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Series S, Rural Sociology

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SOME SOCIOLOGICAL CONSIDERATIONS FOR IMPLEMENTING POLICY

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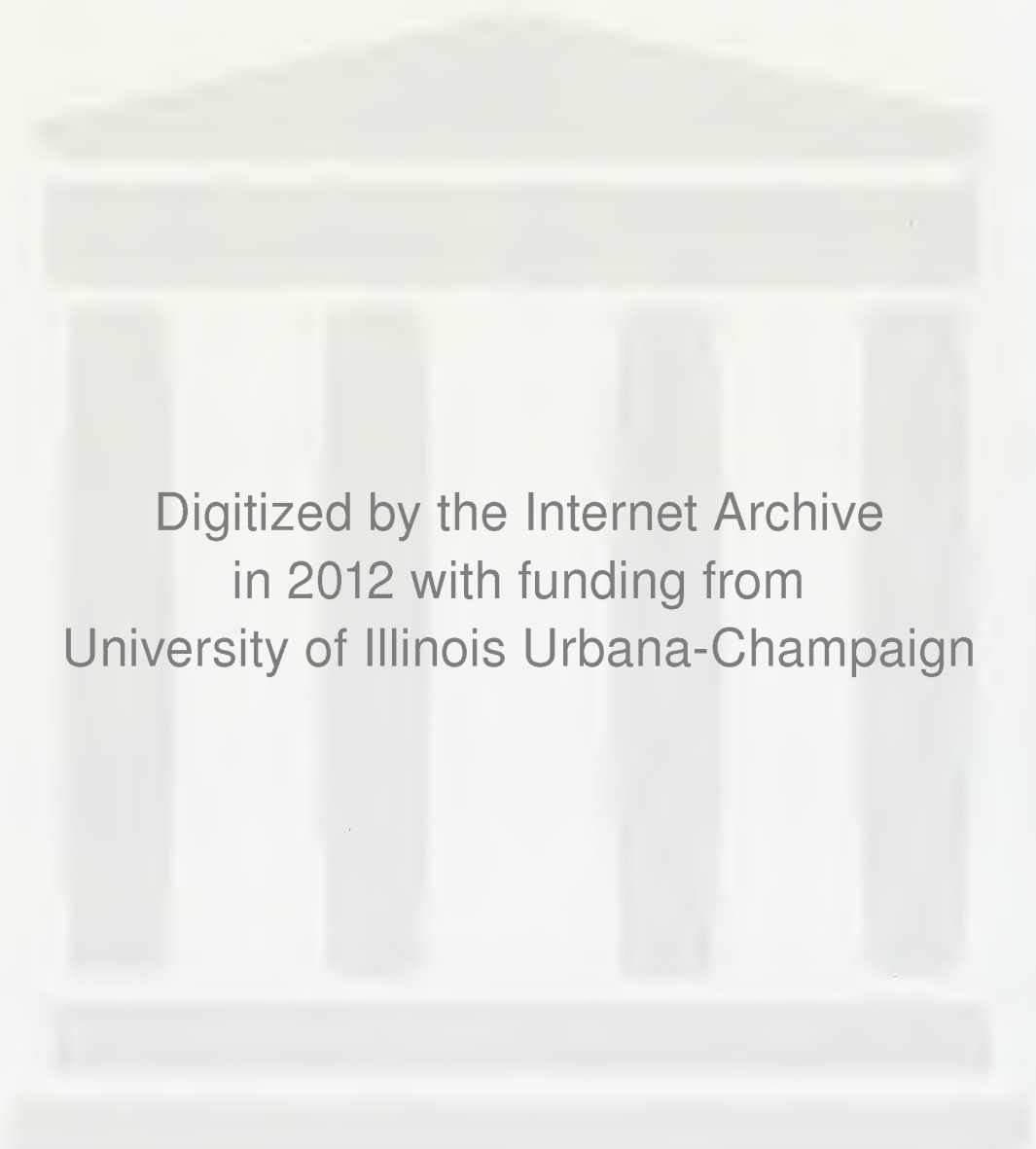
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## Nonpoint Source Pollution from Agriculture:

### Some Sociological Considerations for Implementing Policy\*

Nonpoint source pollution is one of several important issues affecting agriculture. Policies are being made and programs are being designed to deal with this issue. Much of the debate deals with the technical and economic aspects of various policies. The present paper deals with certain sociological aspects that may be easily overlooked but which can greatly alter the success of a program. This discussion should aid in the selection of programs, as well as help agency personnel define their roles in implementing policies.

It is important not to confuse the goal of a policy with the objective of a program. The policy goal refers to the attainment of a certain condition while the program objective deals with the way in which the policy goal is to be attained. Thus, meeting clean water standards is a policy goal, and implementation of Best Management Practices is a program objective. BMP is not the only program for meeting clean water standards; public education programs and tax programs are other ways in which the policy goal of clean water may be pursued. Which programs to choose in order to attain a policy goal is frequently at the heart of the debate about public policy, although at times the goal of the policy itself is the cause of the controversy--for example, should our national energy policy be based predominantly on energy conservation with all the resulting changes in our lifestyle or should the policy attempt to expand available energy sources to maintain our lifestyle.

It is useful to assess how closely program objectives and policy goals are related. The more remote or uncertain the relationship between program

objectives and policy goal the more likely the opportunity exists for program objectives to be attained without a comparable achievement of policy goal. Unfortunately, how closely policy and program objectives are related is frequently very difficult to determine on an a priori basis, an uncertainty plaguing much of the proposed NPS programs in support of the clean water policy.

Just as problem solving can be broken down into defining the problem, defining the solution, and implementing the solution, problem-solving programs can be classified on the basis of their objectives: creating awareness of the problem, creating awareness of solution, and implementing solutions. In Figure 1, some possible NPS programs are classified according to these criteria. As Figure 1 indicates, all program objectives may contribute to attaining policy goals. However, programs which provide economic incentives for the implementation of a soil conservation plan will have a more direct relationship to achieving the policy goal of reduced water pollution than programs which direct themselves to creating awareness of the problem only.

As long as farmers are the principal decision makers regarding on-the-farm activities, participation of farmers in the program becomes the fundamental concern. This participation can be reached either voluntarily, or can be made mandatory. Within our political and economic framework, and supported by our value system, we prefer voluntary participation. It maintains a person's control over his or her affairs; it allows for local decisions and therefore efficient adaptations to local conditions.

Mandatory programs frequently are insensitive to local conditions and therefore inefficient and sometimes inequitable as well. However, there are many situations in which mandatory participation is required. First

comes to mind the situation where the problem is so serious that reliance on voluntary participation cannot be justified. This situation is probably best exemplified by the area of public health: certain measures must be taken to prevent a contagious disease from spreading. Secondly, research indicates that even the most successful voluntary programs rarely succeed in obtaining 100 percent participation. Furthermore, frequently the most problematic cases are the ones most reluctant to voluntarily participate in this type of program.

In most cases mandatory participation makes it quite likely that program objectives will be attained. However, the 55 m.p.h. speed limit is one example where enforcement of mandatory participation has proven so difficult that the program's objectives could not be fully attained.

In the following section we will discuss some of the issues that arise, when we simultaneously discuss varying program objectives and voluntary or mandatory participation strategies.

#### Awareness of problem

Programs aimed at increasing awareness of the NPS problem are an important first step in any approach to solving the problem. Without awareness of the problem and its gravity, it is very difficult to attain participation in other programs relating to the policy goal.

A program of creating problem awareness will frequently rely heavily on use of the mass media. Past research indicates that such use can be quite successful (Rogers and Shoemaker, 1968). Research also indicates, however, that to move farmers from awareness into taking some action usually requires a more complex approach, relying on sources of information other than the mass media.

Within agriculture the Cooperative Extension Service possibly has the best known record of achieving changes through educational programs. In the past, however, much of that work had focused on educational activities compatible with the profit-maximization efforts of most farmers. While much of the technology introduced to farmers in the past has helped them to increase their productivity, NPS pollution control policies have as their goal the improvement of water quality and will likely involve activities which may not be profitable to the farmer. Therefore, while the Extension Service may be an excellent organization for mounting an educational campaign, some research findings argue that we should not assume that NPS pollution control campaigns demand nothing but another application of the known strategies (van Es and Pampel, 1976).

While farmers are seen here as the principal on-farm decision makers, it should not be overlooked that their actions take place within a larger social context. Both society at large, as well as the members of the region and community, are important factors in a farmer's decision making (Ostrum, 1975). It appears that more effort will be needed to create awareness among the general public. While no scientific polls are available, personal observations indicate that the general public has very little understanding of NPS pollution and the more complex issue of its control. The severe apathy among the general public is not conducive to creating an environment supportive of strategies relying predominantly on educational programs among farmers. At the same time, the general low level of information among the public appears to leave the area wide open to those who might want to manipulate public opinion in support of special interest positions.

### Providing Awareness of Solutions

When awareness of the problem has been created it will generally be necessary to follow up with a program which provides the farmer with solutions tailored to his situation. In order to enable the farmer to take action, he will need to have specific information which allows him to make decisions pertaining to his farm. NPS pollution control is a technically very complex matter; the needs, as well as the options, differ from area to area, if not from farm to farm. Research on farmer decision making indicates that a program aimed at making the farmer aware of solutions applicable to his farm will not be able to rely mainly on mass media. Best Management Practices or other programs will need to be explained to the farmer in terms of the applicability of the program to their farms. Farm conservation plans are one approach which specifically helps the farmer determine the applicability of various options to his farm.

Farm soil conservation plans have been available to farmers for many years, but many farmers apparently have not felt the need--or possibly have not had the resources--to have a plan developed for their farm, thus raising the issue of mandatory compliance. The agricultural community, although not alone in this respect, has been an outspoken opponent of governmental regulation of its activities. Because of the fact that many pollution control measures can not be implemented through market forces, and because of the farmer's perception of the EPA's mode of operation, the issue of mandatory participation, governmental regulations, or coercion, is always present. Requiring development of soil conservation plans for every farm actually represents a very minimal interference on the farm operators' freedom to make decisions. The farmers may well perceive it, however, as a first step toward mandatory implementation.

A very extensive promotional effort would be necessary, including a special effort to obtain the cooperation of leaders in the agricultural sector, to guide farmers into accepting this program. To gain farmers' acceptance of the program it will be tempting to entice them with promises that a soil conservation plan will be a substitute for further regulation. Since it may very well be necessary to implement certain regulations at a future time, this appears a strategy that one ought to strongly guard against. The government's loss of credibility among farmers in 1975, following the broken promises of unlimited grain exports should provide an important lesson to all of us about the social and political cost of unkept promises.

#### Implementation of Solution

Instituting a program aimed at providing each farm with a soil conservation plan or some other approach to defining the specific nature of a farmer's NPS pollution control program, would be a step in the direction of attaining the policy goal of NPS pollution control. However, program objective and policy goal would be separated from one another by a considerable margin, since implementation is still within the realm of farm decision making, where it must compete for priority with many of the other concerns farmers have. A successful program may educate every farmer in terms of his options to control NPS pollution, while at the same time showing no progress toward the policy goal.

In a program with the specific objective to implement a solution, awareness of the problem and of solutions to the problem among the target population are, of course, necessary. These preconditions should be verified so that the implementation program can be adjusted to the existing

levels of problem and solution awareness. It is also important to take into account whether the awareness has been created through a voluntary or mandatory program. If it has been totally voluntary, a sizable percent of the target group can be expected not to be aware of the problem or the solution. This will require an educational effort preceding implementation, aimed at farmers not easily reached by traditional programs.

Once a program has been chosen for implementation, the manner of implementation must be considered. There are three basic categories of program implementation strategies: (1) voluntary without economic incentives, (2) voluntary with economic incentives such as tax credits or subsidies, and (3) mandatory with either positive (e.g., tax deduction, subsidies) or negative (e.g., fines) incentives.

Many farmers use conservation practices on their farms and work with agencies such as the Cooperative Extension Service and the Soil Conservation Service, but on a purely voluntary basis. The strength of the agencies involved in promoting such conservation programs must lie in their ability to persuade farmers to participate. Currently the agencies often deal with farmers already interested in the idea of conservation; they do not have to deal extensively with those farmers not interested in conservation.

Furthermore, as we already pointed out, the control of nonpoint source pollution frequently involves a conflict between farm profit and public welfare (Wilkening and Klessig, 1976; Pampel and van Es, 1977). This creates further doubt about the effectiveness of an implementation strategy based solely on voluntary participation.

Voluntary implementation of conservation practices with the support of economic incentives would reduce the conflict between farm profit and public welfare considerations. These programs have been used, but in order to be truly successful the level of incentive would apparently need to be

quite high. Such a program would become quite expensive to the public, and therefore very difficult to pass politically.

Making the implementation mandatory involves the greatest degree of compulsory interference with farm operations. However, both the gravity of the problem (which is not evaluated in this report) and the necessity to bring all acreage in an area under an NPS pollution control program may lead one to decide that mandatory participation is called for. The drawbacks of mandatory programs are well known. They tend to be accompanied by cumbersome administrative machinery which can be both costly and annoying to those affected by the regulations. Poor communications and misunderstandings between the regulatory agency and those regulated are a familiar part of most scenarios.

Regulations are usually created by a central authority, frequently causing inequities and inefficiencies. Soil conservation needs may be more sensitive to local conditions than almost any other sphere in which activity is regulated. There are frequent complaints that general standards are set by the political decision making process, while bureaucratic agencies are left to decide how to implement the policies. It appears that for erosion and sedimentation control an approach of stating the policy goals while leaving the program selection to local decision makers, including farmers, would be most appropriate.

An organizational structure which combines technical expertise with local farm decision-making participation would provide the best available guarantee that the NPS pollution control programs will be technically competent and maximally responsive to local farming needs. Effective farmer participation would aid in the efficiency of the implementation program and



help guard against "over-engineering" on the part of the experts.

While we noted before that farmers place a high value on their autonomy in farm decision making and on unrestricted property rights, they have accepted regulatory activity interfering with their decision making autonomy in such areas as grading standards for farm products, milk marketing orders, and many public health regulations. While farmers have not necessarily cherished those regulations, there is little evidence that compliance problems have been widespread once the regulations have been introduced. However, surprisingly little research has been done on the nature of farmers' participation in mandatory programs. But it seems safe to say that without an extensive educational campaign, however, and the active participation of farmer representatives in the decision-making process, it appears that it will be costly to overcome the expected negative reactions by farmers to any infringement on their freedom of decision-making.

In addition to the perceived threat to their autonomy, farmers will be concerned about the economic implications of the program. Under a program based on voluntary participation, a farmer may find himself at a disadvantage because his economic competitors are not participating in the program and thus not incurring similar expenditures. Under a mandatory program this problem is only partially alleviated, since the economic cost will vary depending on local conditions. To help cushion the economic impact, a mandatory program could be instituted which would provide farmers with some type of compensation which, for example, could take the form of a tax credit or a subsidization program. In general, farmers appear to favor tax credits over subsidization programs (Gardner and Seitz,

1977). Subsidization also tends to become associated with specific structures or technological approaches, and this categorical approach may not be the most efficient one.

The voluntary or mandatory approaches have been treated here as being mutually exclusive. It is, however, possible to design policies which would incorporate a mix of voluntary and mandatory measures (Council for Agricultural Science and Technology, 1976). Farms or regions where nonpoint source pollution poses the gravest threat to water quality may be chosen for the mandatory implementation of erosion measures, while in other regions it would be possible to rely on voluntary cooperation by farmers. This approach would place less of a burden on financial and technical resources and allow the most severe cases of nonpoint source pollution to be treated with the urgency that is required.

#### Concluding Remarks

While the preceding paragraphs have pointed out some of the issues involved in program selection and implementation, we have not been able to cover all the issues. Three issues come to mind which greatly affect the success of local programs:

##### Time Dimension

The success and acceptability of any program can be affected greatly by timing. A program may become unusually expensive or extremely threatening if it is undertaken as a "crash" effort. We realize that the gravity of the problem or political pressure may call for immediate action. Nevertheless, a well-developed timetable which indicates when various objectives need to be accomplished and which takes into account the capabilities of the organizations involved, the available financial resources, and the

need to educate farmers and the general public may do much to increase the likelihood of success.

#### Extreme Impact on Individuals

In the present discussion we assume that farmers can afford to participate in any of the programs but need to be encouraged to do so, or that, in order to equalize the different economic impact between them, they may need to be partially compensated. In considering any policy, however, it should be recognized that some farmers may be forced out of agriculture if they must make heavy investments in NPS pollution control activities, must substantially change their farming operations or must take certain acreage out of row-crop production. Whatever is done, then, these individuals will understandably be very resentful toward the program.

#### Farmer Participation in Decision Making

Effective participation by farmers in decision making will affect the implementation of policies at the local level. This is not the place to deal extensively with the problems involved in citizen participation in decision making. The literature on that subject is voluminous, although few studies have examined the nature of farmer participation in the decision making that affects their own enterprise. Research on citizen participation indicates that frequently neither the objectives of citizen participation nor the role and power of the citizen participants have been defined well enough to allow a functional system to develop (van Es, 1976). New policies which incorporate elements of farmer participation in the decision making structure will need to carefully specify the objectives to be accomplished and the ways in which the participation is to be implemented.

We have discussed some sociological elements of the implementation of various programs, related to the goal of NPS pollution abatement. It is

likely that ultimately elements from a number of programs will be combined in an overall NPS control program. We hope that technicians will be in a better position to administer programs if they understand the relationship of the program objectives to the policy goal and make their own actions compatible with the various program objectives. For example, programs relying on voluntary participation are likely not to reach certain farmers, and programs relying heavily on mass media communications will most likely succeed much more in creating problem awareness but have lesser results in program implementation. No solution for controlling nonpoint source pollution will be simple; it will involve a complex approach, and at the local level different agencies will need to design complementary programs. We hope that this discussion has offered some ways to identify the elements of a complex approach to the goal of nonpoint sources of agricultural pollution control.

MANDATORY

VOLUNTARY

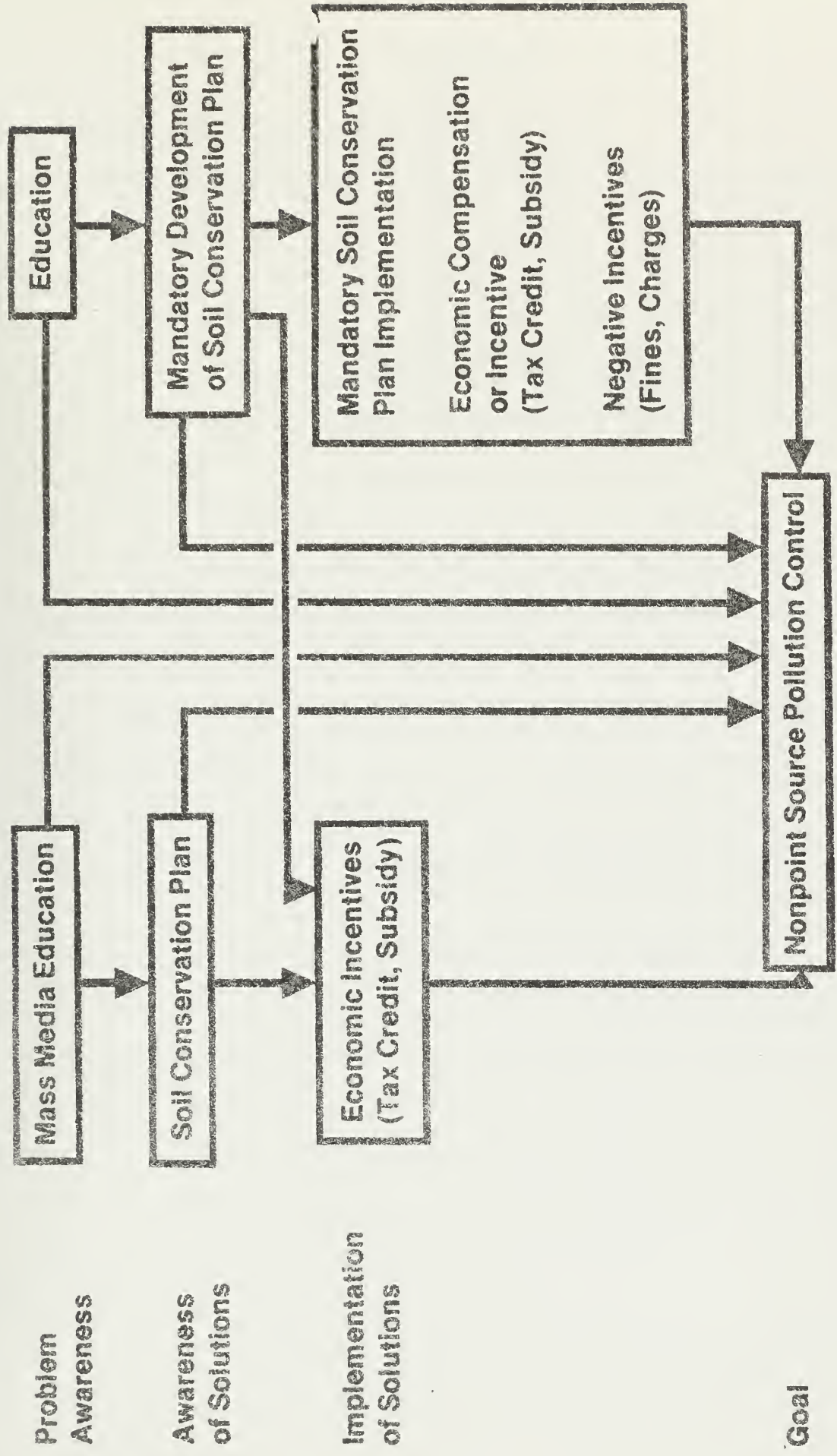


Figure 1. Interrelationships of Selected Approaches to the Control of Nonpoint Source Pollution.



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