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ABSTRACT

Public education cannot be considered an efficient alternative to industrial pollution abatement. The public education alternative stresses that an informed non-industrial public will, out of civic responsibility, bring about sufficient social pressure on the industrial sector to end pollution. However, evidence suggests that the mere presence of pollution does not guarantee salient awareness by the public-at-large. Greater dissemination of public information as a remedy to unawareness becomes inhibited by such factors as a communication gap between scientific and lay publics, incompleteness of biophysical data, and a reluctance on the part of government officials to release known information. The frequent lack of civic responsibility in the general public is caused by differential perceptions of "crises," variability in adaptation to pollution, and various factors which surround public pessimism. Other alternatives need to be studied which call for greater coordinated planning and implementation by public leaders. (Author/DE)

A CRITIQUE OF THE PUBLIC EDUCATION APPROACH TO INDUSTRIAL POLLUTION ABATEMENT

by Eliot R. Hammer

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Introduction

In recent years, sociologists and psychologists have been interested in the participation of the domestic sector of a society (i.e., the non-industrial public) as a force to enhance action on the part of politicians and/or industrial decision-makers to abate industrial pollution. The policy used to bring about mass participation, in this respect, is referred to as "public education," as the key to gaining such participation is, supposedly, informal persuasion (cf., Alexander, 1971).

Two methods have been suggested as means to gain participation among the masses and to, consequently, increase the effectiveness of public education as an abatement policy. The first method involves increasing "public awareness" by disseminating (especially through the mass media) information about the pollution problem to the public. The second method is to stress the need for "civic responsibility," accenting the necessity of one's responsibility, not only to himself, but to others.[1]

In the absense of voluntary action by the industrial public toward controlling pollution, a more informed domestic sector could bring about social pressure on industrial concerns to install abatement equipment. Involved here is an assumption that the non-industrial public will become so uniformly educated about the pollution problem that they will, out of "civic responsibility," organize into a large political force.

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[1]For a more detailed explanation of the methods used in gaining public participation than is presented in this paper, see: Hammer (1973).

The purpose of this paper is to briefly discuss the "public education" approach by presenting the findings of numerous studies of public attitudes. Inferences will be drawn as to the efficacy of public education as a policy in bringing about industrial pollution abatement.

Public Awareness

An "informed public" is defined as one which has achieved various levels of increased awareness about a social problem through public education. Although the degree of awareness is variated, reference made to "various levels of increased awareness," in this sense, is used synonymously with "general increase" in awareness. If an assumption is to be made, however, that effective mass action must be precluded by "uniform" education, a conceptual distinction must be made between "general increases" in awareness and "uniform" awareness. In an earlier study, I summarized the importance of this conceptual distinction:

> While no argument is posed against the premise that the public has, over the years, generally become more aware of pollution, there is no quantitative indication in the literature of how "uniform" this awareness must become in order to achieve positive social action. In any event, the promise of public education lies in its ability to increase awareness. In this light, there is reason to believe that people may not be as uniformly aware of the problem as some proponents of the public education alternative might suggest. (Hammer, 1973: 78).

What empirical evidence exists on the subject of public awareness suggests that "degree" of awareness is a complex issue. As an example, de Groot (1967) summarized a series of attitude studies conducted by the U.S. Public Health Service. He concluded that people are not as likely to perceive air pollution in their own neighborhoods as they are to perceive it as a problem in the community-at-large. De Groot noted, however, that the studies failed to control for variable residential pollution. In a subsequent study, Rankin (1969) did control for such variability,however, and his findings con-

firmed the de Groot analysis. For example, 66.7 percent of the Rankin sample perceived pollution as "very serious" in the community-at-large, whereas only 35.2 percent of the sample perceived pollution in their own neighborhoods as being a "very serious" problem.

Several reasons have been posited for such perceptual differentiation. The apparent operation of a psychological "denial mechanism," whereby a person will not admit to pollution of his residential area, was suggested by de Groot (1967: 680) as one possibility:

> [To admit to residential pollution] . . . would demand the respondent to make a decision about whether air pollution was sufficient cause for him to move out of the neighborhood and uproot his friendships and usual patterns of life.

It must also be noted that pollutants in certain residential areas cannot be easily perceived by the senses. For example, radiation and carbon monoxide are pollutants which are, at times, present in large and very dangerous quantities, but, because such contamination cannot be sensorially perceived, it is often not perceived as a public nuisance (cf., Saltonstall, 1970; Gofman and Tamplin, 1971). The findings of three empirical studies have supported an assumption that lack of sensorial perception contributes to differentiation in perception among respondents. In all three cases, a direct correlation was found between perceptions of the seriousness of air pollution and the actual ambient air quality in defined areas of residence (cf., Smith Schueneman, and Zeidberg, 1964; de Groot and Samuels, 1966; and Stalker and Robison, 1967).

Writers have also attempted to relate differences in population characteristics with perceptual differentiation of the pollution problem. Smith, Schueneman, and Zeidberg (1964) found sex and social class to be important variables, when differentiating population attitudes. The literature in this area, however, is somewhat contradictory. DeGroot and Samuels (1966) did not find differentiation on the basis of sex and social class. De Groot and Samuels also failed to find variation on the basis of age and education. Crowe (1968)

was able to find population differences as a result of social class and education, but not on the basis of sex and length of residence.

What is important from the above discussion is that awareness is a complex issue. The operation of the "denial mechanism," the inability to sensorially perceive all pollutants, and the variability in perception based on population characteristics all contribute to a lack of uniformly salient perception by the public-at-large. The actual presence of pollution, therefore, does not insure that the public is aware of the full extent of environmental disruption, nor of its intricate possibilities as a health hazard. Given this lack of uniformity of awareness and the consequent variability of public attitudes, gaining mass participation becomes a very difficult task.

A Remedy to Unawareness: Public Information?

It might be suggested that one way to remedy unawareness is to disseminate a greater quantity of information to the public. The literature suggests, however, that the process of adequately informing the public about the pollution problem is not a simple one.

Writers, such as Gillman (1970) and McKee (1970) have described the public perceptions of pollution as incorrect and incomplete. McKee assigns the "cause" for the lack of correct public knowledge to a failure in communication between scientific experts and the lay public. As an example, McKee (1970: 792) notes that:

> Biologists talked among themselves for many years about the long-term detrimental effects of pesticides, but it took Rachel Carson's book Silent Spring to bring this problem to the attention of anyone outside the circle of experts.

The difficulties of infoming the public are further complicated by incompleteness of information. This again can be due to a failure of communication of technological jargon to the lay public; however, one must be cognizant that biological and physical data are often lacking in terms of empirical closure.

Much hypothesizing about the functioning of complex biophysical systems is based on pure speculation. For example, Gofman and Tamplin (1971) note that current standards of radiation allowed into the body are not considered by many scientists to be of "short-run" harm to humans. However, there is no conclusive data concerning the "long-run" effects of the present radiation standards.

Whereas incomplete information can often be attributed to lack of information, it might rather be due, in some cases, to a reluctance on the part of government authorities to inform the public of information that is at hand. This can take the form of releasing only one side of a technological issue, failing to report the possibility of detrimental biophysical tradeoffs. As an example, government spokesmen often promote nuclear energy as a "safe and clean" alternative power source, while only giving minimal attention to the possible long-range side effect of radiation (cf., Gofman and Tamplin, 1971). Sometimes the government fails to report any side of an environmental issue. As an example, Benjamin (1971) reported that the federal government was withholding information on the extent of pollution by industrial waste dischargers, who hold federal permits to pollute water.

These three factors--the "communication gap" between the scientific and lay public, incompleteness of certain natural scientific data, and governmental reluctance to report information at hand--can only inhibit the ability of the public to become uniformly informed about the pollution problem.

Civic Responsibility

If a case can be made that the public has generally become more aware of the pollution problem, then the question must arise as to how effective mass action can be, given lack of uniform awareness. In other words, to what extent will persons exercise "civic responsibility?"

The evidence suggests that, in spite of a general increase of in public awareness, people are not willing to make the necessary sacrifices to control pollution, unless they actually perceive it as a problem interms of adverse health effects. De Groot (1967: 680) summarizes the findings of several studies on the subject:

> Without much question, health is the primary source for concern leading to awareness. . . . While property values are considered important, health is the most important variable showing up as the source for concern. . . .

Viewing the potential for public participation, the above issue is a key element when making a judgment about the degree to which the non-industrial public can effectively organize to lobby against industrial pollution. If persons do not become concerned about pollution in advance of a perceived health crisis, then it can be assumed that citizens lobbies are dependent on on a crisis perspective to motivate mass participation. However, if individuals are not uniformly aware of the pollution problem, Reichardt (1970) has suggested that they may also differ in their perceptions of what constitutes a crisis. A good example of this is the current controversy concerning "over-population."

By restricting himself to the United States, as a geographic boundary, Wattenberg (1970: 18) fails to denote a crisis situation:

> The critical facts are that America is not by any standard a crowded country and that the American birth rate has recently been at an all time low. . . .

Ehrlich (1968) would tend to agree that the United States, if isolated from other countries, would not be in a state of crisis. However, by taking an internationalist viewpoint, he does not view the U.S. in a geographic vacuum and thus perceives the whole world in a population crisis: ". . .the world, especially the undeveloped world, is rapidly running out of food" (Ehrlich, 1968: 36).

Faced with the prospect of not everyone viewing pollution as a problem in the same degree, more detailed insight can be given into the dif-

ficulty of organizing persons who do not perceive pollution as a health crisis. Many writers, who have adopted the "non-crisis" position, nevertheless agree that the pollution situation in the United States is far from ideal. The non-crisis argument suggests that the alternative is not between "life and death." Rather, the question becomes one of optimum "quality of life." Reichardt (1970) has suggested that variation in adaptation goes beyond an identification of differences over whether or not an area is polluted or whether or not a crisis exists. The question needs to be raised as to why there are differences in adaptation. Reichardt suggests that variation in adaptation cannot be accounted for on the basis of physiological factors alone. Social factors must be taken into account; and, consequently, the notion of "socioeconomic trade-offs" becomes an important variable.

Trade-offs are taken into account by each individual when he tries to deal with pollution abatement. Creer, Gray, and Treshow (1970) hypothesized that the greater the economic dependence that one has on the source of pollution, the less concerned that person is going to be about controlling pollution. Indeed, pollution might be seen as a problem, secondary in importance to other social problems. In a study of the heavily industrialized Johnstown, Pennsylvania area, Crowe (1968) noted that air pollution was relegated to fourth place by the public on a list of social problems. Notably, unemployment was listed as the most serious problem. Therefore, in a social trade-off between employment and pollution abatement, one can speculate that the greater value of Johnstown citizenry would be placed on employment. In other words, a Johnstown wage-earner, who is well aware of his industry's pollution, is likely to keep his mouth shut, when faced with the alternative of losing his job. It should be noted, however, that Johnstown values are not universal. In a study of Charleston, West Virginia, Rankin (1969) noted that a majority of his respondents would be willing to see pollution abated, even if it meant greater unemployment. The point that needs

to be gathered, however, is that such variation among the public on the issue of trade-offs contributes to the lack of mass movement organization on the societal level.

As a psychological factor, Rankin (1969) has tried to use "pessimistic attitudes" as another variable contributing to lack of civic action. Ninety-five percent of his Charleston sample felt that their complaining about pollution to authorities would be ineffective. The end result of collective pessimism can often be viewed as extreme apathy and weak anti-pollution lobbies:

> . . . each individual compares his power to affect decisions on environmental quality control with that of the anti-control faction. He feels his power is too small to affect air quality or control efforts. The result of this . . . perceived lack of political power is a relatively weak (or non-existent) pro-control lobby (Downing, 1970: 3).

Not totally unconnected to the third reason, and indeed at least partially responsible for public pessimism, is fourth possibility--a lack of public leadership. De Groot (1967) noted that concern among leaders with other social problems, such as crime and unemployment, has taken precedent over concern about pollution. Rankin (1969) tied in the lack of effective leadership with public pessimism by noting that apathy was a result of unfulfilled expectations, whereby political promises are not totally met by practice. As the public becomes more aware of efforts by government to control pollution: "Awareness of improvement may become a more important issue than awareness of pollution" (Rankin, 1969: 598).

A final reason for lack of public action, which Rankin (1969) also ties in with public pessimism, is a lack of knowledge on the part of people of where to complain. Not only are many people unaware of the extent of the pollution problem (re: de Groot, McKee, etc.), but they are unaware of who makes decisions about abatement. As Rankin (1969: 569) noted: ". . .the average citizen, while recognizing the problem, was unfamiliar with what could be done,

or what has been done, and appeared . . . pessimistic regarding his own role and the likelihood of control."

Differential perceptions of crisis, variation in environmental adaptation, public pessimism, lack of primary attention given by public officials to pollution problems, and lack of knowledge of where to complain are all factors which can contribute to difficulty when trying to stress "civic responsibility among the non-industrial public.

Conclusion

It should be obvious from the above discussion that the public education approach to industrial pollution abatement is not an overwhelmingly efficient policy alternative. Any assumption that the public will become uniformly and saliently informed through greater mass communication is not borne out by research. It is also a false assumption that a public (given increased general awareness) will, through "civic responsibility," move toward controlling pollution, short of a perceived crisis.

Because one cannot perfectly predict into the future, he must allow for the plausibility of public education becoming a more efficient approach at some later date. However, it should be obvious that any change brough about by public education alone will be very gradual; and, given the severity of the pollution problem, more immediate change may be necessary. Therefore, at best, public education can only be seen as having merit as a supplement to other approaches.

Industrial pollution abatement will, in my opinion, only be successful through some coordinated effort of planning and implementation by public leaders. The methods of achieveing such a coordinated effort serve as alternatives to the public education approach. While such policy alternatives are not the subject of further detailed discussion in this paper, it should be

briefly mentioned that such suggested approaches as the development of counter-technologies, attempts at legal regulation and judicial action, the application of user charges, and funding through abatement subsidies lend themselves to rigorous sociological analysis with regard to the potential rate and effectiveness of social change brought about by each approach.

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