He advocates that the pollution-carrying capacity of a drainage basin should be determined and quantified among various classes of pollutants, that these quantities should be divided into units each of which is equivalent to every other in terms of the treatment costs imposed by it on the drainage basins, and that these units should be bought and sold as pollution rights on a free market. One could discharge effluent into the drainage basin only to the extent of purchased pollution rights. The price of the pollution rights would increase as the carrying-capacity of the basin reached its permitted level, and this increase would operate to allocate the pollution rights to the most efficient users.²⁴

A less imaginative, but probably more acceptable method of internalizing environmental impacts is the introduction of administrative systems that impose on resource users a cost reflecting other resource values foregone or environmental costs imposed, usually by requiring the resource user to acquire and pay for a permit or license for his undertaking. Insofar as a permit fee is charged which represents an attempt to preassess the value of other resource uses foregone or the cost of environmental damage done, the permit system constitutes an internalization of these costs. In effect, the resource user has to take the permit fee into account in doing his personal cost-benefit analysis of his proposed venture. Examples of such permit fees in Canada are to be found in the *Northern Inland Waters Act*²⁵ and in the new

20. Resolution of Civil Justice Subsection (B.C. Division) of the Canadian Bar Association, 1970-71.

21. Mich. Comp. Laws Ann. § 691.1202 (Supp. 1971).

22. *Scenic Hudson Preservation Conference v. F.P.C.*, 354 F.2d 608 (2d Cir. 1965), cert. denied, 384 U.S. 941 (1966).

23. Sax, *The Public Trust Doctrine in Natural Resource Law: Effective Judicial Intervention*, 68 Mich. L. Rev. 473 (1970).

24. J. Dale, *Pollution, Property and Prices* (1968).

25. Can. Rev. Stat. c. 28, § 32 (1st Supp. 1970).

northern *Land Use Regulations*.²⁶ In the former case the fee is to represent a charge corresponding to the treatment cost imposed on the water system by the effluent discharge.²⁷ In the latter case, the fee is to represent the value of commercial timber that is destroyed by line-cutting for seismic surveys.

Something has already been said about the problems of valuing non-priced items such as wildlife or wilderness resources. But even if the pricing problem can somehow be solved or evaded, there are other flaws in the economic model we are building. The public ownership concept has the serious defect that self-interest is often highly diluted, resulting in only sporadic enforcement of the public trust. That is, no single member of the public may consider his personal interest as a beneficiary of the trust to be sufficient to justify the costs and stress of a law suit. The answer to the problem is said to be collective citizen action. North America is witnessing a phenomenal growth in its citizen conservation and anti-pollution organizations in defense of national parks, wilderness, wildlife, and other environmental values. Still, the response, being dependent on individual initiative in preponderantly unorganized situations, is mainly sporadic and uncoordinated. Despite this deficiency, the citizen lawsuit has many advocates as an environmental protection mechanism.²⁸ Perhaps its enduring justification will lie in its ombudsman-like function of spurring government officials to hold fast to the performance of their duties in defense of the environment.

The flaw in the user charge system is the absence of an automatic pricing mechanism such as is supplied by exchange in the marketplace. Kneese has described the effluent charge as a "publicly-administered price" for the privilege of discharging wastes.²⁹ This description recognizes that some public administrative system is necessary to determine what standards of pollution are acceptable, what the costs of maintaining these standards will be and how these costs should be apportioned among the various users of the resource so that the proper charge can be levied. Consequently, this kind of manipulation of the market system does not produce the ideal model of a system operating entirely by the free play of self-interest. Before

26. Gazetted July, 1971. They are made pursuant to Territorial Lands Act, Can. Rev. Stat. c. 263, § § 12-13 (1952).

27. The President's Council on Environmental Quality in the United States recommends such effluent charges in its 1970 annual report. *The Sun* (Vancouver, B.C.), Aug. 6, 1971.

28. See, e.g., Carroll, *Participatory Technology*, 171 *Science* 647, 650 (1971); Eddy, *Locus Standi and Environmental Control: A Policy for Comparison*, 6 U.B.C. L. Rev. 193, 214 (1971).

29. A. Kneese, *supra* note 10, at 195.

self-interest can be triggered, the device must be armed by the deployment by government of a complex administrative system.

This need for an administrative system leads into consideration of the third method by which the legal system can respond to pollution problems—and reveals, as did the study of the first method (the use of criminal sanctions), that these methods are interlinked and overlapping, and that a comprehensive legal response will maximize all four methods.

ADMINISTRATIVE AND INSTITUTIONAL RESPONSES

Those who do not elevate economic solutions to highest priority in dealing with environmental problems will probably have their solutions fixed on administrative and institutional responses. If, as many contend, the pollution problem can be met only by a new consciousness of man's relationship with nature, man's administrative and institutional arrangements must undergo radical change to reflect this new consciousness.³⁰ Even within the context of pragmatic and evolutionary change, as distinguished from radical change, quite profound administrative and institutional restructuring must take place if environmental considerations are to be given high ranking among today's concerns.

The very emergence of ecology, even as a half understood concept in the lay mind, forces a re-examination of existing administrative and institutional structures to discover how well they fit an ecological view of pollution problems, and the results are discouraging. On the administrative side in Canada we find a river basin system regulated, not as a river basin at all, but in fragments under a patchwork of incomplete, uncoordinated and often contradictory regimes imposed by local, regional and national levels of government.³¹ On the institutional side, our examination of economic factors bearing on pollution has shown how inadequately the institution of the market takes account of environmental factors.

But the lesson is being learned, and the first steps are being taken in a number of key environmental issues. The federal parliament in Canada has enacted a *Canada Water Act*³² and has introduced a *Canada Clean Air Bill*,³³ both aimed at coordinated federal-provincial management of water and air resources with proper regard for spatial and other ecological characteristics. The *Canada Water Act* envisages the management of a water basin such as the Fraser River

30. C. Reich, *The Greening of America* (1970).

31. J. MacNeill, *supra* note 9.

32. Can. Rev. Stat. c. 52 (1st Supp. 1970).

33. Bill C-224 (1971).

system in British Columbia under a management agency that would have delegated authority under the respective federal and provincial constitutional powers to enable the formulation and implementation of a fully comprehensive control regime. Both these statutes are enabling—that is, they lay the groundwork for the establishment of air and water quality management, and it remains to be seen whether the respective levels of government will in fact cooperate as envisioned, and, if they do, how soon and how effectively management authorities can be organized and become operational.³⁴

That pollution problems require a holistic and ecological perspective is evidenced in an even more fundamental way by the basic reorganizations that are taking place both in government and in business in Canada to reflect an environmental concern. On the government side, one can cite the transformation of the federal Department of Forestry and Fisheries into the Department of the Environment, and of the Alberta Oil and Gas Conservation Board into the Energy Resources Conservation Board, with a new mandate to “control pollution and ensure environment conservation” in energy resource developments.³⁵ On the business side, one can note that large corporations are establishing environmental departments.³⁶ One consortium of natural gas companies is even sponsoring an independent Environmental Protection Board.³⁷

It is obviously beyond the scope of this paper to mention all of the administrative and institutional reorganizations that are taking place in Canada. But it may be noted that international initiatives, too, are directed toward these kinds of changes. One Canadian legal expert on international waterways predicts that “existing customary international law on pollution of drainage basins will be largely ignored. It will be displaced by treaties providing for the management and control of international drainage basins by international joint agencies.”³⁸

What is a lawyer's perspective on these administrative changes? He normally views the administrative process in terms of its impact on the individual citizen. He is concerned to know whether all affected interests are represented in the process, and, if not, whether there is

34. For parallel U.S. developments, see Freeman & Haveman, *Water Pollution Control, River Basin Authorities, and Economic Incentives* (Resources for the Future Reprint No. 92, 1971).

35. Energy Resources Conservation Act, S.A. c. 30, § 2(4) (1971).

36. *E.g.*, Imperial Oil Limited.

37. The consortium is the Gas Arctic System Study Group, comprising five Canadian and United States natural gas distribution companies interested in pipelining Prudhoe Bay gas to United States markets.

38. Bourne, *International Law and Pollution of International Rivers and Lakes*, 6 U.B.C. L. Rev. 115, 136 (1971).

just cause for exclusions. He will ask what kind of participation in the process is afforded to the affected individual and will examine this participation for its fairness according to long established legal standards of just procedures.

Examined from this lawyer's perspective, protection of the environment is seen as an interest that is entitled to representation in the administrative process, as much as, from the economist's perspective, environmental protection is an interest that must be accounted for in the marketplace. The new insight for the lawyer is that this interest is now being recognized as an interest of individual citizens and groups of citizens, and not merely as the concern of resource users and governments. It is a parallel development to the newly-emerging citizen's interest under the public trust doctrine.³⁹ The argument is that the protection of the public interest exclusively by government agencies, departments and officials is no longer adequate. This inadequacy signifies the tendency of government bureaucracies to become narrow and partisan in discharge of their responsibilities, and to lose sight of broader public goals and aspirations. The argument is that a mines department becomes a captive of the mining interests, an oil and gas conservation board of the oil and gas interests, and a food and drugs directorate of the food processing and chemical interests. Should this tendency be established, ombudsman-type procedures are necessary as correctives.

In the environmental context, a protected environment becomes an interest to be given representation in the administrative process and this representation is necessary because the role of government agencies, departments and officials in protecting the environment needs to be supplemented and fortified by a citizen ombudsman role.

Many problems are encountered in any attempt to open up representation procedures. At what stages in the administrative process should representation be permitted? How should the issues be defined? Who should be heard? What sources of information should be available to them? Should the state provide financial and organizational support?⁴⁰ What kinds of representations should be allowed,

39. See p. 232 *supra*.

40. The significance of these questions can be shown by many examples. In the case of the Alaska oil pipeline, it is generally recognized that the heavy commitment of planning and investment prior to the environmental impact hearings by the Secretary of the Interior foreclosed from the beginning the possibility of an adverse decision. In British Columbia, the investment of \$14,000,000 in mine mill facilities before pollution control hearings on the tailings and effluent disposal plans of Utah Mining Co. Ltd. was acknowledged by the pollution control authority as preventing rejection of the company's application for a discharge permit and as limiting the hearing to a consideration of conditions that would be attached to the permit. In this case, the issues before the hearing tribunal were defined by the application made by the company. Other issues which environmentalists and commercial

having in mind the necessities of an efficient hearing process and a timely decision?

Nor can these questions be answered in an "across the board" fashion, for it soon appears that each kind of environmental impact arises in its own set of circumstances with its own special requirements.

A proper representation procedure is illusory without a proper decision-making authority and executive follow-up. Who should comprise the authority? By what criteria should it decide as between competing interests? Should there be a hierarchy of decision-making for administrative efficiency and appeals? What kind of agency should carry out the decisions? What kind of feedback control should give warning when decisions are not being carried out or are producing different results from those intended? Should the right of representation include the right to monitor the carrying out of decisions and their effects?

These questions are posed to show the scope and complexity of the problems that preoccupy lawyers when administrative responses to pollution problems are proposed. In the United States these problems have, at least in part, been confronted in a bold way, even if answers are left to be determined in the flux of experience. The *National Environmental Policy Act of 1969*⁴¹ requires all federal agencies, with respect to every legislative proposal or other federal action significantly affecting the quality of the human environment, to prepare advance statements describing the environmental impact of the action, any adverse environmental effects which cannot be avoided, alternatives to the proposed action, the relationship between the local short-term effects and long-term productivity, and any irreversible and irretrievable commitment of resources involved in the action. The significance of this requirement of impact statements is that they will initiate the process of representation, even if only in terms of letters to congressmen. In many cases federal agencies are, by their internal requirements, bound by law to hold

fishermen desired to raise were precluded. The statutory provisions which defined the hearing procedures denied the right to be heard to many organizations and individuals who obviously had interests that would be affected by the hearing process (commercial fishermen, for example). As to state assistance in providing information to affected parties and granting financial support, an Australian example can be cited for its constructive approach. Public hearings on the question whether oil exploration should be permitted in the region of the Great Barrier Reef are being conducted by joint federal-state commissions which can compel the attendance of government witnesses and the disclosure of government reports. Conservation interests are represented by counsel whose fees and expenses are being paid by the government.

41. 43 U.S.C. § 4321 (1970). See Vannacone, *National Environmental Policy Act of 1969*, 1 *Environmental L.* 8 (1970).

public hearings on such statements. To North Americans, the impact statement hearings by the Department of the Interior on the proposed authorization of a trans-Alaska pipeline system has already established the importance of this procedure in the fabric of United States political and constitutional life. The state legislatures are following suit.⁴² The next five years will demonstrate whether or not the environmental interest has been securely anchored in the policy of the nation.

In Canada, the idea of representation remains relatively undeveloped in the administrative process, being largely confined to the traditional common law review by the courts when administrators abuse their jurisdiction. There is as yet no system for representation in the enactment of delegated legislation (*i.e.* rule-making by departments of government),⁴³ and representation in the case of departmental tribunals is not on any systematic basis. Nor is representation usually available in the early stages of the administrative process.

The Canadian weaknesses are all too apparent. At the present time the regulations which control the issue of oil and gas permits and leases in the vast Canadian northern and offshore regions, and thereby determine the pace and impact of northern development, are under revision by the responsible government departments, but no public participation is contemplated (or welcomed!) other than discussions with the two oil and gas industry associations.⁴⁴ The *Canada Clean Air Act*⁴⁵ provides for "consultation" with an advisory committee established under the Act, but such consultation is in the Minister's discretion. There is a provision for 60 days notice in the Canada Gazette of proposed national quality standards and of specific emission standards for federal industries, but no procedures for public representation are specified. A similar notice requirement with respect to the new *Land Use Regulations*⁴⁶ has given citizens the opportunity to make written representations to the government department, but Gazette notices frequently pass unobserved. In addition, there is no system for presenting submissions, no indication of

42. *E.g.*, Cal. Pub. Res. Code § 21000-150 (West Supp. 1971).

43. The Department of Indian Affairs and Northern Development experimented with the representation of affected interests when preparing the new Land Use Regulations, but the experiment was ad hoc, was without adequate forethought as to procedures, and left the writer, as one involved, with the conviction that such representation is needed but must be given a formal structure with procedures and responsibilities spelled out in advance.

44. The Canada Oil and Gas Land Regulations, SOR/61-252, administered by the Department of Indian Affairs and Northern Development as to the north, including offshore, and by the Department of Energy, Mines and Resources as to the east and west coast offshore regions and as to Hudson's Bay.

45. Bill C-224 (1971).

46. *See* note 43 *supra*.

who will study them, no opportunity to hear and rebut other submissions, and no decision or report to finalize the process other than the promulgation after 60 days of a binding set of regulations.

Pipeline proposals which will have an impact on the Canadian north equally as momentous as that which the oil pipeline will have in Alaska are now under feasibility studies by four or five major oil and natural gas consortiums. Such pipelines in Canada will require the issue of permits of different kinds, the major permit being a certificate of public convenience issued by the National Energy Board.⁴⁷ This Board has traditionally performed its certifying function in terms of the availability of reserves of oil or gas, the economic consequences of the location of the pipeline, and its design and engineering. There is yet no clear indication in Canada how the ecological impact of a pipeline proposal is to be assessed. Requests have been made for the issue by the government of impact statements and for public hearings before steps are taken that set the proposals on inevitable courses toward completion,⁴⁸ but no government response to these requests has yet been announced.

It is clear that just as new administrative and institutional changes have much to offer in the way of answers to pollution problems, they also pose difficult questions, the legal ones being as complex as any others. What the lawyer foresees are clearly established procedures whereby a citizen who has a substantive environmental interest in any proposed government decision or action affecting the environment will have an effective opportunity to present his reasons and arguments for or against the proposal for consideration by those who will be deciding or acting. The ingredients of the procedure must include liberal definition of those citizens who can show a substantive environmental interest, full disclosure of all relevant data, government cooperation and assistance in carrying out necessary investigations and tests, the opportunity to present the case at the appropriate decision-making level and in the appropriate time and sequence, the opportunity to see and, if desired, rebut opposing arguments, and the means of knowing what decision has been made. Such procedural requirements can be further elaborated, and are subject to the caveat that pragmatism and flexibility in the administrative process require that they be tailored to fit each decision-making role.

What he also foresees are legal and institutional changes that will inject the citizen interest in the environment into private decision-

47. National Energy Board, *Can. Rev. Stat. c. N-6*, § 46 (1970).

48. Anderson, *Government and the Environment: A Need for Public Participation*, 6 U.B.C. L. Rev. 111 (1971).

making as well. Normally, these changes will involve government regulation of private decision-making through controls such as licenses and permits, but other possibilities include institutional changes in the structure of private enterprise, itself, such as requirements that environmental interests be represented in the management of corporations.

What the environmental lawyer believes when he places such emphasis on the representation process is that, no matter how well the economic system is manipulated, there will remain substantial environmental concerns that are not reflected in the market place unless individual citizens and groups of citizens are recognized as having the legal right to be heard. He believes that the benefits of citizen participation will, in the long run, outweigh the costs imposed on entrepreneurs by such representation requirements.

CONTRIBUTION TO CONSCIOUSNESS ABOUT POLLUTION PROBLEMS

Most students of juridical science see law as shaping values as well as reflecting them, and as contributing to consciousness as well as answering to its dictates. If, as Charles Reich maintains, a Consciousness III is emerging in North America that is more mindful and considerate of the natural world,⁴⁹ the law will both respond and contribute to this new consciousness as the legal system begins to deal with environmental problems. Contribute it must, for legal stratagems are mere gossamer webs if there is no consciousness and no ethic to give them sinew. Impact statements can be mere bureaucratic exercises and public hearings mere playacting after decisions have been irreversibly made. Advisory committees can become captives of the administration or neutralized by the withholding of essential information. In the field of private enterprise, environmental departments can be mere excrescences of public relations departments; the relatively few, qualified independent experts can be disarmed by research contracts or retainer fees. Given the most perfectly fashioned and functioning system of environmental protection, its mainspring must be a new consciousness of concern and respect for the natural world—a new “land ethic.”⁵⁰

49. See note 30 *supra*.

50. A. Leopold, *A Sand County Almanac* 217-20 (1966).