THE EFFECT OF JURISDICTIONAL BOUNDARIES AND INFORMATION SUBSIDY ACTIVITIES ON THE PERFORMANCE OF SECTION 208 (PL 92-500) PLANNING

By

Alfred C. Hamilton

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ABSTRACT

THE EFFECT OF JURISDICTIONAL BOUNDARIES AND INFORMATION SUBSIDY ACTIVITIES ON THE PERFORMANCE OF SECTION 208 (PL 92-500) PLANNING

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This thesis addresses the question of how a large unit of government can get many smaller subordinate units of governments to individually adopt programs which are in the national interest. This situation is similar to the problem in economics of organizing a bid among a multitude of potential benefactors for a high exclusion cost good (public good). The problems of jurisdiction, transaction costs, free riders, and information costs are all relevant to the situation.

The Federal Clean Water Act Amendments of 1972 provide a situation in which a natural experiment is carried out. In particular the effects of the jurisdictional boundaries of the water quality planning process on the probability of local control of nonpoint pollution is examined. A negative relationship is hypothesized, tested via a nationwide survey and validated. This thesis draws on relevant literature from political science and economics and concludes with policy and research suggestions.

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While all of the previously mentioned people and organizations have been instrumental in the preparation of this manuscript, any remaining errors are the sole responsibility of the author.

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CHAPTER I

INTRODUCTION

Problem Statement

> It merits particular attention in this place, that the laws of the Confederacy, as to its enumerated and legitimate objects of its jurisdiction will become the SUPREME LAW of the land; to the observance of which all officers, legislative, executive and judicial, in each state will be bound by the sanctity of an oath. Thus the legislatures, courts, and magistrates, of the respective members, will be incorporated into the operations of the national government as far as its just jurisdiction and constitutional authority extends; and will be rendered auxiliary to the enforcement of its laws * (Hamilton, Madison, and Jay, 1961, p. 221).

The Federalist Papers established the philosophical base for a strong federalized system of government. At the same time this document recognized that the sum of all governmental powers would be shared between several levels of government. In a federalist system an anomaly exists when, in order to further some national interest, the consent of the units of government at some level below the federal level is required. This paradox is similar to the problem in economics of organizing a bid for a high exclusion cost good. The problems of transaction costs, free riders, and strategic bargaining are virtually the same in each case.

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* Federalist paper number 27 attributed to Alexander Hamilton, first published circa 1787.

In trying to obtain the national clean water goals set forth in the Federal Water Pollution Control Act, Amendments of 1972 (PL 92-500)* such a situation arises. These goals state that:

(1) it is the national goal that the discharge of pollutants into the navigable waters be eliminated by 1985;

(2) it is the national goal that wherever attainable an interim goal of water quality which provides for the protection and propagation of fish, shellfish, and wildlife and provides for recreation in and on the water be achieved by July 1, 1983 (PL 92-500, Sec. 101(a)).

In order to achieve or even approximate these goals both point sources and nonpoint sources of pollution will have to be controlled.

It is the control of nonpoint sources of pollution which presents us with the federalist's anomaly. It is almost axiomatic that nonpoint sources of pollution arise from the manner in which land is used. To reduce nonpoint pollution, the way literally millions of people make land use decisions will have to change. The anomaly exists because for various historical and political reasons the power to control land use lies principally with local governments (cities, towns, counties and villages). It will be the consent of these units which will be necessary to achieve national water quality goals.

Purpose

The purpose of this thesis is to examine this anomaly in the light of an institutional economic framework. In particular it will attempt to measure the performance of various institutional arrangements which have evolved from PL 92-500. In doing so, special emphasis will

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* See Appendix A.

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be placed on the relationships between the federal, state and regional levels of government and local governments, and their relative abilities to interact and exchange information.

Organization of the Thesis

In undertaking this endeavor it will first be necessary to develop a conceptual model of the process by which rights to natural resources are allocated. A model will be developed which looks at this process in the light of both a market economy and a political economy. It will also be shown that planning plays a key role in the provision of improved quality or quantity of natural resources and that the jurisdictional boundary of the planning activity will affect the output of that process.

Next this model will be applied to a specific case, water resources and improvement of those resources through reduction of nonpoint sources of pollution. PL 92-500 will be used as a vehicle to allow an examination of the effects of jurisdictional boundaries on planning activities. Through section 208 of the act, which calls for pollution reduction on a nationwide scale, a natural experiment will be conducted to test how information exchange variables, which gauge the ability of planners and decision makers to interact, will be affected as the jurisdictional boundaries of planning areas change.

The data used to test the hypotheses generated from the conceptual sections of this thesis will be gathered by a survey of all the relevant population of section 208 planning agencies in the country. This data will be analyzed and comparisons will be made concerning the differences in information exchange activities between the two major

types of section 208 planning agencies. The extent that variation of jurisdictional bounds affects each class of agency will also be discussed. Because a multitude of other factors enter into this process two brief case studies of section 208 planning agencies will also be presented. These case studies are designed to further acquaint the reader with some of the nonquantifiable factors that affect this process. These factors include agency credibility, history, and self-perception.

In the final chapter policy prescriptions based on the material presented in this thesis will be presented. These include observations on the nature of the planning process, its time perspective, the role of information in changing public policy, and the structure of the present section 208 planning process. In addition, in the spirit of any academic research a future agenda of research needs will be presented.

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CHAPTER II

A CONCEPTUAL MODEL OF NATURAL, MARKET AND POLITICAL RESOURCES

Every society faces the problem of allocating natural resources to a multitude of potential users. In this chapter some of the salient characteristics of natural resources will be discussed. Two systems of allocating rights to those resources will be described, and then the relationship of the natural resource planning process to these two systems will be discussed. In so doing a model of the rights to natural resources allocating process will be developed.

Characteristics of Natural Resources

Most people have an intuitive idea about what a natural resource is. A list of such resources might include water, air, timber, minerals, land, wildlife, and possibly energy. While it is probably difficult to find a true common denominator that links all natural resources they do appear, to greater or lesser extents, to have some common characteristics. They are the basic raw materials which any society must draw upon to engage in production processes and indeed for human life.

Natural resources may be either renewable or nonrenewable. When they are renewable, improvements in their quality or quantity are characterized by natural processes which occur over long time periods

and/or extremely costly investments by man. Finally it should be recognized that the users of many natural resources are highly interdependent. That is, in the economist's jargon, for many potential uses they exhibit high exclusion costs.

Allocation of Natural Resources

The marketplace is one forum where the rights to certain natural resources are transferred. However, the high exclusion cost property of many natural resources suggest that demands for certain uses of those resources will go unannounced in the marketplace. Goods with high exclusion costs are those goods which if purchased by one party may still confirm benefits to another nonpaying party. National defense is probably the most common example of such a good. Typical of high exclusion cost goods, there is little incentive for individuals to go into the marketplace and exchange their resources for that good if they know: (1) they could benefit if someone else purchased that good or (2) if they themselves purchased that good they could not exclude others from the benefits of their action.

This argument is not intended to suggest that all uses of natural resources are characterized by high exclusion costs. Quite the contrary, many uses of natural resources are such that the user incurs direct and unique benefits to him/herself. The user who receives unique benefits from a natural resource will find that the price of that resource in the marketplace is understated because of the barriers that high exclusion cost users of those resources face in articulating their demands in the marketplace. Thus, those natural

resources will be over-exploited for those uses which are characterized by the exclusion property.

Where those resources are nonrenewable, the exclusive uses of natural resources are those that tend to increase the rate of extraction and the high exclusion uses tend to attempt to reduce the rate of utilization. We all know that we ought to conserve petrochemicals, but we are all content to let someone else do the conserving. When the natural resource in question is a renewable one, the exclusive uses generally tend to reduce the quality and/or the quantity of those resources, while those who demand high exclusion cost uses of those resources favor improved qualities or quantities of those resources. In either case, the result is a situation in which the sum of individual actions which are perceived as positive may lead to a negative result in the long run. Hardin's "The Tragedy of the Commons" is an example of just such a situation (Hardin, 1968). John Platt describes these situations as social traps where the contingencies of reinforcement of activities in the short run are the opposite of the contingencies of reinforcement in the long run (Platt, 1973).

This would simply be the way things were if it were not for one other fact. No system of resource use and exchange can exist independent of some larger social systen of organization. Part of the function of such a system is the definition of rights to resources and the establishment of rules by which those resources may or may not be exchanged. If this system of social organization is to make and enforce rules it must utlimately be granted the power to do so by the members of that organization. This quite literal consent to be ruled may be

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coerced or freely given and appears to be analogous to Boulding's Economy of Love and Fear (Boulding, 1973). Like Boulding's "grants economy" this exchange is not completely one sided. In return for his or her consensus, the individual receives the rights to some other resources some of which are transferable and some of which are not. In some respects we may conceive of a political economy where an individual grants a consensus to be ruled in return for some other considerations. It should be pointed out that where this consensus is taken by force the consideration involved may only be the right to retain life. Boulding calls this transaction an example of the algebra of two negatives not equaling a positive (Boulding, 1973, p. 4).

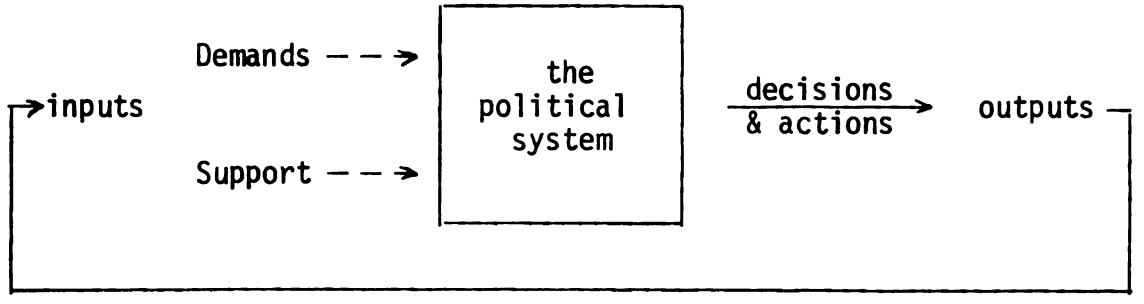
It is now possible to conceive of political resources, which are held by individuals. The magnitude of these resources held by any individual is a function of the impact of that individual's consent on a given decision that the organization is making. This in turn is a function of the decision rule adopted by that organization (Buchanan and Tullock, 1962).

Finally, it should be noted that as long as an individual is a member of any system of social organization he or she has certain political resources with respect to that organization which are inalienable! That is, the individual can always choose to impose costs on the organization by his or her active opposition to any decision. These costs may be the denial of his membership in that organization or his or her active opposition within that organization (Hirshman, 1970). Because the organization cannot deny the individual the ability to impose costs on that organization if he or she so chooses that

individual owns the right to impose them and as such those political resources are inalienable. It may be that in exercising those rights the individual must choose death and violence, as a number of hero-villians throughout history have, but the individual can nonetheless, make that choice. Such are the characteristics of human inter-dependence.

A system has now been posited where a marketplace can exist, but only subordinate to a larger system of social organization. Gintis describes this system in terms of three sovereignties; citizen sovereignty, producer sovereignty and consumer sovereignty (Gintis, 1972). Clearly the preceding argument is designed to suggest that citizen sovereignty should take precedence over producer or consumer sovereignty. We may now view any resolution of a conflict over the use of any resource that is only relegated to the marketplace as a partial solution. While there may be barriers that prevent the articulation of certain demands for certain uses of natural resources in the marketplace, those demands may not meet the same barriers when they are articulated in a political economy. A political ". . . demand may be defined as an expression of opinion that an authoritative allocation with regard to a particular subject matter should or should not be made by those responsible for doing so" (Easton, 1965, p. 38). Indeed there is reason to believe that some interests will only articulate their demands for certain resources through the political economy. After all why should they exchange their marketable resources if they can get themselves declared the owners of those resources by other means (Schmid, 1977).

Individuals and groups may use their political resources in one of two manners. They may lend support to a given decision or they may remain silent. The support of a decision may be either positive or negative support, but it is active. The decision to remain neutral may be either active or passive. At the same time those who make decisions in an organization require the consent of the members of that organization, in other words their political support or indifference. Easton describes this system with a simple diagram (Figure 1).



(Easton, 1965, p. 32)

Figure 1. Easton's Model of the Political Economy

Most systems which make authoritative allocations of rights to resources are strategied into a series of dominant and subordinate decision units. Each decision unit will have a corresponding jurisdictional boundary, which is the area in which that decision unit may make

authoritative allocations. Dominant decision units contain, as subsets of their jurisdictional bounds, the jurisdictional boundaries of subordinate decision units. At the same time differing groups will find that they have differing relative resources with which to express political demands at different jurisdictional levels. Thus, the rules of dominance between decision units becomes an important factor when trying to predict the resolution of a political demand. That is if organization A dominates B then if contradictory decisions are made with respect to the allocation of a given resource in those organizations, A's decision will be the one that is enforced. Of course, things are never that simple. More likely A has precedence in some areas and B in others, and where conflict exists there is a good deal of room for compromise.

It should be remembered that decision makers, at least as considered in this paper, function in such a way as to maximize support. Bartlett has described this in a democratic context as vote maximization (Bartlett, 1973). Any decision is a two edged sword. Those who benefit, at least in theory, ought to give support to that decision and those negatively affected ought to deny support. Thus it is possible to conceive of a calculus of political benefits and costs. We may then speak about a decision maker's opportunity set as the matrix of political costs and benefits that are perceived with respect to any given decision.

In this decision making calculus, decision makers will attempt to reduce political costs and increase political benefits. One of the ways in which political costs may be reduced is to get a subordinate decision unit to do the dirty work, thus insulating the decision maker

from some of the negative impacts of a decision. This process of shedding political costs is intimately related to the rules of jurisdictional dominance. The shedding function may be described as the process by which dominant decision makers may effect the opportunity sets of subordinate decision makers. This may be an over simplification since so-called subordinate decision units also have indirect means of effecting the opportunity sets of the so-called dominate decision unit.

All of the elements of the model of a political economy have been specified, and Figure 2 diagramatically represents their interrelationships. This model is essentially an adaptation of Easton's systems model of a political economy. The environment, represented by the box furthest to the left, consists not only of existing resources and technological relationships but also of the social relationships which define the rights and limitations of individuals and organizations. Changes in that environment can have a direct impact on the welfare of individuals and organizations.

Individuals and organizations provide the basic inputs into the political economy. They make demands of decision makers and provide them with support. They use these political resources at various jurisdictional levels, represented by the dotted lines in Figure 2. The jurisdictional dominance pattern is such that jurisdiction one (J_1) dominates jurisdiction two J_2 . . . dominates jurisdiction n (J_n). Each jurisdiction has a corresponding set of decision makers, D_1, D_2 . . . D_n and each decision maker has an opportunity set which consists of the matrix of political costs and benefits with respect to any potential

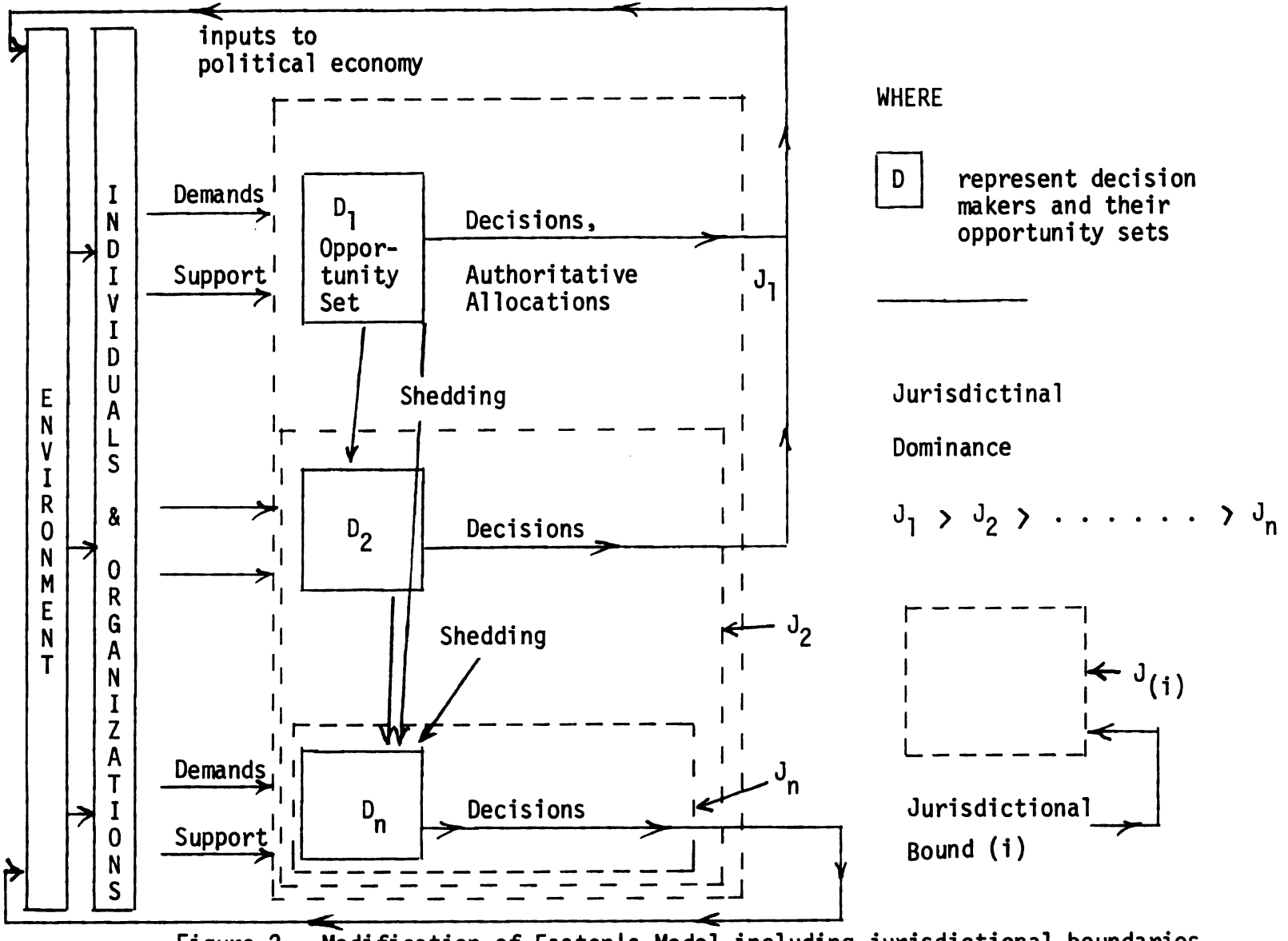


Figure 2. Modification of Easton's Model including jurisdictional boundaries

decision. The decisions which are the outputs of a political economy are authoritative allocations of rights with respect to resources. These allocations change the environment facing individuals and organizations. The shedding function is represented by arrows which point from dominant decision units to subordinate decision units where the dominant unit has the ability to change the opportunity sets of subordinate units. This model is essentially static because it does not deal with uncertainty. Before this limitation can be diminished it is necessary to understand the role of resource planning.

Natural Resource Planning

The preceding discussion, has suggested that natural resources are characterized, if they are renewable, by regeneration over long time periods and/or with large capital outlays. If they are non-renewable then it would be reasonable to suggest that they need to be managed or allocated over long time periods. Because of the long time periods involved and the potential for large capital investment, future states of natural resources are highly uncertain. Both the private and public sectors attempt to manage uncertainty by planning. A comparison between the planning process of these sectors may shed some light on what the outputs of those processes are and how they differ.

Firms seek to expand their time horizons and in so doing, manage uncertainty. This is particularly important for large firms in which the production process may take several years from start to finish (e.g., automotive, aerospace, or energy industries). These firms may try to circumvent the workings of an uncertain market by

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various means including influencing tastes, contractual arrangements, diversification and market control (Gailbraith, 1967, pp. 22-34). The firm has an objective function which guides its profits and planning activities. The essence of this process is that a firm chooses a future state of nature that it would prefer and a means by which it may influence the intervening events in that direction. Of course, this does not mean they will succeed. Even the most controlled industrial systems have not been able to snuff out the invisible workings of the market economy. The key point is that the firm does choose, and in so doing, consciously or unconsciously rejects other possible choices, known or unknown of its preferred state of nature. In so choosing, the firm seeks to reduce uncertainty with respect to the future. The other side of this coin shows that if uncertainty is to be diminshed, opportunity must likewise be reduced.

When trying to conceptualize the output of a governmental planning process we may borrow considerably from the model of the firm. When a government plans it does so because it too has chosen a preferred state of nature and strives to achieve that state. The planning process then describes a choice of the means to realize that state of nature. It would appear however, that for better or for worse government lacks the clear objective function of the firm. There is no bottom line for government which is as unambiguous as profits are to the firm. Clearly there are some generally agreed upon goals and some acceptable and unacceptable means. However, most of the policy process centers upon a system in which one group's goals are given precedence over another's, and the proposed means which serve one set of ends, not necessarily

consistent with the chosen goals, dominate the means which serve another clientele. It would seem that the output of a governmental or public sector planning process is the choice of a set of means which will be used to obtain a chosen state of nature.

There are, however, some differences between the planning efforts of the private and public sectors. The private sector has the advantage of a clearer objective function, while private corporations may be complex bureaucracies the opportunity sets of those who plan and those who implement are more closely alligned. This may only be because the distinction between the bureaucrat and the decision maker is less formal in the private sector.

In the public sector, then, those who draw up the agenda of means to achieve a goal (bureaucrats) are for the most part not the same group of people who decide if that agenda of means will be ratified. Thus we may divide the planning process into two parts, the choice of an agenda of means and the ratification or rejection of those means. It seems fairly obvious that if an agenda of means is not implemented then, all things being equal, the existing state of nature will not become the preferred state of nature unless it would have occurred in the absense of that planning and implementation process. Implementation then becomes a critical veto point in the resource planning process. If those who draw up plans do so in a fashion which does not take into account the political realities facing those who must implement them then the planning process has little chance of passing the paper stage. It makes sense to suggest that the more closely alligned the opportunity sets of those who choose an agenda of means and those who ratify that

agenda are, the higher the probability that the chosen agenda of means will be ratified.

One major component of the opportunity sets of both the parties is the jurisdictional boundaries of the structure that chooses an agenda of means and the structure that implements those means. The more the two boundaries of the planning process diverge the lower the probability that a plan will be implemented. It is just this point that the balance of this thesis will be designed to demonstrate.

CHAPTER III

THE MODEL APPLIED TO WATER RESOURCES AND THE ROLE OF INFORMATION

In the preceding chapter, a model of the political economy, which makes authoritative allocations of resources was described and the models relationship to the planning process was examined. The purpose of this chapter is to relate that model to water resources. In so doing specific reference will be made to the Federal Clean Water Act Amendments of 1972 (PL 92-500). In particular the role of information in decision making processes and planners ability to provide that information as a function of jurisdictional boundaries will be discussed. Out of this discussion a natural experiment will be designed to test the author's assertions.

Characteristics of Water Resources

The first step in discussing the characteristics of water resources is a definition of water resources. For the purposes of this paper water resources will be defined as water bodies and water courses. This definition is designed to include streams, lakes, rivers, swamps, bogs, oceans, and ground water systems. It is designed to exclude water systems such as municiple drinking water systems. This definition is somewhat arbitrary since the systems in both classifications are interdependent, however, it is useful.

Most of the following discussions will center on conflicts between uses that make waters dirtier and those that require cleaner water. It may be useful to try and define what is clean and what is dirty. Aside from analytically pure water, however, which is not normally found in nature, there is no objective manner of defining clean and dirty. If one tries to define clean water as the quality of the water in its natural state, there are problems. A case can be made for the Cuyahoga River, being natural even while it was burning, since its state was a product of human evolution in the environment. There is, simply, no objective base in the past from which changes in water quality may be measured. Thus it may be more meaningful to refer to water quality in terms of the resolution of demands for cleaner and dirtier water and the means by which these demands are articulated.

Water resources are high exclusion cost goods. Any one economic actor who pays for some measure of clean water cannot exclude others from the benefits of that clean water. This is true because water doesn't stay put, it goes places. If it goes downstream and upstream users have made it dirty, it affects those downstream as well. Typical of goods characterized by high exclusion costs there is very little incentive for individuals to pay for that good if they know that: (1) they could benefit if someone else purchased the good or (2) if they themselves purchased the good others could not be excluded from enjoying it. While the consumers or users of cleaner water might have some willingness to pay for cleaner water there is little incentive for them to individually go into the marketplace and exchange their resources for it.

At the same time, those who make uses of water resources that degrade those resources are able to impose costs on other users of water resources. They are able to achieve a personal gain from a use of water resources that reduces the quality of that water. It may be that those who have a willingness to pay for cleaner water could compensate those who might pollute for not doing so but the organizational barriers that exist preclude any such bid being made.

The cost structure of water resources, like other natural resources, is such that those who would reduce the quality of the water gain a unique private benefit from doing so. Meanwhile those who might demand an improved quality of the resource find that they must be willing to endure free riders when they actually demand that good in the marketplace and consequently those who degrade the water resources are over exploiting those resources because their worth is under-valued in the market.

A simple example may make this point clearer. Let A hold the rights to pollute a body of water and he/she will sell that right to the highest bidder. There are two types of bidders. The Amalgamated Pollution Company is willing to bid up to $2,500 for the right to pollute. Beyond that it is cheaper for them to clean up their wastes. The second group is composed of 3,000 clean water lovers who each have a $1 willingness to pay for clean water but only 1,500 of them are willing to bid. The other 1,500 want to ride free. The water lovers total willingness to pay is $3,000. With that sum they could buy the right to pollute and never exercise it and in so doing preserve the water. But only $1,500 will be actually bid because of the free

riders. The Amalgamated Pollution Company will bid $1,501 and get the right to pollute, even though the individual water lovers had a willingness to pay $3,000 if the free rider problem had been solved.* Because of the free riders, the Amalgamated Pollution Company was able to make a use of a resource which was under-valued in the marketplace.

The Economic and Political Costs of Improving Water Quality

It should also be recognized that improvements in water quality are very expensive and with some means a fairly long period of time must intervene before they are effective.

When discussing specific means of improving water quality it is first useful to divide the sources of pollutants into two categories. We may then look at the processes that reduce water degradation from point sources and from nonpoint sources.

Point sources of pollution are in effect "end of the pipe" sources of pollution. If we submit the contents of these pipes to some production process in which part of what makes that material dirty is removed then we have point sources of cleaner or less polluted water. The actual technical processes for removing many (although not all) of the materials that make these waters dirty is reasonably well known and much of it has been in practice for years.

The economic characteristics of the production of clean water from point sources are such that the rational provider is a natural monopoly. With respect to optimum size and pricing policy the

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*Even if the free rider problem were to be somehow magically solved the problem of organizing a bid among 3,000 potential benefitors would involve a significant transaction cost.

economics of the situation dictate that there be only one provider for any one area. The following evidence will bring us to this conclusion. First for any given clean water plant (sewage treatment plant) the marginal cost is decreasing or at least constant. As such the marginal cost must be less than the average cost, and the economist criterion for efficiency of price equaling marginal cost will lead to losses by any firm producing clean water. This characteristic alone is sufficient to characterize the production of clean water as a "natural monopoly." As with most "natural monopolies" this production process is characterized by high capital costs relative to operating costs. These capital costs are large and represent an investment in a treatment plant and collection system which will have to yield services over a large number of years if its cost is to be amortized. In other words, the time horizons of such projects are quite distant.

In addition to having decreasing or constant costs for another user of a given plant, as plant size increases to a certain point the cost of treatment declines. The production of clean water is characterized by economies of scale over a certain range of provider size. This relationship, however, is normal in that past some geographic size the costs of the production of clean water will increase. Thus an argument can be made for the existence of an "optimal" geographic or demographic size for the production of clean water. There is no particularly good reason to believe that this optimum size will coincide with any existing political boundary (Bish & Ostrum), with the possible exception of special sewer districts.

Even between clean water provider units certain economies may be had by coordination of their production of clean water. This is true because water flows, and has an assimilative capacity. Water quality decisions made upstream may have an impact on the cost of providing a certain quality of water downstream. It is possible then that coordination of the production of clean water may further reduce the total cost of a given level of clean water, but this may not be true for the individual provider.

Changes in water quality are not just a function of the changes in the degree of treatment of point sources of pollution. The materials which make water "dirty" also enter into the aquatic ecosystem from nonpoint sources. A few examples will make this point obvious. Silt enters water from agricultural land, construction projects and erosion in general. Pesticides and herbicides enter from agricultural runoff, forestry runoff, and suburban sources. Nitrogen and phosphorus enter from agriculture and suburban runoff. Oil and litter enter from storm-water runoff. This list is far from exhaustive. The important point is that they do exist and they are significant contributors of the materials that make water dirty.

Thus even if all the point sources of pollution were made pristine, there would still exist some material in the water making it "dirty." While the technology of point source control is reasonably well known it is expensive. The cost of achieving the next unit of clean water, by point source production of clean water, is greater than achieving the last unit of clean water. There are increasing costs associated with the production of point sources of clean water.

From an economists standpoint this factor begs the question of whether the cost of the next unit of water quality attained by point production is greater than the costs of a unit of water quality attained by the control of nonpoint sources.

Several other factors need to be examined before it is possible to speculate on this question. First the technology of nonpoint control is not well developed. Much of what we do know is information concerning the control of soil loss. Most of this information and related techniques were derived not for controlling water pollution but for preventing the erosion of land. There should be a logical link between these activities but exact or even approximate knowledge of that linkage does not appear to exist. While it may be possible to estimate the cost effectiveness of some nonpoint clean water production processes those estimates may be biased and their variances large. If this is the case then it is probably very difficult to make meaningful comparisons between the costs of producing clean water by point production vs nonpoint production. However, there are some general things which may be said about nonpoint pollution. It is almost a fundamental property of nonpoint sources of pollution that they are generated by the way in which people use land. It would seem to follow that if any change is to be made in the level of nonpoint pollution there will have to be a change in the way people use land.

As was discussed in the preceding chapter, those who have a demand for cleaner water have other avenues of redress than the marketplace. They may choose to use their political resources by demanding that the government reallocate the rights to certain uses of water

resources. These demands have been expressed at all levels of government but the level at which they have met with the most success has been the Federal government. These demands were of sufficient magnitude to persuade Congress to pass the Federal Water Pollution Control Act Amendments of 1972 (PL 92-500) which establish the goal of zero discharges into the nation's waterways by 1985. They also suggest an interim goal of fishable and swimmable water where possible by 1983. While the author believes these goals have more value as rhetoric than policy, clearly the intent of the act is to improve the quality of the nation's waters on a scale that can only be called ambitious. The act is probably the most comprehensive water pollution control act yet passed. It is comprehensive because it makes specific references to both point source and nonpoint source pollution activities.

The amount of political benefits garnered at the Federal level ought to be a function of the performance of anti-pollution standards. More realistically, rhetorical performances may yield the same utility as substantive ones. Thus, we may begin to think about the means chosen to achieve or approximate these goals as the resolution of the political benefit-cost matrix.

Means of Reducing Nonpoint Pollution

Governments face several options when they wish to change human behavior. They will choose to attempt and rearrange individuals' opportunity sets in a fashion which will result in a desired performance. The means by which a government might do so include taxation, subsidy, regulation and purchase. Let us examine the possibilities of each of

these alternatives in light of the existing political and market economies. The purchase option is obviously, from a dollar standpoint, very expensive. Even if government were to purchase just a few of the proverbial "bundle of rights" associated with land in the hopes of reducing nonpoint polluting activities these costs would still be astronomical. If the purchase of development rights plan of Suffolk County, New York is any sort of guideline we cannot expect any government to be able to afford this alternative. Lesher and Eiler point out that Suffolk County was prepared to spend $21 million to obtain the development rights to 3883A. of land. Even if we assume that this high price is a function of high land values in this case (which it is, land values in this case were about $7500/A.) and that the purchase of "pollution rights" would cost less, the amount of land that would have to be involved would make the dollar costs tremendous (Lesher and Eiler, 1977). While political and dollar costs are not the same thing, clearly they are related. If it is decided to buy those "pollution rights" the billions of dollars used to purchase them must come from somewhere. Ultimately they must come from taxpayers and the political costs of increasing taxes enough to cover these costs would be large.

Taxation is a second alternative. The basic notion in designing a tax to control some activity is to tax that activity in such a way so as to reduce the difference between social costs and private costs. In the case of nonpoint pollution, to be effective, a tax program would have to levy tolls against a vast number of activities. Even if it were possible to effectively delineate and tax these activities the political costs would be high. These taxes would have to be levied

against huge numbers of people and specific groups of people with political clout. These might include farmers, foresters, builders, agricultural chemical producers, and others. Thus even if a taxation policy were to yield revenues to a government there would be large political costs to overcome.

A subsidy is essentially a bribe for carrying out some activity. In another sense it is the opposite of a tax. In this case subsidies are offered to the potential producers of nonpoint clean water to hopefully reduce the divergence between the social and private costs of preventing water degradation from nonpoint sources. Because they are the opposite of taxes very specific groups may support them (i.e., those which will receive them) and, depending on the source of that subsidy, there may be little opposition to such a program, particularly if the source is the state or federal government because any subsidy makes very little difference in an individual's tax bill. The experiences of the Soil Conservation Service (SCS) and the Agricultural Stabilization and Conservation Service (ASCS) may be the most instructive in this case. The SCS provides farmers with subsidies of technical information (e.g., farm plans) and the ASCS provides cost saving subsidies for soil improvement practices. Farmers (clientele) provide both the SCS and the ASCS with the political support necessary to assure their survival. The recipient farmers have an interest in maximizing their subsidies and the SCS and the ASCS have an interest in giving out as much subsidy as possible (Bartlett, R., 1973, pp. 70-75). Individual tax payers have no incentive to oppose this relationship because the transaction costs of opposition are much higher than any

individual benefit they might achieve. This is a natural outgrowth of the fact that such lobbying is a high exclusion cost good. Such subsidy programs have been suggested as a means of producing nonpoint sources of clean water. Indeed the SCS is often proposed as one of the land agencies in this respect. Subsidies do have the problem that they may be expensive, as does government purchase, and some political costs may flow from these high dollar costs.

Finally there exists the option of regulation. Regulation in effect means that certain activities are declared illegal or at the minimum requires some form of governmental consent prior to undertaking that activity. The dollar costs to government of this option are relatively small. For the most part they involve policing costs. The dollar costs to society may be much greater depending on the nature of the activity which is regulated. On the other hand the political costs of such actions may be quite high. As pointed out, any significant change in the production of clean water from nonpoint sources will probably have to come from a change in the manner in which people use land. This in effect means some form of land use controls.

When discussing land use controls, at least in the context that they are thought of in the United States, there are two distinct characteristics of the existing political economy which must be considered. First, for the most part the only unit of government that is considered to have a legitimate right to adopt land use controls is a local (county, township, city, or village) government.* For

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*Several states have also adopted land use controls to control development near specific resources such as shorelines and parks.

whatever reason, these are the only units of government which have successfully adopted comprehensive land use controls. (The only exception that the author is aware of is the state of Hawaii which has adopted a statewide system of land use controls). The second fact to be considered is that land use controls are less popular in rural areas than in urban areas. If we are to consider land use regulation as a viable alternative to achieve the goal of reduction of nonpoint sources of pollution, we must recognize that those decisions will probably have to be made at the local level. In addition we must recognize that the political costs involved will probably have to be borne by local politicians, and that those costs will be differentially assessed between urban and rural decision makers.

It is not realistic to believe that any one of these techniques will be "the" technique that will be the most effective in changing the amount of nonpoint pollution that occurs. If one buys Lindbloom's argument that most policies never change more than incrementally (Lindbloom, 1959) then it follows that incremental changes in all of these policy options will be more successful in producing clean water than an incremental change in only one.

We can now address the matrix of political and dollar costs of various measures which might be initiated at the Federal level to improve water quality. Figure 3 is a diagramatic representation of such a matrix. Implicit in this matrix is the idea that the structure of the demand for clean water is fixed and must be met and that it cannot be met simply by controling point sources. The matrix suggests that there will be increasing political costs as any one

	Dollar Costs	Political Costs
Point Sources:		
Treatment Plants	High and increasing	Low, increasing
Nonpoint Sources:		
1. Purchase	Very high	High and increasing
2. Subsidy	High	Low and increasing
3. Tax	Low or Negative	High and increasing
4. Regulate	Low	Very high if done directly by Federal Govenment

Figure 3. Matrix of Political and Dollar Costs at the Federal Level

method of control is used to a greater and greater extent. The lone exception to this is the regulation option. In this case, the political costs of changing the authority to regulate land use are so great that the direct federal regulation of land use will not enter the picture. The rest of the matrix suggests that to minimize political cost, decision makers will probably choose a mix of means to achieve a water quality goal. Indeed one might be so bold as to suggest that water quality will be improved in such a way that the Marginal Political Cost of Means A equals the Marginal Political Cost of Means B and so on. The calculus is not very important because these functions cannot be specified in any exact manner.

But what about regulation? This is where the concept of shedding becomes important. If the federal government can get local levels of government to regulate land use then the political costs of regulation

at the federal level are much lower and regulation enters the picture as a viable alternative.

The only question then that remains is how to convince local governments that they should control land use for the purpose of reducing nonpoint pollution. One way is to tie the flow of sewage treatment construction dollars, which have many positive side effects in a given community in terms of jobs, to the adoption of land use controls. In rural areas, where resistance to land use controls is higher and the impact of construction grants smaller it may also be necessary to offer subsidies-bribes, particularly to agricultural and forestry interests which have traditionally opposed land use controls, and may be well organized.

In the provision of point source and nonpoint source control of pollution, the planning process plays an important role in determining the least political cost combination of programs. It has already been suggested that, in the area of point source control, the planning process helps provide for control of capital expenditure and coordination of control activities in a watershed.

As is the case with point sources of clean water planning plays a crucial role in the cost effectiveness (both in dollar and political terms) of nonpoint programs. Similar to point sources, planning for nonpoint provision of clean water must try to integrate watersheds and jurisdictional boundaries, identify problems and propose alternatives, and suggest investment strategies. However, these functions turn out very differently in nonpoint control. For example where point source planning can identify a problem in terms of a pipe, nonpoint

planning must deal with land parcel by parcel. Where point planning deals with a reasonably well developed highly capital intensive technology, nonpoint planning deals with a tremendous diversity of techniques which are less capital intensive and represent a somewhat lower level of technological development.

In both point and nonpoint planning the planning process is also a forum in which political compromises are made. For point sources the planning process to some extent formalizes the process by which politicians "bring home the bacon." With nonpoint sources the salient trade-offs may involve choices of techniques of nonpoint control and managing urban-rural conflicts.

Finally it should be remembered that the planning process is not necessarily the reflector of the values that society holds. It may in fact be intimately involved in the process by which values and political perceptions are changed (Lientoff, 1974).

PL 92-500 recognized, as other clean water legislation has, the importance of the planning process in the provision of clean water. The act and subsequent court rulings have mandated that clean water planning process (Section 208 Planning) encompass the entire United States and its territories. To accomplish this objective, approximately $225 million have been allocated to various agencies around the country. As with the provision of actual control of pollution, the jurisdictional boundary of the planning process is an important consideration. There should be some coordinational economies to be gained as the jurisdictional bounds of the planning process increase, particularly in the management of point sources. On the other hand, many

of the implementation powers have been delegated to local units of government (county, city, town and village) and many of the decisions to be made with respect to nonpoint sources must be done on a parcel by parcel basis. It has already been suggested that implementation is the crucial step in the planning process and that the probability of implementation increases as the opportunity sets of those who draw up agendas of means and those who ratify those agendas converge. Again the jurisdictional boundaries are key elements in the two respective opportunity sets.

Section 208 planning is principally done by two types of organizations.* The first and most frequent is the multi-county region. These regions typically are associations of 1 to 10 counties. The second major type of organization that does section 208 planning are state level departments of Conservation, Environment, Public Health, or Natural Resources. In general, though not always, they conduct section 208 planning exercises in the areas not covered by multi-county regions. These areas generally include more counties than a multi-county region. As a general rule then the physical jurisdictional boundary of the state level section 208 planning agency is larger than the multi-county agencies jurisdictional boundaries. If this is the case, we may perform a natural experiment to test whether the size of the planning boundary has an effect on the probability of implementation. The question then arises, how can we measure these probabilities.

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*Section 208 plans are also, to a lesser extent carried out by city and county governments, and multi-state planning organizations. Each of these organizational types are so few in number as to not lend themselves to statistical comparison. Appendix C lists the various organizational forms and some selected characteristics.

The Role of Information

What we are trying to measure is the relative ability of different institutional structures to influence the decisions of a set of governments. This situation is highly analogous to one found in consumer theory. Consumers rely on information in making their choices in the marketplace. Information about a set of goals allows the consumer to assess the utility he or she would expect to receive if that goal were purchased. In the pure theory perfect information is assumed, thus there is no uncertainty with respect to the utility of a given purchase. In reality this assumption holds about as much water as a leaky sieve. Not only is information not perfect it is expensive to acquire. Any decision which is made by the consumer will be made on the basis of partial information.

Producers may lower the relative cost of acquiring information to the consumer by providing that information to the consumer. This is in essense an information subsidy. This is, of course, not an altruistic act on the part of the producers. The information they provide will try to portray their product in a favorable light so as to induce the consumer to purchase that product. This process is usually called advertising. Because the consumer is uncertain, this information subsidy process does more than just inform the consumer. It is also intimately involved in the formation of tastes and preferences.

The structure of this information subsidy process effects the amount and type of the subsidized information provided. Two factors determine this. First, the information provided is a high exclusion cost good. When a firm advertises, that advertising may have positive

effects on the consumption of close substitutes and complements, may also increase. The producers of those close substitutes and complements may benefit; in essense they are riding free at the expense of the firm which is advertising. An example may make this clearer. When Wisconsin cheesemakers promote Wisconsin cheese, New York cheesemakers (a close substitute) benefit as well from a general increase in cheese consumption. Not only do New York cheesemakers benefit but cracker makers benefit as well since cheese and crackers are complements. Firms will be willing to endure these free riders as long as benefits they receive from advertising outweigh the costs. As the firm size expands they will be able to internalize more of these benefits and as such provide more information. This factor explains why individual dairy farmers don't advertise but the Wisconsin cheese industry does. No individual farmer has a significant share of the market but the Wisconsin cheese industry does.

The second factor has to do with the type of the information subsidy activity. If it is done through a mass market then the information subsidy process is a joint impact good (Schmid, 1977). Joint impact goods are ones which have a marginal cost of zero over a certain range. When an advertiser pays for an ad on television it costs the same whether one person or 1,000 people see it. The marginal cost of subsidizing information to the next viewer is zero. Information subsidy activities can also be done on a "normal" cost function basis. The use of salesmen may be a good example. The marginal cost of information subsidy activities in this case decreases over some range and then increases and as such is "normal." The information needs and wants,

then, of the consumer determine the degree of jointness that the information subsidy activity displays. When the consumer's information needs and wants are relatively simple (e.g., breakfast cereals and automobiles), information subsidy activities may exhibit a high degree of jointness. Where the information needs and wants of the consumer are more demanding (e.g., Avon cosmetics and industrial machinery), information systems which cater to the unique demands of the consumer must be designed.* Thus the structure of the information subsidy system is determined by the consumers information wants and needs and the producers market share.

Randall Bartlett applies a very similar set of arguments in discussing the behavior of political systems. He suggests that politicians seek to maximize votes and operate under uncertainty with respect to the impact on their constituencies of the decisions they make. Consequently various groups may subsidize information to the decision maker in hopes of influencing his/her decision because he/she operates under uncertainty. Bartlett also describes bureaucrats as security maximizers. One of the means they may use to increase security is subsidization of information to decision makers (Bartlett, 1973).

Politicians or decision makers are analogous to consumers. They are uncertain about how to go about maximizing the votes or utility they want to maximize. Planners are similar to producers in that it is in their interest to subsidize information to decision makers.

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*This in no way implies that the underlying product must change just the way information is provided about that product. Any good salesman knows that different people need different pitches.

Section 208 planners are essentially monopoly water quality plan producers within a given jurisdictional boundary. If they engage in some information subsidy process that convinces people that they want more water quality planning the agency that did the convincing is probably the one that will do the planning and hence directly benefit from that information subsidy activity. Their objective, then, is to convince local decision makers that the plan they have drawn up is good for them and ought to be implemented. To accomplish this goal they will set out to subsidize information about their planning process.

Politicans or decision makers represent a group with a fairly high level of information needs. This is particularly true when non-marginal policy changes are involved. In addition each decision maker or body of decision makers have, to a greater or lesser extent, differing information needs. This suggests that the information subsidy system needs a "salesman" approach instead of a "mass audience" approach. As such the cost functions of such a program are "normal." The principle reason we may expect this cost function to increase beyond some point has to do with the transaction costs of an information subsidy process. As the jurisdictional boundary of the planning process increases the physical distances between the planning agency and decision makers increase. Since the information subsidy system probably calls for a great deal of personal contact between planners and decision makers, as the jurisdictional boundary increases planners will have to spend more time traveling between the agency office and decision makers' offices, telephone bills will be higher, and coordination will

probably be more difficult. All of these increasing transaction costs will tend to reduce the agencies ability to subsidize information to decision makers. Thus, it is expected that as the jurisdictional boundary of the planning process increases the ability of planners to subsidize information to decision makers will decrease. If the probability of implementation is a positive function of the amount of information subsidy activities undertaken then, all other things being equal, the probability of a plan being implemented declines as the jurisdictional boundary increases.

The question then becomes how can this information subsidy process be measured? There are several ways this may be accomplished. Section 208 planning has as part of its process public participation requirements. If formal public participation meetings are viewed as iterative, then they may be viewed as an information subsidy activity. That is, a public hearing allows the planner to extoll the virtues of a given set or sets of agendas of means, and in so doing sells the public and decision makers, as well as gathers community inputs into the planning process. Budgets for public participation should also include special presentations to decision makers, whether the agency writes press releases and if so how many, and size of public participation staff. All of these variables appear to gauge some aspect of the information subsidy process and are quantifiable. If this is the case then these variables may be used to measure the differences in the performance of alternative 208 water quality planning organizations, and the effects of jurisdictional boundaries within each organizational type.

CHAPTER IV

METHODOLOGY

In the previous chapter, it was suggested that the section 208 planning agencies whose boundaries were closer to local governments would be better adapted to carry out information subsidy activities to that level of government. This chapter will discuss the important factors in the design of an experiment to validate or invalidate this contention. In so doing a brief discussion of the nature of such an experiment will first be undertaken. Then the design of the experiment, nature of the data to be collected and hypothesis to be tested will be described.

Natural Experiments

It is the objective of this experiment to determine the effect that the jurisdictional boundaries of the organizations in question have on the performance of those organizations. Because in the course of testing the proposed hypotheses many intervening conditions will not be strictly or even remotely controllable this experiment is best classified as a natural experiment. A natural experiment is one in which the experimentor exhibits little or no control over the events undergoing observation. That is, the experimentor may only validate or invalidate the hypothesis on the basis of observations of some externally occurring event or events. This is contrasted by a normal

experiment where the experimentor has control over the occurring events. Though the distinctions between the two experimental types are useful there is probably no objective way to distinguish between the two. The functional distinction lies in whether the experimentor can control the factors which he/she perceives as relevant to the research he/she is conducting. This should not be misconstrued to suggest that strong statements cannot be derived from a natural experiment. At the same time the reader should be aware of their limitations.

Sample Frame

If data on the information subsidy process is to be gathered it is first necessary to define the relevant population from which it is to be gathered. For the purposes of this exercise the relevant population is all the agencies with 208 planning responsibilities in the 50 United States. Specifically excluded from this population are Washington, D.C., Guam, and Puerto Rico. In addition the 208 agency in the Little Rock, Arkansas area which covers two counties was excluded because of an arrangement by which their funding was provided by the Army Corps of Engineers. This left a total population of 217. The actual sample frame was the Environmental Protection Agencies Water Quality Management Directory, which listed all the addresses of the 208 agencies, and the names of the directors of each program. Because the size of the population was relatively small a census of the agencies will be attempted.

Survey Instrument

A mail questionnaire* was chosen as a survey instrument for two reasons. The first reason was economy. Mail surveying is generally recognized as the most cost effective means of gathering data if reasonable rates of response are expected. The second reason why a mail questionnaire was used concerned the nature of the information that was to be gathered. Some of the questions asked would probably require the respondent to look up information or consult another party. This limitation effectively precludes any sampling technique, such as phone interviews, which require relatively quick responses.

The questionnaire was composed of an agency identification number and three types of questions. Two consistency questions were asked. These were questions to which the author already knew the correct answer and were used to judge the knowledge of the respondent. The second type of questions were the control questions which attempted to measure some aspect of the agency's administrative or physical jurisdictional boundaries. The final set of questions concerned the agencies information subsidy activities.

The survey instrument was mailed to the agencies on the first of February, 1978 and a follow-up letter was sent to nonrespondents on the twenty-fourth of February 1978. No attempt was made to pretest the questionnaire.

Variables and Hypotheses

Two types of variables were constructed from the data gathered by the questionnaire. The first type were classification variables. These

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*See Appendix B.

came from the control questions. They were designed to classify agencies and describe certain demographic and administrative characteristics of those agencies. The second types were the experimental variables which were divided into two types. The standardized information subsidy variables measure the information subsidy activities with respect to some reference area described by the classification variables. The dichotomous information subsidy variables gauged whether a particular information subsidy trait was or was not present in a given organization.

On the basis of the discussion in the preceding chapters, it has been suggested that an agency's information subsidy activities to local decision makers will decrease as the jurisdictional boundaries of the planning process increase. It has been assumed that these information subsidy programs are positively correlated with the probability of a plan being implemented. In the between organization analysis the hypothesis which will be tested is the one-tailed proposition that regional agencies, because they have smaller average jurisdictional boundaries, will have larger information subsidy variables than state agencies which have larger jurisdictional boundaries. The only exception to this will be when the information subsidy activities of state level agencies are aimed at state level decision makers. It is hypothesized that in this case the state level agencies will have higher values than the regions because of the coincidence of their jurisdictional boundaries. In the within group analysis it is expected that there will be a negative relationship between the planning area size and the information subsidy variables.

Case Studies

Because a great number of factors, which are not quantifiable affect the section 208 planning process, nonstatistical methods may also be useful in examining the planning activities. Two brief case studies of section 208 agencies will be presented which will address some of these less quantifiable aspects. These case studies represent a judgment sample and as such, because they are nonrandom, statistical comparison of the agencies is not valid. They are, however, useful in that they allow a descriptive presentation of factors which might otherwise go unnoticed.

CHAPTER V

DATA ANALYSIS AND RESULTS

In this chapter, survey results will be analyzed. The effects of the response rate and response bias will be discussed. Finally an analysis of the effects of jurisdictional boundaries within and between state and regional agencies will be conducted, and the limitations of the analysis discussed.

Response Rates and Nonresponse Bias

In any experiment where the response of the subject of the experiment is optional nonresponse bias is an important consideration. If the sample is divided into two strata, those who respond and those who do not, to the extent that the potential responses of the non-respondents differ from the responses of the respondent class bias may be introduced into the analysis. That is, the values garnered from the respondents will differ from the true population mean. Formal bias may be described as:

$$U_1 - U$$

where:

U_1 = the estimate of the population parameter from the respondents

U = the population parameter.

This in turn is equal to:

$$U_1 - U = U_1 - (R_1 U_1 + R_2 U_2)$$

$$U_1 - U = R_2 (U_1 - U_2)$$

where:

R_1 = response rate

R_2 = nonresponse rate = 1 - R_1

U_2 = the estimate of the parameter from the nonrespondents

(Moser and Kalton, 1972, p. 167).

Thus the lower the nonresponse rate, all things being equal, the lower the potential from nonresponse bias.

A total of 217 surveys were sent out which represented a census of the relevant population. Of these 179 were returned which yields a total response rate of 82.5 percent. After examination a total of 163 were found usable which yields a usable response rate of 75.1 percent. Surveys were rejected for one of three reasons. First they may have failed the correspondence test. Two questions were asked which the author already knew the answers to.

The first question concerned the size of the agencies section 208 budget. The second question asked the respondent to give the date the agency was chosen as a section 208 planning agency. If the answers given on the survey differed significantly the survey failed the correspondence test and was rejected. The second reason for rejection came from obvious errors in the questionnaire. If the value reported in the survey was wildly out of line with what was expected, where possible these values were cross referenced. As an example, one survey said the agency was preparing a plan for 157 counties. The author did

not believe any state had that many counties but found he was wrong. The final criterion for exclusion was the arrival of the survey too late to be used in the statistical procedures.

The effective nonresponse rate was 24.9 percent. Even if the values of the nonrespondents differed from the respondents by a factor of 50 percent this would bias the results by only 12.5 percent. The author believes that this nonresponse rate is low and does not significantly bias the results. Inevitably, however, this is a decision the reader must make for his/herself.

Analysis of Differences Between Organizations

Clearly, if the two types of organizations (state and regional) are to be used as independent variables in this section the first criterion to establish is that there is a difference in these two agencies. It has been hypothesized that a difference in jurisdictional bounds will lead to a difference in information subsidy efforts. It is necessary, therefore, to establish that there is a difference in jurisdictional bounds. Jurisdictional boundaries have been described as having both area and administrative components. Data on both these components was collected from the survey.

Table 1* shows the results of the tests of jurisdictional boundaries conducted with respect to area criteria. The dependent variables are state and regional organizations. The independent variables are number of counties in the planning area, number of square miles in the planning area and population in the planning area.

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*Where applicable these tables provide information on degrees of freedom, T-values and chi square values for those interested in such figures.

Table 1. Differences Between Qualitative and Quantitative

Table 1. Differences Between Jurisdictional Boundaries of State and Regional Section 208 Planning Agencies

	N	Mean	Standard Error	T value	D.F.	Significance (one tailed)
Number of counties in the planning area						
State	33	62.45	8.78	11.06	123	.000
Regions	92	4.41	0.33			
Number of square miles in the planning area						
States*	25	44,229	6,281	5.21	111	.000
Regions	88	8,316	3,211			
Population in the planning area						
States	33	3,001,194	650,823	.57	120	.285
Regions	89	1,919,349	1,120,000			

*This figure is biased downward because of nonreporting by several states whose planning area included a majority of the state.

The tests performed are one tailed tests because as has already been suggested it is expected that the state planning units will be larger.

The results from Table 1 show that the state units plan for more counties and a larger planning area. It is somewhat less clear that the populations in the states' planning areas are greater than the regions' planning area. This may be because the state units tend to plan in the so called "nondesignated" areas which tend to be more rural and hence have lower population densities.

In the areas of administrative functions, eight questions were asked about different responsibilities the agencies had. These variables included responsibility for nonsection 208 water quality planning, land use planning, enforcement of land use regulations, enforcement of water quality standards, areawide A95 review, statewide A95 review, and enforcement of environmental laws.

Table 2 lays out the results of this analysis. In all but two cases the results were significant to the ten thousandth's decimal. Thus on the basis of the statistical analysis there is strong evidence for there being a difference in the administrative functions of the two groups. Indeed this really represents a case of the empirical validation of the obvious. Even a casual observer of the roles of state and regional agencies could have predicted that their roles would be different. The conclusions that can be made are that there is a difference in the physical and jurisdictional boundaries of the two organizations.

In trying to measure information subsidy the variables may be broken into two general classes, those that aim at widespread audiences

Table 2

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Table 2. Differences in Administrative Functions

	Yes	No	N	X^2*	Significance
Responsible for non-208 water quality planning					
States	27	5	33	9.68	.0019
Regions	43	42	85		
Responsible for land use planning					
States	8	23	31	56.05	.0000
Regions	83	5	88		
Responsible for enforcing land use regulations					
States	7	25	32	2.66	.1026
Regions	7	75	82		
Responsible for enforcing water quality standards					
States	28	4	32	78.30	.0000
Regions	2	76	71		
Responsible for issuance of NPDES permits					
States	18	14	32	35.31	.0000
Regions	4	77	81		
Responsible for area wide A 95 review					
States	8	22	30	34.02	.0000
Regions	75	13	88		
Responsible for states wide A95 review					
States	23	8	31	29.63	.0000
Regions	13	63	76		
Responsible for enforcing environmental laws					
States	25	6	31	63.07	.0000
Regions	4	77	81		

*Chi square values were corrected with the Yeats continuity correlation formula.

and those targeted at specific audiences. Those variables which address general audiences include number of hearings and meetings, public participation budgets, and news releases. The variables measuring information subsidy to specific audiences attempt to guage the information subsidy process to decision makers at various levels of government. This process is measured by trying to look at the number of special presentations to decision makers. In each of these tests a one tailed hypothesis is specified because it is expected that each measure of information subsidy will be weighted in favor of the regions.

A word of caution is called for at this point. Many of these tables give mean summary statistics with respect to a certain activity carried out by a certain type of agency. These mean statistics should not be considered standards by which any individual agency could measure the effectiveness of its public participation programs. While aggregate they are useful in comparing classes of agencies, they are not meaningful standards for individual agencies.

Tables 3 and 4 depict the general information subsidy variables. All of the parametric tests suggest that the regional agencies responding were more active in the information subsidy process, as measured by the included variables. The variables included were all significant at the .05 level or better.

One nonparametric test was done in this section. This test was a chi squared procedure in Table 4 to test whether there was a difference in the number of agencies that prepared news releases on section 208 planning at the state and regional level. The analysis found that

Table 3. Public Participation Hearings, Public Participation Budgets and Public Participation Staff Per County and Per 1,000 Population

	N	Mean	Standard Error	t-value	D.F.	Significance (one tailed)
Public participation hearings per county						
States	28	.67	.711	-2.05	111	.021
Regions	85	15.46	38.022			
Public participation hearings per 1000 population						
States	28	.0251	.005	-1.66	109	.050
Regions	83	.2050	.063			
Public participation budget per county						
States	32	$12,900	9,311	-1.73	112	.048
Regions	83	$33,828	6,645			
Public participation budgets per 1,000 population						
States	32	$ 95.00	17.67	-3.36	109	.001
Regions	79	$215.89	21.69			
Public participation staff per county						
States	31	.1836	.114	-2.47	112	.008
Regions	79	.7196	.125			
Public participation staff per 1,000 population						
States	31	.0018	.000	-2.28	109	.012
Regions	80	.0065	.001			

Table 4. News Releases Per County and Numbers and Percentages of Agencies Preparing News Releases

	N	Mean	Standard Error	t-value	D.F.	Significance (one tailed)
Number of news releases per county						
States	30	2.00	1.49	-2.48	100	.008
Regions	72	12.48	2.64			

	Yes (%)	No (%)	N	X^2	Significance
Agencies preparing news releases on section 208 planning					
States	28 (87.5)	4 (12.5)	32	1.27	.2581
Regions	84 (95.5)	4 (4.5)	88		

87.5 percent of the state organizations and 95.5 percent of the regional organizations prepared their own news releases. This difference is significant to the .2581 level. It would be difficult to suggest on the basis of this test that there was a difference. However, if one examines the number of news releases prepared per county (Table 4), it is easy to see that on the average the regional agencies prepare far more news releases per county (12.48) than the state agencies (2.00). This is a good example where the relative strength of a parametric test is useful in obtaining a more detailed analysis of the data.

Tables 5 and 6 list the results of the analysis done on the variables which attempt to depict the information subsidy process to specific groups of decision makers. Those decision makers are the governor or the governor's staff, state legislators, county legislators and city and township legislators. Again one tailed tests are used. It is hypothesized that the regions will do a better job subsidizing information to county, city and township legislators than the state agencies will. On the other hand, the jurisdictional boundaries of concern to the governors and state legislators are probably closer to the jurisdictional boundaries of the state agencies. Thus it is expected that state agencies will do a better job of subsidizing information to these groups.

The results in Table 5 show that these hypotheses are upheld. The state agencies made presentations to the governor or the governor's staff and state legislators (82.6 percent to 54.4 percent and 76.2 to 33.9 percent respectively) more frequently than regional agencies.

Table 5. Agencies Making Special Presentations to the Governor or Governor's Staff, State Legislators, County Legislators and City and Township Legislators

	Yes (%)	No (%)	N	X^{2*}	Significance
Special presentations made to governor or governor's staff					
States	19 (82.6)	4 (17.4)	23	4.64	.0312
Regions	37 (54.4)	31 (45.6)	68		
Special presentations made to state legislators					
States	16 (76.2)	5 (23.8)	21	9.54	.0020
Regions	20 (33.9)	39 (66.1)	59		
Special presentations made to county legislators					
States	15 (68.2)	7 (31.8)	22	2.73	.0983
Regions	69 (86.2)	11 (13.7)	80		
Special presentations made to city and township legislators					
States	15 (71.4)	6 (28.6)	21	5.53	.0186
Regions	77 (92.8)	6 (7.2)	83		

*Chi squared statistic is adjusted with the Yeat's correction for continuity.

Table 6. Number of Special Presentations Made to the Governor or Governor's Staff, State Legislators, County Legislators, and City and Township Legislators

	N	Mean	Standard Error	t-value	DF	Significance (one tailed)
Number of special presentations to the governor or governor's staff						
States	14	2.57	.716	1.14	64	.130
Regions	52	1.57	.410			
Number of special presentations to state legislators						
States	12	7.08	5.74	.69	59	.247
Regions	49	3.51	2.16			
Number of special presentations to county legislators per county						
States	13	.252	.091	-2.06	66	.022
Regions	55	3.015	.649			
Number of special presentations to city and township legislators per county						
States	12	.943	.482	-2.23	63	.015
Regions	53	10.260	1.970			

At the same time the regional agencies made presentations to county and city and township legislators with a greater frequency than state agencies (86.2 percent to 68.2 percent and 92.8 percent to 71.4 percent respectively). All of these results are significant at the .10 level or better.

Table 6 describes the tests of the number of special presentations made to each specific group. In general the statistics behave as it was predicted they would although the tests involving county, city, and township legislators are much more significant than those involving the governor, the governor's staff and state legislators. Unfortunately, the author believes that in these tests nonresponse bias has biased the results upwards. This set of questions was the least answered on the entire questionnaire. Of the state agencies, 36 to 42 percent filled in the item in question. The regional agencies responded at a slightly higher rate, 53 percent to 59 percent but again nonresponse bias is probably present. The author suspects that the values excluded were probably zero more often than not although he has no way to prove this contention. If this assertion is correct, then there is reason to suspect that the estimates of the population means given in Table 6 are biased upwards. This does not mean that no information can be gleaned from this table. While little faith may be attached to the absolute differences in the estimates of the population parameters, other information is available. If it is assumed that the direction and magnitude of the nonresponse bias in each case is about the same, then the means in Table 6 may still tell us something about the relative differences in the information subsidy

practices of each group.

This case proves to be just the opposite of the first set of variables. Here the nonparametric tests have probably yielded more information than the parametric ones because the questions involved were simpler and consequently were answered with a higher frequency.

On the basis of the evidence presented it is possible to draw four conclusions about the differences between the information subsidy processes of the two organizations. First, the regional agencies appear to provide more information to general audiences. The analysis also suggests that the regional agencies also subsidize information on a larger scale to county, city and township legislators. Since these levels of government are generally the ones that are perceived as the legitimate controllers of land use, the plans to control nonpoint pollution drawn up by the regions should have a higher probability of implementation than those which are drawn up by state level agencies. Finally the state agencies appear to do a better job of subsidizing information to state level decision makers.

Within Groups Analysis

In the between group analysis, a difference in the two groups was demonstrated. However, it was not possible to attribute this difference to physical or administrative boundaries of the organization. It is possible to control for administrative function. This may be done by examining the relationship between physical planning boundaries and the information subsidy variables within each group. By holding the group type constant, the administrative boundaries are to some extent controlled.

The test statistic used here is the coefficient of correlation (R). It measures the degree to which some linear relationship exists between two variables, with a value of zero for a relationship and plus or minus one for a perfect positive or negative linear relationship. It is hypothesized that as the jurisdictional boundaries of the planning areas increase, the values for the information subsidy variables will decrease. Thus it is expected that a negative relationship will exist between the two variables. In all of these cases the independent variable is the number of counties in the planning area. The dependent variables are all in the class of the general information subsidy variables because of the nonresponse problems in the specific group information subsidy variables previously discussed.

In each case, the correlation between the variables has been measured using implicit linear and exponential functions. A plot of the values in each case suggested that an exponential functional form might explain more of the variability in the values than a linear functional form.

Analysis of State Agencies

In this procedure the correlation between the information subsidy variables and the number of counties in the state level agencies was calculated. Table 7 describes this correlation with an implicit linear relationship. In each case the sign of the coefficient of correlation is negative and four out of seven are significantly different from zero at the .05 level or better.

Table 7. Correlation Between the Number of Counties in the Planning Area and Information Subsidy Variables for State Agencies with an Implicit Linear Relationship

Dependent Variables	R	Significance of R
Public participation hearings per county	-.457	.0072
Public participation hearings per unit of population	-.432	.0173
Public participation budgets per county	-.201	.1346
Public participation budgets per unit of population	-.337	.0296
Public participation staff per county	-.219	.1187
Public participation staff per unit of population	-.320	.0438
Number of news releases per county	-.158	.2041

Table 8 looks at the same variables except that the implicit underlying relationship is exponential. All of the coefficients were significantly different from zero at the .0503 level or better. Five out of seven of the coefficients decreased (approached -1) when this implicit exponential form was used. Thus it would appear that the exponential functional form more accurately describes the situation.

Analysis of Regional Agencies

The same procedure that was used in the analysis of the state level agencies was used with regional agencies. Tables 9 and 10 depict these relationships. With the implicit linear relationship (Table 9) two of the coefficients, public participation budgets per county and public participation staff per county, appear to have signs that contradict expectation. This may be the result of misspecification of functional form and the presence of outlying data points. When the exponential functional form (Table 10) was used the signs of all the coefficients became negative, although it would be difficult to suggest that the coefficients of the public participation staff per county and unit of population were significantly different from zero.

In each case the coefficients of the variables that represent direct program outputs are all negative and significantly different from zero. These variables, public participation hearings per county, public participation hearings per unit of population and number of news releases per county all represent final products of the public participation process. The other variables represent intermediate steps or products in the public participation process.

Table 8. Correlation Between the Number of Counties in the Planning Area and Information Subsidy Variables for State Agencies with an Implicit Exponential Relationship

Dependent Variables	R	Significance of R
Public participation hearings per county	-.455	.0044
Public participation hearings per unit of population	-.474	.0096
Public participation budgets per county	-.295	.0503
Public participation budgets per unit of population	-.297	.0492
Public participation staff per county	-.535	.0009
Public participation staff per unit of population	-.380	.0377
Number of news releases per county	-.329	.0377

Table 9. Correlation Between the Number of Counties in the Planning Area and the Information Subsidies for Regional Agencies with an Implicit Linear Relationship

Dependent Variable	R	Significance of R
Public participation hearings per county	-.301	.0024
Public participation hearings per unit of population	-.207	.0300
Public participation budgets per county	.193	.040
Public participation budgets per unit of population	-.351	.0007
Public participation staff per county	.236	.0156
Public participation staff per unit of population	-.221	.0244
Number of news releases per county	-.207	.0402

Table 10. Correlation Between the Number of Counties in the Planning Areas and Information Subsidy Variables for Regional Agencies with an Implicit Exponential Function

Dependent Variables	R	Significance of R
Public participation hearings per county	-.469	.0000
Public participation hearings per unit of population	-.329	.0012
Public participation budgets per county	-.252	.0112
Public participation budgets per unit of population	-.322	.0019
Public participation staff per county	-.032	.3865
Public participation staff per unit of population	-.105	.176
Number of news releases per county	-.329	.0024

None of the coefficients are indicative of tremendously strong relationships. While this may be somewhat disturbing from a statistical standpoint, from a policy perspective it should be intuitively obvious that a multitude of other factors, some measurable but most not, operate to effect the dependent variables.

On the other hand, in both types of agencies as the jurisdictional boudaries of the planning process increased a noticeable decline in the values of the information subsidy variables was noticed. It would seem that as the size of the planning area increased structural barriers were imposed on the information subsidy process. If we view information subsidy activities as transactions, then it is possible to suggest that as the size of the planning area increases, the transaction costs of information subsidy activities also increase. While the analysis is probably not exact enough to specify the functional form of this cost function it is exact enough to suggest that it is an increasing function.

Conclusions

On the basis of the between-group analysis and the within-group analysis it is possible to draw the following conclusions:

1. Regional agencies provide more information to general audiences than state agencies.

2. Regional agencies subsidize information to local decision makers on a larger scale than state agencies.

3. State agencies subsidize more information to state level decision makers than regional agencies but this difference is not highly significant.

4. As the jurisdictional boundaries of both state and regional agencies increase their ability to subsidize information at the local level decreases.

If one assumes that the degree of information subsidy provided to local decision makers is positively related to the probability that a plan will be implemented then it can be inferred that:

1. In general, plans drawn up by regional agencies have a greater probability of implementation at the local level than plans drawn up by state agencies.

2. In both state and regional agencies as the jurisdictional boundaries of those agencies' planning area increase the probability of a plan being implemented at the local level decreases.

Limitations of the Analysis

It would appear that some strong conclusions can be made on the basis of this analysis. At the same time this analysis is not without limitations and those limitations ought to be made explicit. The first limiting factor concerns the observation that this analysis has only dealt with formal information systems. That is, there was no means of measuring informal exchanges that may have occurred between and among the various classes of actors in the planning process. Indeed it is almost a matter of definition that informal information systems are not quantifiable. At the same time it should be recognized that they are extremely important. Any one who has ever worked in or observed bureaucratic or governmental behavior would not be taxed to conclude that many decisions are made on the basis of information which was exchanged far from the public eye.

This analysis also tried to measure the information variables on a quantitative as opposed to a qualitative basis. While, for example, the number of public participation hearings was measured, no attempt was made to ascertain what was said at them. It should be

clear that what is said or not said at a meeting, and the manner in which it is said will impact very heavily on the way that information is perceived and discounted. The data, then, impute the same weight to a meeting in which a calm discussion of the pros and cons of non-point pollution control are discussed and one in which the moderator makes an impassioned plea for the dictatorship of the proletariate. Along the same line no difference was assigned to meeting whether they were attended by one or a thousand observers. The comprehensive measurement of such qualitative factors even it possible were beyond the resources available to the author.

No measures were developed for the historical perspective or political climate facing the planner and the relative aides or barriers these factors may have placed in his or her path. In addition, the information subsidy process was measured only as it applied to transactions between planners and various groups in the community. No measure was taken of efforts made by other groups to subsidize information which may have verified or opposed the planners position.

Finally this analysis has assumed that the power to implement many or most of the policies that will be necessary to control nonpoint pollution lie at the local level. In the short run this assumption probably stands on its own merits. The present equilibrium of public powers with respect to land use control are balanced toward local government. It is entirely possible if not probable that many local governments will not find it politically expedient to regulate land use to improve water quality. However, if enough local governments exercise their right not to control land use to further these ends

they may in effect create a regulatory vacuum into which the state or federal government may be drawn. In so doing they would usurp some of the local prerogatives in land use control. This may be a case where local governments' short and long run interests diverge. Indeed a second factor which may be exacerbating this process is the fact that state level planners do have certain economies of scale available to them when subsidizing information to state level decision makers. The analysis in this chapter has shown that state level planners are interacting with state governments and it is reasonable to assume that they are doing so to improve the probability that state governments may take steps to act in the nonpoint pollution control area.

This discussion of the limitations of this study are obviously not intended to discredit this piece of work. Rather they are designed to place this analysis in perspective and to offer some additional insights with respect to other factors which may affect the process.

CHAPTER VI

SELECTED CASE STUDIES

Introduction

This chapter will present two brief case studies of agencies with 208 planning responsibilities. One is a state level agency and the other a regional agency. Neither is intended to serve as an example of the normal or average agency in its class. Rather, these case studies are presented to address some of the factors which have limited the statistical analysis presented in the previous chapter. These factors include the agency's historical development, credibility, self-perception and perception of the planning process.

Two principle considerations influenced the choice of these agencies. The first was the author's prior familiarity with each organization. Prior knowledge is an important consideration in constructing a judgment sample; it allows the researcher to select cases which can offer meaningful comparison. This need for a meaningful comparison brings out the second reason for choice of these two agencies. To an extent these two agencies represent the ends of the section 208 planning continuum. One is a large and complex state bureaucracy with a relatively large planning grant. The other is a much smaller regional agency with few formal powers and one of the nation's smallest section 208 planning grant. These two cases were

chosen to partially aquaint the reader with the range and diversity that exists in section 208 agencies.

New York State Department of Environmental Conservation

New York's Department of Environmental Conservation (DEC) is a large and diverse bureaucracy which is charged with preparing a section 208 plan for the majority of the state. The agency's responsibilities include enforcement of fish and game regulations, environmental regulations, park management, forest management and a host of related activities. The agency occupies its own five-story office building.

The DEC was designated as a 208 planning agency in May of 1976. It received an initial planning grant of $1,959,000. The agency is charged with preparing a plan for 44 of the state's 57 counties. This area includes three cities with populations in excess of 100,000. However, these cities do not include the state's two largest cities, New York and Buffalo. In addition the planning area contains 11 cities with populations of between 25,000 and 100,000. However, the majority of the area for which the DEC must draw up a plan for could, by almost any standard, be considered rural. Only 13 of the area's counties lie in standard metropolitan statistical areas (U.S. Environmental Protection Agency, 1977).

During the first year of its planning activity the agency developed a work plan and negotiated a five-year contract with the Environmental Protection Agency. The DEC divided the portion of the state it was to prepare a plan for into eight regions.

Figure 4 depicts these regions which are listed in the key as State Planning Areas. In three of these eight regions the DEC's regional office that serves that region is not located within the boundaries of that region. This fact begs the question of how effectively decentralized this planning process is. One would expect that the transaction costs of interaction between planners, decision makers, and the general public would be higher in these areas.

The agencies public participation program has several elements. Each region has a Policy Advisory Committee of which the majority of members are elected officials. In four of the regions the Policy Advisory Committee is the existing Regional Planning Board and in the other regions the Policy Advisory Committees are independent organizations. According to the DEC's public participation coordinator the Policy Advisory Committees connected with Regional Planning Boards were not as interested in working on 208 planning issues as the boards the DEC set up (Hawkins, 1978). This must represent a difficult choice of whether to establish a new organization which must gain credibility in a community or to piggy back with an organization which may not see the DEC's goals as consistent with its own.

Beyond the Policy Advisory Committees there are Technical Advisory Committees and/or Citizen Advisory Committees in each region. All in all there were, at the time of the author's interview, about 50 people in each region actively involved in this process. The county planners often tended to be the backbones of this process. Indeed it was recognized that the interest level of local political

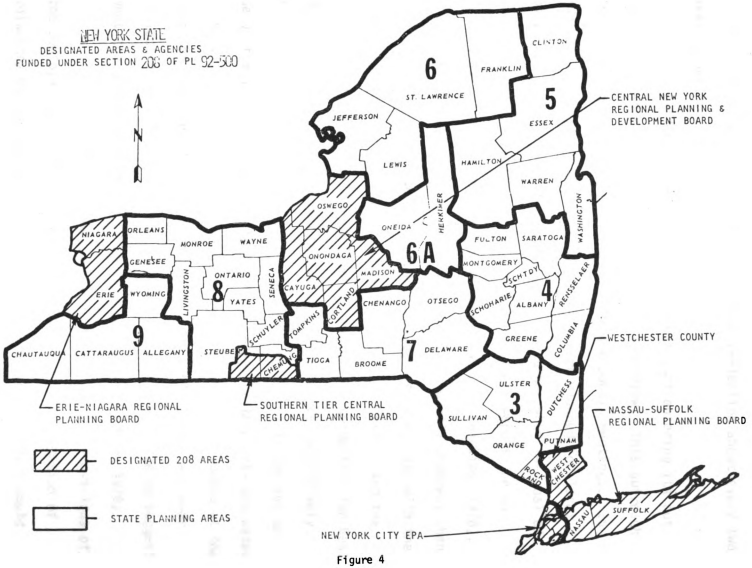
NEW YORK STATE
DESIGNATED AREAS & AGENCIES
FUNDED UNDER SECTION 208 OF PL 92-500
N
6
ST. LAWRENCE
FRANKLIN
CLINTON
5
ESSEX
CENTRAL NEW YORK
REGIONAL PLANNING &
DEVELOPMENT BOARD
JEFFERSON
LEWIS
HAMILTON
WARREN
WASHINGTON
HERKIMER
ONEIDA
OSWEGO
6A
FULTON
SARATOGA
MONTGOMERY
SCHOHARIE
4
ALBANY
RENSSELAER
NIAGARA
ORLEANS
MONROE
WAYNE
GENESEE
ONONDAGA
MADISON
CAYUGA
SENECA
ONTARIO
8
YATES
LIVINGSTON
ERIE
WYOMING
CORTLAND
CHENANGO
OTSEGO
TOMPKINS
SCHUYLER
CHEMUNG
TIOGA
BROOME
7
DELAWARE
COLUMBIA
GREENE
WESTCHESTER COUNTY
CHAUTAUQUA
CATTARAUGUS
ALLEGANY
9
STEUBEN
ULSTER
3
SULLIVAN
DUTCHESS
NASSAU-SUFFOLK
REGIONAL PLANNING BOARD
ORANGE
PUTNAM
ROCK
WEST
CHESTER
NASSAU
SUFFOLK
ERIE-NIAGARA REGIONAL
PLANNING BOARD
SOUTHERN TIER CENTRAL
REGIONAL PLANNING BOARD
DESIGNATED 208 AREAS
STATE PLANNING AREAS
NEW YORK CITY EPA

Figure 4

leaders was generally low. It was suggested that there were few, if any, political benefits to be garnered from participation in the process by local political leaders who had to face reelection about every two years (Hawkins, 1978).

The public participation program was just entering its outreach phase when the author conducted his interview. This outreach program includes a special 208 newsletter and public meetings. In addition, special slide shows and meetings were planned for local political leaders. It was suggested to the author what the goal of the 208 public participation program was for there were to be no "surprises" when it came time to implement the plan (Hawkins, 1978).

The actual nonpoint planning process was barely underway when the author visited the DEC. Contracts had been entered into with the Cornell University College of Agriculture and Life Science and the Syracuse University College of Forestry to develop guidelines for Best Management Practices for agriculture and silvaculture respectively. In addition, three soil and water conservation districts had set up demonstration projects. In these project areas certain soil and water conservation practices were introduced and the districts looked at the costs of those practices. However, no water quality data was ever collected from these projects. Thus it would be impossible to suggest what the actual performance of these practices were (Male, 1978).

The plans for implementing the nonpoint sources provisions of the 208 plan generally appeared to be leaning in the direction of voluntary and educational programs. The organizations which would implement these plans are soil and water conservation districts which

would encourage the adoption of Best Management Practices through farm plans. When the author broached the subject of land use controls which might be used to reduce nonpoint pollution it was suggested that regulation was a possibility if voluntary programs failed. But this sort of regulation should not be considered a form of land use controls! It is interesting to note that the author had almost identical experiences when he discussed this topic with state planners from two other states. It would appear that the words land use control are taboo among state level planners. If a regulatory program is to be discussed, a proper euphemism will have to be devised. In the DEC the efforts of regional agencies to develop nonpoint programs were viewed as patchwork schemes which were probably developed without the proper analysis. It was considered much more reasonable for the state to evolve an overall management system.

The DEC is a large, slow moving bureaucracy. They will probably be able to come up with a technically feasible plan. They have their own in-house experts and can afford to hire consultants. It is less clear that they have the capability to go out and do the type of field work which will build political support for that plan.

Central Upper Peninsula Planning and Development Commission

The Central Upper Peninsula Planning and Development Regional Commission (CUPPAD) encompasses six counties in the center of Michigan's Upper Peninsula (see Figure 5). The area is rural with a population of about 179,000 and poor in relation to the balance of the state with a 1975 per capita income of $4608 as compared with the entire state's

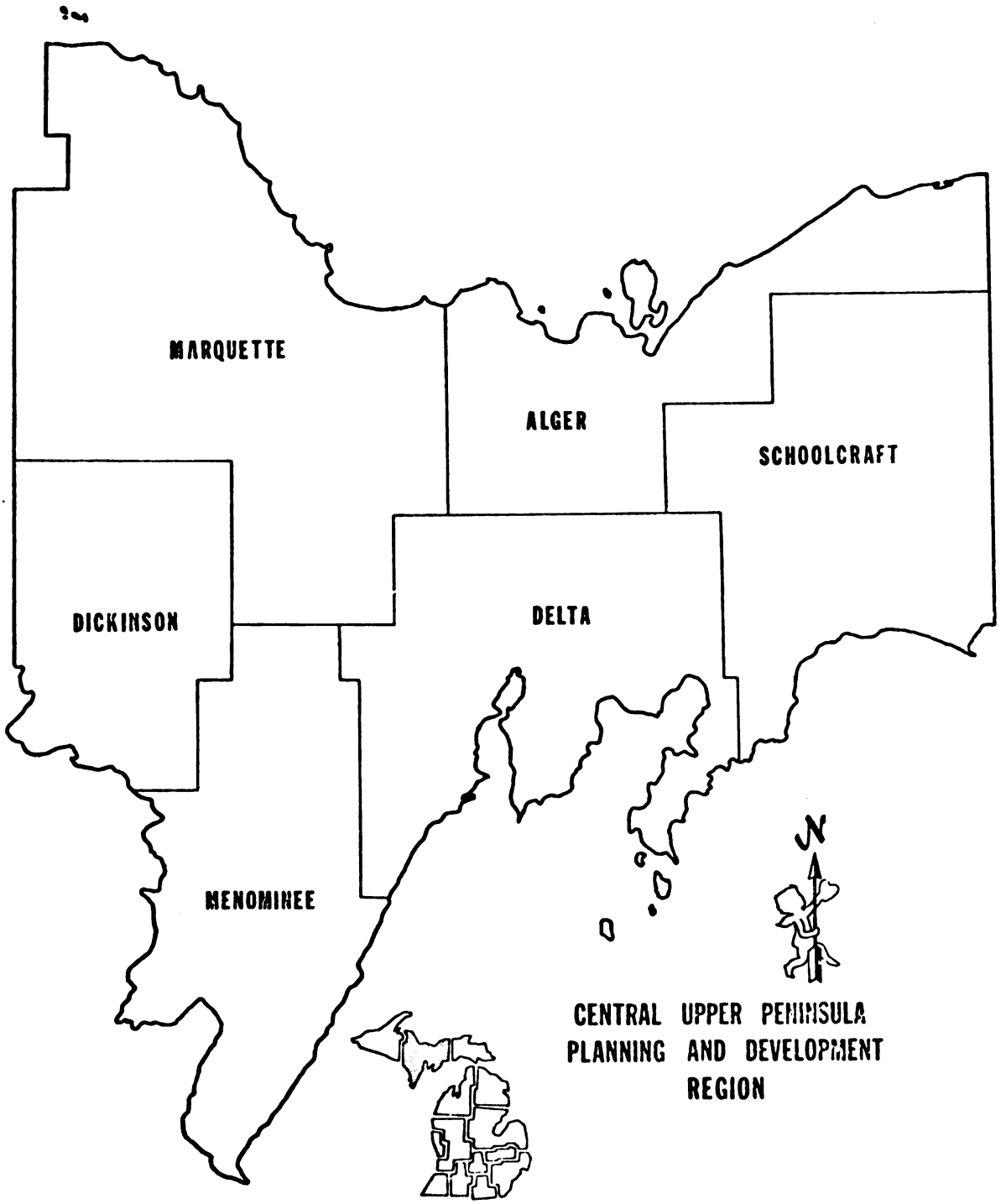
MARQUETTE
ALGER
SCHOOLCRAFT
DICKINSON
DELTA
MENOMINEE
N
CENTRAL UPPER PENINSULA
PLANNING AND DEVELOPMENT
REGION

Figure 5

per capita income of $6169. The area's economy is heavily dependent on iron mining, forestry and paper product industries (CUPPAD, 1978).

CUPPAD was organized in 1968 as an economic development and comprehensive planning organization. At the present time they carry out economic development activities, and energy, waste management, housing, transportation, water supply, criminal justice, recreation and coastal zone management planning. In addition, they have a local planning and management support program which for the most part assists local governments with budgeting, management and personnel problems. In general the agency views its role as that of a service agency for local government. At least in part due to the philosophy of the agency's first director it has adopted the attitude that the success of a program is to be measured by the political acceptance of that program. The agency appears to have been quite successful, about 75 percent of its area is now covered by zoning ordinances, and while membership in CUPPAD is voluntary and requires the payment of dues only three out of 98 local governments are not members (Main, 1978).

The agency was chosen to prepare a section 208 plan in May of 1976. Its total planning grant came to about $100,000. This sum represents the fifth smallest section 208 planning grant made (USEPA, 1977a). At the onset it might appear that this relative paucity of funds would be a severe constraint on the planning process. However, it appears that this lack of funds may have proved to be an asset rather than a liability.

It was obvious from the beginning that the agency would not be able to conduct an extensive water monitoring program or be able to hire

technical consultants. To find the answers to technical problems they formed a technical advisory committee which consisted of advisors from the State Department of Natural Resources, Soil Conservation Service, Forest Service, local waste treatment plant operators, public health department officials and university members. The vast majority of the decisions made about the content of the plan were made in the agencies' economic development committees. These committees, which were in existence before the 208 planning project, are essentially the agencies' advisory committees in each of the counties. These committees consisted of members from local government, business, labor, financial institutions and public interest groups. They essentially represent a grouping of community leaders or elites. It was suggested to the author that because the area was rural, there was a high rate of overlap on many other committees and boards in each county (Leininger, 1978). In other words, the same people tended to occupy more than one position of influence in the community and these economic development committees were one of those positions. It was towards these committees that CUPPAD directed much of its energy, about 40 to 50 meetings were held with each committee. In this way many community leaders or elites were involved in the planning process on a continuing basis. It should also be noted that the agency had already established credibility with these committees and thus did not face the same problems that an agency might if it set up similar committees on a one-shot basis.

While the agency did not have the funds to pay for an extensive water monitoring program, it was able to establish a voluntary monitoring program. The agency solicited inland lakeshore residents

(The CUPPAD Region is bounded on two sides by Lakes Supreior and Michigan) to take weekly water samples and turbidity reading. This is actually part of the state's Department of Natural Resources Self-Help program but CUPPAD is the agency which actually administers it.

At the same time the agency was also helping lakeshore owners form lake associations, and where they had already been founded provided them with technical and legal information. The agency viewed this as a form of implementation since these associations could be considered as an interest group which has a demand for clean water. The interest has probably always been there. All the agency does is reduce some of the organizational barriers these groups face. One such association had already prevented a keyhole lake development* and another was interested in increasing the requirements for setbacks for lakeside dwellings and septic systems. In all fairness it should be noted that the efforts of these lake associations are aimed at limiting future users of those lakes rather than present users.

Before the ballots are cast on this program's effectiveness, however, two other factors should be considered. First, the region's water quality problems for the most part are not serious. Indeed a great deal of the area could be classified as wilderness, and the quality of most of the region's lakes and streams could be called excellent. Most of the plan focused on the backlog of municipal needs.

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*A keyhole development is one in which a developer buys one lakeside lot and a large tract of land behind that lot. He or she then subdivides that tract and allows all the buyers in that subdivision access to the lake via the lakeside lot. This puts added pressure on the lake from an increase in number of users and possible septic and runoff problems from the development.

Secondly, while open pit iron ore mining is quite extensive in the region the agency did not identify this activity as one which could lead to water quality problems. It was suggested that since these mines were covered by the NPDES permits there was no need for the agency to become involved (Main, 1978). It may well be that the agency did not see pointing an accusing finger at the mining interests as a politically astute move. Indeed the power of the mining and forestry interests were probably very real constraints in the agencies planning activity.

Thus while the agency probably faces some limitation, it has hammered out what appears to be a politically acceptable plan. This process was aided by two factors. First was the agency's existing credibility with local leaders. The second was the agency's lack of financial resources which forced it to rely on community resources in its planning process and that reliance probably strengthened the planning process.

Discussion

On the basis of these two case studies it would appear that there are a number of important distinctions between the 208 planning program of New York's Department of Environmental Conservation and that of the Central Upper Peninsula Planning and Development Commission in Michigan. As the research and theoretical considerations in the previous chapters suggest CUPPAD appears to be in a much stronger position to subsidize information to local decision makers. The effectiveness of an information subsidy activity is not only a function of the level of information subsidy but also how that information is perceived by the

recipients of that process. Bartlett calls this perception factor "discounting" (Bartlett, 1973, pp. 33-34). This is a problem of credibility and again it would appear that the balance of this factor is tipped in CUPPAD's favor. Again special stress should be put on the point that neither agency should be considered "normal" for its class, particularly with respect to the credibility factor.

Two factors seem to favor the DEC. First, it probably has a greater command of technical resources which it can draw on in its 208 planning process. Secondly, it is probably less sensitive to political pressure from any single vested interest. The principle difference between the agencies, however, seems to be in their perception of the planning process. The DEC is more inclined to define the planning process as a technical process and CUPPAD tends to define their planning activities on the basis of political acceptability. If one accepts that the implementation stage of the planning process is the crucial step in that process then CUPPAD's planning activity appears to be the stronger of the two.

CHAPTER VII

POLICY RELEVANCE OF THE RESEARCH AND FUTURE RESEARCH CONSIDERATIONS

In this chapter some of the policy implications and future research needs concerning PB 92-500 will be briefly discussed. These include observations on the structure of 208 planning, the role of information subsidy, the time horizon for planning, the measuring of the output of a planning process, future research needs, and the design of future resource planning programs. This represents an attempt to relate the work in this thesis to some of the issues in resource policy and to set a preliminary agenda of future research proposals.

Structure of Section 208 Planning

The historical evolution of section 208 planning agencies has probably left the process in a structural position which is not particularly strong. Under the initial EPA scheme only certain areas which had certain water quality problems were designated as 208 planning areas. In effect this was EPA's method of prioritizing the allocation of its resources. For the most part these designated areas were urban and the agencies which were chosen to administer the 208 planning activities were regional or at least some substate level unit. However, the Natural Resources Defense Council filed suit against EPA claiming

that PL 92-500 made no provision for exempting the nondesignated areas from 208 planning (Environmental Resources Defense Council, et al. vs Train, et al., 1975). The suit was settled when the Supreme Court decided in favor of the Environmental Resources Defense Council. The nondesignated areas now had to be planned for as well. For the most part state level agencies are doing the planning for these nondesignated areas which are more rural than the designated areas.

Thus a structure has evolved where the regional agencies are planning for the more urbanized areas and the states for the more rural areas. It is reasonable to expect that nonpoint sources of pollution are relatively more predominant in rural areas than in urban areas. If this is the case then section 208 planning efforts in rural areas ought to be concentrating on nonpoint sources of pollution relatively more than in urban areas.

At the same time it can be observed that resistance to planning and land use control is greater in rural areas than in urban ones and that resistance increases as the leg of government that proposes to do the planning or controlling increases. Thus the state level planning activities are aimed at the portions of the states where they stand the smallest probabilities of success. If one had to choose a mixture of state and regional planning for urban and rural areas, this mix would be the least effective in rural areas.

Indeed the author would like to suggest that if a state-regional mix was called for it would make more sense for the state level agencies to plan in the more urbanized areas. The reasons being that these areas will put greater emphasis on traditional sewage treatment works which

will probably involve state units of government through cost sharing arrangements anyway. At the same time the research in this thesis has suggested that regional agencies may be better suited for dealing with nonpoint sources of pollution.

The Role of Information Subsidy

In the second chapter it was suggested that dominant units of government may, to reduce the political costs of attaining a goal, shed some of the responsibilities onto subordinate units of government. The information subsidy process is one of the elements of the shedding activity. The purpose of information subsidy activities in the case of 208 water quality planning is to convince local governments that what is good for the nation as a whole is also good for them.

When a dominant unit of government tries to pursuade a subordinate unit of government to implement its policies an understanding of this information subsidy process will facilitate this process. It should endeavor to understand the information needs of those who must decide and design or utilize institutions which can best subsidize information to them. Along a similar vein more information subsidy activities may be needed in areas where resistance to a proposed change is the greatest. Finally, it should be understood that no amount of information subsidy will convince a decision maker to adopt a policy which that decision maker is sure is in his or her worst interests. If this is the case then other means of effecting that decision maker's opportunity set must be used or a means of usurping that decision maker of the right to decide must be devised if the dominant unit's goals are to be realized.

Time Horizon for Section 208 Planning and PL 92-500

The performance standards for PL 92-500 call for the nation's waters to be fishable and swimmable, where attainable by 1983 and for zero discharges into the nations waterways by 1985. It is reasonable to ask whether these goals will be met on time. The author believes that even the most casual observations would lead to the conclusion that these standards will not be attained in the specified time period.

From the vantage point of 1978, six years after the passage of PL 92-500, it can be observed that only a handful of section 208 plans have been completed. Many of these plans particularly those initiated by state agencies will not be finished until 1980. This leaves a scant five to seven years for these plans to be implemented. It has been one of the objectives of this thesis to suggest that implementation is a more formidable task than the drawing up of a plan.

If the goals of PL 92-500 are to be met, nonmarginal or incremental changes in public policy will have to be affected. This is particularly true in the nonpoint area. Clearly, to meet these goals in any time period, government will have to take a much more active role in influencing private land use decisions. It is also possible that a major shift between levels of government of the powers to influence land use decisions will have to take place. It is doubtful that either of these events could or would take place in the next five to seven years.

It would seem then that the time horizon for 208 planning is woefully underestimated. This appears to be the norm for planning

activities rather than the exception. The 701* planning process has been in place in some areas for over 20 years and yet many of these areas have not had widespread implementation of the measures called for in their plans. The point is that the time that elapses between the beginning of a planning process and any visible impact that that planning process might have is quite long. This time perspective problem or phenomenon is exacerbated when the power to implement lies not with a single governing body but with a multitude of roughly equal bodies, each of which has the power of implementation within its boundaries.

This slow, at times snail-like pace, of changes brought on by planning has frustrated more than one planner, particularly when planning activities are primarily viewed as a technical process. It is perhaps more appropriate that the changes brought on by planning activities be measured not by years but fives and tens of years. This observation, of course, carries little weight with those who perceive that this is too slow a pace for progress.

Future Research Needs

The future research needs concerning section 208 planning, PL 92-500 and in particular nonpoint sources of pollution fall into two major categories. The first has to do with the physical relationships between various land uses and water quality. The second broad category of research needs relates to the institutional needs of the programs intended to reduce nonpoint pollution.

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*Section 701 of the 1954 Housing Act. This act provides for federal cost sharing of planning activities.

While the author claims no particular expertise in the studies looking at physical relationships between land use and water quality, there appears a large need for basic research in this area. Much of the work that has been done in this area to date involves variations of the Universal Soil Loss Equation. This tool, while useful, only depicts a small part of the nonpoint sources of pollution systems. Beyond the movement of silt more information is needed on the ways in which nutrients, pesticides, herbicides, street runoff, septic overflows, toxic substances and a host of other materials enter aquatic ecosystems.

At the same time it should be recognized that the generation of this technical information will take years if not decades. Decisions with respect to nonpoint pollution sources will have to be made before all the facts are in if in fact they ever are. If the goals of PL 92-500 are to be met in any time frame, institutions and programs must be developed which will change the way literally millions of people make land use decisions. These decisions must be made with the knowledge that the individual who makes those decisions will not be the primary benefactor of the effects of that decisions. We need to know more about what combinations of incentives or disincentives are politically feasible and will achieve the desired performance. Several different steps might be taken to obtain this sort of information. They include:

1. Study of Model Implementation Areas

The Environmental Protection Agency and the U.S. Department of Agriculture are setting up several model implementation programs around the county. These projects are essential pilot areas where various

agencies will try to implement a set of "Best Management Practices." By monitoring these activities we may be able to provide information about the performance of various programs. Specific research needs in this area might include:

a. Willingness of landowners to adopt Best Management Practices as a function of various levels of cost sharing and cost sharing rules.

b. Factors that affect the administration costs of implementing Best Management Practices.

c. Changes in clientele, public acceptance and perception of agencies implementing Best Management Practices.

d. Limits and potentials of voluntary and educational programs that encourage the adoption of Best Management Practices.

e. Performance and external effects of regulatory, tax and subsidy programs which implement Best Management Practice.

This list is far from inclusive. The model implementation program offers the opportunity to conduct some very pragmatic research which could be very useful to other areas as they approach the implementation phase of their PL 92-500.

2. Monitoring other 208 activities

Beyond the Model Implementation Program a thorough and ongoing program might be developed to monitor unique and innovating planning and implementation activities. There is a great wealth of diversity among the agencies and organizations involved with getting 208 planning and PL 92-500. It would be useful to try to tap the knowledge and experiences of these organizations. This could probably be done on a case study basis which looks at programs that have worked and why they

have and perhaps of equal importance (though perhaps a more sensitive topic) programs that haven't worked and why they haven't.

3. Developing information system.

All of these research projects should be integrated with a system that can deliver timely information in a usable form to those who must make the tough decisions which will affect the future of our water quality. Thus the information needs of these various groups may prove to be a research priority in and of itself.

Measuring the Output of a Planning Process

Perhaps one of the most important observations that this thesis can make concerns the need to reevaluate the criteria for success of a planning effort. Too often we are lulled into a false sense of accomplishment when a plan is finished. The planners pick up and move on to other projects. Without wishing to downplay the efforts that are put into a plan it should be recognized for what it is, an intermediate product. No planning process or plan by itself ever produced a drop of clean water. Thus measuring the success of section 208 planning and PL 92-500 by the number of plans drawn up or the detail of those plans is like measuring the flow of electricity from a hydroelectric project by counting the tons of concrete in the dam.

The point is that a plan is nothing more than a pile of papers unless some set of decision makers adopts the measures that the plan calls for. Thus to effectively measure the success of a planning activity, a system needs to be designed to monitor the implementation process. However, even implementation can be considered an intermediate step just as planning is. Indeed it can be argued that after

implementation there is an enforcement step which is just as crucial. Beyond this it should be remembered that the ultimate performance measure by which PL 92-500 must be gauged is some change in the actual quality of any given water system.

Design of Future Resource Planning Programs

A successful planning effort is a costly, difficult, protracted and potentially volatile affair. The benefits of such activities will occur years into the future and if the process is a success it will probably not be referred to as the reason things are as they are. These are quite clear functional barriers, additional structural barriers should not be placed in the path of the planning process.

It has been the purpose of this thesis to suggest that the jurisdictional boundaries are a structural element of the design of a planning program. If implementation is the ultimate goal of a planning activity, then the planning process ought to be done on a scale which is meaningful to the units of government which must decide whether to implement a given plan. In other words, the planning process should be tailored to be sensitive to the political realities that face those who must decide.

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APPENDICES

APPENDIX A

PL 92-500 SECTIONS:

101-104 AND 201-212

Public Law 92-500
92nd Congress, S. 2770
October 18, 1972

An Act

86 STAT. 816

To amend the Federal Water Pollution Control Act.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That this Act may be cited as the "Federal Water Pollution Control Act Amendments of 1972".

Federal Water Pollution Control Act Amendments of 1972. 70 Stat. 498; 84 Stat. 91. 33 USC 1151 note.

SEC. 2. The Federal Water Pollution Control Act is amended to read as follows:

"TITLE I—RESEARCH AND RELATED PROGRAMS

"DECLARATION OF GOALS AND POLICY

"SEC. 101. (a) The objective of this Act is to restore and maintain the chemical, physical, and biological integrity of the Nation's waters. In order to achieve this objective it is hereby declared that, consistent with the provisions of this Act—

"(1) it is the national goal that the discharge of pollutants into the navigable waters be eliminated by 1985;

"(2) it is the national goal that wherever attainable, an interim goal of water quality which provides for the protection and propagation of fish, shellfish, and wildlife and provides for recreation in and on the water be achieved by July 1, 1983;

"(3) it is the national policy that the discharge of toxic pollutants in toxic amounts be prohibited;

"(4) it is the national policy that Federal financial assistance be provided to construct publicly owned waste treatment works;

"(5) it is the national policy that areawide waste treatment management planning processes be developed and implemented to assure adequate control of sources of pollutants in each State; and

"(6) it is the national policy that a major research and demonstration effort be made to develop technology necessary to eliminate the discharge of pollutants into the navigable waters, waters of the contiguous zone, and the oceans.

"(b) It is the policy of the Congress to recognize, preserve, and protect the primary responsibilities and rights of States to prevent, reduce, and eliminate pollution, to plan the development and use (including restoration, preservation, and enhancement) of land and water resources, and to consult with the Administrator in the exercise of his authority under this Act. It is further the policy of the Congress to support and aid research relating to the prevention, reduction, and elimination of pollution, and to provide Federal technical services and financial aid to State and interstate agencies and municipalities in connection with the prevention, reduction, and elimination of pollution.

"(c) It is further the policy of Congress that the President, acting through the Secretary of State and such national and international organizations as he determines appropriate, shall take such action as may be necessary to insure that to the fullest extent possible all foreign countries shall take meaningful action for the prevention, reduction, and elimination of pollution in their waters and in international waters and for the achievement of goals regarding the elimination of discharge of pollutants and the improvement of water quality to at least the same extent as the United States does under its laws.

"(d) Except as otherwise expressly provided in this Act, the Administrator of the Environmental Protection Agency (hereinafter in this Act called 'Administrator') shall administer this Act. Administration.

"(e) Public participation in the development, revision, and enforcement of any regulation, standard, effluent limitation, plan, or program established by the Administrator or any State under this Act shall be provided for, encouraged, and assisted by the Administrator and the States. The Administrator, in cooperation with the States, shall develop and publish regulations specifying minimum guidelines for public participation in such processes.

Regulations.

"(f) It is the national policy that to the maximum extent possible the procedures utilized for implementing this Act shall encourage the drastic minimization of paperwork and interagency decision procedures, and the best use of available manpower and funds, so as to prevent needless duplication and unnecessary delays at all levels of government.

"COMPREHENSIVE PROGRAMS FOR WATER POLLUTION CONTROL

"SEC. 102. (a) The Administrator shall, after careful investigation, and in cooperation with other Federal agencies, State water pollution control agencies, interstate agencies, and the municipalities and industries involved, prepare or develop comprehensive programs for preventing, reducing, or eliminating the pollution of the navigable waters and ground waters and improving the sanitary condition of surface and underground waters. In the development of such comprehensive programs due regard shall be given to the improvements which are necessary to conserve such waters for the protection and propagation of fish and aquatic life and wildlife, recreational purposes, and the withdrawal of such waters for public water supply, agricultural, industrial, and other purposes. For the purpose of this section, the Administrator is authorized to make joint investigations with any such agencies of the condition of any waters in any State or States, and of the discharges of any sewage, industrial wastes, or substance which may adversely affect such waters.

"(b) (1) In the survey or planning of any reservoir by the Corps of Engineers, Bureau of Reclamation, or other Federal agency, consideration shall be given to inclusion of storage for regulation of streamflow, except that any such storage and water releases shall not be provided as a substitute for adequate treatment or other methods of controlling waste at the source.

"(2) The need for and the value of storage for regulation of streamflow (other than for water quality) including but not limited to navigation, salt water intrusion, recreation, esthetics, and fish and wildlife, shall be determined by the Corps of Engineers, Bureau of Reclamation, or other Federal agencies.

"(3) The need for, the value of, and the impact of, storage for water quality control shall be determined by the Administrator, and his views on these matters shall be set forth in any report or presentation to Congress proposing authorization or construction of any reservoir including such storage.

"(4) The value of such storage shall be taken into account in determining the economic value of the entire project of which it is a part, and costs shall be allocated to the purpose of regulation of streamflow in a manner which will insure that all project purposes, share equitably in the benefits of multiple-purpose construction.

"(5) Costs of regulation of streamflow features incorporated in any Federal reservoir or other impoundment under the provisions of this Act shall be determined and the beneficiaries identified and if the benefits are widespread or national in scope, the costs of such features shall be nonreimbursable.

"(6) No license granted by the Federal Power Commission for a hydroelectric power project shall include storage for regulation of streamflow for the purpose of water quality control unless the Administrator shall recommend its inclusion and such reservoir storage capacity shall not exceed such proportion of the total storage required for the water quality control plan as the drainage area of such reservoir bears to the drainage area of the river basin or basins involved in such water quality control plan.

"(c) (1) The Administrator shall, at the request of the Governor of a State, or a majority of the Governors when more than one State is involved, make a grant to pay not to exceed 50 per centum of the administrative expenses of a planning agency for a period not to exceed three years, which period shall begin after the date of enactment of the Federal Water Pollution Control Act Amendments of 1972, if such agency provides for adequate representation of appropriate State, interstate, local, or (when appropriate) international interests in the basin or portion thereof involved and is capable of developing an effective, comprehensive water quality control plan for a basin or portion thereof.

"(2) Each planning agency receiving a grant under this subsection shall develop a comprehensive pollution control plan for the basin or portion thereof which—

"(A) is consistent with any applicable water quality standards, effluent and other limitations, and thermal discharge regulations established pursuant to current law within the basin;

"(B) recommends such treatment works as will provide the most effective and economical means of collection, storage, treatment, and elimination of pollutants and recommends means to encourage both municipal and industrial use of such works;

"(C) recommends maintenance and improvement of water quality within the basin or portion thereof and recommends methods of adequately financing those facilities as may be necessary to implement the plan; and

"(D) as appropriate, is developed in cooperation with, and is consistent with any comprehensive plan prepared by the Water Resources Council, any areawide waste management plans developed pursuant to section 208 of this Act, and any State plan developed pursuant to section 303(e) of this Act.

"(3) For the purposes of this subsection the term 'basin' includes, but is not limited to, rivers and their tributaries, streams, coastal waters, sounds, estuaries, bays, lakes, and portions thereof, as well as the lands drained thereby. "Basin."

"INTERSTATE COOPERATION AND UNIFORM LAWS

"SEC. 103. (a) The Administrator shall encourage cooperative activities by the States for the prevention, reduction, and elimination of pollution, encourage the enactment of improved and, so far as practicable, uniform State laws relating to the prevention, reduction, and elimination of pollution; and encourage compacts between States for the prevention and control of pollution.

"(b) The consent of the Congress is hereby given to two or more States to negotiate and enter into agreements or compacts, not in conflict with any law or treaty of the United States, for (1) cooperative effort and mutual assistance for the prevention and control of pollution and the enforcement of their respective laws relating thereto, and (2) the establishment of such agencies, joint or otherwise, as they may deem desirable for making effective such agreements and compacts. No such agreement or compact shall be binding or obligatory

upon any State a party thereto unless and until it has been approved by the Congress.

"RESEARCH, INVESTIGATIONS, TRAINING, AND INFORMATION

"SEC. 104. (a) The Administrator shall establish national programs for the prevention, reduction, and elimination of pollution and as part of such programs shall—

"(1) in cooperation with other Federal, State, and local agencies, conduct and promote the coordination and acceleration of, research, investigations, experiments, training, demonstrations, surveys, and studies relating to the causes, effects, extent, prevention, reduction, and elimination of pollution;

"(2) encourage, cooperate with, and render technical services to pollution control agencies and other appropriate public or private agencies, institutions, and organizations, and individuals, including the general public, in the conduct of activities referred to in paragraph (1) of this subsection;

"(3) conduct, in cooperation with State water pollution control agencies and other interested agencies, organizations and persons, public investigations concerning the pollution of any navigable waters, and report on the results of such investigations;

"(4) establish advisory committees composed of recognized experts in various aspects of pollution and representatives of the public to assist in the examination and evaluation of research progress and proposals and to avoid duplication of research;

Water quality surveillance system, report.

"(5) in cooperation with the States, and their political subdivisions, and other Federal agencies establish, equip, and maintain a water quality surveillance system for the purpose of monitoring the quality of the navigable waters and ground waters and the contiguous zone and the oceans and the Administrator shall, to the extent practicable, conduct such surveillance by utilizing the resources of the National Aeronautics and Space Administration, the National Oceanic and Atmospheric Administration, the Geological Survey, and the Coast Guard, and shall report on such quality in the report required under subsection (a) of section 516; and

Report to Congress.

"(6) initiate and promote the coordination and acceleration of research designed to develop the most effective practicable tools and techniques for measuring the social and economic costs and benefits of activities which are subject to regulation under this Act; and shall transmit a report on the results of such research to the Congress not later than January 1, 1974.

"(b) In carrying out the provisions of subsection (a) of this section the Administrator is authorized to—

"(1) collect and make available, through publications and other appropriate means, the results of and other information, including appropriate recommendations by him in connection therewith, pertaining to such research and other activities referred to in paragraph (1) of subsection (a);

"(2) cooperate with other Federal departments and agencies, State water pollution control agencies, interstate agencies, other public and private agencies, institutions, organizations, industries involved, and individuals, in the preparation and conduct of such research and other activities referred to in paragraph (1) of subsection (a);

"(3) make grants to State water pollution control agencies, interstate agencies, other public or nonprofit private agencies, institutions, organizations, and individuals, for purposes stated in paragraph (1) of subsection (a) of this section;

"(4) contract with public or private agencies, institutions, organizations, and individuals, without regard to sections 3648 and 3709 of the Revised Statutes (31 U.S.C. 529; 41 U.S.C. 5), referred to in paragraph (1) of subsection (a);

"(5) establish and maintain research fellowships at public or nonprofit private educational institutions or research organizations;

"(6) collect and disseminate, in cooperation with other Federal departments and agencies, and with other public or private agencies, institutions, and organizations having related responsibilities, basic data on chemical, physical, and biological effects of varying water quality and other information pertaining to pollution and the prevention, reduction, and elimination thereof; and

"(7) develop effective and practical processes, methods, and prototype devices for the prevention, reduction, and elimination of pollution.

Pollutant effects, study.

"(c) In carrying out the provisions of subsection (a) of this section the Administrator shall conduct research on, and survey the results of other scientific studies on, the harmful effects on the health or welfare of persons caused by pollutants. In order to avoid duplication of effort, the Administrator shall, to the extent practicable, conduct such research in cooperation with and through the facilities of the Secretary of Health, Education, and Welfare.

HEW, cooperation.

"(d) In carrying out the provisions of this section the Administrator shall develop and demonstrate under varied conditions (including conducting such basic and applied research, studies, and experiments as may be necessary):

"(1) Practicable means of treating municipal sewage, and other waterborne wastes to implement the requirements of section 201 of this Act;

"(2) Improved methods and procedures to identify and measure the effects of pollutants, including those pollutants created by new technological developments; and

"(3) Methods and procedures for evaluating the effects on water quality of augmented streamflows to control pollution not susceptible to other means of prevention, reduction, or elimination.

Field research laboratories.

"(e) The Administrator shall establish, equip, and maintain field laboratory and research facilities, including, but not limited to, one to be located in the northeastern area of the United States, one in the Middle Atlantic area, one in the southeastern area, one in the midwestern area, one in the southwestern area, one in the Pacific Northwest, and one in the State of Alaska, for the conduct of research, investigations, experiments, field demonstrations and studies, and training relating to the prevention, reduction and elimination of pollution. Insofar as practicable, each such facility shall be located near institutions of higher learning in which graduate training in such research might be carried out. In conjunction with the development of criteria under section 403 of this Act, the Administrator shall construct the facilities authorized for the National Marine Water Quality Laboratory established under this subsection.

Great Lakes, water quality research.

"(f) The Administrator shall conduct research and technical development work, and make studies, with respect to the quality of the waters of the Great Lakes, including an analysis of the present and

projected future water quality of the Great Lakes under varying conditions of waste treatment and disposal, an evaluation of the water quality needs of those to be served by such waters, an evaluation of municipal, industrial, and vessel waste treatment and disposal practices with respect to such waters, and a study of alternate means of solving pollution problems (including additional waste treatment measures) with respect to such waters.

Treatment works, pilot training programs.

"(g)(1) For the purpose of providing an adequate supply of trained personnel to operate and maintain existing and future treatment works and related activities, and for the purpose of enhancing substantially the proficiency of those engaged in such activities, the Administrator shall finance pilot programs, in cooperation with State and interstate agencies, municipalities, educational institutions, and other organizations and individuals, of manpower development and training and retraining of persons in, on entering into, the field of operation and maintenance of treatment works and related activities. Such program and any funds expended for such a program shall supplement, not supplant, other manpower and training programs and funds available for the purposes of this paragraph. The Administrator is authorized, under such terms and conditions as he deems appropriate, to enter into agreements with one or more States, acting jointly or severally, or with other public or private agencies or institutions for the development and implementation of such a program.

Employment needs, forecasting.

"(2) The Administrator is authorized to enter into agreements with public and private agencies and institutions, and individuals to develop and maintain an effective system for forecasting the supply of, and demand for, various professional and other occupational categories needed for the prevention, reduction, and elimination of pollution in each region, State, or area of the United States and, from time to time, to publish the results of such forecasts.

"(3) In furtherance of the purposes of this Act, the Administrator is authorized to—

"(A) make grants to public or private agencies and institutions and to individuals for training projects, and provide for the conduct of training by contract with public or private agencies and institutions and with individuals without regard to sections 3648 and 3709 of the Revised Statutes;

31 USC 529.
41 USC 5.

"(B) establish and maintain research fellowships in the Environmental Protection Agency with such stipends and allowances, including traveling and subsistence expenses, as he may deem necessary to procure the assistance of the most promising research fellows; and

"(C) provide, in addition to the program established under paragraph (1) of this subsection, training in technical matters relating to the causes, prevention, reduction, and elimination of pollution for personnel of public agencies and other persons with suitable qualifications.

Report to President, transmittal to Congress.

"(4) The Administrator shall submit, through the President, a report to the Congress not later than December 31, 1973, summarizing the actions taken under this subsection and the effectiveness of such actions, and setting forth the number of persons trained, the occupational categories for which training was provided, the effectiveness of other Federal, State, and local training programs in this field, together with estimates of future needs, recommendations on improving training programs, and such other information and recommendations, including legislative recommendations, as he deems appropriate.

Lake pollution.

"(h) The Administrator is authorized to enter into contracts with, or make grants to, public or private agencies and organizations and

individuals for (A) the purpose of developing and demonstrating new or improved methods for the prevention, removal, reduction, and elimination of pollution in lakes, including the undesirable effects of nutrients and vegetation, and (B) the construction of publicly owned research facilities for such purpose.

Oil pollution control, studies.

"(i) The Administrator, in cooperation with the Secretary of the department in which the Coast Guard is operating, shall—

"(1) engage in such research, studies, experiments, and demonstrations as he deems appropriate, relative to the removal of oil from any waters and to the prevention, control, and elimination of oil and hazardous substances pollution;

"(2) publish from time to time the results of such activities; and

Publication in Federal Register.

"(3) from time to time, develop and publish in the Federal Register specifications and other technical information on the various chemical compounds used in the control of oil and hazardous substances spills.

In carrying out this subsection, the Administrator may enter into contracts with, or make grants to, public or private agencies and organizations and individuals.

Vessels, solid waste disposal equipment.

"(j) The Secretary of the department in which the Coast Guard is operating shall engage in such research, studies, experiments, and demonstrations as he deems appropriate relative to equipment which is to be installed on board a vessel and is designed to receive, retain, treat, or discharge human body wastes and the wastes from toilets and other receptacles intended to receive or retain body wastes with particular emphasis on equipment to be installed on small recreational vessels. The Secretary of the department in which the Coast Guard is operating shall report to Congress the results of such research, studies, experiments, and demonstrations prior to the effective date of any regulations established under section 312 of this Act. In carrying out this subsection the Secretary of the department in which the Coast Guard is operating may enter into contracts with, or make grants to, public or private organizations and individuals.

Report to Congress.

Land acquisition.

"(k) In carrying out the provisions of this section relating to the conduct by the Administrator of demonstration projects and the development of field laboratories and research facilities, the Administrator may acquire land and interests therein by purchase, with appropriated or donated funds, by donation, or by exchange for acquired or public lands under his jurisdiction which he classifies as suitable for disposition. The values of the properties so exchanged either shall be approximately equal, or if they are not approximately equal, the values shall be equalized by the payment of cash to the grantor or to the Administrator as the circumstances require.

Pesticides, effects and control.

"(l)(1) The Administrator shall, after consultation with appropriate local, State, and Federal agencies, public and private organizations, and interested individuals, as soon as practicable but not later than January 1, 1973, develop and issue to the States for the purpose of carrying out this Act the latest scientific knowledge available in indicating the kind and extent of effects on health and welfare which may be expected from the presence of pesticides in the water in varying quantities. He shall revise and add to such information whenever necessary to reflect developing scientific knowledge.

"(2) The President shall, in consultation with appropriate local, State, and Federal agencies, public and private organizations, and interested individuals, conduct studies and investigations of methods to control the release of pesticides into the environment which study shall include examination of the persistency of pesticides in the water

Reports to Congress.

environment and alternatives thereto. The President shall submit reports, from time to time, on such investigations to Congress together with his recommendations for any necessary legislation.

Waste oil disposal.

"(m)(1) The Administrator shall, in an effort to prevent degradation of the environment from the disposal of waste oil, conduct a study of (A) the generation of used engine, machine, cooling, and similar waste oil, including quantities generated, the nature and quality of such oil, present collecting methods and disposal practices, and alternate uses of such oil; (B) the long-term, chronic biological effects of the disposal of such waste oil; and (C) the potential market for such oils, including the economic and legal factors relating to the sale of products made from such oils, the level of subsidy, if any, needed to encourage the purchase by public and private nonprofit agencies of products from such oil, and the practicability of Federal procurement, on a priority basis, of products made from such oil. In conducting such study, the Administrator shall consult with affected industries and other persons.

Reports to Congress.

"(2) The Administrator shall report the preliminary results of such study to Congress within six months after the date of enactment of the Federal Water Pollution Control Act Amendments of 1972, and shall submit a final report to Congress within 18 months after such date of enactment.

Estuaries, pollution effects.

"(n)(1) The Administrator shall, in cooperation with the Secretary of the Army, the Secretary of Agriculture, the Water Resources Council, and with other appropriate Federal, State, interstate, or local public bodies and private organizations, institutions, and individuals, conduct and promote, and encourage contributions to, continuing comprehensive studies of the effects of pollution, including sedimentation, in the estuaries and estuarine zones of the United States on fish and wildlife, on sport and commercial fishing, on recreation, on water supply and water power, and on other beneficial purposes. Such studies shall also consider the effect of demographic trends, the exploitation of mineral resources and fossil fuels, land and industrial development, navigation, flood and erosion control, and other uses of estuaries and estuarine zones upon the pollution of the waters therein.

"(2) In conducting such studies, the Administrator shall assemble, coordinate, and organize all existing pertinent information on the Nation's estuaries and estuarine zones; carry out a program of investigations and surveys to supplement existing information in representative estuaries and estuarine zones; and identify the problems and areas where further research and study are required.

Reports to Congress.

"(3) The Administrator shall submit to Congress, from time to time, reports of the studies authorized by this subsection but at least one such report during any three year period. Copies of each such report shall be made available to all interested parties, public and private.

"Estuarine zones."

"(4) For the purpose of this subsection, the term 'estuarine zones' means an environmental system consisting of an estuary and those transitional areas which are consistently influenced or affected by water from an estuary such as, but not limited to, salt marshes, coastal and intertidal areas, bays, harbors, lagoons, inshore waters, and channels, and the term 'estuary' means all or part of the mouth of a river or stream or other body of water having unimpaired natural connection with open sea and within which the sea water is measurably diluted with fresh water derived from land drainage.

"Estuary."

Water, unnecessary consumption.

"(o)(1) The Administrator shall conduct research and investigations on devices, systems, incentives, pricing policy, and other methods of reducing the total flow of sewage, including, but not limited

to, unnecessary water consumption in order to reduce the requirements for, and the costs of, sewage and waste treatment services. Such research and investigations shall be directed to develop devices, systems, policies, and methods capable of achieving the maximum reduction of unnecessary water consumption.

Reports to Congress.

"(2) The Administrator shall report the preliminary results of such studies and investigations to the Congress within one year after the date of enactment of the Federal Water Pollution Control Act Amendments of 1972, and annually thereafter in the report required under subsection (a) of section 516. Such report shall include recommendations for any legislation that may be required to provide for the adoption and use of devices, systems, policies, or other methods of reducing water consumption and reducing the total flow of sewage. Such report shall include an estimate of the benefits to be derived from adoption and use of such devices, systems, policies, or other methods and also shall reflect estimates of any increase in private, public, or other cost that would be occasioned thereby.

Agricultural pollution.

"(p) In carrying out the provisions of subsection (a) of this section the Administrator shall, in cooperation with the Secretary of Agriculture, other Federal agencies, and the States, carry out a comprehensive study and research program to determine new and improved methods and the better application of existing methods of preventing, reducing, and eliminating pollution from agriculture, including the legal, economic, and other implications of the use of such methods.

Rural sewage.

"(q)(1) The Administrator shall conduct a comprehensive program of research and investigation and pilot project implementation into new and improved methods of preventing, reducing, storing, collecting, treating, or otherwise eliminating pollution from sewage in rural and other areas where collection of sewage in conventional, community-wide sewage collection systems is impractical, uneconomical, or otherwise infeasible, or where soil conditions or other factors preclude the use of septic tank and drainage field systems.

"(2) The Administrator shall conduct a comprehensive program of research and investigation and pilot project implementation into new and improved methods for the collection and treatment of sewage and other liquid wastes combined with the treatment and disposal of solid wastes.

Colleges, research grants.

"(r) The Administrator is authorized to make grants to colleges and universities to conduct basic research into the structure and function of fresh water aquatic ecosystems, and to improve understanding of the ecological characteristics necessary to the maintenance of the chemical, physical, and biological integrity of freshwater aquatic ecosystems.

"River Study Centers."

"(s) The Administrator is authorized to make grants to one or more institutions of higher education (regionally located and to be designated as 'River Study Centers') for the purpose of conducting and reporting on interdisciplinary studies on the nature of river systems, including hydrology, biology, ecology, economics, the relationship between river uses and land uses, and the effects of development within river basins on river systems and on the value of water resources and water related activities. No such grant in any fiscal year shall exceed $1,000,000.

Thermal discharges.

"(t) The Administrator shall, in cooperation with State and Federal agencies and public and private organizations, conduct continuing comprehensive studies of the effects and methods of control of thermal discharges. In evaluating alternative methods of control the studies shall consider (1) such data as are available on the latest available technology, economic feasibility including cost-effec-

tiveness analysis, and (2) the total impact on the environment, considering not only water quality but also air quality, land use, and effective utilization and conservation of fresh water and other natural resources. Such studies shall consider methods of minimizing adverse effects and maximizing beneficial effects of thermal discharges. The results of these studies shall be reported by the Administrator as soon as practicable, but not later than 270 days after enactment of this subsection, and shall be made available to the public and the States, and considered as they become available by the Administrator in carrying out section 316 of this Act and by the States in proposing thermal water quality standards.

Public information.

Appropriations.

"(u) There is authorized to be appropriated (1) $100,000,000 per fiscal year for the fiscal year ending June 30, 1973, and the fiscal year ending June 30, 1974, for carrying out the provisions of this section other than subsections (g) (1) and (2), (p), (r), and (t); (2) not to exceed $7,500,000 for fiscal year 1973 for carrying out the provisions of subsection (g) (1); (3) not to exceed $2,500,000 for fiscal year 1973 for carrying out the provisions of subsection (g) (2); (4) not to exceed $10,000,000 for each of the fiscal years ending June 30, 1973, and June 30, 1974, for carrying out the provisions of subsection (p); (5) not to exceed $15,000,000 per fiscal year for the fiscal years ending June 30, 1973, and June 30, 1974, for carrying out the provisions of subsection (r); and (6) not to exceed $10,000,000 per fiscal year for the fiscal years ending June 30, 1973, and June 30, 1974, for carrying out the provisions of subsection (t).

"GRANTS FOR RESEARCH AND DEVELOPMENT

Environmental Protection Agency, demonstration projects.

"SEC. 105. (a) The Administrator is authorized to conduct in the Environmental Protection Agency, and to make grants to any State, municipality, or intermunicipal or interstate agency for the purpose of assisting in the development of—

"(1) any project which will demonstrate a new or improved method of preventing, reducing, and eliminating the discharge into any waters of pollutants from sewers which carry storm water or both storm water and pollutants; or

"(2) any project which will demonstrate advanced waste treatment and water purification methods (including the temporary use of new or improved chemical additives which provide substantial immediate improvement to existing treatment processes), or new or improved methods of joint treatment systems for municipal and industrial wastes;

and to include in such grants such amounts as are necessary for the purpose of reports, plans, and specifications in connection therewith.

"(b) The Administrator is authorized to make grants to any State or States or interstate agency to demonstrate, in river basins or portions thereof, advanced treatment and environmental enhancement techniques to control pollution from all sources, within such basins or portions thereof, including nonpoint sources, together with in stream water quality improvement techniques.

"(c) In order to carry out the purposes of section 301 of this Act, the Administrator is authorized to (1) conduct in the Environmental Protection Agency, (2) make grants to persons, and (3) enter into contracts with persons, for research and demonstration projects for prevention of pollution of any waters by industry including, but not limited to, the prevention, reduction, and elimination of the discharge of pollutants. No grant shall be made for any project under this subsection unless the Administrator determines that such project will develop or demonstrate a new or improved method of treating

Report to Congress.

"(c) The Administrator shall report to Congress not later than July 1, 1973, the results of the demonstration projects authorized by this section together with his recommendations, including any necessary legislation, relating to the establishment of a statewide program.

Appropriation.

"(d) There is authorized to be appropriated not to exceed $2,000,000 to carry out this section.

"LAKE TAHOE STUDY

"SEC. 114. (a) The Administrator, in consultation with the Tahoe Regional Planning Agency, the Secretary of Agriculture, other Federal agencies, representatives of State and local governments, and members of the public, shall conduct a thorough and complete study on the adequacy of and need for extending Federal oversight and control in order to preserve the fragile ecology of Lake Tahoe.

"(b) Such study shall include an examination of the interrelationships and responsibilities of the various agencies of the Federal Government and State and local governments with a view to establishing the necessity for redefinition of legal and other arrangements between these various governments, and making specific legislative recommendations to Congress. Such study shall consider the effect of various actions in terms of their environmental impact on the Tahoe Basin, treated as an ecosystem.

Report to Congress.

"(c) The Administrator shall report on such study to Congress not later than one year after the date of enactment of this subsection.

Appropriation.

"(d) There is authorized to be appropriated to carry out this section not to exceed $500,000.

"IN-PLACE TOXIC POLLUTANTS

"SEC. 115. The Administrator is directed to identify the location of in-place pollutants with emphasis on toxic pollutants in harbors and navigable waterways and is authorized, acting through the Secretary of the Army, to make contracts for the removal and appropriate disposal of such materials from critical port and harbor areas. There is authorized to be appropriated $15,000,000 to carry out the provisions of this section, which sum shall be available until expended.

Appropriation.

"TITLE II—GRANTS FOR CONSTRUCTION OF TREATMENT WORKS

"PURPOSE

"SEC. 201. (a) It is the purpose of this title to require and to assist the development and implementation of waste treatment management plans and practices which will achieve the goals of this Act.

"(b) Waste treatment management plans and practices shall provide for the application of the best practicable waste treatment technology before any discharge into receiving waters, including reclaiming and recycling of water, and confined disposal of pollutants so they will not migrate to cause water or other environmental pollution and shall provide for consideration of advanced waste treatment techniques.

"(c) To the extent practicable, waste treatment management shall be on an areawide basis and provide control or treatment of all point and nonpoint sources of pollution, including in place or accumulated pollution sources.

"(d) The Administrator shall encourage waste treatment management which results in the construction of revenue producing facilities providing for—

"(1) the recycling of potential sewage pollutants through the production of agriculture, silviculture, or aquaculture products, or any combination thereof;

"(2) the confined and contained disposal of pollutants not recycled;

"(3) the reclamation of wastewater; and

"(4) the ultimate disposal of sludge in a manner that will not result in environmental hazards.

"(e) The Administrator shall encourage waste treatment management which results in integrating facilities for sewage treatment and recycling with facilities to treat, dispose of, or utilize other industrial and municipal wastes, including but not limited to solid waste and waste heat and thermal discharges. Such integrated facilities shall be designed and operated to produce revenues in excess of capital and operation and maintenance costs and such revenues shall be used by the designated regional management agency to aid in financing other environmental improvement programs.

"(f) The Administrator shall encourage waste treatment management which combines 'open space' and recreational considerations with such management.

"(g)(1) The Administrator is authorized to make grants to any State, municipality, or intermunicipal or interstate agency for the construction of publicly owned treatment works.

"(2) The Administrator shall not make grants from funds authorized for any fiscal year beginning after June 30, 1974, to any State, municipality, or intermunicipal or interstate agency for the erection, building, acquisition, alteration, remodeling, improvement, or extension of treatment works unless the grant applicant has satisfactorily demonstrated to the Administrator that— Conditions.

"(A) alternative waste management techniques have been studied and evaluated and the works proposed for grant assistance will provide for the application of the best practicable waste treatment technology over the life of the works consistent with the purposes of this title; and

"(B) as appropriate, the works proposed for grant assistance will take into account and allow to the extent practicable the application of technology at a later date which will provide for the reclaiming or recycling of water or otherwise eliminate the discharge of pollutants.

"(3) The Administrator shall not approve any grant after July 1, 1973, for treatment works under this section unless the applicant shows to the satisfaction of the Administrator that each sewer collection system discharging into such treatment works is not subject to excessive infiltration.

"(4) The Administrator is authorized to make grants to applicants for treatment works grants under this section for such sewer system evaluation studies as may be necessary to carry out the requirements of paragraph (3) of this subsection. Such grants shall be made in accordance with rules and regulations promulgated by the Administrator. Initial rules and regulations shall be promulgated under this paragraph not later than 120 days after the date of enactment of the Federal Water Pollution Control Act Amendments of 1972. Rules and regulations.

"FEDERAL SHARE

"SEC. 202. (a) The amount of any grant for treatment works made under this Act from funds authorized for any fiscal year beginning after June 30, 1971, shall be 75 per centum of the cost of construction

thereof (as approved by the Administrator). Any grant (other than for reimbursement) made prior to the date of enactment of the Federal Water Pollution Control Act Amendments of 1972 from any funds authorized for any fiscal year beginning after June 30, 1971, shall, upon the request of the applicant, be increased to the applicable percentage under this section.

"(b) The amount of the grant for any project approved by the Administrator after January 1, 1971, and before July 1, 1971, for the construction of treatment works, the actual erection, building or acquisition of which was not commenced prior to July 1, 1971, shall, upon the request of the applicant, be increased to the applicable percentage under subsection (a) of this section for grants for treatment works from funds for fiscal years beginning after June 30, 1971, with respect to the cost of such actual erection, building, or acquisition. Such increased amount shall be paid from any funds allocated to the State in which the treatment works is located without regard to the fiscal year for which such funds were authorized. Such increased amount shall be paid for such project only if—

"(1) a sewage collection system that is a part of the same total waste treatment system as the treatment works for which such grant was approved is under construction or is to be constructed for use in conjunction with such treatment works, and if the cost of such sewage collection system exceeds the cost of such treatment works, and

"(2) the State water pollution control agency or other appropriate State authority certifies that the quantity of available ground water will be insufficient, inadequate, or unsuitable for public use, including the ecological preservation and recreational use of surface water bodies, unless effluents from publicly-owned treatment works after adequate treatment are returned to the ground water consistent with acceptable technological standards.

"PLANS, SPECIFICATIONS, ESTIMATES, AND PAYMENTS

"SEC. 203. (a) Each applicant for a grant shall submit to the Administrator for his approval, plans, specifications, and estimates for each proposed project for the construction of treatment works for which a grant is applied for under section 201(g)(1) from funds allotted to the State under section 205 and which otherwise meets the requirements of this Act. The Administrator shall act upon such plans, specifications, and estimates as soon as practicable after the same have been submitted, and his approval of any such plans, specifications, and estimates shall be deemed a contractual obligation of the United States for the payment of its proportional contribution to such project.

"(b) The Administrator shall, from time to time as the work progresses, make payments to the recipient of a grant for costs of construction incurred on a project. These payments shall at no time exceed the Federal share of the cost of construction incurred to the date of the voucher covering such payment plus the Federal share of the value of the materials which have been stockpiled in the vicinity of such construction in conformity to plans and specifications for the project.

Limitation.

"(c) After completion of a project and approval of the final voucher by the Administrator, he shall pay out of the appropriate sums the unpaid balance of the Federal share payable on account of such project.

"LIMITATIONS AND CONDITIONS

"SEC. 204. (a) Before approving grants for any project for any treatment works under section 201(g)(1) the Administrator shall determine—

"(1) that such works are included in any applicable areawide waste treatment management plan developed under section 208 of this Act;

"(2) that such works are in comformity with any applicable State plan under section 303(e) of this Act;

"(3) that such works have been certified by the appropriate State water pollution control agency as entitled to priority over such other works in the State in accordance with any applicable State plan under section 303(e) of this Act;

"(4) that the applicant proposing to construct such works agrees to pay the non-Federal costs of such works and has made adequate provisions satisfactory to the Administrator for assuring proper and efficient operation, including the employment of trained management and operations personnel, and the maintenance of such works in accordance with a plan of operation approved by the State water pollution control agency or, as appropriate, the interstate agency, after construction thereof;

"(5) that the size and capacity of such works relate directly to the needs to be served by such works, including sufficient reserve capacity. The amount of reserve capacity provided shall be approved by the Administrator on the basis of a comparison of the cost of constructing such reserves as a part of the works to be funded and the anticipated cost of providing expanded capacity at a date when such capacity will be required;

"(6) that no specification for bids in connection with such works shall be written in such a manner as to contain proprietary, exclusionary, or discriminatory requirements other than those based upon performance, unless such requirements are necessary to test or demonstrate a specific thing or to provide for necessary interchangeability of parts and equipment, or at least two brand names or trade names of comparable quality or utility are listed and are followed by the words 'or equal'.

"(b)(1) Notwithstanding any other provision of this title, the Administrator shall not approve any grant for any treatment works under section 201(g)(1) after March 1, 1973, unless he shall first have determined that the applicant (A) has adopted or will adopt a system of charges to assure that each recipient of waste treatment services within the applicant's jurisdiction, as determined by the Administrator, will pay its proportionate share of the costs of operation and maintenance (including replacement) of any waste treatment services provided by the applicant; (B) has made provision for the payment to such applicant by the industrial users of the treatment works, of that portion of the cost of construction of such treatment works (as determined by the Administrator) which is allocable to the treatment of such industrial wastes to the extent attributable to the Federal share of the cost of construction; and (C) has legal, institutional, managerial, and financial capability to insure adequate construction, operation, and maintenance of treatment works throughout the applicant's jurisdiction, as determined by the Administrator.

"(2) The Administrator shall, within one hundred and eighty days after the date of enactment of the Federal Water Pollution Control Act Amendments of 1972, and after consultation with appropriate State, interstate, municipal, and intermunicipal agencies, issue guidelines applicable to payment of waste treatment costs by industrial and nonindustrial recipients of waste treatment services which shall establish (A) classes of users of such services, including categories of industrial users; (B) criteria against which to determine the adequacy of charges imposed on classes and categories of users reflecting all

factors that influence the cost of waste treatment, including strength, volume, and delivery flow rate characteristics of waste; and (C) model systems and rates of user charges typical of various treatment works serving municipal-industrial communities.

"(3) The grantee shall retain an amount of the revenues derived from the payment of costs by industrial users of waste treatment services, to the extent costs are attributable to the Federal share of eligible project costs provided pursuant to this title as determined by the Administrator, equal to (A) the amount of the non-Federal cost of such project paid by the grantee plus (B) the amount, determined in accordance with regulations promulgated by the Administrator, necessary for future expansion and reconstruction of the project, except that such retained amount shall not exceed 50 per centum of such revenues from such project. All revenues from such project not retained by the grantee shall be deposited by the Administrator in the Treasury as miscellaneous receipts. That portion of the revenues retained by the grantee attributable to clause (B) of the first sentence of this paragraph, together with any interest thereon shall be used solely for the purposes of future expansion and reconstruction of the project.

"(4) Approval by the Administrator of a grant to an interstate agency established by interstate compact for any treatment works shall satisfy any other requirement that such works be authorized by Act of Congress.

"ALLOTMENT

"SEC. 205. (a) Sums authorized to be appropriated pursuant to section 207 for each fiscal year beginning after June 30, 1972, shall be allotted by the Administrator not later than the January 1st immediately preceding the beginning of the fiscal year for which authorized, except that the allotment for fiscal year 1973 shall be made not later than 30 days after the date of enactment of the Federal Water Pollution Control Act Amendments of 1972. Such sums shall be allotted among the States by the Administrator in accordance with regulations promulgated by him, in the ratio that the estimated cost of constructing all needed publicly owned treatment works in each State bears to the estimated cost of construction of all needed publicly owned treatment works in all of the States. For the fiscal years ending June 30, 1973, and June 30, 1974, such ratio shall be determined on the basis of table III of House Public Works Committee Print No. 92-50. Allotments for fiscal years which begin after the fiscal year ending June 30, 1974, shall be made only in accordance with a revised cost estimate made and submitted to Congress in accordance with section 516(b) of this Act and only after such revised cost estimate shall have been approved by law specifically enacted hereafter.

"(b)(1) Any sums allotted to a State under subsection (a) shall be available for obligation under section 203 on and after the date of such allotment. Such sums shall continue available for obligation in such State for a period of one year after the close of the fiscal year for which such sums are authorized. Any amounts so allotted which are not obligated by the end of such one-year period shall be immediately reallotted by the Administrator, in accordance with regulations promulgated by him, generally on the basis of the ratio used in making the last allotment of sums under this section. Such reallotted sums shall be added to the last allotments made to the States. Any sum made available to a State by reallotment under this subsection shall be in addition to any funds otherwise allotted to such State for grants under this title during any fiscal year.

"(2) Any sums which have been obligated under section 203 and which are released by the payment of the final voucher for the project shall be immediately credited to the State to which such sums were last allotted. Such released sums shall be added to the amounts last allotted to such State and shall be immediately available for obligation in the same manner and to the same extent as such last allotment.

"REIMBURSEMENT AND ADVANCED CONSTRUCTION

"SEC. 206. (a) Any publicly owned treatment works in a State on which construction was initiated after June 30, 1966, but before July 1, 1972, which was approved by the appropriate State water pollution control agency and which the Administrator finds meets the requirements of section 8 of this Act in effect at the time of the initiation of construction shall be reimbursed a total amount equal to the difference between the amount of Federal financial assistance, if any, received under such section 8 for such project and 50 per centum of the cost of such project, or 55 per centum of the project cost where the Administrator also determines that such treatment works was constructed in conformity with a comprehensive metropolitan treatment plan as described in section 8(f) of the Federal Water Pollution Control Act as in effect immediately prior to the date of enactment of the Federal Water Pollution Control Act Amendments of 1972. Nothing in this subsection shall result in any such works receiving Federal grants from all sources in excess of 80 per centum of the cost of such project.

79 Stat. 907.
33 USC 1158.

"(b) Any publicly owned treatment works constructed with or eligible for Federal financial assistance under this Act in a State between June 30, 1956, and June 30, 1966, which was approved by the State water pollution control agency and which the Administrator finds meets the requirements of section 8 of this Act prior to the date of enactment of the Federal Water Pollution Control Act Amendments of 1972 but which was constructed without assistance under such section 8 or which received such assistance in an amount less than 30 per centum of the cost of such project shall qualify for payments and reimbursement of State or local funds used for such project from sums allocated to such State under this section in an amount which shall not exceed the difference between the amount of such assistance, if any, received for such project and 30 per centum of the cost of such project.

"(c) No publicly owned treatment works shall receive any payment or reimbursement under subsection (a) or (b) of this section unless an application for such assistance is filed with the Administrator within the one year period which begins on the date of enactment of the Federal Water Pollution Control Act Amendments of 1972. Any application filed within such one year period may be revised from time to time, as may be necessary.

"(d) The Administrator shall allocate to each qualified project under subsection (a) of this section each fiscal year for which funds are appropriated under subsection (e) of this section an amount which bears the same ratio to the unpaid balance of the reimbursement due such project as the total of such funds for such year bears to the total unpaid balance of reimbursement due all such approved projects on the date of enactment of such appropriation. The Administrator shall allocate to each qualified project under subsection (b) of this section each fiscal year for which funds are appropriated under subsection (e) of this section an amount which bears the same ratio to the unpaid balance of the reimbursement due such project as the total of such funds

for such year bears to the total unpaid balance of reimbursement due all such approved projects on the date of enactment of such appropriation.

Appropriation.

"(e) There is authorized to be appropriated to carry out subsection (a) of this section not to exceed $2,000,000,000 and, to carry out subsection (b) of this section, not to exceed $750,000,000. The authorizations contained in this subsection shall be the sole source of funds for reimbursements authorized by this section.

"(f)(1) In any case where all funds allotted to a State under this title have been obligated under section 203 of this Act, and there is construction of any treatment works project without the aid of Federal funds and in accordance with all procedures and all requirements applicable to treatment works projects, except those procedures and requirements which limit construction of projects to those constructed with the aid of previously allotted Federal funds, the Administrator, upon his approval of an application made under this subsection therefor, is authorized to pay the Federal share of the cost of construction of such project when additional funds are allotted to the State under this title if prior to the construction of the project the Administrator approves plans, specifications, and estimates therefor in the same manner as other treatment works projects. The Administrator may not approve an application under this subsection unless an authorization is in effect for the future fiscal year for which the application requests payment, which authorization will insure such payment without exceeding the State's expected allotment from such authorization.

"(2) In determining the allotment for any fiscal year under this title, any treatment works project constructed in accordance with this section and without the aid of Federal funds shall not be considered completed until an application under the provisions of this subsection with respect to such project has been approved by the Administrator, or the availability of funds from which this project is eligible for reimbursement has expired, whichever first occurs.

"AUTHORIZATION

"SEC. 207. There is authorized to be appropriated to carry out this title, other than sections 208 and 209, for the fiscal year ending June 30, 1973, not to exceed $5,000,000,000, for the fiscal year ending June 30, 1974, not to exceed $6,000,000,000, and for the fiscal year ending June 30, 1975, not to exceed $7,000,000,000.

"AREAWIDE WASTE TREATMENT MANAGEMENT

"SEC. 208. (a) For the purpose of encouraging and facilitating the development and implementation of areawide waste treatment management plans—

Guidelines, publication.

"(1) The Administrator, within ninety days after the date of enactment of this Act and after consultation with appropriate Federal, State, and local authorities, shall by regulation publish guidelines for the identification of those areas which, as a result of urban-industrial concentrations or other factors, have substantial water quality control problems.

Boundaries; planning agencies.

"(2) The Governor of each State, within sixty days after publication of the guidelines issued pursuant to paragraph (1) of this subsection, shall identify each area within the State which, as a result of urban-industrial concentrations or other factors, has substantial water quality control problems. Not later than one hundred and twenty days following such identification and after consultation with appropriate elected and other officials of local

governments having jurisdiction in such areas, the Governor shall designate (A) the boundaries of each such area, and (B) a single representative organization, including elected officials from local governments or their designees, capable of developing effective areawide waste treatment management plans for such area. The Governor may in the same manner at any later time identify any additional area (or modify an existing area) for which he determines areawide waste treatment management to be appropriate, designate the boundaries of such area, and designate an organization capable of developing effective areawide waste treatment management plans for such area.

"(3) With respect to any area which, pursuant to the guidelines published under paragraph (1) of this subsection, is located in two or more States, the Governors of the respective States shall consult and cooperate in carrying out the provisions of paragraph (2), with a view toward designating the boundaries of the interstate area having common water quality control problems and for which areawide waste treatment management plans would be most effective, and toward designating, within one hundred and eighty days after publication of guidelines issued pursuant to paragraph (1) of this subsection, of a single representative organization capable of developing effective areawide waste treatment management plans for such area.

"(4) If a Governor does not act, either by designating or determining not to make a designation under paragraph (2) of this subsection, within the time required by such paragraph, or if, in the case of an interstate area, the Governors of the States involved do not designate a planning organization within the time required by paragraph (3) of this subsection, the chief elected officials of local governments within an area may by agreement designate (A) the boundaries for such an area, and (B) a single representative organization including elected officials from such local governments, or their designees, capable of developing an areawide waste treatment management plan for such area.

"(5) Existing regional agencies may be designated under paragraphs (2), (3), and (4) of this subsection.

"(6) The State shall act as a planning agency for all portions of such State which are not designated under paragraphs (2), (3), or (4) of this subsection.

"(7) Designations under this subsection shall be subject to the approval of the Administrator.

Waste treatment management planning process.

"(b)(1) Not later than one year after the date of designation of any organization under subsection (a) of this section such organization shall have in operation a continuing areawide waste treatment management planning process consistent with section 201 of this Act. Plans prepared in accordance with this process shall contain alternatives for waste treatment management, and be applicable to all wastes generated within the area involved. The initial plan prepared in accordance with such process shall be certified by the Governor and submitted to the Administrator not later than two years after the planning process is in operation.

"(2) Any plan prepared under such process shall include, but not be limited to—

"(A) the identification of treatment works necessary to meet the anticipated municipal and industrial waste treatment needs of the area over a twenty-year period, annually updated (including an analysis of alternative waste treatment systems), including any requirements for the acquisition of land for treatment pur-

poses; the necessary waste water collection and urban storm water runoff systems; and a program to provide the necessary financial arrangements for the development of such treatment works;

"(B) the establishment of construction priorities for such treatment works and time schedules for the initiation and completion of all treatment works;

"(C) the establishment of a regulatory program to—

"(i) implement the waste treatment management requirements of section 201(c),

"(ii) regulate the location, modification, and construction of any facilities within such area which may result in any discharge in such area, and

"(iii) assure that any industrial or commercial wastes discharged into any treatment works in such area meet applicable pretreatment requirements;

"(D) the identification of those agencies necessary to construct, operate, and maintain all facilities required by the plan and otherwise to carry out the plan;

"(E) the identification of the measures necessary to carry out the plan (including financing), the period of time necessary to carry out the plan, the costs of carrying out the plan within such time, and the economic, social, and environmental impact of carrying out the plan within such time;

"(F) a process to (i) identify, if appropriate, agriculturally and silviculturally related nonpoint sources of pollution, including runoff from manure disposal areas, and from land used for livestock and crop production, and (ii) set forth procedures and methods (including land use requirements) to control to the extent feasible such sources;

"(G) a process to (i) identify, if appropriate, mine-related sources of pollution including new, current, and abandoned surface and underground mine runoff, and (ii) set forth procedures and methods (including land use requirements) to control to the extent feasible such sources;

"(H) a process to (i) identify construction activity related sources of pollution, and (ii) set forth procedures and methods (including land use requirements) to control to the extent feasible such sources;

"(I) a process to (i) identify, if appropriate, salt water intrusion into rivers, lakes, and estuaries resulting from reduction of fresh water flow from any cause, including irrigation, obstruction, ground water extraction, and diversion, and (ii) set forth procedures and methods to control such intrusion to the extent feasible where such procedures and methods are otherwise a part of the waste treatment management plan;

"(J) a process to control the disposition of all residual waste generated in such area which could affect water quality; and

"(K) a process to control the disposal of pollutants on land or in subsurface excavations within such area to protect ground and surface water quality.

Annual certification.

"(3) Areawide waste treatment management plans shall be certified annually by the Governor or his designee (or Governors or their designees, where more than one State is involved) as being consistent with applicable basin plans and such areawide waste treatment management plans shall be submitted to the Administrator for his approval.

"(4) Whenever the Governor of any State determines (and notifies the Administrator) that consistency with a statewide regulatory program under section 303 so requires, the requirements of clauses (F)

through (K) of paragraph (2) of this subsection shall be developed and submitted by the Governor to the Administrator for application to all regions within such State.

Regional operating agencies, designation.

"(c)(1) The Governor of each State, in consultation with the planning agency designated under subsection (a) of this section, at the time a plan is submitted to the Administrator, shall designate one or more waste treatment management agencies (which may be an existing or newly created local, regional, or State agency or political subdivision) for each area designated under subsection (a) of this section and submit such designations to the Administrator.

"(2) The Administrator shall accept any such designation, unless, within 120 days of such designation, he finds that the designated management agency (or agencies) does not have adequate authority—

"(A) to carry out appropriate portions of an areawide waste treatment management plan developed under subsection (b) of this section;

"(B) to manage effectively waste treatment works and related facilities serving such area in conformance with any plan required by subsection (b) of this section;

"(C) directly or by contract, to design and construct new works, and to operate and maintain new and existing works as required by any plan developed pursuant to subsection (b) of this section;

"(D) to accept and utilize grants, or other funds from any source, for waste treatment management purposes;

"(E) to raise revenues, including the assessment of waste treatment charges;

"(F) to incur short- and long-term indebtedness;

"(G) to assure in implementation of an areawide waste treatment management plan that each participating community pays its proportionate share of treatment costs;

"(H) to refuse to receive any wastes from any municipality or subdivision thereof, which does not comply with any provisions of an approved plan under this section applicable to such area; and

"(I) to accept for treatment industrial wastes.

"(d) After a waste treatment management agency having the authority required by subsection (c) has been designated under such subsection for an area and a plan for such area has been approved under subsection (b) of this section, the Administrator shall not make any grant for construction of a publicly owned treatment works under section 201(g)(1) within such area except to such designated agency and for works in conformity with such plan.

"(e) No permit under section 402 of this Act shall be issued for any point source which is in conflict with a plan approved pursuant to subsection (b) of this section.

Grants.

"(f)(1) The Administrator shall make grants to any agency designated under subsection (a) of this section for payment of the reasonable costs of developing and operating a continuing areawide waste treatment management planning process under subsection (b) of this section.

"(2) The amount granted to any agency under paragraph (1) of this subsection shall be 100 per centum of the costs of developing and operating a continuing areawide waste treatment management planning process under subsection (b) of this section for each of the fiscal years ending on June 30, 1973, June 30, 1974, and June 30, 1975, and shall not exceed 75 per centum of such costs in each succeeding fiscal year.

"(3) Each applicant for a grant under this subsection shall submit to the Administrator for his approval each proposal for which a grant is applied for under this subsection. The Administrator shall act upon such proposal as soon as practicable after it has been submitted, and his approval of that proposal shall be deemed a contractual obligation of the United States for the payment of its contribution to such proposal. There is authorizd to be appropriated to carry out this subsection not to exceed $50,000,000 for the fiscal year ending June 30, 1973, not to exceed $100,000,000 for the fiscal year ending June 30, 1974, and not to exceed $150,000,000 for the fiscal year ending June 30, 1975.

Appropriation.

Technical assistance.

"(g) The Administrator is authorized, upon request of the Governor or the designated planning agency, and without reimbursement, to consult with, and provide technical assistance to, any agency designated under subsection (a) of this section in the development of areawide waste treatment management plans under subsection (b) of this section.

"(h)(1) The Secretary of the Army, acting through the Chief of Engineers, in cooperation with the Administrator is authorized and directed, upon request of the Governor or the designated planning organization, to consult with, and provide technical assistance to, any agency designed under subsection (a) of this section in developing and operating a continuing areawide waste treatment management planning process under subsection (b) of this section.

Appropriation.

"(2) There is authorized to be appropriated to the Secretary of the Army, to carry out this subsection, not to exceed $50,000,000 per fiscal year for the fiscal years ending June 30, 1973, and June 30, 1974.

"BASIN PLANNING

"SEC. 209 (a) The President, acting through the Water Resources Council, shall, as soon as practicable, prepare a Level B plan under the Water Resources Planning Act for all basins in the United States. All such plans shall be completed not later than January 1, 1980, except that priority in the preparation of such plans shall be given to those basins and portions thereof which are within those areas designated under paragraphs (2), (3), and (4) of subsection (a) of section 208 of this Act.

79 Stat. 244. 42 USC 1962 note.

Annual report to Congress.

"(b) The President, acting through the Water Resources Council, shall report annually to Congress on progress being made in carrying out this section. The first such report shall be submitted not later than January 31, 1973.

Appropriation.

"(c) There is authorized to be appropriated to carry out this section not to exceed $200,000,000.

"ANNUAL SURVEY

"SEC. 210. The Administrator shall annually make a survey to determine the efficiency of the operation and maintenance of treatment works constructed with grants made under this Act, as compared to the efficiency planned at the time the grant was made. The results of such annual survey shall be included in the report required under section 516(a) of this Act.

"SEWAGE COLLECTION SYSTEMS

"SEC. 211. No grant shall be made for a sewage collection system under this title unless such grant (1) is for replacement or major rehabilitation of an existing collection system and is necessary to the total integrity and performance of the waste treatment works servicing such

community, or (2) is for a new collection system in an existing community with sufficient existing or planned capacity adequately to treat such collected sewage and is consistent with section 201 of this Act.

"DEFINITIONS

"SEC. 212. As used in this title—

"(1) The term 'construction' means any one or more of the following: preliminary planning to determine the feasibility of treatment works, engineering, architectural, legal, fiscal, or economic investigations or studies, surveys, designs, plans, working drawings, specifications, procedures, or other necessary actions, erection, building, acquisition, alteration, remodeling, improvement, or extension of treatment works, or the inspection or supervision of any of the foregoing items.

"(2)(A) The term 'treatment works' means any devices and systems used in the storage, treatment, recycling, and reclamation of municipal sewage or industrial wastes of a liquid nature to implement section 201 of this Act, or necessary to recycle or reuse water at the most economical cost over the estimated life of the works, including intercepting sewers, outfall sewers, sewage collection systems, pumping, power, and other equipment, and their appurtenances; extensions, improvements, remodeling, additions, and alterations thereof; elements essential to provide a reliable recycled supply such as standby treatment units and clear well facilities; and any works, including site acquisition of the land that will be an integral part of the treatment process or is used for ultimate disposal of residues resulting from such treatment.

"(B) In addition to the definition contained in subparagraph (A) of this paragraph, 'treatment works' means any other method or system for preventing, abating, reducing, storing, treating, separating, or disposing of municipal waste, including storm water runoff, or industrial waste, including waste in combined storm water and sanitary sewer systems. Any application for construction grants which includes wholly or in part such methods or systems shall, in accordance with guidelines published by the Administrator pursuant to subparagraph (C) of this paragraph, contain adequate data and analysis demonstrating such proposal to be, over the life of such works, the most cost efficient alternative to comply with sections 301 or 302 of this Act, or the requirements of section 201 of this Act.

"(C) For the purposes of subparagraph (B) of this paragraph, the Administrator shall, within one hundred and eighty days after the date of enactment of this title, publish and thereafter revise no less often than annually, guidelines for the evaluation of methods, including cost-effective analysis, described in subparagraph (B) of this paragraph. Methods, evaluation guidelines, publication.

"(3) The term 'replacement' as used in this title means those expenditures for obtaining and installing equipment, accessories, or appurtenances during the useful life of the treatment works necessary to maintain the capacity and performance for which such works are designed and constructed.

"TITLE III—STANDARDS AND ENFORCEMENT

"EFFLUENT LIMITATIONS

"SEC. 301. (a) Except as in compliance with this section and sections 302, 306, 307, 318, 402, and 404 of this Act, the discharge of any pollutant by any person shall be unlawful.

"(b) In order to carry out the objective of this Act there shall be achieved—

APPENDIX B

COVER LETTER, SURVEY AND FOLLOW UP LETTER

MICHIGAN STATE UNIVERSITY

DEPARTMENT OF AGRICULTURAL ECONOMICS
AGRICULTURE HALL

EAST LANSING • MICHIGAN • 48824

February 1, 1978

Dear Sir or Madam:

We would like to ask your assistance in helping us conduct our research on section 208 water quality planning. Filling out the enclosed questionnaire should take a few minutes and will be of invaluable assistance to us.

We are attempting to examine the different ways that alternative 208 planning institutions conduct the 208 planning process. It is hoped that the results of our efforts will shed some light on ways to improve the resource planning process in the future. This survey is an integral part of this project.

You will also find enclosed a prepaid return envelope for returning the questionnaire once you have filled it out. Your responses will be kept confidential. Once again we wish to thank you for your time and consideration.

Yours truly,

Al Hamilton

Al Hamilton
Research Assistant

L. W. Libby

L. W. Libby
Associate Professor

Enclosure

Michigan State University,
Department of Agricultural Economics,
Section 208 Planning Survey

_____

-1-

1. What was the amount of your agencies initial section 208 water quality planning grant. _____>

2. What was the date your agency received its initial section 208 grant _____/_____
mo. yr.

3. Does your agency carry out section 208 planning for:

	yes	no	don't know
a. point sources of pollution	( )	( )	( )
b. non-point sources of pollution	( )	( )	( )

4. Does your agency carry out section 208 planning activities for either:

	yes	no	don't know
a designated area	( )	( )	( )
a nondesignated area	( )	( )	( )

5. Is your agency organized as: (choose one)
   a. A branch of State government ( )
   b. A multicounty or regional organization ( )
   c. A branch of county government ( )
   d. A branch of city government ( )
   e. A multi state organization ( )
   f. Other (please explain below) ( )

6. How many counties are there in the area for which your agency is preparing a section 208 plan _____

7. Please estimate the number of square miles in the area for which you are preparing a section 208 plan _____

8. Does your agency engage in any of the following activities:

	yes	no	don't know
a. Water quality planning not related to section 208	( )	( )	( )
b. Land Use Planning	( )	( )	( )
c. Enforcement of land use regulations	( )	( )	( )
d. Enforcement of water quality standards	( )	( )	( )
e. Issuance of National Pollution Discharge Elimination System permits (NPDES)	( )	( )	( )
f. Area wide A95 review	( )	( )	( )
g. State wide A95 review	( )	( )	( )
h. Enforcement of environmental laws and regulations	( )	( )	( )

9. When preparing your initial section 208 plan what was the maximum size of your section 208 planning staff? _____

10. Is your agency responsible for coordinating 208 planning activities outside the area you are preparing a plan for? yes ( ) no ( ) don't know ( )

11. If you answered yes to Question 10 what is the amount of your coordination budget _____

12. In preparing your section 208 plan how many formal public hearings or meetings have you had or intend to have _____

13. In preparing your section 208 budget how much was allocated for public participation _____

14. What is or was the size of your public participation staff _____

15. In carrying out section 208 planning has your agency prepared its own news releases yes ( ) no ( ) don't know ( )

16. If you answered yes to question 15 how many news releases have been prepared _____

17. Does your agency intend to make special presentations about section 208 planning to any of the following (If you answer yes please estimate the number of such presentations)

	yes	no	don't know	number of presentations
a. State legislators	( )	( )	( )	_____
b. State Governor or Staff	( )	( )	( )	_____
c. County legislators	( )	( )	( )	_____
d. City or township legislators	( )	( )	( )	_____
e. Other public officials (explain)	( )	( )	( )	_____

18. How many people are on your Areawide Policy Advisory Committee _____

Of these how many are:

State legislators	_____
County legislators	_____
City or township legislators	_____
Other	_____

19. Has your agency involved any of the following organizations in its section 208 planning activity.

	yes	no	don't know
a. Cooperative extension service	( )	( )	( )
b. Soil Conservation Service	( )	( )	( )
c. Soil Conservation districts	( )	( )	( )
d. Forest Service	( )	( )	( )
e. Business Organizations	( )	( )	( )
f. Environmental organizations	( )	( )	( )
g. Others (please explain below)	( )	( )	( )

20. If your agency is a branch of state government have you involved any of the following organizations in your section 208 planning activity? (Please leave this question blank if it does not pertain to your agency.)

	yes	no	don't know
a. Regional planning organizations	( )	( )	( )
b. County governments	( )	( )	( )
c. City and town governments	( )	( )	( )

21. What is the population in the area you are preparing a 208 plan for? _____

22. In what year was your agency organized? _____

Thank you for your cooperation.

Return to: Al Hamilton
Dept. of Agricultural Economics
Room 20 Cook Hall
Michigan State University
East Lansing, MI 48824

February 24, 1973

Dear Sir or Madam:

About two weeks ago you should have received a letter and a questionnaire from us dated February 1, 1973. To date our records do not indicate that you have returned your questionnaire.

We realize that you are no doubt quite busy, but we also hope that you will find the time to assist us in our research. Our research is dependent on a high response rate, and your response is important.

If you have already returned your questionnaire, we would like to thank you for your assistance. Thank you for your cooperation.

Yours truly

Al Hamilton
Research Assistant

Lawrence W. Libby
Associate Professor

APPENDIX C

SELECTED CHARACTERISTICS OF SECTION 208 AGENCIES

Appendix C

Selected Characteristics of Section 208 Agencies

The tables in this appendix are designed to give the reader a feel for the diversity of section 208 planning agencies. The tables cover sets of agencies which were not discussed in the text of the thesis. Thus tables for state and regional agencies are not shown in this section.

Several words of caution are required at this point. There are reasons why this information was not used in the text of the thesis. First there are some inaccuracies in the tables. In particular the question on the survey concerning "designated" and "nondesignated" agencies was apparently not interpreted as the author had intended. A footnote on table 12 notes this problem. A second problem exists in tables 13, 14 and 15. In each case the information provided is of some interest but the number of respondents is probably too small for meaningful statistical comparison with other agencies. While useful information is contained in these tables the reader is urged to recognize that the factors that led to the authors decision not to use this information in the text of the thesis.

Table 11. Selected Characteristics of Section 208 Agencies Responding as "Designated"

Characteristic	N	Mean	Standard Error
Number of Counties in Planning Area	111	5.88	1.00
Number of Square Miles in Planning Area	107	4575	778
Population in Planning Area	109	787,012	138,572
Section 208 Budget	112	$988,449	$109,619
Section 208 Staff Per County	109	2.82	.343
Section 208 Public Participation Staff Per County	98	.559	.067
Number of Hearings Per County	102	14.19	3.47
Number of Special Presentations to State Legislators	60	2.10	1.61
Number of Special Presentations to Governor and Staff	64	1.09	.284
Number of Special Presentations to County Legislators	66	7.86	1.22
Number of Special Presentations to City and County Legislators	66	20.81	3.25
Number Classified by Agency Type	N	% of Designated Agencies	% of all 208 Agencies
State	6	5.4	4.3
Region	89	79.5	64.5
County	9	8.0	6.5
City	2	1.8	1.4
Multi-State	2	1.8	1.4
Other	4	3.6	2.9

Table 12. Selected Characteristics of Section 208 Agencies Responding as "Non-Designated"

Characteristic	N	Mean	Standard Error
Number of Counties in Planning Area	27	66.88	10.34
Number of Square Miles in Planning Area	19	50,580	7228
Population in Planning Area	27	2,981,428	705,552
Section 208 Budget	27	$991,513	$143,978
Section 208 Staff Per County	26	.4227	.123
Section 208 Public Participation Staff Per County	25	.0497	.012
Number of Hearings Per County	23	.5660	.133
Number of Special Presentations to State Legislators	9	1.66	.624
Number of Special Presentations to Governor and Staff	11	2.63	.812
Number of Special Presentations to County Legislators	8	15.12	8.17
Number of Special Presentations to City and County Legislators	7	48.85	41.95
Number Classified by Agency Type	N	% of all Non-Designated Agencies	% of all 208 Agencies
State	26	100	18.8
Region *	0	0	0
County	0	0	0
City	0	0	0
Multi-State	0	0	0

* There appears to be some confusion on this question by the respondents. The author is aware of several respondents who should have fallen in this cell.

Table 13. Selected Characteristics of Responding County Section 208 Agencies

Characteristic	N	Mean	Standard Error
Number of Square Miles in Planning Area	9	947	800
Population in Planning Area	8	315,965	491,419
Section 208 Budget	9	$577,398	$379,795
Section 208 Staff Per County	9	5.77	2.77
Section 208 Public Participation Staff Per County	7	1.14	.69
Number of Hearings Per County	8	13.5	12.10
Number of Special Presentations to State Legislators	6	.166	.4082
Number of Special Presentations to Governor and Staff	6	.333	.51
Number of Special Presentations to County Legislators	6	2.33	1.86
Number of Special Presentations to City & Township Legislators	6	9.16	12.35

	Yes (% now, % total)	No (% now, % total)
Perform Non 208 Water Quality Planning	6 (66.7, 4.5)	3 (33.3, 2.2)
Perform Land Use Planning	7 (77.8, 5.1)	2 (22.2, 1.5)
Enforce Land Use Laws	4 (44.4, 3.1)	5 (55.6, 3.9)
Enforce Water Quality Standards	3 (33.3, 2.4)	6 (66.7, 4.8)
Reviews NPDES Permits	0 (0, 0)	9 (100, 7.0)
Areawide A95 Clearinghouse	4 (44.4, 3.1)	5 (55.6, 3.9)
Statewide A95 Clearinghouse	0 (0, 0)	9 (100, 7.0)
Enforce Environmental Laws	4 (44.4, 3.1)	5 (55.6, 3.9)

Table 14. Selected Characteristics of Responding City Section 208 Agencies

Characteristic	N	Mean	Standard Error
Number of Counties in Planning Area	1	3	0
Number of Square Miles in Planning Area	2	360	84
Population in Planning Area	2	4,399,359	141,421
Section 208 Budget	2	$4,765,766	$4,731,628
Section 208 Staff Per County	1	2.33	0
Section 208 Public Participation Staff Per County	1	.33	0
Number of Hearings Per County	1	2.0	0
Number of Special Presentations to State Legislators	0	--	--
Number of Special Presentations to Governor and Staff	2	1	0
Number of Special Presentations to County Legislators	1	3	0
Number of Special Presentations to City & Township Legislators	2	26.5	33.2

	Yes (% now, % total)	No (% now, % total)
Perform Non 208 Water Quality Planning	1 (50 , .7)	1 (50 , .7)
Perform Land Use Planning	2 (100, 1.5)	0 (0 , 0)
Enforce Land Use Laws	2 (100, 1.5)	0 (0 , 0)
Enforce Water Quality Standards	0 (0, 0)	1 (100 , .8)
Review NPDES Permits	0 (0, 0)	2 (100 ,1.6)
Areawide A95 Clearinghouse	1 (50 , .7)	1 (50 , .7)
Statewide A95 Clearinghouse	0 (0 , 0)	2 (100 ,1.6)
Enforce Environmental Laws	0 (0 , 0)	2 (100 ,1.6)

Table 15. Selected Characteristics of Responding Multi-State Section 208 Agencies

Characteristic	N	Mean	Standard Deviation
Number of Counties in Planning Area	2	8.5	.5
Number of Square Miles in Planning Area	2	3253	772
Population in Planning Area	2	1,500,000	141,412
Section 208 Budget	2	$1,688,250	$402,697
Section 208 Staff Per County	2	1.40	1.19
Section 208 Public Participation Staff Per County	2	.23	.02
Number of Hearings Per County	2	.45	.30
Number of Special Presentations to State Legislators	0	0	0
Number of Special Presentations to Governor and Staff	2	.5	.707
Number of Special Presentations to County Legislators	1	8	0
Number of Special Presentations to City and Township Legislators	1	6	0

	Yes (% now, % total)	No (%now, % total)
Perform Non 208 Water Quality Planning	0 (0 , 0)	2 (100, 1.5)
Perform Land Use Planning	2 (100, 1.5)	0 (0, 0)
Enforce Land Use Laws	0 (0, 0)	2 (100, 1.5)
Enforce Water Quality Standards	0 (0, 0)	2 (100, 1.6)
Review NPDES Permits	0 (0, 0)	2 (100, 1.6)
Areawide A95 Clearinghouse	2 (100, 1.5)	0 (0, 0)
Statewide A95 Clearinghouse	0 (0, 0)	2 (100, 1.6)
Enforce Environmental Laws	0 (0, 0)	2 (100, 1.6)