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Giandomenico Majone

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Standard Setting And The Theory Of Institutional Choice*

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I

The generally accepted model of rational choice in microeconomics, decision theory, and management science can be succintly described as follows: a decision maker, possessing certain resources and faced by a given set of constraints which define his feasibility domain, chooses from the feasible alternatives, the one that maximizes his utility function.

In the tradition of Paretian welfare economics, choice situations facing an entire society are modelled in an analogous way: the policy maker attempts to maximize a social welfare function $W = W(U_1, \ldots, U_n)$ which depends positively on individuals' utility levels, $\partial W/\partial U_i > 0$ for all i, subject to a transformation constraint T relating the goods and production factors on which the individual utilities depend. Maximization of W subject to the condition $T = 0$, specifies the welfare optimum in terms of the amount of each factor to be provided by each person, and the volume of each good to be consumed by each person. In this view, maximization of welfare is the goal of policy, and manipulation of constraints on individual choice, the method used by the policy maker.

Whatever their value for some classes of public decisions, this model of rational choice and the corresponding view of policy, are inadequate, if not actually misleading, when applied to pro-

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blems of public regulation. A basic assumption of the model is that the rules defining the constraints within which private transactions can take place are determined exogenously;no bridge exists between the economic behavior of the groups affected by the regulation, and their behavior as participants in the political process through which the constraints are established.

However, it is a fact, and one of crucial importance for understanding those aspects of environmental policies to be discussed in this paper, that in pursuing their goals, people not only act within a given set of constraints, but will also strive to modify these constraints in their favor, using whatever means are available to them (of course, their attempts to modify some constraints will take place within limits set by constraints of a higher order).

Thus, realistic models of rule making processes, must be expressed in the form of what Buchanan (1972) has called "closed behavioral systems", in which individuals and groups are not artificially separated from the decision processes that set constraints on their behavior.

The first elements of a theory of closed behavioral systems, or, more specifically, of a theory of institutional choice, have emerged in the last ten or fifteen years. Buchanan and Tullock (1962), Buchanan and Tollison (1972), Olson (1965), Posner (1974), Goldberg (1974), may be mentioned among the major contributions to the theory. What is common to these different theorists, whose viewpoints are certainly not homogenous and whose policy conclusions are often contrasting, is their interest in studying the behavior of people who, in pursuing their own self-interest, try to influence the public choices of institutional constraints.

These constraints, once adopted, apply to all members of the community or to well-defined sections of it. Institutional choice differs from the kind of choice situations traditionally considered in economics, since the consequences of the adoption of a given system of institutional constraints cannot be assessed in relation to a single decision, but must be evaluated with respect to streams of future decisions made by a variety of more or less autonomous agents. Moreover, individuals and groups do not value different decision-making arrangements only on the basis of the direct benefits which they expect to receive. A particular institutional framework will reward some resources (money, votes,

organizational capabilities, knowledge, authority) more than others. Therefore, people will attempt to have their affairs governed by rules that reward the resources with which they are relatively well endowed (Goldberg, 1974). In turn, the differential effects on group resources, or the possibility of creation of new resources (as in the case of the provisions of recent environmental legislation in the United States for financing public participation in standard setting and other regulatory activities) tend to produce significant modifications in the incentives and techniques of coalition formation.

The question of the appropriate governmental levels to which different measures of pollution control should be entrusted, has received a good deal of attention in the literature. Recent economic theorizing on "optimal decentralization" and "optimal allocation of jurisdictional responsibility" (Olson, 1969;Bish, 1971; Oates, 1972), with its emphasis on the correct matching of functions and institutions, and on peoples' different behavioral responses to different jurisdictional frameworks, is obviously relevant in this connection. But potentially even more significant is the insight offered by the theory of institutional choice, that people will not only adapt their behavior to the existing jurisdictional rules, but will actually try to modify jurisdictional lines or to bring about allocations of jurisdictional responsibilities which, in their own opinion, will best serve their interests. Many examples of such jurisdiction-changing behavior can be observed in the environmental field, and some will be discussed later on in this paper.

Even this sketchy and non rigorous presentation of the theory of institutional choice[1] is, I believe, sufficient to mark the difference between the institutional-choice approach, and what has been called the naive view of the regulatory process (Freeman and Haveman, 1972). In this view, the policy make establishes rules and regulations to govern the behavior of the regulated and to further the public interest. The threat of sanctions is thought to be sufficient to deter violations;but if any occur, it is assumed that violators are quickly brought to trial. As this paper attempts to show, the institutional-choice approach can deal satisfactorily with some crucial aspects of environ-

mental policy which are difficult to explain and may even appear paradoxical, in the naive view of rule-making and in the closely related "public interest" theory which is implicit in most economic discussions of environmental issues.

II

Economists have shown that effluent charges, i.e. penalty taxes on the amount of pollution produced, are superior to other tools of environmental policy in terms of effectiveness, economic efficiency, and of other relevant criteria. Yet, both in Europe and in the United States, environmental legislation relies almost exclusively on the inferior tools, and in particular, on direct regulation and/or effluent standards. Unless we are willing to assume that legislators and administrators, and their advisors, are totally unaware of the abundant scientific literature on environmental problems, we are faced here with a situation which cannot be easily explained within the framework of an open behavioral system. However, a simple and reasonable explanation presents itself as soon as the model is "closed" by including the interests and institution-changing strategies of the regulated.

But before attempting a rational reconstruction of observed behavior along these lines, it is desirable a) to discuss more fully the different tools that are available to the policy maker, and in particular, the nature and limitations of standards;and b) to review the main arguments used to establish the superiority of effluent charges. This will be done in the present and in the next section.

In the context of environmental policies, we can distinguish three types of standards: ambient (or environmental quality) standards; effluent (or emission) standards; technical stan-

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(1) I have mentioned only propositions of more immediate relevance to the questions treated on this paper. For more extensive discussions and bibliographical references, see in particular Buchanan and Tollison (1972) and Colberg (1974).

dards, or standards of good practice. Ambient standards express in a quantitative form the qualitative goals of an environmental program. For instance, if the goal of the program is to achieve water suitable for recreational purposes, the ambient standard may prescribe that the dissolved oxygen (DO) content of the stream be above x per cent, at least y per cent of the time. Effluent standards, on the other hand, state how much of certain types of pollutants are allowed from any given source, where the exact amounts are often determined in a way to achieve the pollution abatement goal set by an environmental standard.

The use of the technical standards in environmental policy can perhaps be best understood by way of examples. Thus, the U.S. Federal Water Pollution Control Act of 1972 (PL 92-500;the so-called Muskie bill, as amended) requires that industry apply the "best practicable" treatment methods by 1976, and completely eliminate discharges of pollutants by 1981, if this can be done "at reasonable costs". Should this turn out to be impossible, industry must install the "best available" treatment facilities, "taking into account the costs". Similarly, in Sweden, in order to get a license for a new investment that may have environmental impacts,,a company must prove that it has taken all measures that are "technically feasible" and "economically possible" (Mäler, 1974).

As can be seen from these examples, which could be easily multiplied, it is not possible to use technical standards in policy making, without reference to other considerations, such as costs. Even more is true: far from being objectively deducible from technical and scientific data, standards always represent an implicit evaluation of environmental conditions and, mediately, of human life,health and well-being. This becomes obvious as soon as it is realized that in a world of scarcity and of technical and physical constraints, trade-offs between levels of use of different environmental media, cannot be avoided.

It is in fact clear that with given resources and technical possibilities, higher levels of one standard inevitably imply lower levels for other standards. For instance, high standards of purity for air will entail, except for the possibility of recycling waste material, lower levels of quality for water and land since waste cannot be destroyed, but only transformed in different

environmental media. The force of this constraint has been brought home to the most casual observer when the stringent regulations recently imposed by air pollution control agencies in many European and American cities have had the consequence of producing tons of additional solid wastes which could not be adequately handled by the sanitation departments.

The essence of the choice problem can be easily seen in graphic terms. Suppose an environmental agency has to allocate a given budget between water (W) and air (A) protection. Of course, the restriction to these two media is dictated only by the desire to use a 2-dimensional graphical representation (one could interpret the vertical axis as indicating "other environmental media"). Also for the sake of simplicity, I shall assume that the quality of each of the two media is expressed by a single scalar measure, say, dissolved oxygen concentration in the case of water, so that the scale on the W-axis is defined in terms of DO units (mg/l). With given budget and technical possibilities, the agency can achieve either the quality level OW (the technical optimum for water), or level OA (the technical optimum for air), or any combination of conditions for water and air shown along the possibility boundary AeW (Figure 1).

Insert Figure 1 here

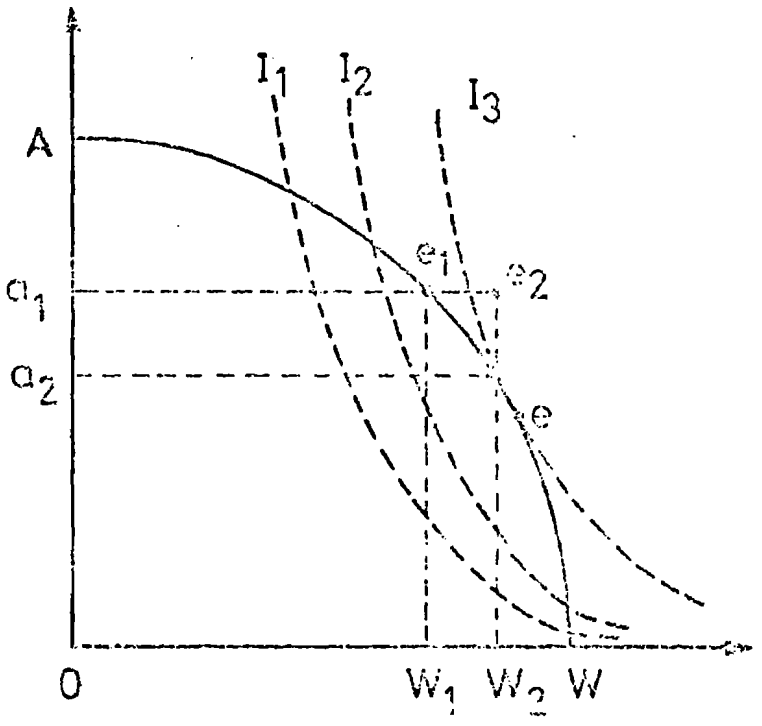

FIGURE 1.

Notice that, under the hypotheses of this example, the choice of the OW level for the water quality standard would be as disastrous as a choice of OA for air. Let us suppose that the present quality levels for water and air are w_1 and a_1, respectively, but that considerable pressure is being exerted on the agency to raise the quality of the water to at least level w_2. The diagram makes clear that the "need" for clearer water can be satisfied, under the assumed conditions, only by reducing the quality standard for air (from a_1 to a_2). In order to weigh the advantage of purer water against the (opportunity) cost of foregone cleaner air, one would have to introduce a utility indicator I, whose level curves represent alternative combinations of water and air quality levels that are considered equivalent in utility terms. The prescription would be then to choose the combination of standards corresponding to the point on the possibility curve (point e in Figure 1) at which the slope of the highest attainable iso-utility line equals that of the AeW curve.

It is quite true that, so far, it has proved impossible to construct utility indicators reflecting society's marginal evaluations of different levels of environmental quality. But in the present context, this is not as important as the fact, which follows from the preceding discussion, that any choice of environmental standards represents, in the last analysis, an implicit evaluation of the utility of human life, health, and well-being.

A number of other considerations bring out even more clearly the element of social choice inherent in standard setting. Environmental standards may have significant distributional impacts [2] and questions of distributional equity cannot be settled on technical principles. It is also obvious that environmental and economic conditions are subject to large statistical fluctuations. Acceptable levels of risk and cost must therefore be decided upon and this is largely a matter of political judgment. The question of the scientific basis of standards is also quite relevant here.

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(2) Think, for example, of the massive shift to low-sulfur coal which is expected in the United States in the near future as a result of the emission standards for coal burning power plants set by the Environmental Protection Agency.

The available scientific knowledge is usually insufficient to specify even maximum or minimum levels for the standards; the few relationships that have been worked out between pollution levels and human health, are affected by very large margins of error (Lave, 1972). Consequently, the policy maker typically finds himself in a situation where he must choose among different, but equally plausible, scientific hypotheses. Again, the choice will be made on the basis of political and socioeconomic criteria.

III

This somewhat lengthy discussion of the nature of standards is justified by their crucial role in environmental management. Moreover, a comparison with alternative policy tools becomes meaningful only after a clear recognition of the fallacy of the wide-spread notion that standards can be set on the basis of purely scientific and technical considerations. Indeed, the popularity of standards is not due to their "scientific" character but, on the contrary, to an intrinsic vagueness, hiding behind a specious appearance of precision, which offers strategic advantages to the regulated, both at the level of standard setting and in the process of implementation.

Besides standards, a number of other tools have been used in practice, or discussed in the literature: outright prohibition of activities and products suspected of causing particularly harmful consequences; regulations, such as those imposed on the car industry in an effort to reduce the level of pollutant excaping from the engines, or the requirement that production processes be used which are known to generate small amounts of residuals; financial incentives to municipalities and producers for the construction of treatment facilities; and unit taxes (effluent charges), imposed on polluters in proportion to the amount of damage caused. In addition to these forms of collective action, solutions by voluntary action through bargaining and bribing have been proposed and defended as leading to a Pareto-optimal allocation

of resources (assuming that bargaining is perfect, and disregarding transaction costs.)

A detailed discussion of each alternative is outside the scope of this paper[3]. In terms of frequency of applications or of theoretical significance, regulations, effluent standards, and effluent charges are by far the most interesting methods of pollution abatement, and for the purpose of the present discussion, it will suffice to compare these alternatives. In the comparison, several properties will have to be taken into consideration: effectiveness in reaching prescribed levels of environmental quality; economic efficiency; monitoring and enforcement costs; informational requirements; flexibility; influence on technological innovation; political feasibility. The conclusion will be that, generally speaking, effluent charges perform at least as well as, and in many circumstances definitely better than, the other alternatives with respect to all the criteria, except political feasibility.

The use of regulations requiring polluters to install waste treatment facilities and to adopt production processes which are supposed to generate small amounts of waste, has been justified by the argument that effluent standards and effluent charges may involve high costs of monitoring the waste flows. It is clear, however, that the regulatory approach does not solve, but only evades the problem of monitoring costs. Indeed, if a firm is required to make certain investments in treatment facilities, but neither the operation of the plant nor the waste discharges are supervised by the authorities, the firm will have strong incentives to save on the operation of the waste treatment equipment. Thus, some form of monitoring of waste flows would be required in any case.

Economic efficiency requires that the marginal cost of pollution abatement be the same for all polluters. Effluent charges

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[3] For more extensive treatments, see e.g. Davies and Kamien (1969), and Mäler (1974).

satisfy this condition (see below); but since choice of the optimal processes to be used by the firms requires detailed technical informations which are not usually available to public agencies, it appears highly unlikely that a regulatory approach may achieve the desired level of abatement in an economically efficient manner. Also, direct regulations, and the concomitant mechanisms of administrative control, offer no incentive to the producers for the search and adoption of new techniques for waste treatment, recycling, and saving of natural resources.

Effluent standards are generally superior to direct regulation, especially if used in conjunction with ambient standards, but in most circumstances of practical interest they do not perform as well as effluent charges. In comparing these two tools of environmental policy, I shall assume that a set of ambient standards, fixing the levels of environmental quality to be reached, has already been determined. A most important property of effluent charges, which is not shared by standards, is that they achieve the specified level of the quality standards at minimum social cost. In other words, a system of appropriately chosen charges satisfy the condition of economic efficiency. Formal proofs of this proposition can be found in the literature (Baumol and Oates, 1971; Mäler, 1974), but an intuitive argument can be easily supplied. A cost-minimizing firm, faced by a unit tax on its emissions, will reduce such emissions until the marginal cost of further reductions is equal to the charge. Since all producers in a given area are subject to the same tax, the marginal cost of reducing a given type of pollution will be equal across all activities. Hence, it will be impossible to reduce the aggregate cost of the specified reduction in pollution, since any alteration in the pattern of pollution achieved by the charge (assuming that it has been set correctly), would involve an increase in the pollution level by one producer, the value of which to the producer would be less than the cost of the corresponding pollution reduction by some other firm.

In a sense, the performance of effluent charges with respect to economic efficiency and to effectiveness, is the opposite of

that of effluent standards. Given a set of ambient standards and appropriate enforcement procedures, environmental standards can always be calculated so as to satisfy the environmental objective; but there is no way of knowing that the objective is met in an economically efficient manner. On the other hand, for any given level of effluent charges, the resulting reduction in pollution is achieved at least cost, but there is no guarantee that the charges are sufficient to meet the environmental standards. However, any violation of the ambient standards will be quickly detected, and in this case, it will suffice to raise the effluent charges until the standards are satisfied.

The information necessary to set correct effluent charges is never greater than that necessary for effluent standards, and in many situations it will be actually less. This follows from the fact that in order to calculate optimal effluent charges, it is sufficient to know the aggregate volume of waste flows from the different pollution sources, while the total volume must be disaggregated in order to establish effluent standards that will achieve the same waste reduction at the same cost as effluent charges.[4] When random variations in waste flows are considered, the superiority of effluent charges over effluent standards becomes even more pronounced. A system of charges requires less statistical information (specifically, the probability distribution of total waste flow, rather than the distributions of the waste flows for each source of pollution) and, in addition, the prospects of effective enforcement are better. Indeed, in situations characterized by large random variations, it will be easy for a firm to maintain that the standards could not be met because of unforseeable circumstances [5]. Such argument would be completely irrelevant under a system of charges, for in this case, firms are allowed to discharge any amount of waste for which they are prepared to pay.

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[4] Cf. Mäler (1974), especially pp. 204-207, for some qualifications to this statement.

[5] In theory, at least, this difficulty could be overcome by the use of probabilistic standards. For an approach to stochastic standard setting, cf. Magone (1975).

Finally, it is obvious that firms subjected to a tax on pollution have strong incentives to discover and use new technologies for recycling and waste reduction, while no such incentives exist under the effluent standards approach, as long as the standards can be met by presently available technology.

IV

In spite of the superiority of effluent charges, existing environmental legislation is based essentially on standards and regulations, supplemented by generous amounts of subsidies to industries and municipalities for the construction of waste treatment facilities. Thus, under the U.S. Water Quality Act of 1965, the states are required to establish water quality standards (which must be acceptable to the Environmental Protection Agency), and to determine the maximum amount of discharges compatible with the standards. Licenses are then to be issued, limiting discharges, in total, to this maximum. The Water Pollution Control Act of 1972 goes even further in this direction, since it "essentially ends the use of water quality standards as the measuring rod for performance and substitutes standards or regulations regarding effluent control and treatment" (Freeman and Haveman, 1972). This development is all the more revealing since "[m]uch of the pool of expertise in the scientific and technical professions from many specialized fields such as engineering, law, economics, chemistry, physics, ecology, limnology, hydrology, oceanography and others was tapped to provide the necessary background and the correct guidance for the Federal government in this undertaking" (Sager, 1975).

The same regulatory philosophy permeates the 1967 Air Quality Act (see in particular its Title II: National Emission Standards Act), the 1972 Noise Control Act, and the 1974 Safe Drinking Water Act. In Europe, too, national legislations and proposed regional environmental policies, such as the program agreed upon by the Council of the European Communities and the representatives of the governments of the member states in November, 1973, rely almost

exclusively on a regulatory approach.

This approach is favored not only by legislators and bureaucrats. Large industrial polluters have strenuously objected to the introduction of effluent charges, and when some form of pollution control seemed unavoidable, they have systematically favored the use of standards, licenses, and quotas. Industry representatives have argued that the purpose of "punitive levies on pollutants discharged" is not pollution abatement, but revenue and "ultimately, a control over the national economy" (Kinney, 1971). While leading representatives of the business community have stressed the weak points and the alleged "fallacies" of a system of effluent charges (Lumb, 1971), industry has been told that "[p]roperly administered, government regulations and standards can expand market opportunities", and that "the net effect of government regulation can be to express, through political processes, fragmented demand that individual consumers cannot effectively express in the market place" (Quinn, 1971).

The somewhat paradoxical preference of private industry for government regulations, rather than an impersonal and automatic system of taxes which minimizes interference with the normal operations of the market, appears to be shared also by environmentalists and consumer advocates, often with the same arguments. In particular, the view of effluent charges as a "licence to pollute" has been espoused both by environmentalists and by business spokesmen.[6]

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[6] "As a general rule, I believe effluent fees are unacceptable. They are merely payments for the right to continue polluting. A tax on sin cannot justify the sin", Harold Passer, as quoted in Lumb (1971). Harold C. Passer is Assistant Treasurer of Eastman Kodak Co.

A moment's reflection on basic economic principles is sufficient to show the inconsistency of this slogan, but what is not always realized is that standards are open to the same criticism. For instance, local authorities can set ambient or effluent standards which, while formally satisfying national standards, would in fact cause a deterioration of environmental quality. Actual examples of this have been observed in the United States where, under the environmental policies of some states, the water-quality standards "had become, in effect, a way to license pollution", by permitting actual lowering of quality of some untouched streams (Ridgeway, 1970).

The low political feasibility of a tax on pollution is directly related to its very virtues: its effectiveness, the little room it leaves for administrative discretion and bargaining, its impersonal and automatic character, the high visibility of the decision concerning the level of the charges to be imposed. By contrast, standards and public regulation offer important strategic advantages to all the major participants in the regulatory process.

As Buchanan and Tullock (1975) show, under a system of emission charges a firm necessarily incurs short run losses; whether it remains in the industry, or shifts its resources to other uses, it will incur a loss in the present value of its potential earnings stream. But under direct regulations assigning production quotas to existing firms, net profits may be present even for the short term, and are more likely to arise after adjustment in plant capacity. In fact, public rules and standards may produce results that are similar to those of a policy of cartelization or of oligopolistic coordination (Goldberg 1974; Buchanan and Tullock, 1975).

But probably more important than the direct economic benefits, is the possibility that industry has to intervene in the regulatory and standard-setting processes.

> "It has been the practice in air pollution control legislation to give substantial representation to the industries that were the most serious polluters. For many years, membership in standard setting boards in many of the states was based on something of a tripartite formula, with industry having approximately one third of the seats and with the public, labor groups, and professionals with specific knowledge or interest in air pollution technology holding the other two thirds. Most of the professionals who were likely to be knowledgeable in air pollution control matters, however, were either employed by industry or were closely identified with industry's point of view. Consequently, many states' air pollution control agencies were for a long time industry-protection oriented, and would not recommend air pollution control measures that were costly or otherwise objectionable to industrial polluters ..... Provisions that require the agency to set air pollution control standards, taking into account "economic feasibility", were especially likely to result in standards that permitted economic factors outweigh the claims of public health" (Grad, 1973, p. 329).

A similar situation holds in the case of water pollution control, where boards charged with standard setting functions include representatives of the interests most directly concerned with the regulation of pollution.

> "It is likely that in water pollution standard setting agencies, just as air pollution standard setting agencies, the presence of industry board members has hindered the regulatory effort by at least as much as it has advanced it..... The presence of certain political and economic pressure is clearly visible on the face of certain of the water pollution control statutes. Thus, for example, Pennsylvania makes its act applicable only to sewage and exempts from coverage all wastes for coal mines, tannery and municipal sewage systems existing at the time the act was passed" (Grad, 1973, p. 332).

In spite of a gradual move towards the establishment of the responsibilities for standard setting at higher levels of government, responsibility for enforcement of environmental standards still resides largely with the lower level of the government hierarchy. This dual arrangement can be easily exploited by tightly organized interest groups. However stringent the

standards may be set by national or regional authorities, local enforcement is likely to be lenient when close supervision could result in restricting the activities of important local enployers. Polluters can further reduce the chances of effective enforcement of environmental standards by suitable modifications of jurisdictional boundaries. Such institution-changing behavior can be observed, for instance, in the United States. According to Grad (1973, p. 332).

> "there are even a number of instances on record when inventive owners of manufacturing establishments combined to incorporate industrial enclaves as cities or villages, as a defensive measure against the imposition of pollution controls. Thus a highly industrial area with a day time working population of several thousand persons and a night time population limited to a few watchmen may effectively eliminate the possibility of having environmental pollution controls enforced against them".

Citizen groups can also expect to derive greater advantages from the regulatory approach to pollution control than from a system of effluent charges. To a considerable extent, these advantages follow from the possibility of public participation in standard setting and other regulatory activities, and the resulting rewards for the resources with which such groups are relatively well endowed (votes and other means of political influence, special connections with opinion-forming media, etc.). The 1972 Federal Water Pollution Control Act is a good example of the benefits which environment-minded citizen groups can get under a regulatory approach. Section 101 (e) of this Act, as amended, requires the Administrator of the Environmental Protection Agency, in cooperation with the states, to develop and publish regulations specifying minimum guidelines for public participation, and assist public participation in the development, revision, and enforcement of any regulation, standard, effluent limitation, plan or program established by the Administrator or by any state under the Act. Responding to suggestions made by citizen groups, the proposed regulations

have been strengthened to the point of indicating that a Regional Administrator may reject a plan or grant application if he finds "inadequate participation".

Under the regulation, each agency must make available for public reference water quality reports and other relevant data, such as grant and permit applications, permits, effluent discharge information, and compliance schedule reports. Public effort in reporting violations of water pollution control laws is also encouraged. An explicit "Summary of Public Participation", to be reviewed and evaluated by the Administrator of E.P.A., by regional administrators, or by other approving officials, must be submitted (a) in the case of regulations and standards required to be published by the Administrator in the Federal Register or required to be published by a State agency in an official form; (b) in the case of statewide or areawide plans; and (c) in the case of applications for grants for construction projects.

The 1972 Act also requires that public hearings be held prior to the establishment of any effluent limitation standard, and in the process of periodic reviews of the water quality standards. Public hearings are not the only form of public participation envisaged in the Act. Advisory boards and workshops are other participatory mechanisms. Their costs are treated as allowable expense under federal construction and planning grant regulations. For instance, 75% of the cost of a workshop connected with a specific project can be covered by the Federal Government.

If one regards legislators and anministrators as the custodians of the public interest, it is indeed difficult to understand why they, at least, would not be willing to give a try to a promising policy tool. If, on the other hand, one assumes that policy makers, too, act in their own self-interest, the reluctance to use effluent charges in environmental legislation, and the preference for standards and regulation, become much more understandable.

A system of effluent charges leaves too little room for the shifting of responsibilities to lower levels of government, for administrative discretion, and for bargaining. The crucial decision on the level of the charge to be imposed is not subject to ambiguous interpretations or to half-hearted implementation at the local level. There is a clear-cut criterion of performance: if the desired level of environmental quality is not being achieved, the rates should be increased. Because effluent charges are "nearly unavoidable and unevadable" (Laska and Gerba, 1973), it is impossible to hide the costs of pollution control, or to transfer them to the weaker and less organized groups of the community.

The situation is quite different under a regulatory approach. In this case, the desire to postpone difficult decisions, or to delegate them to lower levels of government, can find ample justification in political traditions, in the demands for public participation, and in the legal and administrative characteristic of the rule-making and implementation process. A fragmented decision making system, minimizes the chances of alienating powerful sections of the policy maker's constituency. Thus, as an American legal expert has observed, "federal enforcement against persons who violate standards is not only infrequent but is viewed as a rather extraordinary measure", because of the "disjunctiveness", both on the level of standard setting and of enforcement procedures, among federal, state, and local pollution control programs (Grade, 1973). Considerable advantages can also be derived from the possibility of favoring economic interests through subsidies hidden in tax depreciation formulas or municipal cost-sharing programs, and through the granting or withholding of discharge licenses (or setting discharge limits).

In this paper I have tried to show that environmental policies cannot be understood without taking into consideration the self-interest of both regulators and regulated. Analytical models that exclude peoples' attempts to modify the institutional constraints within which they will have to act, are of limited usefulness, not only on a descriptive, but also on a prescriptive level. Any serious attempt to modify the rules of the regulatory game so as to favor the use of better policy tools, must pay attention to the incentives of the different players to favor or oppose alternative institutional arrangements.

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