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**Institutional Design For Improved  
Environmental Quality:  
Legal and Economic Aspects In Wisconsin**

Daniel W. Bromley • Melville McMillan • Marc Robertson • Alan Schroeder

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University of Wisconsin Sea Grant College Program

INSTITUTIONAL DESIGN FOR IMPROVED  
ENVIRONMENTAL QUALITY:  
LEGAL AND ECONOMIC ASPECTS IN WISCONSIN

by

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## EXECUTIVE SUMMARY

The fact that pollutants do not respect political boundaries creates problems of institutional design that challenge conventional wisdom in several respects. Fiscal problems arise since those who benefit from less pollution are often not those who must bear the cost of its reduction. This gives rise to political problems since traditional decision making is often ill suited to the articulation of spatially (and fiscally) disparate desires. Recognition of this has shown up in the great attention given recently to regional environmental quality authorities (REQAs).

This report is concerned with the nature of an REQA that might effectively deal with environmental (primarily water) quality problems in the Fox River Basin of northeastern Wisconsin. The Lower Fox River is only 39 miles long, and yet passes through a region in which one-half of the workers in Wisconsin in the paper and allied products industry are employed. Additionally, the many communities along this short stretch of the river contain (according to the 1975 census) approximately 250,000 people. To say that the river faces serious pressure from economic activity is to understate the problem in the Lower Fox.

While economists, lawyers and political scientists have written on the usefulness of regional authorities for environmental quality management, we have integrated the several disciplinary points of view here to attempt a more thorough assessment of the problems and the prospects. There is careful attention given to the concepts of public choice theory with respect to voting rules and jurisdictions. We discuss pluralism and models of representation. But perhaps the most careful scrutiny is reserved for the possible legal constraints and opportunities for the establishment of an REQA. Several chapters are devoted to a thorough analysis of federal statutes and the Wisconsin Constitution with respect to the possible establishment of an REQA in the Lower Fox Basin. We suggest possible jurisdictional boundaries, possible criteria for electing commissioners for the REQA and general issues pertaining to the policy setting and administration of such an authority. Throughout, the tone is one of suggesting avenues for implementing an REQA with a maximum of citizen input at the local level. More importantly, the emphasis is on ways to minimize the possible conflicts that might arise when inter-jurisdictional action is undertaken to deal with environmental quality matters.

## CHAPTER 1

### AN INTRODUCTION TO THE PROBLEM AND THE APPROACH

Almost 100 years have passed since the 1899 Refuse Act and some would say that our water pollution control efforts have had little effect. This is, of course, not true. But, it is safe to say that we have made less progress than we might have. The economics literature has, for some time, taken a rather simplistic approach to environmental quality problems by advocating an effluent tax. Yet, such recommendations are always advanced without consulting various state and federal constitutions and statutes to determine their feasibility. That is, economists tend to advocate one solution, legal researchers another and political scientists yet another. The research reported herein is rather unique in that the subject of institutional design for environmental quality management is approached from both an economic and a detailed legal perspective.

In the following 11 chapters of this report, there are three major components. Chapters 2 through 5 present the theoretical basis for and examples of alternative approaches to operationalizing the public sector's interest in environmental quality questions. Chapters 6 through 8 temper these theoretical ideals with the existing constitutional and legislative constraints on public intervention while highlighting those existing mechanisms which may facilitate such intervention. Chapters 9 through 12 explore the application of the political process to environmental quality improvement efforts in a specific Wisconsin region.

#### The Institutionalization of Collective Decision Making

Economics is being broadly defined in this report to include the mechanisms by which certain human rights are obtained and retained by individuals, the criteria governing the transfer of these rights to collective bodies and the mechanisms by which these bodies allocate rights. While one might have at one time spoken specifically of property as being central to economic study, it will be seen, particularly with respect to environmental matters, that the broader category of rights is more appropriate.

This distribution of rights in U.S. society is not static, but rather seems to reflect an evolving egalitarian sentiment. While there are of course exceptions, many of the laws now being written or rewritten have as their purpose the elimination of special privilege. Such laws often operate by subjecting what had been individually exercisable rights to public control. Of primary interest among these rights is the use of air and water for effluent disposal, rights which had not been systematically regulated or claimed where they had not yet become scarce. There has been increasing sentiment that there should be a recall from strictly private allocation processes those resources which have until now been public in law but often not in use.

A primary motivation for this increased public sensitivity to private resource use is the growing impact of external effects. The increased crowding and goods production which have accompanied this nation's growth have increased the incidence of private decisions having an impact on third parties, with the impact most often perceived as undesirable. These third parties may be individuals, municipalities or businesses which see themselves as losing rights to which they feel entitled through the actions of others. A defense against this loss has increas-

ingly been found in appeals for public action. Such public action, while hopefully utilizing the same general concept of economic efficiency which would operate in a purely private decision-making process, is able to take a broader view of the benefits and costs of resource allocation alternatives.

Chapter 2 moves beyond the justification for public intervention in some environmental issues to a discussion of the allocation of authority among different levels of government. The spatial dimension of a problem is seen as the prime determinant of appropriate jurisdictional size. How public power is exercised within a given political jurisdiction is the subject of a number of theories having both a prescriptive and empirical content; pluralism, in broadest terms, suggests that political decisions are the product of negotiation among competing interest groups within a society. But critics suggest that a pluralist society, without a clearly defined governmental power, will not possess the stability and purpose necessary to achieve goals even if pluralism was found to be an adequate means of specifying them. Democratic government, where individual choice is expressed through voting rather than through membership in various interest groups, is seen as an alternative; while interest groups would certainly not disappear, their influence would be constrained by a clearly defined political process.

Decision making by a system of representative government is not as straightforward as it might first appear, however. Voters are likely to view different decisions with differing degrees of interest and, if permitted, be willing to give up power in some areas in exchange for greater power in others. This incentive for the trading of votes is considered undesirable by some analysts, who respond to the problem by suggesting that a governing jurisdiction should be designed so as to encompass voters having a relatively equal stake in a concisely identifiable issue. An argument is thus developed for environmental quality decision-making bodies which are representative in nature and each of which is designed to govern an identifiable problemshed.

The formalization of political processes into more desirable institutions is the topic of Chapter 3. An institution is seen to be more than merely an organization. It is a method of approaching problems and dealing with issues, sometimes in a manner requiring the intervention of a collective body, other times operating through informal but often socially powerful convention.

A significant function of institutions is the definition and allocation of rights among society's members and between society collectively and its members individually. The changing distribution of environmental rights discussed earlier is reflected in changing institutions. Among the most visible of these changes has been the passage of recent federal legislation in the areas of water and air quality.\* While these legislative actions were only the latest in a series of federal acts, they did signal a significant strengthening of the collective voice.

But legislation at the national level can (or should) be primarily responsive to national interests. Dealing with problems requiring a sensitivity to the local environment or local opinions requires an institutional structure of a different magnitude. A response to this has been organizations designed to encompass a resource of particular interest rather than preexisting political jurisdictions.

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\*The National Environmental Policy Act of 1969, the Clean Air Act of 1970, and the Federal Water Pollution Control Act Amendments of 1972.



However, these organizations have generally been composed of elements of these existing jurisdictions, thus handicapping the development of an independent viewpoint and approach with respect to environmental matters.

For an agency to succeed in developing a consensus regarding how environmental quality might be improved within a jurisdiction, it is suggested that there must exist a public which takes an active interest in the issue. The development of such a constituency may, however, require some effort if the rights being addressed are not those which potential voters within the jurisdiction are used to identifying as theirs. But a careful balance must be drawn between educating a currently ill-informed public and creating an organization for a public which is not in response to or responsive to a real demand.

Any organization created should be responsive directly to the demands which prompted its creation. If a goal is improved water quality, then the organizational structure and governance mechanisms should reflect the output desired rather than becoming enmeshed in details which might better be left to the discretion of regulated parties. An exception would be if ownership of treatment facilities by a regional body was thought appropriate.

A basic dilemma which must be dealt with when advocating a mechanism for public action is whether the policy-making body which results is going to take its direction from the balancing of interest group demands or from a representative governmental body. Will decisions be made by an agency after taking testimony in hearings largely dominated by already organized groups, or will individual voters be in a position to vote for representatives if not to vote on individual issues? The thrust of this chapter is that a representative structure possesses significant advantages.

Experience with multijurisdictional coordination in environmental quality matters is bound to provide important lessons for future efforts in this area. In Chapter 4, several organizations presently in existence are discussed. These fall into four general types: (1) municipal provision of services to outlying areas through contract; (2) special districts; (3) councils of governments; and (4) statewide environmental service authorities. These are addressed in what is considered to be ascending order of departure from what has been the norm in public service provision.

Local governments contract with an adjoining jurisdiction for the provision of such things as water supply or wastewater treatment services in order to take advantage of the economies of scale and financing or more favorable location in relation to water sources available to the other municipality. But tempering these economic factors are the political realities of dealing with and perhaps becoming dependent on another government. These several factors often combine in an unpredictable manner to produce a pattern of service expansion having great significance for the rate and direction of growth in an urbanizing area.

Special districts are often used by cooperating municipalities to provide services to an area lacking a dominant municipality willing or able to take the lead in service provision. These districts have the advantage, from the view of the local governments participating, of being less threatening to political autonomy than dependence on another general-purpose government while often having available a wider variety of financing options. However, this removal of service provision from local government can have the disadvantage of largely removing the

decision making process from public view. Experience indicates that citizens are generally less informed regarding the actions of special districts than they are of their local general-purpose governments, thus making adequate control through representation less likely. Additionally, the single purpose nature of many special districts makes them less sensitive to the broader impacts which their actions may have on surrounding areas; as noted earlier, service expansion is often an important determinant of the direction and magnitude of urban growth.

Councils of governments also arise through the cooperative efforts of local governments, but are less oriented toward the provision of specific services and more toward multijurisdictional planning. Where municipalities of widely differing populations are represented, disagreement over relative voting power can be expected. Additionally, participants are generally not bound by council decisions. Thus, while useful as forums for discussion, these councils cannot be expected to often make the difficult trade-offs necessary to the development and implementation of strengthened environmental quality standards. Local government representatives are generally expected to protect the interests of their constituencies rather than be guided by a regional perspective. State government, however, has the authority to act where local governments may be unwilling. The reality of this power may be sufficient in some cases to persuade local governments to sacrifice some individual independence in the interest of preserving some degree of local decision making.

In the absence of effective local cooperation, state government may act to provide services much as would a special district. In this case, however, the state may choose to require the participation of municipalities within its jurisdiction. The state is likely to have important advantages in producing a technically efficient management scheme in that service areas can be laid out with somewhat less regard to local sentiment than would be true with an entirely voluntary effort on the part of local governments. And the state is likely to have significantly greater financial leverage than local governments.

It now seems possible to draw together the various comments on and experiences with institutions designed to improve environmental quality and develop a set of criteria which will prove helpful to future efforts. These are summarized in Chapter 5. First, a Regional Environmental Quality Authority (REQA) should be representative and should govern voters having an approximately equal stake in the resolution of problems it addresses. Representatives should ideally be elected directly to the authority rather than being also holders of other offices. Second, the authority should have comprehensive policy making, enforcement, construction and financing power and have the guarantee of long-term viability, which will be necessary if those governed are to recognize its authority. Third, it must have a well-defined relationship to other organizations with which it must interact so as to avoid unnecessary conflict while at the same time being able to assert its authority. Fourth, the authority should only come about in response to expressed demands within its proposed jurisdiction.

#### Constitutional and Legislative Influence on Environmental Quality Institutions

As noted in Chapter 6, state and local efforts to improve environmental quality are strongly influenced by federal legislation. Of particular significance is the financial assistance which has been available to state governments for planning and for the construction of local treatment facilities. Together with standards defining the characteristics of acceptable surface water and treatment plant effluent quality, these aids have helped to shape water quality improvement efforts in recent years.

Of particular significance to the consideration of institutional change is the stress placed in federal law on the regional rationalization of water quality planning and treatment plant construction. Grants are available under Section 208 of Public Law 92-500 to promote the development of area-wide planning bodies in areas having substantial water quality problems, with future treatment plant funding restricted to projects in conformance with the regional body's plan. While area-wide planning is not mandatory, the financial assistance available combined with the possibility of greater federal intervention if localities are not successful makes their creation in areas of need highly likely.

Similar financial incentives, together with technical assistance, are available for area-wide air quality improvement efforts. In the case of air quality, the delineation of management regions is undertaken at the federal level by the Environmental Protection Agency. States, however, retain the actual management plan development role.

Federal participation in solid waste management planning has been restricted to financial aid to other units of government for planning work or the implementation of innovative programs. However, legislation has recently been considered which would express a national interest in the disposal of hazardous substances and increased incentives for recycling.

Other pertinent federal environmental quality legislation includes the National Environmental Policy Act of 1969, which required that federal agencies and federally funded activities explicitly consider the impacts of their actions on the environment through the preparation of environmental impact statements. The Coastal Zone Management Act of 1972 provided for the development of federal guidelines expressing the national interest in the nation's coastline. States developing management programs conforming to these guidelines are eligible for federal funding to cover a large part of the costs of implementing the program.

There are also constitutional considerations influencing the choice of environmental quality improvement strategies available to the public sector. Two issues in particular have been chosen for discussion here.

First, effluent charges have often been advanced as a desirable management tool because they would allow authorities considerable latitude in attempting to influence private sector production and waste treatment decisions. But concern has been expressed that effluent fees, because they influence the cost of exercising what some have come to consider their water rights, might be an unconstitutional taking of property without compensation. The conclusion is reached here that a system which does not discriminate arbitrarily among dischargers but which charges on the basis of harm done to society by the effluent will not be an unconstitutional taking.

The second issue addressed is the degree to which the federal constitution will constrain the choice of voting schemes available for the selection of representatives to a regional environmental quality authority; it will be recalled that emphasis has been placed previously on the desirability of limiting voting to those with a significant stake in the issues at hand and possibly weighting these votes according to the magnitude of the stake. The conclusion reached in this chapter is that while careful boundary delineation to include voters affected by a government's actions is encouraged by constitutional law, discrimination among voters within a jurisdiction would be prohibited if the powers being exercised are general

in nature. Thus, an REQA could be expected to be subject to a strictly interpreted one person-one vote rule.

The actions of a Regional Environmental Quality Authority in Wisconsin will be built upon, if not wholly constrained by, the powers and past activities of other agencies and levels of government. Since a Regional Environmental Quality Authority in Wisconsin is likely to be water quality oriented, Chapter 7 outlines, in general, existing substate water quality programs. Considered are the service provision and regulatory powers of cities, villages, towns and counties, the extraterritorial powers of municipalities, intergovernmental agreements and special districts. The financing tools available to each form are discussed along with the relationship of each to other levels of government and to the public it serves.

In Chapter 8, the impact of the Wisconsin State Constitution on the formation and operation of a REQA is discussed. The first point considered is the public purpose doctrine, which holds that public funds may be expended only for activities directly related to the public's welfare and for which individuals have difficulty providing. Wisconsin Supreme Court decisions have consistently found pollution control to be a public purpose, thus making it unlikely that this doctrine would be an obstacle to REQA formation or operation.

Article VIII, Section 10 of the Wisconsin Constitution, the "internal improvements clause," provides that: "The state shall never contract any debt for works of internal improvement or be a party in carrying on such works." While potentially significant to any construction or financial aid programs undertaken by a REQA, several factors make it appear that the clause would not apply. First, since pollution control can be said to be essential to the health and welfare of the public, construction of facilities could be said to be for a governmental purpose, a category of expenditure which the courts have specifically excluded from the internal improvements restriction. Further, it has been found that only the state is constrained by this provision; local governments and bodies possessing significant independence from the state government -- of which an REQA would certainly be an example -- have been exempted.

"Home rule" is a concept by which local governments are given considerable independence from the state legislature in satisfying the needs of their citizens. Any potential limitation which this might have on the actions of a REQA appear to be minimal, however, since home rule powers have been specifically restricted to matters of local concern. Water quality, which has been closely linked to public health by the courts, is considered to be a matter of state-wide concern. Similar determination has been made in the cases supporting the right of the state to legislate in the area of solid waste disposal, and it seems certain that air quality would be treated in a similar matter. The only effect which the home rule principle is likely to have on REQA enabling legislation is to reinforce the need to draft it so as to treat all areas of the state equally.

The origin of the "trust doctrine" is somewhat uncertain, but for present purposes it will suffice to recite it as incorporated into the Wisconsin Constitution:

"...[T]he navigable water leading into the Mississippi and St. Lawrence, and the carrying places between the same, shall be common highways and forever free...without any tax, impost or duty therefore" [Article IX, Section 1].

This has been interpreted as a clear limitation not only upon the actions of the state government with respect to public waterways, but upon the ability of the state to delegate such authority to other levels of government. However, the imposition of regulations and the delegation of such authority have been found permissible if in the public interest, if any delegations are clear and explicit and if guidelines accompany the delegation which adequately protect the public interest. Thus, as long as REQAs are granted specific powers rather than complete authority over public waters, the trust doctrine does not appear to be a limiting factor.

With respect to any effluent charge system which might be considered by an REQA, it is concluded that such charges, if considered a fee for the licensing of a socially undesirable activity, would not face a constitutional problem in Wisconsin. Only if treated as a tax, with revenue as its primary objective, might a nonuniform system of charges face challenges.

The conclusion of this chapter is that the Wisconsin Constitution is not likely to greatly inhibit the form which a REQA might take or the management methods which it might choose. But the final responsibility of the state as the trustee for public waters must be remembered.

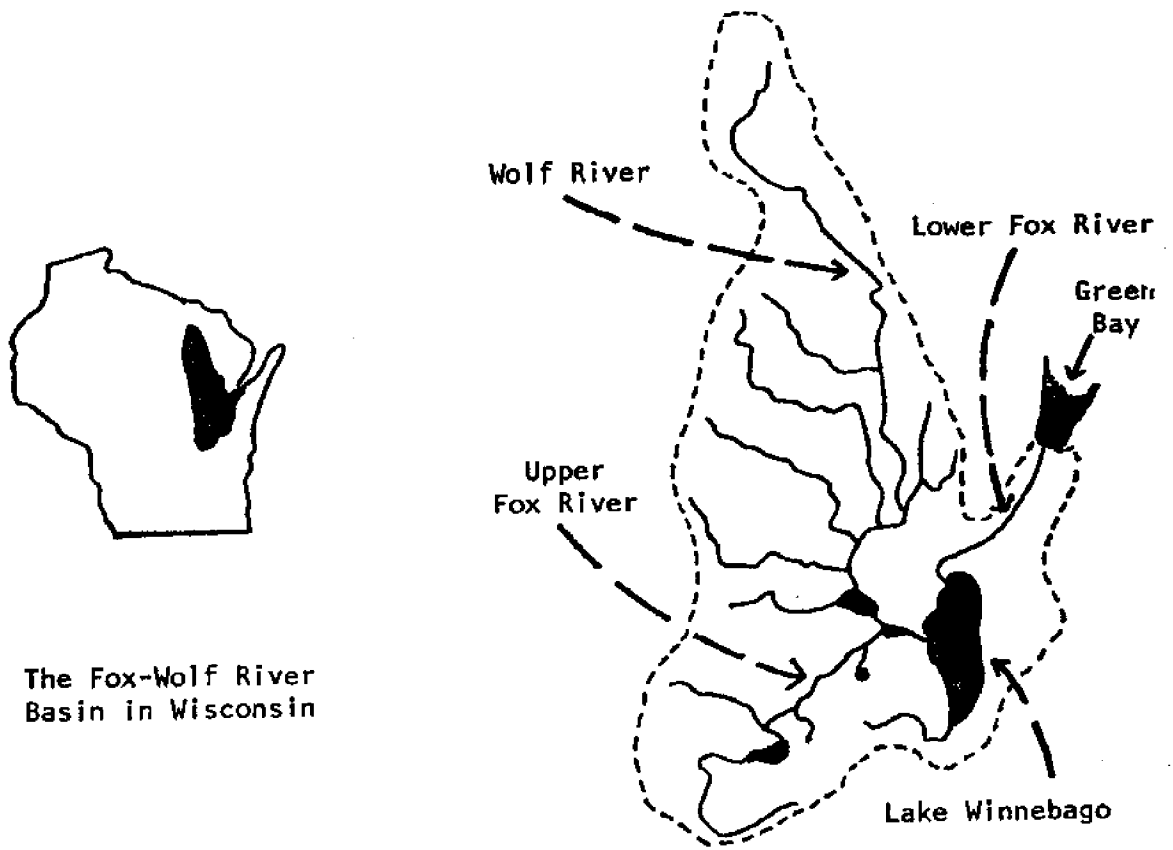
#### The Need for Institutional Change: An Existing Case

Having laid down an economic and legal basis for the development of a regional environmental quality authority, it is now appropriate to consider the characteristics of an existing economically, politically and environmentally complex river basin and discuss how it has evolved and how a new institutional approach might operate. The area chosen is the Lower Fox River Basin in Wisconsin. Chapters nine through 11 deal with the characteristics of this river basin.

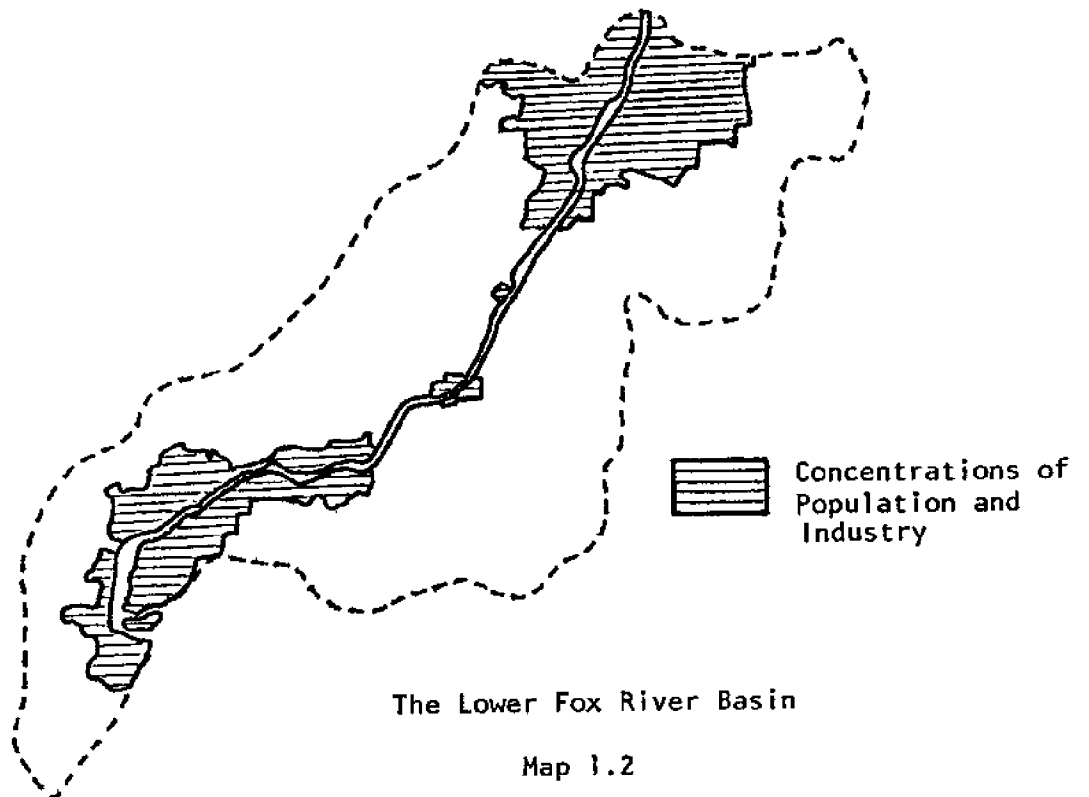
The Fox River drains a large proportion of central and northern Wisconsin and makes up about 40 percent of the drainage area contributing to Green Bay, its outlet. Among its important physical characteristics is the presence of a single major tributary, the Wolf, which in fact drains a larger area than the Fox River proper.

Lakes also play an important role in the river's hydrologic characteristics. The Wolf and Fox do not merge at a single point, but rather separately feed a lake with only a single outlet--named the Fox--emerging at the city of Oshkosh. This short section of river runs through the city and then immediately empties into another lake, Winnebago. This second lake separates the upper reaches of the Fox from the Lower Fox, the short (39 miles) but heavily populated and industrialized river which is the subject of this study.

The drainage basin of the Lower Fox comprises only about seven percent of the 6,520 square mile Fox River Basin. But while the Lower Fox Basin is not large in area, it is the location of 10 municipalities having a 1975 population of 232,398 [Wisconsin Department of Administration, 1975]. Additionally, it is the site of many industries, particularly paper mills. Approximately half of the workers in Wisconsin who are employed in the "paper and allied products" industry work in the counties through which the Lower Fox passes. Hydroelectric power is also produced, taking advantage of the 4.3 feet per mile drop in elevation which occurs on this last portion of the river. The result is that while the headwaters of the river are of primary importance in contributing to the Fox River quantitatively, it is



Map 1.1



man's activities on these last few miles which largely determine its qualitative character as it discharges into Green Bay. The result is summarized by a comment in a 1975 report by the Great Lakes Basin Commission which, in describing the water quality of Fox River in 1970, found it to be "...grossly impaired between Lake Winnebago and Green Bay" [Appendix 2], Annex F, p. 199].

Influences tending to degrade water quality along the river itself can be divided into industrial input, municipal input and general surface runoff. Available records indicate the existence of 16 major industrial sources of effluent to the Lower Fox or its tributaries, most of them pulp and paper mills. Municipal treatment plants discharged an average of approximately 65 million gallons per day of effluent into the Lower Fox during 1973. Included in this figure are over five million gallons per day which bypassed secondary treatment facilities. However, a considerable amount of effort has gone into reducing this effluent load since the 1973 data was obtained, including the construction of a new treatment plant for the Green Bay metropolitan area.

Surface runoff is the third major influence on the water quality of the Lower Fox. U.S. Geological Survey data [Hindall, 1972] classify the Lower Fox as falling within the zone of 30 to 100 tons of sediment yield per square mile of drainage basin per year. In addition to contributing to sediment deposition in Green Bay, runoff introduces a significant proportion of the nutrient load to the bay. It has also been estimated that, of the phosphorus entering the Lower Fox, about one-third originates from rural and urban runoff [Sridharan and Lee, 1972].

Solid waste disposal in the Lower Fox basin is presently handled primarily by individual communities on a fragmented basis. However, Brown, Outagamie and Winnebago Counties have recently been developing county-wide solid waste disposal plans. There are at present 26 Wisconsin Department of Natural Resources licensed landfill sites within the basin. Residents and industries within the Lower Fox basin are estimated to generate something over 900 tons per day of solid waste [Wisconsin Solid Waste Recycling Authority, 1974].

The concentration of industry and population along the Lower Fox has the expected degrading effect on local air quality. While air quality standards are for the most part being met, Brown, Outagamie and Winnebago Counties have been designated as an Air Quality Maintenance area by the Wisconsin DNR, indicating that future problems with particulate matter concentrations are possible. An additional factor to be considered with respect to air quality is the prevailing southwesterly wind. Emissions generated in the upstream portions of the basin are thus likely to be swept along its length.

Between now and 1990, population levels in the two SMSAs through which the Lower Fox flows are expected to increase at a rate of about 0.9 percent per year compared to a state-wide rate of about 0.6 percent [Wisconsin Department of Administration, Wisconsin Population Projections, 1975]. Earnings in the manufacturing sector are expected to go up by 49 percent state-wide during this period, with a corresponding figure of 60 percent for the Green Bay-Appleton-Oshkosh area [U.S. Department of Commerce, Area Economic Projections, 1990]. It is thus reasonable to expect that in the absence of effective action, existing environmental quality problems in the area of the Lower Fox will continue to grow.

A comprehensive effort to improve effluent quality in the downstream portion of the Lower Fox began in 1931 with formation of the Green Bay Metropolitan Sewerage Commission. Efforts to coordinate the municipal service planning and construction programs of local governments within the politically more complex upstream portion of the valley had their beginning during World War II. As discussed by John E. Stoner in his report on the Lower Fox Valley Area, the Neenah-Menasha Chamber of Commerce "provided the institutional setting for the first steps toward planning" [1969, p.7].

These activities progressed from a privately financed planning committee to the Fox Valley Planning Commission, which first met in 1956. This was financed by member municipalities, each of which appointed three representatives to the commission. One of the major acts of the commission was to contract in 1960 with Kenneth L. Schellie and Associates for a three year study of the Lower Fox Basin and its prospects for the future.

In 1967, the commission was reconstituted as a Council of Governments. This was largely as a result of the federal government's emphasis on the participation of elected officials in those regional bodies authorized to review federal grant applications from local governments, a subject to be discussed in greater detail later. The council was responsible for reports on regional wastewater treatment, solid waste disposal and water supply. The Northeastern Wisconsin Regional Planning Commission was also active during approximately the same period of time as the Fox Valley Council of Governments, and was responsible for developing water and sewer planning reports for Winnebago and Outagamie Counties.

Multicounty planning activities in the Lower Fox are currently carried out by two bodies. The East Central Wisconsin Regional Planning Commission was organized in 1972 and includes in its jurisdiction those areas which were under the now defunct Fox Valley Council of Governments and Northeastern Wisconsin Regional Planning Commission. This latest commission operates with a minimum of three representatives from each county. The Bay-Lake Regional Planning Commission operates to the northeast of the East Central Commission and includes the remaining Lower Fox County -- Brown County -- in its area.

In addition to the regional commissions, each of the four counties along the Lower Fox has a county planning department. Special purpose agencies include the Green Bay Metropolitan Sewage District, the Neenah-Menasha Sewerage Commission, the Butte des Morts Utility District and three town sanitary districts. Of greatest importance to this study is the recent creation of the Fox Valley Water Quality Planning Agency. Prompted to some extent by section 208 of the 1972 amendments to the Federal Water Pollution Control Act, this organization is charged with area-wide water quality planning for the Lake Winnebago-Lower Fox River Area.

Chapter 12, the final chapter, builds on those preceding to indicate how a specific Wisconsin region such as the Lower Fox Valley might go about instituting a regional environmental quality authority. Of considerable significance to this process is the federal government's interest, alluded to earlier, in facilitating regional planning programs. In general, federal funding is available for area-wide agencies capable of planning and carrying out a meaningful water quality improvement program, with all that is entailed in such an effort: planning, construction standards and priorities, the operation of facilities where found desirable and effective financing. With these federal criteria in mind, as well as the political, legal and social considerations brought out in previous chapters, it is



now possible to outline the basic elements of state enabling legislation for regional environmental quality agencies. This model legislation, divided into seven major parts, should be considered a guide to what would be the desirable characteristics of such legislation rather than an already complete package. And the outline presented here is an abbreviated version of that contained in Chapter 12.

An important first section in such legislation is the statement of intent. This clarifies the purpose of the legislature in passing it and to some extent places it in context with the constitutional limitations on state power. Section two systematically defines the terms to be used in the legislation, again to ease future interpretation of the legislature's intent.

Section 3 of the suggested enabling legislation provides that the governor, at his discretion, may create a Regional Environmental Quality Authority if other provisions of the act are met. The governor is to be advised by a Governor's Board on Regional Authorities, which may be given further power to oversee the operation of regional authorities. It is suggested that this board be appointed by the governor, with the advice and consent of the senate to serve staggered five year terms.

A particular authority is to be created only in response to a detailed petition by citizens or local governments in a region. It is the board's duty to investigate the adequacy of each proposed authority with respect to necessity, mission, powers and financing, and oversee public hearings concerning these and any other pertinent factors. Petitioners may, depending on how the legislation is written, be required to post a bond adequate to cover the cost of the hearing and review process, which the board may require be forfeited if the petition is unsuccessful and if it is determined that the petition effort was not undertaken in good faith. Following a successful petition effort and approval of the proposed authority by the board and the governor, it is to be submitted to voters within its proposed jurisdiction for final approval.

Section 4 outlines the powers available to REQA's. Among the most significant are: (1) freedom to finance itself through the acceptance of loans and grants and the assessment of charges to municipalities lying within its jurisdiction; (2) review power over local government grant applications having an impact on its mission; (3) make rules and enforce them in the courts; and (4) plan for attainment of authority goals, require local government conformance with plans and set priorities for goal attainment. These powers may be exercised in support of water quality, air quality or solid waste disposal missions, depending on the nature of the authority created.

Desirable characteristics for an authority's geographic boundaries may be found in Section 5. The most important is that it be adequate to largely encompass and successfully deal with an environmental problem. It should be coterminous with existing voting districts while at the same time include only those areas to benefit from its actions and not exclude areas likely to prove significant to the problem's solution. It should be assured that authorities will be financially solvent and that the creation of a particular authority will not unduly restrict the formation of other future authorities in adjacent areas.

Section 6 provides for the at-large election of commissions, with their number and length of service to be specified by the petitioners.

Finally, Section 7 details the financing tools available to authorities. Its powers are envisioned to be quite strong so as to ensure that it will be able to mount a meaningful attack on the problems which it was created to address. Specific activities with identifiable and discrete beneficiaries may be financed through special assessments, user charges, license fees or general revenue or special assessment bonds. General authority operating expenses are to be apportioned among municipalities within the jurisdiction of the authority on the basis of equalized property valuation. License fees may also be used as both a regulatory and financing tool. Charges and fees and the rules governing their application may be appealed to the Public Service Commission.

Application of this enabling legislation to the Lower Fox Valley points up the complex issues which must be faced during an attempt to provide area-wide solutions to environmental quality problems. The first question involves the ever-present upstream-downstream conflict. How far upstream should an authority on the Lower Fox Valley govern? The principle of "far enough to include significant influences on water quality but not so far as to become unmanageable" points to the outlet of Lake Winnebago as being a logical boundary. In the other spatial dimension, one must consider how far inland an authority should attempt to actively govern.

In an area composed of geographically small but heavily populated and industrialized cities and large areas of less densely populated countryside, political representation becomes a difficult question. The principle of one person-one vote would leave large rural areas with little representation, perhaps too little to entice them to participate voluntarily. A compromise solution might be to divide the Lower Fox Basin into three districts: (1) urban-upstream; (2) urban-downstream; and (3) rural-midstream, with representatives elected on both an at-large and district basis. Actual boundary delineation would likely become a complex task, however, and might not be adequately responsive to shifts in population within the basin. These and other difficulties are arguments for a completely at-large group of commissioners.

The problems and possible approaches clearly exceed the answers at this point, but it is suggested that the Regional Environmental Quality Authority is a potentially valuable mechanism for their solution. It is hoped that the discussions contained here will facilitate discussion of and progress toward area-wide approaches to environmental quality problems.

## CHAPTER 2

### ECONOMICS, COLLECTIVE CHOICE AND ENVIRONMENTAL QUALITY

#### I. INTRODUCTION

"What God giveth, DNR taketh away"

... a bumper sticker in Wisconsin

This humorous parody is symbolic of the degree of frustration among citizens with regard to Wisconsin's principal natural resource management agency. It also provides a convenient starting point for a discussion concerning the issues central to the economist's concepts of environmental quality; indeed, it focuses on the single most important issue--that of individual rights and the role of the public sector in a decentralized, market-oriented economy. For that is the central issue in the economics of environmental quality; not the costs of clean air and water; not the supposed tradeoffs between jobs and pure air and water; not whether we have stream standards or effluent standards. The issue is the nature and extent of presumed property rights on the part of individuals and groups of individuals.

#### Toward an Evolutionary View of Rights

Students of political economy are conscious of the fact that the concept of property in any given society is not static, but is something which evolves. One of our basic rights--suffrage--was once held by only the landed gentry, thence by freemen, thence by women, more recently by all persons over 18 years of age. The advent of parking meters on city streets signalled the end of one form of right formerly enjoyed by all, as have leash laws for dogs and helmet laws for motorcyclists. As social conditions change, so do our beliefs as to what constitutes appropriate concepts of individual rights. Slavery was once considered an acceptable labor contract, as was the exploitation of child labor.

Recognizing that property rights change--that is, that the nature and extent of property rights change--is fundamental to a clear understanding of environmental economics. Even those who are most committed to the notion that private property rights are inviolate and unchanging will join a movement to have their neighborhood zoned to exclude taverns, taco stands, service stations and churches. Here, they are willing to affect the rights of others in order to defend the value of their own property rights. Hence, few of us are really opposed to changes in property rights--just as long as the negative impact is borne by someone else.

#### Property Rights and Environmental Quality

This discussion of property rights is necessary to gain a clear understanding of the problem of environmental quality. For the debate over the quality of the natural environment is nothing more than a coming together of two opposing views as to who possesses the property rights to the waste disposal services of the nation's air and water resources.

To those engaged in a variety of economic activities--ranging from manufacturing to agricultural production--the air and water have always been a convenient vehicle

for removing fumes, liquid wastes and sundry solid material. The natural environment was thought to be abundant and inexhaustible, hence little justification existed for reducing it to ownership and charging a fee for its use. Because it was free, scant attention was paid to the nature and extent of its use. Economic activity utilized the natural environment much as it would other factors of production, but the price (zero) of the natural environment encouraged its greater use vis-à-vis other productive factors which carried a positive price.

The environmental "movement" of the 1970s started out as a confrontation over traditional presumptions concerning property rights. Up until that time, very few people questioned the use by farm and factory of our air and water resources. But when we began to notice the dirty air and water, the obvious question to ask was: who is using that natural resource? People who wanted to fish found their rivers dirty and the fish dying; people who wanted to swim found ponds and rivers like junk yards--and even inflammable. Those who wanted a peaceful vista found their view blocked by a high-rise apartment building; those who merely wanted to sleep often found the night punctuated by traffic on the freeway. (This seems to be a problem of specific concern to the urban poor--we seldom build freeways in wealthy neighborhoods.)

With the realization that our quality of life was lower than it used to be--and fueled by the realization that individuals and groups can work to change certain aspects of society--the presumptive property right in air and water, so long in the hands of the business sector, was called into question.

### The Ensuing Battle

The National Environmental Policy Act of 1969 (NEPA) put the federal government and its contractors on notice that, henceforth, all major actions of potential significance to the natural environment were to be described in an environmental impact statement on file with the President's Council on Environmental Quality. But NEPA was more than an "environmental full disclosure law"; it represented a fundamental shift in property rights. Now, it was openly stated by the Congress that it was a national goal to protect the quality of the natural environment. The manifestation of this shift in property rights--the environmental impact statement--represented an income transfer (a new property right) to the environmental organizations (Sierra Club, Environmental Defense Fund, Natural Resources Defense Council) and away from the traditional licensing and construction agencies of the federal government (the Army Corps of Engineers, the Bureau of Reclamation, the Atomic Energy Commission, the Federal Power Commission).

The enforcement, as it were, of this new property right came in the form of lawsuits by environmental groups charging that the federal agencies were not abiding by the guidelines for their environmental impact statements. The Calvert Cliffs Nuclear Plant (Maryland), the Trans-Alaska Pipeline and a power plant in the Four-Corners Area (Arizona, Utah, Colorado and New Mexico) were all delayed or halted by this route.

These confrontations clearly illustrate that there has been a very basic shift in the structure of property rights. Prior to the 1970s and NEPA (and various state analogues), the presumptive property right lay with those interested in building something or "developing" some natural resource. The burden of proof rested with those who preferred undammed and unpolluted rivers and uncluttered vistas, to show that they would be materially harmed by the developments under

question. And, it was extremely difficult and expensive to succeed in the judicial climate (which largely represents social attitudes) of the 1950s and early 1960s when advocacy of economic growth was thought a necessary indication of patriotism.

Now, of course, attitudes (and laws) have changed such that those who question unbridled growth are not quite so suspect. Now, the presumptive property right--and hence the burden of proof--is on the other foot. The citizen actions in Machiasport, Maine (over a proposed oil terminal) and in coastal South Carolina (over a proposed German chemical plant) are but two of many instances of industry being forced to prove that their operation would not harm the natural environment.

Whereas it formerly was the fisherman or the sightseer who had to petition the polluter or the "developer" to cease and desist, the petition must now--in most instances--come from those who wish to dump waste, or to build. There could not be clearer evidence of a fundamental shift in presumed property rights.

### External Effects

The foregoing discussion has been necessarily detailed on the subject of property rights since this aspect is at the heart of spillovers and external effects. There are two ways to consider spillovers of relevance to this study: (1) interfirm or interindustry spillovers; and (2) interjurisdictional spillovers.

Interfirm Spillovers. The bulk of the economics literature on environmental quality deals with the physical interaction between two separate producers; this form of interaction is the classic technological external diseconomy. In this instance, the production activities of an upstream firm result in pollution discharges which adversely affect a downstream firm. Both firms are influenced by this situation, with the upstream polluter making use of the waste disposal services of the river in order to hold down its costs of production. The access to such a free (or very low cost) disposal service results in a production level that is greater than would be economically feasible if the upstream firm were forced to pay a greater fee for this service.

As for the downstream firm, its use of river water for its process is at a higher cost, since we assume that it must first clean up the water. This extra cost results in its output level being less than it would be in the absence of this expense.

Here, in the absence of a clearly defined property right--and hence in the absence of an agreed upon price for the use of the waste disposal services--the upstream firm produces too much of its product (at an artificially low price), and the downstream firm produces too little of its product (at an artificially high price). One standard economic solution is for the two parties to get together and reach a mutually satisfactory understanding regarding the use of the waste disposal services of the river. Of course, if there were only two parties using the river--and hence only two parties interested in its quality--the solution would be rather straightforward. In actuality, there are many individuals (in even a small area) who care about the quality of the river. Thus a bargained solution between a few parties stands a great likelihood of ignoring "third parties."

Interjurisdiction Spillovers. Yet another complicating factor is that many environmental quality problems arise because of spillovers among several jurisdictions. An upstream city reaps the economic benefits of a polluting industry, and

the residents of a downstream city bear the costs. Unless there is an inter-jurisdictional mechanism for the two entities, little progress will be made in reconciling the disparate incidence of benefits and costs. And, it is possible that those who do not reside downstream will also find that the polluted river is undesirable. For pollution is the classic case of a pure public good (or bad) in economic terminology; different levels of water quality cannot be purchased as in the case of private goods. That is, if the air or water is polluted, we are all equally affected--though we may each value that effect differently.

In sum, the physical interdependence among both producing and consuming units--and across jurisdictions--gives rise to the need to consider some form of collective ameliorative action. Before discussing that, it is necessary to devote some attention to the matter of the proper degree of pollution control.

### Optimal Pollution Control

It would be a seriously expensive mistake to pursue a national or regional policy which attempted to eliminate all dumping of effluent into water and to eliminate industrial discharges into the air. It is ridiculous because both the air mantle and bodies of water have assimilative capacities which can be utilized at no harm. Lakes, rivers and the air mantle are capable of receiving some limited quantity of most nontoxic liquid or gaseous wastes and, through natural "flushing and cleansing" processes, to dilute and degrade them in a manner which holds no threat to plants and animals. However, when this natural assimilative capacity is exceeded--as it often is in highly congested/industrialized areas--serious harm can certainly result.

For this reason, it would be an extremely expensive waste of financial resources to totally prohibit all discharges into the environment. But this still leaves the very difficult issue of exactly what discharges--and in what amounts--are within this acceptable zone. To this problem we can only admit that more research is needed.

The recognition of nature's limited assimilative capacity has led some economists to advocate the sale of access to this "resource"; it is, in effect, just like any other scarce and valuable resource which the firm purchases. The economic appeal of this is obvious; if there is only so much of a scarce and valuable resource (waste disposal services) available, then sell it to the highest bidder like other resources. That is, if there is only a limited amount of wastewater discharge service available in a stream, let that economic activity which produces the highest valued good obtain the services through a bidding process.

Environmentalists react in horror to such schemes as nothing more than the purchase of a license to pollute. The sale of dumping rights has not received serious attention among policy makers, nor has a more feasible cousin--the charging of a fee per unit of wastes discharged. Before discussing that option, it is important to understand the prevailing environmental quality approach. The 1972 amendments to the Federal Water Pollution Control Act set goals for water quality standards that relate to the achievement of certain in-stream standards and the elimination of toxic substances. With a given number of dischargers located on a reach of a river, and with a known quantity of effluent which may be discharged without violating water quality standards, a regulatory agency allocates this maximum allowable effluent load among the existing firms. If a new discharger moves in, there must be a reallocation to keep the aggregate dumping below the allowable

limit. The behavioral incentive on the firm is thus to adjust its process and total output such that its discharge of effluent is just at (or below) the allowable.

This is where the economist begins to advocate a fee (or a tax) on the effluent proper. Consider this behavioral incentive in contrast to the previous approach; the firm now pays a cost for each unit of the pollutant, regardless of the level of dumping. A regulatory authority adjusts the fee to each polluter until the aggregate dumping is consistent with the desired stream standard. Here, the firm has a continual incentive (the fee) to adjust its production processes or its total output to reduce its dumping--and so reduce the total fee. Whereas under the previous (regulatory) approach the firm was under no compunction to dump less than its "allotment," here there is a constant incentive to do so. Under the regulatory approach the incentive is discrete and only becomes effective when a firm's effluent limit is reached. Under the effluent fee approach, the incentive is always there for firms to reduce their dumping.

With this background, it is now appropriate to turn to the issue of the optimal level of pollution control in, say, a river basin. In Figure 2.1 we have depicted the marginal social benefits of increments of pollution control (MSB) and the marginal social costs of pollution control (MSC). The MSB curve represents the incremental total, evaluated by all citizens, of each unit of increased pollution reduction. The MSC represents the incremental costs of reducing pollution, taking into account all direct and related costs.

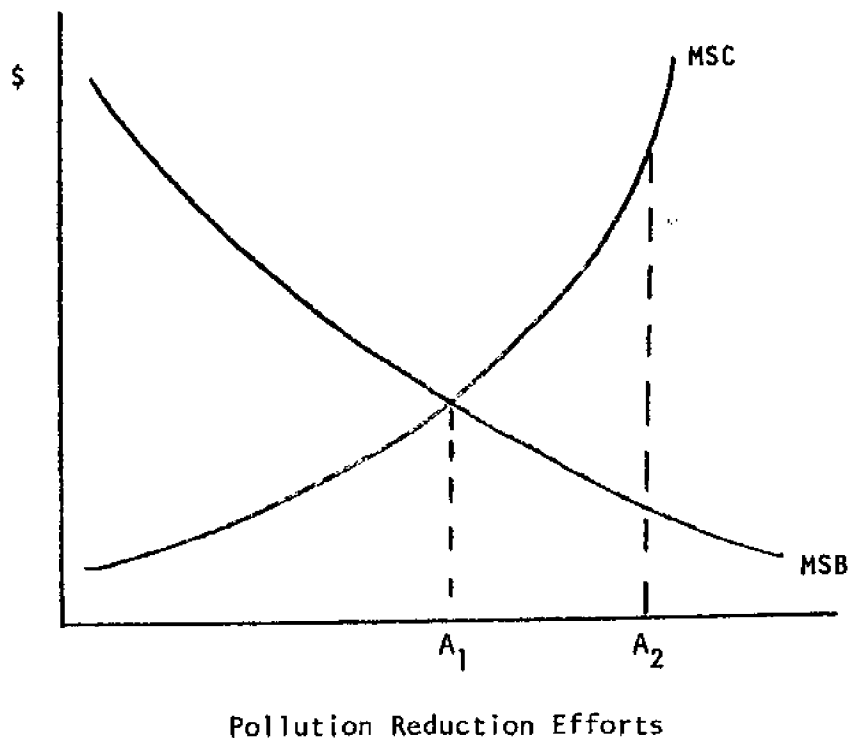


Figure 2.1 Determination of the Optimal Level of Pollution Abatement

The optimal level of abatement from a social perspective occurs where the cost of the last unit of abatement (MSC) is just equal to the benefits of the last unit of abatement (MSB); this is shown at level  $A_1$ . At point  $A_2$ , all dumping has been prohibited; note that the costs at the margin far exceed the benefits.

This is not to imply that the only legitimate benefits or costs of pollution abatement are those which can be assigned monetary values. But it is a useful means of illustrating that the attainment of yet higher levels of pollution abatement is not without increasing cost. Moreover, as the environment becomes cleaner, each additional unit of abatement adds a smaller increment to our total evaluation of its quality; while it would not take keen senses to appreciate the disappearing aroma of a river as its dissolved oxygen content rises to 1 mg./liter above zero, few people would be likely to note the more subtle ecological changes which would accompany a similar 1 mg./liter improvement as the river approaches saturation.

However, recognizing the need for an abatement program is far different from identifying the appropriate level of government for carrying out such a program. Economists have traditionally held that government has three major functions to perform--the stabilization of economic activity, assuring an equitable distribution of income and achieving the proper allocation of resources. It is generally accepted that stabilization and distribution are properly the responsibility of the central level of government. Stabilization is a national responsibility because of extensive economic interdependencies throughout the country. Distribution of income is also considered most appropriately handled at the national level because mobility of both rich and poor is so great as to impede state and local efforts to significantly redistribute income. All levels of government, however, have a role to play in the allocation of resources. Some public goods are best provided by the central government while others are better handled at the state and local levels. Since the proper allocation of resources is at the heart of the problem addressed here, we focus on that aspect of the problem of delegating powers and responsibilities among governments.

Which government is best assigned responsibility for a particular allocation problem is largely determined by the problem's spatial dimension. The problem is most easily addressed when, as shall be assumed here initially, the public service or good is uniformly provided to all those residing in a well defined area. National defense and street lighting have much different areas of service and imply two extremes in the size of the appropriate jurisdiction for reaching decisions on public issues. Furthermore, the means of financing these services should also be attuned to their service areas so as to internalize costs to those served. Thus, defense is best provided by the national government while a local jurisdiction financed by local taxes is suited for the provision of street lighting.

For those goods and services not national in scope, the question arises as to what is the optimal sized jurisdiction to provide the public good? The answer to the question depends upon a number of factors. One of the factors is the economics of sharing. If, as is commonly the case, the public good once provided can serve various numbers of people equally well, the share of the cost of the services to each beneficiary will diminish as the number admitted increases. Thus, there is an advantage to make the jurisdiction as large as possible. However, many public goods have capacity limits; larger jurisdictions can cause congestion of the public facility and reduce its enjoyment. Thus, decision makers are often faced with trading off the benefits of sharing public goods such as parks and recreation facilities against the cost of greater congestion. Economies of scale are another



factor affecting optimal jurisdiction size. Larger facilities may cost less per person served or unit of output produced than several smaller facilities.

Preferences also influence the designation of optimal jurisdictions. If persons within a given locale prefer a particular amount or type of public good, they may be prepared to organize to supply it according to their preferences despite somewhat higher costs. Differences in preferences are a major reason justifying the economic federalism found in the provision of public services. A national government could provide local services such as fire protection, parks and schools through a multiplicity of supply units. However, if demands differ among localities and persons living in those areas have relatively homogeneous tastes, their welfare would be enhanced if each locality were allowed to decide the features of its public good supply. The welfare gains accompanying decentralized decision making may be sufficient to offset considerably higher costs of production than under more centralized provision. The advantages of local decision making may either supplement or offset cost considerations in justifying decentralized provision of many public goods.

Decentralization has a further advantage of enabling consumers to better express their preferences for local public goods. If voters are dissatisfied with the public services in their jurisdiction, it may be feasible, particularly in metropolitan areas, to move to another area where public services and taxes are more consistent with their preferences. Thus, if the political process fails some in that they are unable to secure the desired level of, say, education, police protection and taxes, they can "vote with their feet."

The benefits of public goods often spread beyond the boundaries of the providing jurisdiction. In some cases, the providing authority may be able to resolve the problem by extending its jurisdictional boundaries to encompass and so tax those benefiting from its services. In cases where that is impractical--and provision by a more centralized authority unacceptable--intergovernmental grants offer a solution. Without grants, the authority providing the spillover will tend to underproduce the product; intergovernmental grants paid by those other jurisdictions which benefit from the spillovers should be set to reflect the value of those benefits to their residents and so offset this disparity.

Implicit in the discussion thus far is the recognition that ideally, there should be a jurisdiction specific to each public good. This would mean a host of public decision-making units ranging from those concerned with issues at the block or neighborhood level, to the national (and even international) level. The decision-making costs of such a system would be enormous in terms of voter consideration and government overhead. Consequently, issues requiring public decisions have been focused at the national, state and local levels of government, with some provision for special districts. But the range of problems faced by the public sector does not always fit reasonably well into the traditional categories. The need for metropolitan governments to cope with those area-wide problems which the individual municipalities cannot adequately handle is now widely recognized; new governmental organizations are emerging at that level. A similar situation appears to characterize many of the environmental problem areas and justifies the examination of alternative institutions for environmental management. To that we now turn.

## 11. ALTERNATIVE APPROACHES TO COLLECTIVE DECISION MAKING

Presented here are two views of the collective decision-making process-- pluralism and representative government. These are not the only approaches to collective decision making, but they do represent fundamental characteristics of what Burkhead and Miner [1971, Chapter 5] refer to as the "public interest" and the "self-interest" approaches. Together they appear to characterize the problem inherent in much of the decision making process and many of the institutions now charged with environmental management responsibilities. They also offer some solutions to restructuring the collective choice mechanism in this area.

### Pluralism

Pluralism, or interest group liberalism, emerges from the public interest perspective in which the complexities of policy decisions render impossible any clear definition of an objective function and systematic evaluation of policy choices; there is no a priori statement as to what is the "public interest." Instead, an incremental approach to policy choices is pursued through an interactive and iterative exchange among the affected interest groups sharing the decision-making power and seeking to obtain a consensus position. The political process is served by affording as wide an access as possible to groups to ensure that all interested parties are represented and included in the negotiations. This serves not only to balance the power of the parties, but also to minimize the possibility that included interests would seek to challenge the decision and the political leadership supporting it. There is no assurance, however, that all interests, even if represented, will be represented equally well. The basic problem of the pluralistic approach arises from the sharing and fragmentation of power accompanying the excessive delegation of authority by the public to private interest groups. Instead of explicit lawmaking, there is a parcelling out of public power to private interests. This typifies the decision-making procedure found in environmental management authorities which, lacking power or clear and consistent guidelines, engage in a consent-building process among those they are supposed to regulate.

Even if pluralism has some justification in seeking solutions to the problems of the day, this does not warrant its role in settling many of the specific issues to which the synoptic method of outlining objectives and consequences is applicable and available to government. Resort to pluralism can occur because a failure in the assignment of jurisdiction and powers prevents the acting representatives from defining a policy consistent with all problem areas and hence meeting their objectives.

One characteristic of much environmental action is that it delegates considerable discretion to local governments. Yet, intense political and economic pressure on local governments renders them reluctant to deal effectively with recalcitrant polluters. Additionally, the incongruity of many pollution problems with jurisdictional boundaries complicates the problem. Local and/or regional organizations created to deal with environmental problems can only be as good as their structure and power permits; they often have little of the latter because of the nature of the former. That is, such units are largely the result of "organizational tinkering" without commensurate institutional (rule) changes. They usually lack independent political strength and hence merely pursue possible compromises through lopsided-- in a power context--bargaining. With no prior determination through the political

process of what bargains "should" be struck, there is no performance criteria, and the process is absent any standard for judgement.

The basic difficulty in our judgement is that the institutional changes concerned with environmental quality improvements are squarely in the pluralist tradition with broad and general delegation of authority to administrative units; the legislative process has evolved into the formulation of general guidelines instructing administrators to bargain and negotiate with those governmental and nongovernmental units "closest to the problem" under the impression that superior bargains are struck. To fully appreciate our position it is necessary to devote considerable attention to pluralism.

The first proposition in pluralist thought is that society is composed of groups of individuals unified about a common value; individuals acquire identity, values and beliefs from these groups. Through them, individuals relate to society.

The second tenet is that as societies become more complex, the significance of--and role played by--groups increases. "Associations come into being when the values their members share are threatened by developments in an environment with a high potentiality for change, which is always a threat in and of itself" [Baskin, 1971, p. 90]. Interest groups are defined by Baskin as associations that seek to defend their primary values by acting upon government rather than directly upon society.

The third component of pluralism is that "...public policy..is a result of the balance among opposing group forces...through the strategies of conciliation, restraint, and neutralization" [Baskin, 1971, p. 91]. A crucial mechanism for conciliation is representation "...by statute or informal arrangement...at 'key decision points' in the political process" [pp. 91-92]. Baskin reminds us that the battle for access may entail an effort to establish or reform decision points to ensure more effective representation of one's interests; the establishment of a separate legislative committee (or the populating of extant committees with those of known partiality) or executive department. One of the central factors influencing the balance of group forces is the strategy of enlarging the scope of conflict by redefining issues to engage groups that would not ordinarily perceive an interest in the issue under debate. This point is made well by Schultze in his The Politics and Economics of Public Spending [1968].

The fourth aspect of pluralism pertains not to the purpose of groups but to factors influencing their success. Bentley identifies three that are said to be most important: (1) number, (2) intensity and (3) technique. The aspect of numbers is obviously important since in a democracy numbers imply legitimacy. Intensity pertains to the willingness of individual members to commit themselves to the goals of the group. Technique is self explanatory. An important assumption of the pluralists--and a handy recourse in the face of charges that certain groups will become dominant, thus countermanding the pluralist concept of the "competitive equilibrium"--is that resources which are successful in one policy domain (arena) may be poorly suited in other areas.<sup>1</sup> Finally, the ability of a group to localize conflict will be important to its ability to exert influence in the policy arena [Ingram, 1971; 1973]; but policy is not the result of two opposing groups, but of many groups entering and leaving over the course of policy evolution.

The fifth aspect of pluralism relates to political stability, social complexity and mutual self-restraint. The competitive equilibrium of analytic

pluralism is forged by overlapping group membership--rendering impossible an uni-dimensional group utility (objective) function. Another force is said to be the fear that extraordinary demands on the system will call forth one or more "latent groups" lurking in the wings, as it were. According to Baskin, who again echoes many common notions permeating much of contemporary political science: "When policy requires cooperation among institutions that are not ordered hierarchically and which contain a variety of groups with different but now and then relevant resources of influence memberships in place of a unifying and self-conscious majority continuous from one issue and institution to the next, politics must proceed along the arduous path of coalition building, bargaining, compromise, and accommodating consensus making" [p. 96].

The final--and most tenuous--postulate of pluralism pertains to its notion of the public interest; a concept that the best minds find elusive. Bentley argues that since society is a composite of groups and interest is a group property, the social interest can be "little more than the sum of these often contradictory interests" [Baskin, 1971, p. 96]. Pluralists view publics as ways of conceiving activities and interests as means of indicating the value assigned to them by their participants and others. The pluralists assume a procedural concept of the public interest while denying its very existence. That is, American constitutional theory--along with economic theory--denies the existence of an external standard for judging the relative merits of conflicting claims. It substitutes a conflict-resolution mechanism leaving groups free to pursue their interests--subject to the condition that all competing groups have an equal opportunity to do so. The process is the message, the standard. Such an assumption is consistent with the individualist assumptions that dominate American politics. To quote Baskin once more: "Democracy, like the pragmatic method in philosophy, is justified not as a proven truth, but because the truth can change; it cannot be proven once and for all....In the analytic pluralist's commitment to the maintenance of the group process as a means that is also the definition of its own end is a covert definition of the public interest resting upon a convergence of the premises of possessive individualism and pragmatic fallibility" [p.98].

The Appeal of Pluralism. To Lowi, the term "interest group liberalism" represents the amalgam of capitalism, statism and pluralism. According to Lowi: "Central to capitalist theory is the belief that power and control are properties of the state and, therefore, should be feared and resisted. This proposition, while hard to deny, is patently onesided; in fact it covers only one of at least three sides. It says nothing about who controls the state; and it says nothing about institutions other than the state that possess the same properties of power and control" [Lowi, 1969, p. 41]. But pluralist theory cuts against this model and renders absurd the notion that government is the only source of power and control. Pluralism "rightly rejects...all notions of a natural distinction between the functions of government and the functions of nongovernmental institutions. Power and control are widely distributed. They are, in fact, ubiquitous" [Lowi, 1969, p.44].

In addition to this recognition of other sources of power, pluralism has several advantages which conform to traditional economic thought. According to Lowi: "Pluralism is just as mechanistic as orthodox Smithian economics, and since the mechanism is political it reinforces acceptance of government.... Use of government is simply one of many ways groups achieve equilibrium" [1969, p. 47]. Taken together, the tenets of interest group liberalism constitute the "invisible hand" model applied to groups.

The third reason for the acceptance of pluralism is that it had support in the political realities of power negotiations during the early part of the 20th Century, particularly the 1930s as we struggled with the problems of the Depression. The concept helped to flank the constitutional problems of federalism, and it offered a justification for keeping the major combatants apart; it transforms logrolling from the status of necessary evil in democracy to a higher purpose as the means for reaching consensus. Lowi maintains that it is a direct response to the "crisis of public authority"--that is, the practice of dealing only with organized claims in policy formulation, and of dealing exclusively through organized claims in implementing programs. Moreover--and perhaps most importantly--it helps to create the sense that power need not be power at all; nor control, control.

In summary, the overwhelming appeal of the concept both as political doctrine and as intellectual ideology is that it draws on the inherent western appeal for individuality (now through groups); it adds the ubiquitous distrust of big government (by making it an equal partner in the bargaining process); and it defines the public interest (if only by connotation) as that which results from the working of the process it has already defined as proper. And, with no standard for judging--no performance criteria independently testable--who is able to say if it does miss?

Pluralism Critiqued. Mancur Olson [1965] maintains that there is a logical inconsistency in the thinking of pluralist writers. If economic groups are primarily interested in their own welfare, it is only possible if the individuals in these groups are primarily interested in their own welfare. Thus, the group theorists are committed to the position that in economic groups self-interested behavior is quite common. However, Olson argues that individuals interested in their own welfare would be irrational to join--voluntarily--groups that require time and resources to achieve collective goals. Those groups that the pluralists argue will form when threatened are termed latent groups, but voluntary organization is the mode only in small groups--not in large or latent groups.

He continues by arguing that since relatively small groups will frequently be able voluntarily to organize and act in support of their common interest--and since large groups will not be able to do so--the outcome of the political struggle among groups will not be symmetrical. The small "special interest groups" and "vested interests" will enjoy disproportionate power; they can reap results inimical to the interests of the majority of the population. This conflict between the theory of pluralists and the facts of political life is obscured--in Olson's view--by the emphasis given to potential groups. But, their logical inconsistency growing out of the free rider issue dooms pluralism as a viable analytical construct.

Lowi reminds us that the strength of pluralism rests upon the proposition that a pluralist society frees politics by creating a discontinuity between the political world and the socioeconomic world. But, he asserts that the pluralists failed to recognize that it also creates a discontinuity between politics and government. "The very same factors of competition and multiple power resources that frees politics from society also frees government from both society and politics" [1969, p. 48].

He argues that the cooperative programs inherited from the New Deal era were strengthened in the degree to which they could share in the new explicit rationale. This is particularly noticeable in the national resources field and agriculture

where many policies were left to those "closest to the problem." Lowi maintains that: "modern policy makers have fallen into believing that public policy involves merely the identification of the problems toward which government ought to be aimed. It pretends, through 'pluralism,' 'countervailing power,' 'creative federalism,' 'partnership,' and 'participatory democracy' that the unsentimental business of coercion need not be involved and that the unsentimental decisions about how to employ coercion need not really be made at all...The requirement of standards has been replaced by the requirement of participation. The requirement of the law has been replaced by the requirement of contingency" [1969, p. 85].

Lowi maintains that laws have little place in interest group liberalism since such specificity interferes with the political process; the process is stifled by abrupt and unambiguous changes in the rules of the game. Laws make government an institution apart; a good clear statute "puts the government on one side as opposed to other sides, it redistributes advantages and disadvantages, it slants and redefines the terms of bargaining. It can even eliminate bargaining, as this term is currently defined. Laws set priorities. Laws deliberately set some goals and values above others" [1969, p. 125-26].

The current legal expression of the new "liberal ideology" is delegation of power; actions whereby the legislative branch confers upon an administrative agency certain responsibilities and power that the former finds impracticable. Lowi argues that the delegation of power "provides the legal basis for rendering a statute tentative enough to keep the political process in good working order all the way down from Congress to the hearing examiner, the meat inspector, the community action supervisor, and the individual clients with which they deal. Everyone can feel that he is part of one big policy-making family" [1969, p. 126].

To again quote Lowi: "A good law eliminates the political process at certain points. A law made at the center of government focuses politics there and reduces interest elsewhere. The center means Congress, the President, and the courts. To make law at a central point is to centralize the political process" [1969, p. 127]. Lowi argues that as regulation of the private sector evolved from the denotation to the connotation of what is subject to public policy, discretion increased and the process came to center on administration. Modern law has, in Lowi's words, become a series of instructions to administrators rather than commands to citizens. The logic of pluralism elevates delegation to the highest of virtues and relegates standards out of court, as it were.

Lowi's discussion of the breakdown of the system through delegation and bargaining starts by arguing that competition and its variant, bargaining, are types of conflict distinguishable by the existence of rules (laws); they convert chaotic conflict into ordered competition. But, we must remember that rules and their application imply the existence of a framework of controls and institutions which are separate from the competition itself. The advocates of pluralism, with their models of conciliation, necessarily assume that coercion is not involved if physical force is absent--and also assume that "peaceful adjustment" is without not insignificant anxiety and grief for many.

The inability of "liberal societies" to plan and anticipate contingencies grows out of the fact that planning requires authority, law, choice, priorities and the like. Interest group liberalism replaces planning and anticipatory action with bargaining and reactive corrections; the virtual dispersion of power and the reactive rather than anticipatory mentality almost assures disjoint and random public policy.

Contemporary liberals have employed the term "creative federalism" to describe --in emotive language--the process, yet Lowi argues that creative federalism is not federalism at all. "Federalism divides sovereignty between duly constituted levels of government. 'Creative federalism' is a parceling of powers between the central government and all structures of power, governments and nongovernments. In fact, little distinction is made between what is government and what is not" [1969, p. 82].

It is Lowi's contention that pluralism/interest group liberalism impairs the self-correctiveness of positive law by the flexibility of its broad policies and by the bargaining, co-optation and incrementalism of the process it venerates. The impairment is extended to include the delegation to the administrative process of those things alien to administration and administrators--policies which are not laws. Interest group liberalism seeks a pluralistic society in which there is no formal specification of means or end--there is only process.

In summary, it is important to pay special attention to the two types of bargaining outlined by Lowi: (1) bargaining over the policy choice; and (2) bargaining over the application of regulations defining the policy in a particular case. The first type of bargaining is over the stakes and is the familiar log-rolling. Here, interest groups negotiate on what policy (policies) is to be adopted and the vigor and extent to which it is to be pursued. The second type of bargaining is over whether the rules apply in a particular instance, should they be enforced, and, if so, how and how severely. His concern over bargaining and delegation is that broad and general delegation results in policy emerging from bargaining of the second type expanded to include in the negotiation whether the rules are good and should even be applied. Lowi would have government regulate interest groups, not legitimate them. To do so, government would entertain negotiation at the first or policy choice level where it can regulate the outcome through strict delegation rather than accepting the policy consequences of lower level unstructured negotiations.

### Representative Government

Environmental problems, like most faced by the public sector, pose the difficulty that many interested parties will seek to influence the social choice and that the outcome of the decision-making process must somehow reconcile the divergent opinions or at least be accepted by them. As already noted, pluralism offered an approach to this problem when the interest groups, one of which could be government, negotiated their way to a settlement. Representative government provides another. This view of social choice is rooted in individual self-interest, where self-interest is expressed, not through interest-group associations, but instead through voting. In voting directly on issues, or more commonly, in the election of representatives, persons indicate their preferred social choice--the social decision being derived from individual preferences, not special group interests. Although all preferences cannot be satisfied, individuals have the incentive to vote so as to influence the social choice toward their own position. The town meeting in which everyone votes directly on the issues of concern perhaps represents the ideal collective choice mechanism of this school. However, because the scope of most public issues is so broad, direct participation soon becomes unwieldy. Voters choose persons to represent their views in a more manageable decision-making body. Our concern with the decision making of representative government leads us to review the theory of representative democracy and draw implications for structuring environmental institutions.

Voting and Representative Government.<sup>2</sup> Much of the public choice literature has analyzed the decision-making process which occurs when voters meet in assemblies or their representatives in legislature to arrive at collective decisions. This has led to an extensive treatment of coalition building and voting power under alternative decision rules. The major results and implications of this work can be illustrated with relatively simple examples.

Consider a case presented in Haefele [1972] in which there are three voters to decide two issues.

Issue	Voter		
	I	II	III
A	Y <sub>2</sub>	Y <sub>1</sub>	N <sub>1</sub>
B	N <sub>1</sub>	Y <sub>2</sub>	Y <sub>2</sub>

The Y's and N's reflect their preference on each issue (yes or no) and the subscript indicates whether the issue is of primary or secondary importance. Thus, voter I's first preference is to defeat issue B, while passing A ranks second. Voting according to simple majority rule (no trading) would result in both issue A and B passing. However, if vote trading is possible the voters can trade in an attempt to obtain a more suitable outcome. In this case, I and III could agree to trade (each vote no on their secondary issues) so that both issues would fail (FF); i.e., each would win on the primary issue. This coalition is not stable, however, as II can agree with I to vote no on B if I will not trade with III and leave both I and II better off with the (PF) outcome than in the (FF) situation.

Alternative outcomes	Issue A	P	P	F	F
	Issue B	P	F	P	F
Voter I wins	2nd	1st	2nd	none	1st
Voter II wins	1st	2nd	1st	2nd	none
Voter III wins	2nd	none	1st	2nd	1st

Several interesting features emerge from this illustration. First, simple majority rule may not always lead to socially preferred outcomes. The reason for this is that under simple majority rule each voter votes a preference on an issue regardless of the intensity of preference. Consequently, a majority of voters mildly against an issue may defeat it against a minority who intensely favor it. Vote trading among issues enables voters to give some expression of their intensity of preference on one issue relative to another by trading votes on what they regard as unimportant issues for votes on those issues important to them.

With the representative system, candidates or political parties establish platforms on the basis of their stands for and against the various issues. In the above example one candidate could take a stand against both A and B realizing that it would defeat a position favoring both passing. A second candidate, fearing certain defeat by supporting a platform favoring passing both A and B, would instead



adopt a "pass A - fail B" position and win the election. Based on this kind of analysis, Haefele argues that the two party representative system of government, because it will arrive at the same social decision as an assembly of voters, is an appropriate mechanism for passing from individual tastes to social preferences.

There is, however, some doubt as to whether this is in fact always the case. For the above example, for instance, it is not entirely clear why voters II and III, faced with the pass A - fail B situation, would not collaborate and agree not to trade votes at all in which case both are better off with both issues passing. The assembly's choice would seem to depend upon the stage in the trading process at which the vote is taken. A similar indeterminacy arises in the case of electing a representative if a third candidate emerges. The resulting arbitrariness of the decision is typical of the voting paradox.

The voting paradox arises when no single decision will result as the social choice from the decision-making process. It is readily illustrated in the case of three alternatives and three voters. Assume a three member community faced with air quality, water quality and land use problems but with only sufficient funds to correct one of these. The group is to decide on which problem the funds should be spent. If their preferences are:

<u>Voter</u>	<u>Air Quality</u>	<u>Water Quality</u>	<u>Land Use</u>
I	1	2	3
II	2	3	1
III	3	1	2

...the result of the vote will depend upon the order of the vote. If the first vote is the choice between spending on air quality and water quality, air quality wins, two votes to one. Then air quality and land use are voted upon and land use wins, two to one. In this case the social choice is to spend funds on land use. But, had the order of the voting been different, so would have been the social choice. Had land use and water quality been matched initially, water quality would have won and then been defeated by air quality in the next vote. Similarly, had land use and air quality been paired first, land use would have won and then been defeated by water quality. No one alternative emerges as the social choice. Such indeterminacy does not always characterize majority rule but the fact that it is a possibility cannot be excluded in many likely situations.

While a number of paths can be followed in seeking to resolve or at least minimize the problem of the voting paradox, the most fruitful ones focus upon social decision mechanisms which better recognize differences in intensities of preferences. One approach suggests a vote market in which the votes on the set of issues can be exchanged [Mueller, 1967; Mueller, Philpotts and Vanek, 1972]. Voters exchange votes on issues unimportant to them for votes on important issues--their relative values determined by supply and demand. Once the exchanges are completed voters cast the ballots on the issues they hold (which may be more or less than those initially allocated to them on that issue--e.g., initially each could receive an equal number of votes on each issue) according to their preferences on that issue. A somewhat similar but simpler system is point voting. Here each voter would be given a number of points or votes (e.g., 10 or 100) which could be

assigned any way the voter wishes over the set of issues. Hence the voter would allocate more to important issues and fewer to less important issues. The advantages of these approaches are that they allow voting on the full set of issues, not pairwise combinations. Unlike the vote trading discussed earlier, they do not require that voters, when trading, vote against their own preferences on some issues in order to acquire votes on more important ones.

The effect of alternative voting procedures can be indicated when weights are assigned to preferences reflecting the intensity with which they are held. For example, if voters I, II and III have relative stakes in issues A, B and C as shown (negative sign indicates a feeling against passing the issue) then majority rule could lead to a better social decision than trading.

Voters	Issues			Majority Rule	Vote Trading	Point Voting
	A	B	C	PPP	PFP	FPF
I	13	8	9	30	14	-14
II	12	7	-11	8	-6	6
III	-27	-2	1	-28	-24	24
Welfare Changes				10	-16	16

But point voting is the best as it leads to the greatest welfare improvement. The reason for the relatively poor performance of trading is that although advantageous to the traders (1 and 3 gain by the PFP outcome in comparison to the PFF alternatives 2 and 3 would otherwise have agreed to), trades often impose negative externalities on nontraders, the size of which are only recognized when stakes are attached to the preference orderings beyond the trader's gains (Riker and Brams, 1973). Also, in the above case voters had equal stakes in the set of issues. As stakes diverge among voters or among issues, the performance of vote trading becomes superior to majority rule but both methods diminish with respect to point voting. Thus, where preferences diverge, vote trading may be a better collective choice mechanism than majority rule, but it is still far from the ideal.

Although the advantage of point voting in revealing intensity of preferences is obvious, point voting is not commonly adopted because it is readily subject to abuse by strategic voting. In the above situation, for instance, voter 1, realizing that issue B is easily won, could divert points to issues A and C leading to all issues passing rather than the socially preferred outcome. Similarly, strategy could be used to change the outcome in the paradox example. When voting is insincere, in the initial match between air and water quality, voter 1 could have voted in favor of water rather than air quality, so water quality would win first and then again when paired with land use, thereby winning on the second choice (water quality) rather than the third choice (land use). In contrast, simply majority rule allows votes on single issues, leaving no room for strategic behavior.

Limitations of the Traditional Public Choice Approach. A serious problem with most of the literature on alternative voting schemes and decision rules is that it uncritically accepts the composition of the decision-making group. When stakes vary widely among issues and/or among voters and (unlike point voting) the one

person-one vote rule prevents votes from conforming closely to stakes, voters' political power may diverge widely from their concern for an issue. Voters with limited stakes in an issue are able, either simply through exercising their franchise or through vote trading, to distort the social decision away from the welfare minimizing choice. Hence, it can be argued that under a one person-one vote rule, those with small stakes in an issue should be denied a vote on that issue as better social decisions can be expected from a more homogeneous group whose stakes conform more closely with their voting power [Mueller, 1971; McMillan, 1976]. Thus, for example, regardless of the pattern of preferences for or against the issue, majority rule is more likely to generate an improvement in social welfare in a case where seven persons have relative stakes of 1, 2, 3, 4, 5, 6 and 7, if those two having the lowest stakes have no vote. In situations where several issues among which stakes vary widely are decided by one assembly, preventing those with small stakes from voting requires that some of those issues be decided in separate decision-making bodies; that is, a rejurisdiction of authority is required. Thus, in the preceding example, because in issue A and C one voter's stake exceeds all others, III and II respectively, they should decide those issues alone. Although this example is extreme, it is not uncommon that those with limited stakes in an issue are excluded from voting on the issue although it may to some degree affect them; suburban residents cannot vote on central city issues. Jurisdictional assignments are constitutional decisions. The traditional public choice literature has tended to ignore that aspect of the constitutional issue and focus instead upon analyzing decision making within existing parliamentary structures. This tends to limit the applicability of much of this theory when questions arise as to how to settle issues whose problem areas do not conform with the scope of existing structures.

Consistent with this view is Goldberg's assessment that the problem with the bargaining and vote trading analysis is that it is founded upon the acceptance of the status quo and so either explicitly or implicitly assumes whose preferences are to count and how heavily they are to be weighed. In seeking social welfare judgments based only on individual preferences and in adopting as superior those agreements reached through voluntary exchange, the public choice-property rights school defends the legitimacy of the status quo and preserves the existing power structure [Goldberg, 1974]. Goldberg claims that there is a basic inconsistency between these two criterion which is evidenced in the confusion in the literature as to when compensation is required. There is no difficulty when parties agree to exchanges within the existing set of rules--individual values and voluntary exchanges lead to acceptable situations. The issue emerges when one or more of the interest groups seek to improve their position, not by a mutually agreeable trade but rather by recourse to the rule making mechanism. Should the shoemakers be compensated if consumer pressure causes the legislature to remove a protective tariff; should the monopolist be compensated if antitrust action is taken? Goldberg argues that while voluntary exchange would require compensation in these cases, the public choice-property rights school does not always adhere to that requirement. In fact, if it did, it could lead to absurd results, e.g., compensation to owners of cars stolen as a result of reduced police protection. Voluntary exchange occurs when the parties recognize and accept each others rights to their respective positions. Resort to the parliamentary authority, on the other hand, occurs when rights or established prerogatives are challenged. The parliament has powers vested in it through the constitution to make decisions largely of an allocative nature.<sup>3</sup> The active pursuit of individuals' own interests at the parliamentary

stage is acceptable. Presumably, if shoemakers can generate sufficient support for establishment of a tariff, it is justified, but when support can no longer be maintained, society no longer views that policy as in its best interests. Thus under certain conditions society can accept distributive policies as valid but still reserve the right to modify its stance as conditions change. In neither case is either party eligible for compensation, for all had previously agreed to the parliamentary decision-making rules.

Parliamentary action may sometimes overstep parliamentary authority and infringe upon constitutional rights. Hence, if a parliamentary decision "takes" my property, either compensation must be paid or my property restored. Constitutional rights form the boundaries of parliamentary authority and it is the court's role to protect against parliamentary encroachment upon those rights. Hence, the establishment of property rights to air and water which leads to firms being required to pay for the use of a resource would be a constitutional change and the courts could conceivably require compensation. Compensation would likely be forthcoming not because of increased cost, but rather only if this represented an undue hardship upon industry--such as making viable firms uneconomic (a taking of property) of if the ruling led to inequities as when similar firms were affected differently.

Ideally, constitutional decisions would be made by the members of society behind a "veil of ignorance," the veil obscuring what each persons' individual position and preferences would be in the future. In this context there is no need for trades at the constitutional level to reach a unanimous decision.

Such a constitutional decision-making procedure is an abstraction as constitutional decisions are not -- and cannot -- be made behind a veil of ignorance. Instead, such decisions evolve from the ethical standards of the community operating through and in conjunction with the actions of parliamentary and judicial authorities; they are not immune from the influence of existing and past power struggles. Consequently, we cannot accept the validity of the status quo as a base and only accept Pareto optimal moves from it. This is the crux of Goldberg's argument. But the abstraction of a constitutional decision-making procedure affords a logical way to extricate ourselves from the "status quo" and be in a position to make de novo comparisons rather than simply analyze incremental changes. While admittedly an imperfect mechanism (for we can never be sure of what constitutions people would agree to behind the veil of ignorance), it does provide a basis upon which to evaluate alternatives beyond those mutually agreeable moves from the existing state of the world. Although the constitution-defining process is largely a continuing process, and decisions are made by individuals at least somewhat aware of the consequences to them, these agreements typically require considerably more unanimity to be accepted than do the daily parliamentary decisions (which, if infringing upon constitutional privileges, can be challenged in the courts). Also, constitutional decision makers must adopt a somewhat greater degree of foresight than when undertaking parliamentary actions; just as rules of the game may be modified after the hand is dealt, those changes will also affect subsequent hands.

Application to Environmental Concerns. The emergence of environmental problems as a new issue calls for some reconsideration of the constitutional decision-making type. It is not obvious that simply adding environment to the issue set to be decided by some existing authority (or divided among present decision-making bodies) is adequate. It is generally recognized that environmental problem areas frequently fail to match government's boundaries.

Hence, it is necessary to consider whether and when alternative jurisdictions and decision-making bodies are needed and what authority and decision-making rules are appropriate for them.

An example of how the constitutional decision-making approach can afford insight to the suitability of alternative institutional arrangements is provided through comparison of the Haefele [1971, 1973] and McMillan [1976] approaches to structuring institutions for environmental management. Haefele [1971] contends that a two party representative system of government is a satisfactory means of transforming individual tastes to social preferences even when not all members may be uniformly interested in each issue. In fact the ability of the representative body to reconcile divergent views stems from its responsibility for a variety of issues among which intensities of preferences vary. In this kind of situation the boundaries of the jurisdiction (who is included and who is not) do not appear important so long as all those affected by an issue are included; once represented, each interest will win or lose as is socially best. This implies considerable support for the status quo under such a representative system, for it indicates that each concern of its constituents will be dealt with in the socially preferred way.

Noting that environmental policy poses a complexity of issues which not only precipitate conflict among different interest groups but also require the individual to choose a balance among his/her own preferences, Haefele [1973] applies his theories of representative government to environmental decision making and contends that such conflicts can only be settled appropriately by a representative government responsible for a variety of environmental issues. These representative bodies would be structured about a problem area such as a river basin or a metropolitan community. While realizing that the boundary issue is an unresolved problem, Haefele attempts to solve it while maintaining the aspect of vote trading. To do so Haefele recommends the organization of separate councils for the solution of environmental problems in those instances in which, for example, air and watersheds fail to coincide. The possibility of trading votes on issues among councils remains as each constituency elects a single representative who sits on all the councils deciding issues relating to his/her district. Operating through these different bodies, the general purpose representative would participate in making decisions on a variety of issues--air quality, water management, schools, zoning and planning, municipal affairs--and express differences in local preferences by using the vote in one council to influence the vote in another.

While favoring representative decision making on environmental issues and the separation of functional responsibilities, McMillan argues that the potential for vote trading among issues must be eliminated if welfare-maximizing social decisions are to be made. Like the analysis of Riker and Brams [1973], his work shows that trades impose externalities which can be expected to more than offset the private gains to the traders. This occurs because in vote trading voters will vote against their preferences. Where intensity of preferences varies, winning on issues of equal rank need not imply the same change in social welfare since my second most important issue may be trivial to me, while your second issue is important to you. As a result, the actual exchange of votes can lead to a lower level of social welfare. Electing a different representative to each authority would block trades with their socially perverse consequences and could lead to better representation of the constituency on each issue. When electing several representatives, residents of a district can vote for the candidate who most nearly expresses their preference on each issue rather than for the one candidate whose

position represents the best compromise over the whole set of issues.

Representatives to the single function councils are not required to weigh the issues handled by the various authorities and bargain with each other in order to obtain votes on those issues with which their constituents are most concerned. Rather it is the voter who must consider the alternatives. It is the voter who must choose among such issues as environmental quality, school expenditures, taxes and employment. Having made this decision, he/she can best express preferences when voting for a candidate on each issue.

Where single function authorities prevail, a constituency may find itself in the minority in some, so that its preferences concerning certain issues will not be met. However, it is very likely that on other issues this constituency belongs to a majority which could not be sustained if vote trading were possible (as in a multipurpose legislature). While separation of issues into different authorities by the proper definition of jurisdictions prevents trades which some would find mutually advantageous, it also protects districts from possible trades by others. It is also unlikely that a district would be in the minority on all the questions dealt with by an authority. If unreconcilable positions did emerge and the public good is such that the policy cannot be redefined by a new constitution, inter-jurisdictional mobility of the Tiebout [1956] type (voting with one's feet) appears the only solution.

The viability of the single function representative form of government proposed by McMillan's analysis depends upon the proper delineation of the jurisdictional boundary so that when one person-one vote is the rule, those with very small interests in the issue are excluded. The voter's stake could include the effects of the market failure, but it need not bear any relation to his/her existing political influence over the issue. The difficult problem is to define the jurisdiction so that the stakes of the voters are sufficiently homogeneous (under a one person-one vote rule, voting power is homogeneous) so that the expected outcome will maximize social welfare, considering also the excluded but affected parties. To be able to do so properly would require that the boundary issue be decided behind the veil of ignorance. Although that is impossible, decisions as to the eligibility of persons to a voice on issues which affect them to some degree are made any time a jurisdictional boundary is drawn or a constituency defined to include some (those eligible to vote) but exclude others.

By resorting to a constitutional decision-making analysis which allowed the decision makers not only to select the decision-making procedure -- vote trading or simple majority rule -- but also to define the jurisdiction rather than accepting it as given, McMillan is able to illustrate the potential for comparisons among alternative states which are not simply Pareto moves from the existing situation. Although abstract and not void of value judgments, this technique is a means of looking at institutional change from a perspective somewhat broader than that attributed to the public choice-property rights school by Goldberg [1974].

### III. SUMMARY

The pluralist model advocates open access to the decision-making process and defines actions as being in the public interest when an open and carefully managed process has been followed. It is a political analogue of the economist's perfectly competitive market. The notion of representative governments attaches less significance to interest groups, and instead starts from the point of view of the individual voting for or against issues or representatives. The pluralist model carries with it the consideration of government as but another interest group with whom bargaining occurs. The broad and general environmental legislation of the early 1970s is in the pluralist mode, with extensive delegation by the legislative branch to the executive branch.

The representative government model assumes the creation of legislative (policy-making) bodies much closer to the problem area, more specific guidelines to the administrative branch and less scope for bargaining among various interest groups.

In both instances we are talking about the creation of a set of operating rules -- institutions -- for managing environmental quality. Such institutions have their manifestation in organizations for providing alternative environmental quality services.

## Footnotes

- <sup>1</sup>This is, of course, an empirical question requiring careful definition of such terms as "successful," "policy domain" and "poorly suited".
- <sup>2</sup>References for this section include Buchanan and Tullock [1967] Haefele [1972 and 1973], Musgrave and Musgrave [1973], and McMillan [1976].
- <sup>3</sup>For a discussion of the distinction between parliamentary and constitutional decisions see Mueller [1973].

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## CHAPTER 3

### INSTITUTIONS AND ENVIRONMENTAL QUALITY

#### 1. INTRODUCTION: THE CONCEPT OF INSTITUTIONS

In the foregoing chapter we discussed in detail two forms of operational rules without specifically identifying each as an institutional alternative. The time has come to clarify terminology, but this is not a simple task. For a survey of the supposedly "institutional literature" reveals a wide variety of definitions and applications. Indeed, the term "institution" sometimes implies a rather "...confusing conglomerate of both 'rules of the game' and organizations" [Bromley, 1974].

Ciriacy-Wantrup [1969, p. 1,319] defines an institution as "... a social decision system that provides decision rules for adjusting and accommodating, over time, conflicting demands .... from different interest groups in a society." Institutions were previously defined by Commons "... as collective action in restraint, liberation and expansion of individual action" [1934, p. 73] and earlier in conjunction with working rules which determined what "... individuals must or must not do (compulsion or duty), what they may do without interference from other individuals (permission or liberty), what they can do with the aid of collective power (capacity or right), and what they cannot expect the collective power to do in their behalf (incapacity or exposure)" [1924, p. 6]. Fashioned by courts, legislatures and executives, Commons saw these working rules as establishing the property rights and powers of government which determine the present social structure [1924, p. 378]. Schmid's definition of institutions in many ways parallels that of Commons. To him, "Institutions are sets of ordered relationships among people which define their rights, exposure to the rights of others, privileges, and responsibilities" and property rights are the "individual components of these symbolic relationships" [Schmid, 1972, p. 893]. Ostrom [1972] sees institutions as the decision-making rules which order social relationships and to Kaynor [1972] institutionalization is a process which stabilizes behavioral patterns.

Institutions as discussed in the preceding paragraph are those social decision systems which, by defining the working rules, accommodate change and reconcile conflicting demands. These characteristics, however, leave ample scope as to what can be considered an institution. While the concept of institution is subject to a number of interpretations and usages in the water resource planning and management literature, it is often given a rather restricted meaning. Wengert, who sees institutions as "providing the basis for human collaboration in regular and systematic ways, both formal and informal,..." found from a survey of purportedly institutional studies that very few dealt with truly institutional issues. Frequently, institutions were regarded as a "black box" to explain away the human dimension of the problem, or problems were called institutional when they were social-political or involved deeply rooted human values and beliefs. In general, the term institution was not carefully defined nor consistently used, particularly among disciplines. There was little appreciation for the theoretical background of institutions, and often nothing was lost if the term was deleted or another substituted in its place. The major observation was that with few exceptions the studie

investigated organizations and not institutions. Because such a narrow approach fails to examine the values and beliefs which support the organizational structure, Wengert does not regard these studies as being institutional.

Without having yet specified what may be properly encompassed within institutional studies, it seems premature to write off organizational studies as unacceptable even if exceptionally narrow in scope. Ciriacy-Wantrup [1967] sees institutions as one layer in a three level hierarchy of decision making. The input and output decisions of firms, industries and public sector operating agencies comprise the lowest level -- the operating level -- of decision making. The middle level of decision making -- the institutional level -- regulates decision making at the operating level. The policy level of decision making is the highest, and it is there that decisions are made which effect changes at the institutional level.

What is encompassed within Wantrup's institutional level is not clearly spelled out. It includes laws which regulate certain activities and also includes the tax and land tenure systems plus "other social institutions." Presumably, the institutional level also includes those organizations charged with implementing the law but not actually involved in operations. To the extent that the structure, conduct and performance of alternative organizations for implementing the intent and purpose of legislation varies, [organizational studies appear a valid but restricted area of institutional investigation.] Organizational structures are the tools for implementing the law or structuring a system. While one may function more satisfactorily than another, modifications of the organizational structure must normally be expected to have less effect upon the operational decisions than changes in the legal or policy framework. On the other hand, it must be remembered that in some cases organizational structure may be uniquely related to the ultimate purpose. In these cases, organizational studies fully qualify as institutional studies, assuming that changes of attitude or perception accompany organizational changes.

The composition of the policy level of decision making is also rather nebulous in Wantrup's discussion. If one considers it as including that which establishes, administers, defines and interprets laws -- particularly the legislative, judicial and executive branches of governments -- then a fourth level of decision making, the constitutional level, is warranted. Although Wantrup's analysis suggests that he includes this within his policy level, distinguishing between the two is justified because of basic differences in decision making at the constitutional and policy levels. Decision making at the constitutional level defines, ideally on a consensus basis, what are essentially the ground rules of the society. Constitutional decisions define such things as the right to representative government and the structure and functions of its branches, the ownership of productive factors, religious freedom, freedom of speech and the basic philosophy regarding gainful activities. In structuring the social foundation, constitutional decision making directly constrains decision making at all other levels.<sup>2</sup>

The essence of social institutions lies within, or is expressed through, the legal structure of the society. Policy decisions may be expressed as statutory law or administrative rule, or may take form over time as court precedents are established. In the former case, policy makers are allowed to implement institutional change within the latitude allowed by the constitution; social values embodied in the constitution are institutionalized as laws, which are subject to limited change through an intermediary policy-making body. In the latter case, policy makers do not affect institutions by means of statutes enacted to promote

or prohibit certain activities, but rather by choosing to remain neutral with respect to some issues upon which they could take a position. This leaves the resulting institutional issues to be defined elsewhere, either by practice and tradition, or in the case of litigation, in the courts. Thus the policy makers may implement legislation to regulate land use, prohibit excessive effluent discharges and restrict certain business activities, but may remain aloof from direct involvement in the establishment and development of a "market" for improved environmental quality. Policy makers may also play an intermediate role by creating enabling legislation, e.g., allowing incorporation, which may be acted upon at the option of the individual.

Unlike Wantrup's hierarchy, institutions in this framework are not confined to a single level. Rather, because the constitutional and policy-making levels of decision making have become defined in legal terms either by ruling or acquiescence, the institutional makeup of society can be differentiated into at least the constitutional and legal levels (see Figure 3.1). Also separated out here is an organizational level of decision making. Included in this level are those structures responsible for implementing legislation. Included also are those organizations, such as markets, which do not implement legislation but rather are constrained by it or those which, in the case of religious and other organizations, are allowed to operate within broad limits for their members' benefit. In that the organization or agency implements the law or exists and functions with its permission, such structures collectively become the manifestation or body of the institution. While a law may exist on the books or certain activities are allowed (or at least not prohibited), it is only when the law is enforced -- or the opportunity it provides is taken advantage of -- that the institution has meaning and viability.

This separation of the legal and organizational level facilitates finer distinctions than does Wantrup's three-level decision system. As laws are largely articulations of policy, putting them in the same category with organizations, as is done in his system, is clearly not appropriate. Here they are shown as distinct; the legal system expresses policy and defines what institutions or interrelationships are to be established and permitted. Organizations, on the other hand, put flesh on the skeleton in the sense that they give meaning to or effect the accepted arrangements and structure the ordered relationships which will in fact exist (i.e., institutionalize the legal framework); this further defines and orders relationships. Thus the concept of an institution can be thought to apply at each decision-making level, from the constitutional to the organizational.

It is possible to extend the case and argue that institutions also exist at the operating level, but this appears to be a much more restricted situation. Institutions indigenous to the operating level would seem to be limited to those situations in which operating rules have developed at the operating level itself and have not been imposed through, although accepted by, the legal and organizational levels.

The hierarchy of decision systems has led to a hierarchy of institutions. In this hierarchy, institutional change may be examined at any level; but the consequences of change at any one level must be considered at all others. Change at one level affects decision making (and possibly institutions) at lower levels and, by redefining rights, privileges and the like, influences the distribution of decision-making power. This in turn sets in play forces seeking further change in order to regain, protect or further enhance some group's position. Thus, feedback

## A HIERARCHY OF DECISION-MAKING SYSTEMS

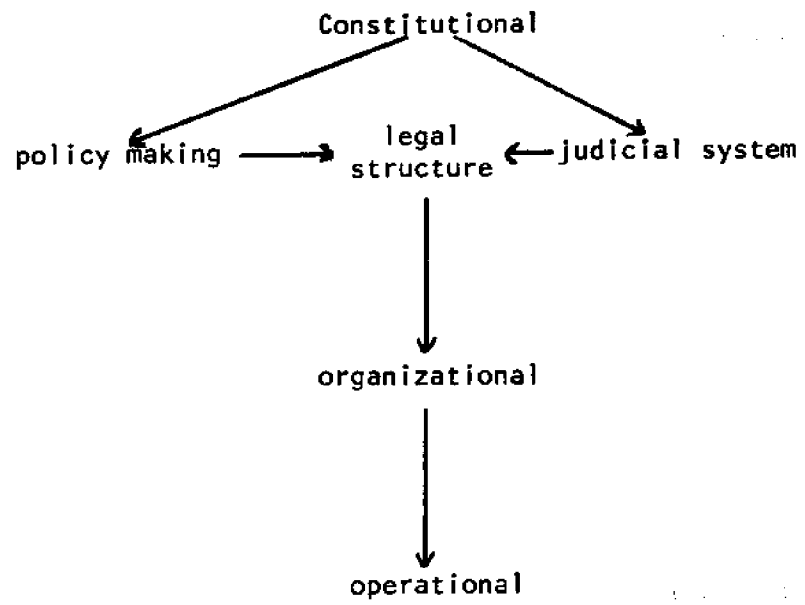


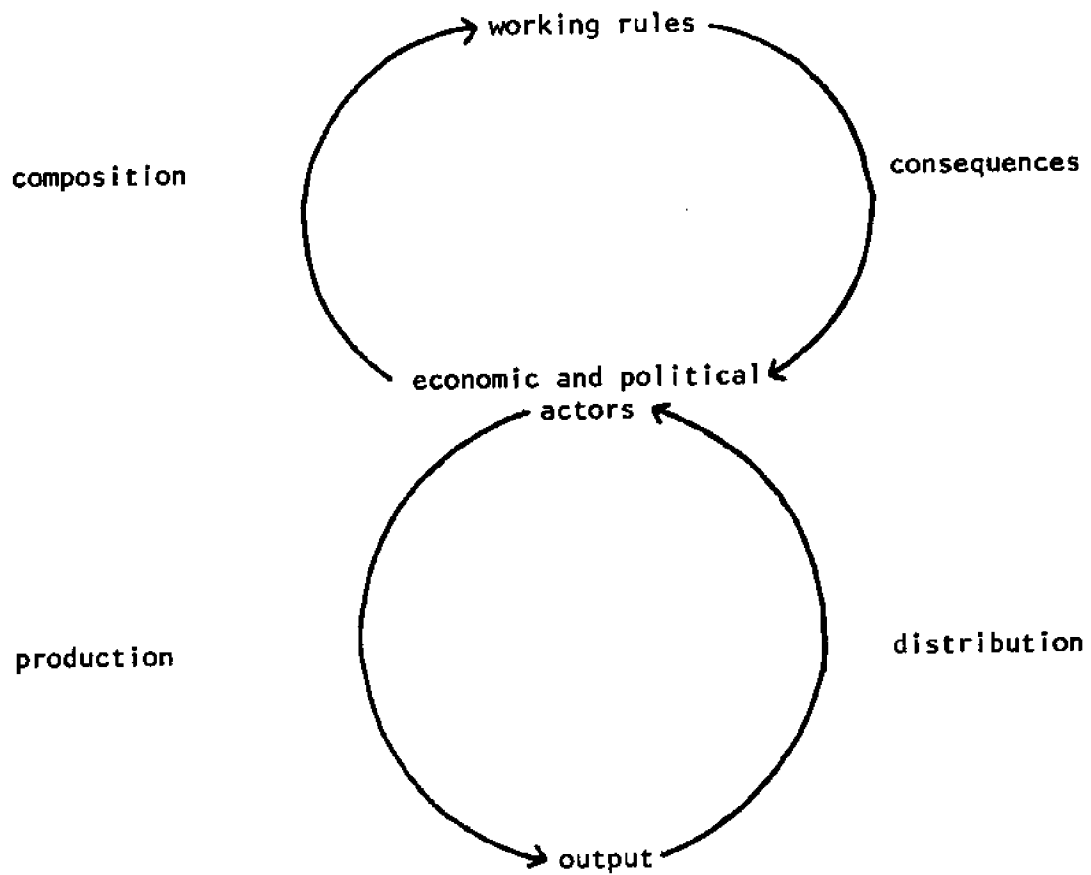
FIGURE 3.1

through the system is not only informational but also modifying. Directed attempts to initiate institutional change may be effective only in the long run. Hence, at any instant the view of decision makers at each level is likely to be that the decisions at all higher levels impose institutional constraints upon their actions. However, within those limits they can vary the institutional constraints imposed upon lower levels in the decision-making - institutional hierarchy.

Looked at in this way, institutions are the web of interdependencies among law, agency operations and public finance, rather than any specific part of the whole.<sup>3</sup> The role of this complex of institutions can be illustrated by Figure 3.2 which unites a variation of Bromley's depiction of institutional influence with a modification of the simple circular flow-of-income diagram [Bromley, 1974]. The existing working rules (i.e., institutions including, for example, effluent fees and discharge permits) determine the behavior of the economic factors and consequently the production and distribution of goods and services. The distribution of output determines the structure of economic and political power. The attempt by some to change that distribution and the efforts of others to countervail the threat creates a political struggle, the outcome of which establishes the working rules governing subsequent activities. The interrelationships which comprise this milieu are described by Samuels: "...the working rules of law govern the distribution of power, and the distribution and exercise of power govern the development of the working rules; the power structure is a function of law, and the use of government is a function of the power structure and, inter alia, both income and wealth distribution are a function of law, and law is a function of income level determination and income distribution) are proximately or nominally a function of market forces, but these give effect to or are a function, in turn, of power, rights, law, and the uses to which the law (state) is put" [1973, p. 536].

Research in institutional economics studies the link between institutional alternatives and behavior; this is in contrast to production analysis, which studies the connection between behavior and output.<sup>4</sup> In an earlier assessment, Bromley states that the concern of institutional economics is not only with the traditional factor-product issues and efficiency calculations but also "...with whose ox is being gored," the role that alternative institutions (working rules) play in determining the nature and extent of the "goring," the reasons why (group) A's "ox is gored" while (group) B's is not, and the obstacles to institutional change which mean that (group) B remains in the favored position" [1973, p. 821]. Institutional research on the relationships between working rules and transactors was there defined as one of two types -- consequential and compositional. Most of the institutional studies, particularly in the environmental area, have focused on the consequences side; that is, explaining how existing institutions or working rules determine current behavior and predicting future behavior under alternative rules. On the other hand, compositional research seeks to explain current institutions as the logical results of economic and political conditions; this research area remains underdeveloped.<sup>5</sup>

Understanding the factors which determine institutional structure and direct institutional transition is essential to establishing criteria which can be utilized both to evaluate existing environmental decision-making arrangements and to guide the establishment of new institutions. Ruttan sees "...institutional change as resulting from efforts of economic units (households, firms, bureaus) to internalize the gains and externalize the costs of economic activity and efforts by society to force economic units to internalize the cost and externalize the gains" [1971, p. 712]. The failure of existing institutions to cope with the



Institutions and the Economic System

FIGURE 3.2

environmental problem will, he feels, "induce institutional innovation" just as technical change is induced to economize on scarce resources--that is, both respond to a demand. But, in extending the theory of induced innovation to institutions, he recognizes the conflicts arising among economic units and between economic units and society.<sup>6</sup> Ruttan feels that we must "search" for those institutional innovations which through the establishment of property rights or other means are capable of providing the informational linkages and incentives enabling the satisfactory use of our environmental resources.

The value of institutions is that they define or establish property rights. In doing so, they determine relationships among individuals by enabling them to internalize what would otherwise be externalities. Property rights enable trade, which determines prices and consequently provides a source of information otherwise lacking. Improved information is an objective many advocates seek to achieve through new environmental institutions [Ruttan, 1971; Schmid, 1972]. Institutions are also seen as a social decision system to accommodate change. Institutions are society's attempt to direct the changes caused by growth and development in an acceptable way [Schaffer, 1969] and are the means of resolving the conflicting demands of different interest groups [Ciriacy-Wantrup, 1969]. Too often institutions are assumed fixed, as a constraint on the optimization effort. As Ciriacy-Wantrup [1971] indicates, accepting the institution as a constraint implies acceptance of a policy objective when in fact the institution should itself be established to serve the policy objective. This in essence implies that institutional economists engage in a form of nonmarginal economics [Schmid, 1969, 1972].<sup>7</sup>

## II. INSTITUTIONS & ENVIRONMENTAL MANAGEMENT

Three relatively new institutions are of major significance in the environmental area: (1) the National Environmental Policy Act of 1969; (2) the Clean Air Act of 1970; and (3) the Federal Water Pollution Control Act Amendments of 1972. The latter two acts established nationwide standards governing effluent emissions. While both called for the virtual elimination of polluting discharges, there is sufficient flexibility granted the Environmental Protection Agency to insure that extensive bargaining will occur over many aspects of the legislation.

While the regulation of emissions into the air and water is an important institutional change in environmental decision making, federal action has implemented another with the enactment of the National Environmental Policy Act of 1969. This act, by requiring the preparation of an environmental impact statement for federal projects--and its extension to an even wider range of projects through the adoption of similar legislation by state governments--has opened a new forum for discussion and input to the decision-making process on developments with environmentally significant consequences. Also, with NEPA as backing, many parties have added weight and influence to their positions by seeking recourse to litigation when they believed environmental concerns were being sacrificed. The opportunities for litigation provided by this act have resulted in a further extension of the courts' role in defining environmental policy [Rosenblum, 1974].

In playing an instrumental role, federal action dominates environmental policy.<sup>8</sup> Although closest to the pollution problem, local governments usually have failed to take effective action. A major reason for this is that local officials are closely tied to promoting community growth and development (typically industrial) and are well aware of the detrimental influence of strong unilateral action in the



context of stiff intercommunity competition.<sup>9</sup> Another restraint to local action is the failure of the pollution problem to respect jurisdictional boundaries. A single local government may be but one of many in an airshed or river basin. As a small component of the total, its influence upon even its own environment is often minute and what improvements it might generate may often benefit downstream or downwind jurisdictions more than itself. Consequently, efforts by individual local units to improve the environment are not encouraged. Although cooperative arrangements among neighboring units were occasionally successful [Leduc and Baccanari, 1973], regional or area-wide cooperation was not at all typical despite the often substantial economies to be obtained, particularly in metropolitan areas [National Water Commission, 1973].

The Clean Air Act and the Water Pollution Control Act Amendments both require an area-wide approach in that a regional authority is to be established by state governments for the problem airshed or river basin. The acceptance of the area-wide approach is a consequence of research such as that of Kneese and Bower [1968] and Craine [1969] into the advantages of managing an environmental problem area such as a river basin under a single authority. The viability of regional units and their success in solving area-wide problems depends upon how they are structured and the power they acquire. The American experience with regional authorities has not been entirely successful. Attempts to rationalize water policy by coordinating the often disparate activities of the several water-oriented agencies through interagency and ad hoc coordinating committees have not proven satisfactory. While these bodies have enabled some coordination of programs and a limited reconciliation of differences among members, the undiminished strength of the individual agencies and the weak authority of these committees prevent effective planning. Strong central control of river basins, on the other hand, has not developed extensively in this country. The federal corporation for multistate river basin management, of which the Tennessee Valley Authority is the sole example, has not again proven amenable to Congress. River basin commissions, established under the Water Resource Planning Act of 1965, offer somewhat greater potential as a viable organization for coordinating water resource development and management. But while commissions represent a broader range of water interests, their effectiveness has been hobbled by the need for consensus and their restriction to a planning role [National Water Commission, 1973].

Helen Ingram [1973] argues that the disappointing performance of regional water authorities is due to their lack of political viability. The regional organization is imposed upon an existing decision-making and power structure and is often composed of the existing decision-making personnel in a somewhat different organizational form. Such "organizational tinkering" [Wengert, 1972] is not effective, as the regional body's survival depends upon generating balanced support from regional interests--states, federal agencies, governors and private groups. The influence of the regional organization is limited since any action requires the consent of many divergent and often conflicting interests. The TVA, for example, in pursuing and developing grass roots support, had to forego responsibilities which interfered with local interests and focus on power production, flood control and navigation.

The greatest relative success in the area of regional water management is considered to be that achieved under federal-interstate compacts, of which the Delaware River Basin Compact is the most prominent example. When afforded some degree of financial independence and embodied with substantial planning, operating and regulatory power, such organizations have (more or less) effectively managed water resources for a variety of purposes. The relative success of these authorities

led the National Water Commission to recommend the federal-interstate compact "... as the preferred institutional arrangement for water resource planning and management in multistate regions" [National Water Commission, 1973, p. 424].

The performance of compact authorities has not gone uncriticized. Ingram [1973] points out that the Delaware Commission, because of its lack of independent political strength, pursues a strategy of compromise with the result that it has neither fully exercised its authority, nor promoted innovative measures. A most detailed and extensive review and criticism of the Delaware River Basin Compact (DRBC) as an organization for environmental management is provided in the Ackermans', The Uncertain Search for Environmental Quality [Ackerman, et al., 1974]. Their research, to a large extent, substantiates the Ingram critique. For example, in tracing out decision-making procedures, they found that the state and federal members of the compact failed to adopt the regional perspective when making decisions on the Delaware Basin, instead acting to promote their own interests in their respective spheres of influence. As a result, regional interests suffered when the commission committed itself to a higher water quality improvement goal than appeared justifiable and greater than was recommended by the basin planning body (the Delaware Estuary Comprehensive Study Group), whose own goal may have been based upon overly optimistic estimates of benefits.<sup>10</sup>

The DRBC also attempted to minimize the aggregate costs of pollution abatement by zoning the river into four areas, implying different degrees of treatment in each. Since this would have produced substantial differences in treatment costs (tertiary as opposed to secondary treatment) among zones, political pressures soon squelched the effectiveness of this innovation and led to only nominal differences in the level of secondary treatment being adopted among zones. Even then, efforts were made to modify the boundaries so that a particular polluter might be placed in a zone with only slightly less stringent requirements for treatment. Furthermore, the relatively uniform treatment requirements--removal of 86 to 89.25 percent of first stage ultimate oxygen demand--failed to allow for the increasing absolute emissions which accompany the growth of the region. If a given river quality is to be achieved, only a fixed amount of untreated discharges can be allowed.

Finally, the DRBC failed to accomplish implementation of the treatment requirements as private and public dischargers failed to comply on schedule. This problem, in no small part, again stemmed from the reluctance of state representatives to allow the DRBC to intervene in the established jurisdictions of state agencies.

While the discussion has thus far dealt with interstate regional authorities, intrastate area-wide management organizations also exist. They have in some instances been successful [National Water Commission, 1973] and may be of greater relevance for those authorities to be established under the Clean Air Act and the amendments to the Water Pollution Control Act. One of the most notable cases is the Miami Conservancy District in Ohio. This district was established in 1914 under state authority in an effort to protect Miami Valley residents from the ravages of devastating flood such as that which in the previous year had inundated Dayton and substantial areas of the river valley. This district is unique, not only in that it was an early move to adopt a regional approach to a regional problem, but in that it is characterized by several other features [Giertz, 1974]. In particular, the act afforded the new jurisdiction substantial powers--eminent domain and taxing authority--provided that a plan having benefits exceeding

costs, with costs distributed according to benefits, could be found which would be acceptable to a majority of the affected counties. Thus the act assured efficiency, self-sufficiency, equity and representation. In implementing its charge, the new district undertook an extensive flood control program financed chiefly by taxing the benefits arising from the program which would accrue to property owners in the flood plain and by compensating those injured or left unprotected by the district's actions. The result has been a generally viable and effective authority which, in addition to flood control, is now also responsible for water supply and water quality.

The strength of the Miami Conservancy District contrasts with the weakness of the DRBC. Apparently, there existed within the Miami Valley a sense of urgency and community which enabled the acceptance of an effective agency. According to Hart [1957], consent in water politics depends largely upon the intensity of interest, the commonness of feeling, and the conformity of boundaries. In the case of the Miami Valley, the latter was likely facilitated by its intrastate nature. In a similar vein, Boulding [1971] notes the absence of a Delaware Valley "public," and attributes the presence of pollution to the absence of community.

It must be recognized that much of the decision making in environmental issues is the product of direct or indirect bargaining among the leaders of various interest groups. The position taken by Dahl and Lindblom is that bargaining is the control of leaders by leaders [1953]. Sometimes this bargaining occurs between the regulator and the regulated. Holden [1966] demonstrates how agencies regulating water quality may negotiate with polluters until a mutually satisfactory agreement can be achieved. Using the case of establishing a law to regulate and control emissions from on-site incinerators in New York, Hagevik [1971] illustrates the strategies and exchanges involved between the parties as the alternating responses eventually led, through indirect bargaining in conjunction with market forces, to something approaching a least-cost solution.

A model developed by Dorfman and Jacoby [1970] illustrates the bargaining process among a water quality authority and other interest groups (industry, communities, federal authority). By determining the costs and benefits to each party associated with each alternative level of water quality, and by assigning weights to represent relative political strengths, their model is able to predict the most likely outcome when all Pareto optimal alternatives are admitted. The greatest impediment to the practical application of this model would appear to be the problem of determining the relative political strengths of the participants in the bargaining process.

That such bargaining occurs is illustrated in the case of the Delaware River [Ackerman, et al., 1974]. Interesting insights are offered into the importance of positions and personalities in the pulling and hauling which went on even within the Delaware Estuary Comprehensive Study Group's Advisory Committee to reach a consensus on the recommended water quality goal. Another example of bargaining discusses the activities of the local polluters, and of local municipalities in particular, in their negotiations with each other and with the DRBC on the organization and implementation of waste treatment. Poor strategy on the commission's part and insufficient power led to failures in this area.

Bargaining, with its conflicts and trade-offs among interest group leaders, represents the pluralistic approach to decision making [Baskin, 1970]. Pluralism exists when policy requires cooperation among nonhierarchical organizations with

different endowments of political capital and overlapping memberships, and proceeds along the path of coalition building, bargaining, compromise, accommodation and consensus building. An example of this consent building process is illustrated by Ingram [1971] in the negotiations among interest groups in the consolidation of support for water resource development projects. Whether the decision serves the public interest cannot be said, as analytical pluralists deny its existence. Pluralism and regulatory policy fit as hand in glove. Those affected by regulatory policy may not be organized to represent their interests, regardless of how valid their claims [Olson, 1965]. However, as dissatisfaction grows, the organization and mobilization of new interest groups will initiate conflicts over the distribution of power and influence such as we may now be witnessing in the environmental area [Hart, 1974].

There is no assurance that the bargains reached by participants in these processes are really those which "should" be reached. Indeed, evidence would seem to suggest that often they are not. The challenges to regulatory agency decisions and the cases contested under NEPA and similar acts at the state level would seem to indicate that bargained decisions are increasingly being found unacceptable by underrepresented and weak interest groups. Whether it be dams, irrigation projects, airports or power plants, the decisions of regulatory bodies are coming under increasing attack. Mitnick and Weiss [1974] attribute the increasing failure of the regulatory process partly to the traditional agencies' bias toward the regulated group, but more importantly to: (1) the emergence of participatory activism--the increased willingness of groups to undertake the sacrifices involved in opposing administration-approved projects; (2) the extension of the number of interests which must be considered in agency decisions; and (3) the requirement that public regulatory agencies are not to act as passive judges but are to actively investigate in the public interest. In order to facilitate the accommodation of these new interests into the regulatory decision-making structure and so revive the regulatory decision-making process, Mitnick and Weiss offer several suggestions aimed at reforming regulatory agencies. Of their proposals, the most important may be the recommendation to establish public and special interest counsels to actively seek out and represent those affected groups whose positions would otherwise fail to be adequately presented. The actions of these counsels would be an effort to affect the often lopsided view which is presented when only one or a few interest groups are organized and financed to a degree sufficient to be regularly well represented in normal regulatory hearings. Another recommendation of some importance is the suggestion to establish a separate research and information office to provide the facts of the situation to all parties so that sound information is uniformly available.

In legislating for air quality management, Hagevik [1971] argues that the logical procedure is to seek to improve the regulatory decision-making process so as to encourage flexibility in pursuit of least-cost solutions. The rationale for this approach is:

...(1) that the government has already opted for a direct regulation approach, (2) that such an approach holds fewer dangers for resource misallocation and inequity than would a payments or subsidy program, (3) that direct regulation would be more likely to operate effectively with necessarily imperfect data than would an effluent fee approach, and (4) that its legal status might be somewhat less open to question than an effluent fee program ...[Hagevik, 1971, p. 321].

Regulations would be established by a commission, with its rulings subject to judicial review. The commission would have an independent research staff to provide factual information concerning such things as existing environmental quality, identification of pollution sources and emission levels and the distribution of the benefits and costs of various abatement plans. The rulings themselves would be the product of a consensus building and bargaining process aimed at iterating toward the least-cost solution. Sincere bargaining would be facilitated by formal paths of communication established between the commission and polluters and the commission's authority to invoke substantial, flexible, but not overwhelming sanctions.

From their analysis of the Delaware River Basin Commission, the Ackermans [1974] make several recommendations for institutional reform which, although extending beyond that, are largely of the regulatory mode. These recommendations can be viewed largely along functional lines. They see as "...a prime institutional task ... the construction of a system of federal river basin agencies capable of framing regional policies .. which include a commitment to poison control, conservation, recreational opportunity and environmental defense" [Ackerman, et al., 1974, p. 326]. The latter would most nearly parallel existing environmental bodies while the first three would instead promote an activist role. The efforts toward poison control and conservation through a Poison Control Board and National Preservation Trust, respectively, would primarily be at the national level. Recreational development and environmental defense would be most extensive at the regional level. The activities of both would be scrutinized by the watchful eye of a review board, whose presumed task is to insure the adequate consideration of all interests. The decisions of all bodies, however, would be subject to judicial review. One of their major criticisms of the existing institutional structure (i.e., the 1972 amendments to the Water Pollution Control Act) is the "uncritical acceptance of legal orders" in the requiring of discharge permits which promote both inefficiency and inequity. They recommend incorporating a market type of institution, via the sale of pollution rights, to reduce the reliance upon the relatively unsuccessful legal-orders approach.

Although legitimizing the voice of new interest groups by admitting them to a place in the bargaining arena is one means of improving decision making; another is to formalize the process in a representative political body. While the decisions of regulatory agencies are, of course, ultimately subject to the approval of the voters through their representatives, the costs of forcing a regulatory decision back to the representatives for appeal are substantial. And there is often some question as to the appropriateness of rulings even in existing legislatures, where the environmental questions can become one of a host of diverse issues through which the representative body must itself negotiate some agreement; in this context the environmental issue may not be judged on its own merits but instead on how it stands relative to other issues which have little relation to it or to the persons affected by the environmental decisions.

Suggestions have been made that environmental policy, and particularly water resource policy, should be made by the elected representatives from the affected area. A strong advocate of this position is Haefele [1973], who argues that if responsible decisions on environmental questions are to be made, they must be the product of representative government. He then proposes means by which representative decision-making bodies could be established to govern in the environmental areas. Freeman and Haveman [1971] would prefer that river basin commissions be developed as a form of representative government. While Roberts [1971] feels

this would be ideal, he doubts whether it is practical and instead would normally rely upon state government to provide political responsibility.

According to Ingram [1973], lack of a representative body responsible to the river basin public is a major reason why river basin commissions lack an independent power base and instead must derive their support from the existing water resource decision makers in their area. Without independent strength, the river basin commissions simply become a new organizational forum in which the old decision makers negotiate. Consequently, there is no improvement in the alignment of decision-making power with environmental interest and concern. The relative success of the Miami Conservancy District can in part be attributed to its representative structure. While representatives from the underlying jurisdictions were not elected (at least for that purpose), they were responsible individuals sensitive to local interests. Differences between the environmental quality of London and Liege have been attributed to differences in the representation of local interests in local governments. In England, where local officials are elected, local government has been responsive to the grass roots concern for environmental quality and has acted to improve it. In Belgium, however, most local officials are appointed by the national government; citizens feel they have little influence over local affairs. Air quality, though poor, is not a viable issue.

To use a cliché, the call for representative decision making on environmental issues is a demand to return "power to the people." It appears that this move is an attempt by the people to regain control of their leaders--a demand to return to polyarchy--stemming from dissatisfaction with the solutions the leaders have negotiated among themselves. The demand for increased representative decision making stems from the fact that improvements in environmental quality imply redistributive policy decisions rather than regulatory or distributional ones [Lowi, 1964; Hart, 1974; Godwin and Shepard, 1974]. That is, environmental policy is going to burden some and benefit others--with the respective parties being well aware of the change--rather than subsidizing or imposing regulations benefiting particular groups without significantly affecting any other interest group. Realizing the conflicts emerging from the definition or redefinition of environmental policy, people are unwilling to entrust this process to the established power structure. They want to bargain these issues where there is equal footing and all interests can be fairly represented. We now turn to a discussion of the process of institutional design.

### III. SOME ASPECTS OF INSTITUTIONAL DESIGN

The establishment of new institutions--and an authority or organization to implement them--requires that certain questions be answered: under what circumstances are they to be created? What are the powers and responsibilities? Over what geographic area can the authority exercise its power? Who makes decisions and how are they to be made? How is the operation to be financed? The discussion of institutions, public goods and collective choice implied that environmental authorities must to some extent comply with a number of constraints imposed by the public nature of their services and the need for effective action through the provision of correct information and acceptable incentives. Given the nature of environmental problems, the following applies the lessons of the earlier discussion to these questions in an effort to delineate characteristics of viable environmental management authorities and to identify structures and features which, perhaps uniquely, suit them to the attainment of their objectives. While the discussion proceeds in the context of environmental authorities for substate regions or multimunicipality areas, the principles also apply to the organization of interstate bodies.

## Initiation

Regional environmental authorities should be considered in those special problem areas where the uniqueness of local conditions and/or local preferences render state action unsatisfactory. Although state (and federal) agencies may promote its development, a regional authority should emerge because of local dissatisfaction with existing environmental policy and a willingness to organize on an area-wide basis to cope with the problem. An authority should not be conceived of as able to establish a completely independent policy. Rather, it should be a means of conditioning environmental policy to regional situations and objectives while retaining consistency with state or national environmental policy goals.

The establishment of a regional authority could be governed by enabling legislation which would specify the conditions to be met by special authorities seeking responsibility for coping with any of a broad range of environmental problems. Local commitment to a proposed environmental authority could be assured by requiring that its creation be considered only after receipt of a petition originating in the proposed management area. The petition could be made by local governments representing a majority of the residents of the proposed area or by a specific percentage of the voters or property owners. Although it is unreasonable to believe that a petition by voters or property owners without local government support would prove successful in itself, it may, by allowing local residents to initiate action independently of the local government, stimulate awareness and response by local units.

Upon receipt of a petition by a designated state level body, special hearings would be organized at which the need for and suitability of the proposed authority would be assessed.<sup>11</sup> The hearings might be conducted by a special board composed of members from departments or agencies having particular technical expertise in the environmental area of concern. On the other hand, bureaucratic jealousies could impede the establishment of regional authorities which may reduce the power of existing agencies. Hearings conducted by relatively disinterested parties, such as members of the attorney general's office or the judiciary, may be more suitable.

The establishment of a new authority expands the rights and powers of some and imposes upon others, and so is likely to be supported and condemned by different groups. The purpose of the hearings is to ensure that the establishment of the proposed authority is indeed in the public interest; the petitioners must show the need for a special authority and request permission to develop a plan for combating a particular problem. The board must weigh the evidence and decide whether the proposal should proceed further. If the board is satisfied that there is a problem which a regional authority may be able to alleviate, it can grant permission to develop a constitution for the proposed authority and at least the outline of a regional management plan to be presented for further examination and hearings. After these hearings, the board may then recommend or require modification of the plan. Once the board is satisfied, the plan must finally be ratified by persons in the affected area. This might be done either through adoption by local governments representing some majority of voters and property in the area or through a referendum.

The board of examiners has one further responsibility. In exercising its powers an authority will undoubtedly adversely affect some under its jurisdiction. If the authority is to function effectively, a means of quickly and fairly resolv-

ing these conflicts must be provided. Many may be settled by appeal to an ombudsman or review committee within the authority itself. Other disputes will require recourse to the state-level board, and some to the courts. It is suggested that the board seek to resolve disputes before appeal to the courts. But the entire appeal process must be clearly spelled out if an authority's constituents or potential constituents are to be assured that they are not only to be served by the agency, but also protected from it. A further duty of the board might be to settle disputes which may arise between the regional environmental management authority and other state or regional agencies with similar or related interests.

### Responsibilities and Powers

In order that an environmental management authority be compatible with regional circumstances, its responsibilities should be defined with respect to its goals and objectives rather than its means; it should be charged with attaining a specified level of water quality in the area as opposed to reducing effluent discharged into area waters by a given percentage. Through a broad definition of its responsibilities, an authority can be afforded a flexibility which can facilitate the achievement of its objectives. Ideally, the authority would be responsible for establishing, achieving and maintaining environmental quality standards within its jurisdiction at a level and in a manner satisfactory to the localities and the state.

In defining the responsibilities of an environmental authority, it is necessary to specify what aspects of the environment it is to be responsible for--air quality, water quality, solid waste disposal, land use, etc. It is commonly argued that an authority should be charged with responsibility for many of them. This position is based upon the contention that responsibility for a wide range of issues facilitates the expression of preferences through negotiation and trading and enables a more satisfactory solution to many problems, as most persons will be able to win on some issue important to them. This may be an acceptable approach under the assumption that everyone under the authority's jurisdiction has reasonably uniform stakes in the overall set of issues to be decided; if land use, air and water quality are a common concern within an area, a single authority may be satisfactory. However, this need not be the case. And, even when it is, the vote trading which emerges under such circumstances sometimes leads to socially inferior outcomes. It may be desirable to divide responsibility for different environmental issues among separate authorities such that those persons influenced by the decisions of each are relatively more uniformly affected. The additional costs associated with separate authorities may be well justified--although their jurisdictions overlap to some extent--if it can be shown that they represent distinctly different constituencies. Thus, an authority should not automatically assume or be granted responsibility for some set of environmental issues but rather be allocated them based upon its suitability for coping with each problem.

It should be emphasized that in being responsible for achieving and maintaining the environmental goals it establishes, the environmental management authority must indeed be a management body. It cannot only plan and coordinate, although that is part of its role, but it must also be able to implement the programs necessary to accomplish its goals. Power must accompany responsibility if the authority is to effectively discharge its duties. Like responsibilities, powers should also be broadly, though carefully, defined so as to provide the authority with a range of choice in its approach to the problem. Both regulatory and operating



authority should be available to the management agency.

Regulatory and policing powers are essential to control polluting discharges, require abatement or treatment, monitor effluents and enforce regulations. Although the authority sets the requirements to be met and normally would police its rulings, enforcement could be the function of another body such as a state environmental authority or department of natural resource.

Regulations should be closely scrutinized to assure that the authority of other jurisdictions or the attainment of other goals is not unduly constrained or resource allocation distorted. Many regulations disallow the use of certain inputs, techniques or practices in an effort to reduce pollution, but often ignore the costs associated with meeting these requirements. Although direct regulation may be the most efficient mechanism in some cases (e.g., perhaps as in the removal of phosphates from detergents), it will often occur that the same end could be attained more satisfactorily by other methods. The authority should be concerned with limiting the amount of undesirable effluent actually discharged and let the offender determine the best method to meet that restriction. In setting regulations, the authority should also consider whether pollution abatement might be achieved more economically by its own operations than through the abatement actions of individual polluters; central collection and treatment or instream treatment may be a better means of controlling some types of water pollution.

To supplement its regulatory powers, an environmental management authority should have the power to operate the facilities needed to meet its objectives. To some extent this may be accomplished by leasing existing facilities or contracting for supplementary treatment, but more likely it will require that the authority own and operate facilities to augment and rationalize existing programs. This is particularly applicable in the cases of solid and liquid waste disposal and treatment where economies of scale are substantial and the advantage of coordination among units significant. It should not be necessary that the authority take over existing plants to assure adequate and efficient treatment if it establishes an effective regulatory system which can require specific levels of treatment and at the same time provide incentives for the efficient use of treatment alternatives either through the use of its own facilities or the coordination of existing units.

In order to finance its operations and activities and maintain its independence, an authority must be granted the power to tax and/or levy charges for its services. Holding to the belief that the issue of income distribution is best handled by other levels of government (although this does not entirely excuse the environmental authority from distributional concerns), we focus here upon financing rules consistent with efficiency objectives--i.e., requiring payments based more on services rendered and benefits received than on ability to pay. If financing is constrained to the quid pro quo basis and constituents are assured that the levies against them cannot exceed the benefits they receive, this aspect of the authority's powers should be easily accepted. The enabling legislation should not, however, specify the exact nature of the levies to be made (e.g., based only on property assessments) but rather set relatively simple criteria based on benefits received and allow the agency the flexibility to structure its revenue scheme to best suit its particular situation.

The recommendation that an environmental authority achieve and maintain environmental performance standards is likely to be fairly widely accepted. It is

generally recognized that environmental quality is often an area-wide problem transcending several traditional jurisdictional boundaries and largely amenable to coordination and the realization of scale economies afforded by special authorities. A more contentious recommendation is that the authority also be able to establish the environmental quality standards to be attained in its jurisdiction. Many will fear that the authority's decision makers would, like those in local governments, be too ready to forego environmental quality because of interarea competition for business and industry. Under an area-wide environmental authority, however, the situation differs in an important way from that faced by many local governments. Because of their limited size, local governments often are faced with the situation that if they unilaterally impose stringent environmental restrictions, they will impede growth and development with only a marginal gain in local environmental quality. Here the authority would encompass the entire problem area. Its regulations would afford area-wide benefits, as its broader perspective internalizes many of the externalities or spillovers which would otherwise persist among smaller units. Developers may cajole the authority seeking special concessions, but with less success than formerly when they could readily play one locality against another. Now if they wish to establish a development in an area there is only one authority with which to deal, and it represents area-wide interests and can recognize more fully the costs and benefits of its decision. Such an authority, recognizing and responsive to the area's interests, conditions and preferences, can pursue environmental policies better attuned to its constituent's wishes than can a small local body or a broader purpose agency. Certainly, as preferences, circumstances and conditions vary among areas, so will the environmental standards adopted. This variation need not be a concern however; in the federalist tradition, limited nonuniformity under appropriately defined jurisdictions leads to a more suitable provision of public goods as they become more closely matched to each area's tastes and preferences.

Allowing an area-wide authority to establish environmental quality standards does not necessarily provide it with a free rein. Indeed, in most cases it can be expected that interest in an area's environmental quality extends beyond the bounds of the problem area itself. Others occasionally experience that environment, or desire to maintain an environment of some minimum quality in that area should they wish to experience it (option demand), or because they believe that everyone should consume no less than a certain level of environmental quality (merit good). The interest of outside parties in an area's environmental quality would lead to the establishment of minimum standards which all areas must achieve or would offer incentives to those environmental quality regions adopting undesirably low standards to pursue a higher goal. Consequently, national and state-wide air, water quality and other standards, as well as grant or other incentive programs oriented toward stimulating environmental quality improvement, are quite consistent with the recommendations posed here. This does not, however, mean that present standards and programs are suitably structured to appropriately represent state and federal interests. It should be noted that outside interests need not be uniform in regard to the environmental quality of all areas. Due to differences in the number of outsiders concerned--which may vary with an area's uniqueness, intensity of use, etc.--criteria as to minimum acceptable levels of area environmental quality may and can be expected to differ.

### Jurisdiction

The jurisdictional issue is considered here in terms of where it is best to locate the boundary separating those subject to the decisions of the authority and

those beyond its control. Typically, this will define a coterminous geographical area, although situations might arise where this would not necessarily be the case. As a general rule, the area over which the authority is to have jurisdiction must encompass a sufficient part of the problem area that it internalizes a substantial share of the benefits and costs of its action.

The simplest guide to defining the jurisdiction is that it should encompass the problem area. If pollution were the sort of public good (or "bad") which was uniform throughout an area and abruptly ended at some readily distinguishable point, the difficulty of jurisdictional designation would be much eased. Such is not typical of environmental problems. Instead, their importance both environmentally and economically can be quite variable. Normally, pollutants are most serious near their source in the case of point sources such as smoke stacks or effluent discharge pipes, or at a point of accumulation in the case of nonpoint sources. Their effect then dissipates gradually over the surrounding area as they are dispersed more widely or absorbed by natural assimilative capacity. This gradual change in the environment makes it difficult to specify with any precision where the jurisdictional boundary should be located. When added to the increasingly recognized problem of toxic pollutants, which may be biologically concentrated to a dangerous degree at points far from their origin, the problem becomes even more acute; regardless of where the management boundary is located, there are likely to be some spillovers remaining. The inability of an authority to internalize all benefits and costs justifies state or national standards, for example, on the quality of water in a river at the point it leaves the jurisdiction of an environmental management authority. State standards can also influence the optimal size of the jurisdiction. If they are lenient, environmental spillovers will be greater and an environmental management authority should likely encompass a larger area. If they are strict, the authority may tend to be smaller, focusing on concentrated problem areas without fear that spillovers from neighboring sources will hamper its efforts.

Various measures may aid the delineation of boundaries. In the case of air pollution, particulate matter and offensive compounds can be measured and the boundary of an air quality authority defined to include that area characterized by certain physical standards considered to represent problem concentrations. While physical measures can also be used to identify polluted water or outline a watershed, the impact of water pollution upon persons is in many cases as ambiguous as that of air pollution. The benefits of abatement may be obvious when the treatment costs of water users are reduced, or water activities increased, or the property values of those located along a watercourse enhanced, but the advantages to occasional users, those beyond the immediate proximity of the water and those with access to alternative water sources are less easily determined. Interest in environmental quality is not a matter of air and water quality alone, for the standards chosen can also relate to other important concerns such as growth and employment or the cost of public services. Normally, those within the environmental authority's jurisdiction will be interested in the costs of improved environmental quality as well as the benefits.

An authority's jurisdiction would normally include both the sources of pollution and those affected by it, so that both the benefits and costs of the authority's actions are internalized to the region to be weighed by its residents. In some cases, especially on rivers and perhaps in airsheds, the sources and those affected may be so separated that the costs and benefits do not accrue to the same locale--e.g., distant upstream factories are the major source polluting the water

supply of a major urban area downstream. In this situation, a reason exists not to combine the two groups in one jurisdiction even though the whole watershed could be considered the problem area. Instead, such a case calls for separate up and downstream authorities--each better able to internalize the benefits and costs of its actions. The state would regulate the minimum quality of water flowing from one jurisdiction to the other with standards which might be modified by further negotiation between the two authorities.

### Representation and Decision Making

That persons have a voice in decisions affecting them is a fundamental tenet of democracy. Yet the extent and nature of their voice can vary widely. Through the delegation of power associated with the development of pluralism, an individual's concerns are supposedly represented through special interest groups which negotiate their way to a consensus. The pluralist approach is marred, however, in that not all interests may be represented or adequately voiced. Parties with valid interests but high organizational costs are likely to remain latent or underrepresented while those easily organized or financially strong are able to exert disproportionate influence. An additional fault of pluralism is that the lack of positive government policy making results in no direction or constraints as to the appropriate arrangements to be reached.

The increasing concern for public participation in environmental planning and decision making is in many ways only a modification of the pluralistic tradition. While it has facilitated the representation of many groups which otherwise would have gone unheard and unheeded, the balance of power still tends to favor the traditional interests. Furthermore, hearings held into such questions as development and control plans and the representation of a broader range of interests on advisory boards does little to enable those affected to control the outcome, although they may influence it somewhat. The final decisions are still made by agencies not responsible to the area or persons affected or by representatives sufficiently removed from the issue so that it is difficult to hold them accountable.

Regional environmental quality decisions can best be made by regional representatives elected for that purpose. Such decision makers would be responsible for decisions and the consequences of their decisions in that area alone, and so would be readily held accountable for them. Elected representatives would likely not unduly represent any particular interest (e.g., business, local government, conservation and environmental groups, agriculture, labor), as is common of appointed representatives, but would be elected by a constituency based upon a platform representing that blend of all those interests which most satisfied the electorate. Since it is the individual who must weigh the merits of a quality environment against higher taxes and the possibility of more limited growth and employment, this perception of the optimal balance is believed to be better conveyed through elected representation than through decisions negotiated by special interests.

If, as is often the case in special districts, the authority's decision makers are not elected to that position, then the appointments must be made from persons elected to other posts. Appointees typically are selected on the basis of their association with specific interest groups and are expected to propound the position of that group. Elected representatives (even if not specifically elected for that purpose) are more likely to be cognizant of the range of concerns

and better able to present and adopt positions balancing conflicting interests. Elected representatives are expected to provide a better expression of the public will because they are accountable to the public rather than a particular group and must face the scrutiny of campaign and election. Even if the authority were to be guided by bureaucratic decision makers with public advisors, it would be useful to include among the advisory body a limited number of elected persons so as to provide a more balanced view of the opinions of area residents.

A major criticism of special units of government is that they are commonly unrecognized by those affected by their policies. One reason for this is that these units and the issues they deal with are hidden behind the appointments to their boards made by the general governments. While offering some efficiency in decision making, this assignment does obscure the authority from the public. If, instead of being isolated from the public by the intervening layer of government, the decision makers for important special districts were elected rather than appointed, citizen awareness would of necessity be increased and the structure of government made less remote.

Important to the structuring of a representative body is upon what basis representation (either elected or appointed) is to be determined. Often, area-wide authorities encompassing several underlying local jurisdictions are organized so that each local government has one vote. That assignment is frequently unsatisfactory and is expected to be especially so in the case of an environmental management body. The basic problem with this method is that the importance of the environmental issue and the number of persons represented by each local government can vary widely, thereby causing an unacceptable divergence between the locality's political power and interest in the issue. By a careful definition of the authority's power and appropriate assignment of votes, it is believed that local governments' interests can be adequately protected and more satisfactory collective choices made.

One person-one vote is a generally accepted voting rule and can be adapted to voting on environmental quality decisions. However, the basic problem with this rule is that it implies that each voter has an equal stake in the outcome; as already noted, all those affected by an environmental issue are not uniformly affected. If the one person-one vote rule is accepted it implies that care must be taken in defining the jurisdictional boundaries to assure satisfactory performance. Lacking a distinct discontinuity in the importance of the issue, this may require excluding some of those affected by the problem so as to prevent relatively minor interests from dominating the voting power and to assure reasonable homogeneity of interests among the electorate. The interests of all those excluded should be sufficiently protected by state agencies. Even within the jurisdiction, members' concerns are still expected to vary. Basically, however, the greater the homogeneity of interest that can be achieved in defining the jurisdiction without excluding important interests, the more satisfactory the social choices expected.

Where intensity of interest varies within the jurisdiction of an environmental authority, schemes could be devised to encourage those with little stake in the issue to opt out. For example, all jurisdictions belonging to the authority could be required to support it financially according to some formula, possibly as basic as its proportionate share of the full value property assessments. Municipalities could be given the option of not contributing, but if they chose not to do so, they would lose their voice in the agency's decision making; they would sacrifice their representation or votes in the election of representatives. However,

all municipalities would still be governed by the authority, even though the service area and the political jurisdiction could differ. Those with relatively little interest in the environmental issue and the decisions of the authority would find opting out attractive. If they chose this route, the stakes of the remaining voters would be more homogeneous and better social choices could be expected. A problem with this, however, is that opting out might be an opportunity to free ride. Many municipalities could have limited stakes individually but still be significant in total, in which case each would find it attractive to opt out and leave the others with similar interests to pick up the tab and protect the group interests. However, this incentive would be offset in part because the lost votes would reduce the strength of the group as a whole. Provided that the authority charges for services and benefits throughout its jurisdiction regardless of whether the area served is represented in the decision-making body, free riding of the traditional sort is avoided.

In some cases it may be possible to assign votes to all those affected, but the number held by each voter would vary according to the private stake in the issue. Voting in irrigation districts is sometimes based upon each user's share of the water, which corresponds with the charges levied. Water quality management decisions for the Ruhr River in Europe are decided by votes which are in part allocated on the basis of the effluent discharged by each polluter. Although that appears a peculiar means of assigning votes to members of an authority responsible for water quality, it has proven reasonably successful, probably in part because municipal representation reflects public attitudes, industries benefit to some degree from improved water quality, and the possibility of alternative and less appealing action if the regional authority failed. In air quality areas, votes (and also charges) could be based upon the degree of abatement achieved and the costs or damages avoided.

In areas where several environmental problems exist and interests in each vary substantially over the problem area, the possible adverse effects of vote trading if the issues were settled within one decision-making body may warrant the establishment of separate authorities. The basic problem in such instances is to select that assignment of responsibilities among governments which maximizes the difference between the benefits of public policies and the cost of decision making.

Because air, water, solid waste and land-use decisions are interrelated, agencies responsible for the management of different aspects of the environment should be coordinated to avoid their impinging unduly on one another. Likewise, the state environmental agency and neighboring regional authorities should be aware of an area's activities to avoid conflicts and duplication. Including nonvoting representatives from related state and regional agencies in the decision-making body is one way of providing information and of encouraging cooperation. Their inclusion in an advisory council is another, and the establishment of a coordinating environmental council consisting of representatives from all agencies responsible for aspects of the environment is yet another.

### Finance

It has already been argued that an environmental authority should be constrained to secure its own (locally raised) revenues on the basis of benefits received and specifically from service charges to the extent practical. Furthermore, no one should be assessed an amount exceeding a reasonable estimate of the value of the benefits received. Within that context, the authority has considerable leeway in tailoring its local revenue structure to serve its objectives.

Who the beneficiaries of a pollution abatement program are and who is required to pay for the program, depends upon the interpretation of property rights. Residents and water users along a stream obviously benefit from abatement of pollution in the stream and consequently could be expected to pay for instream abatement facilities or compensate the upstream polluter for reducing effluent. If, however, as seems to be the intention of recent legislation, the downstream users have a right to higher quality water (rather than the upstream polluter a right to use the watercourse for disposal) then the cost of abatement should be borne by the polluter. Because polluters benefit from the assimilative capacity of the stream it is quite reasonable that they be required to pay. An authority could levy charges on effluent representing the external costs such pollutants impose on the community, or it could market effluent licenses and regulate these to attain desired environmental conditions. Revenues from these charges could be used to finance the authority.

When, as is the present situation, charges in the law effectively shift environmental property rights away from the customary user (the polluter) for the improvement of the general welfare, some might say that it is not unreasonable that some compensation be made. That is, in order to facilitate the transition, a program may be adopted which shares the cost of achieving new environmental standards among the beneficiaries and those who would otherwise bear the burden alone if the change in property rights were adhered to. Such a sharing of the burden would only be employed to assist existing polluters to adapt; new firms and additions to existing firms would be expected to bear the costs of meeting the new standards. A scheme which can provide the authority with information on the costs of abatement and affords some compensation to polluters is one in which some pollution rights are initially granted to each polluter, who is then free to buy and sell these rights through the authority. In this case, however, the authority will not gain financially from their sale, since the payment is compensation to the seller for giving up those rights.

User charges are expected to be an important source of funds to environmental authorities, especially those with water quality responsibilities. User charges not only raise revenue but convey information as to the costs of the services, thereby stimulating the polluter to search for more efficient (less costly) techniques.

Applying taxes and charges on the basis of benefits is more difficult in many instances since the pattern and amount of benefits is less easily distinguished. However, taxes to pay for flood control programs have been based upon the damage avoided, as determined by the depth of flooding which would have occurred on the property. Measures of damage avoided could also be applied to air pollution abatement programs. In cases when the benefits are quite uniform, a tax based on property values may be as reasonable and acceptable a means as any to support the agency. However, if the gains vary substantially and are identified with property, a feasible means of taxing on the basis of benefits received may be to make an assessment (like special assessments for street and other local improvements) against improvements in property value attributable to the improved environment. A problem with this approach is that if the improvements are widely available they will not be reflected quickly in property value changes. Where user charges or assessments are to be related to benefits, the state public utility commission should have the power to review the rates of an authority to insure that they are equitable and reasonable.

Before closing this section it should be noted that the discussion thus far has concentrated upon the sources of local financial support. Environmental authorities may also derive substantial revenues in the form of grants, aids and other payments from other governments and perhaps other agencies. Their funds should represent compensation to the authority for undertaking environmental quality improvements producing benefits beyond its jurisdiction and which it otherwise would be unwilling to provide to as great a degree.

#### IV. CRITERIA FOR EVALUATING ENVIRONMENTAL INSTITUTIONS

Having surveyed institutions and their role and influence in decision making, it is now time to focus on the implications for evaluating existing environmental decision-making arrangements and on what criteria can be adopted as guidelines to follow in the establishment of new decision-making institutions in the environmental area. If environmental issues are to be successfully resolved, considerable thought and effort must be applied to the design of the institutional arrangements or rearrangements affecting those decisions. The policies which can be expected to evolve from the existing decision network, with its unbalanced power structure, are destined to be unsatisfactory. In an analysis projecting the direction in which state land use policies will evolve, Godwin and Shepard [1974] predict decentralized, self-regulatory authorities with limited state intervention. Furthermore, they see the conflicts among the three influential groups--the development interest, the environmental-conservation interest and the local area (resident) interest--as being accommodated through distributive policies sacrificing the interests of the underrepresented lower and lower-middle income groups. Although their results and implications are not immune to criticism, Godwin and Shepard's assessment has validity and illustrates how existing interests can dominate the direction of new policies so as to preserve their influence regardless of whether or not the welfare of society warrants their playing such an important role.

In seeking to guide development toward socially preferred institutions rather than accepting the institutions that evolve under the pressure of organized interests, planners must recognize that institutions must be structured to meet certain standards and accomplish certain ends. Warner [1972] sees institutional structures as encompassing: (1) a cultural component; (2) an organizational component; and (3) an interorganizational component. The cultural component consists of those norms, values and goals which establish the way things are done; the organizational component is that formal organizational structure which articulates the cultural component in specific spheres of societal concern; and the interorganizational component is the set of linkages among organizations. Amendments to the institutional structure must relate to each of these components. That is, changes in the institutional arrangements for making environmental decisions will be viable only if society values an improved environment as an acceptable and important goal, there is an organizational structure to promulgate those ends, and the relationship of that organization to other organizations with similar and conflicting goals is well defined.

Warner goes on to note that in order for institutional organizations to be effective they must have several attributes. One is the power to influence outcomes by affecting individual and collective action in the specific area. Secondly, those with power must have the foresight to perceive the consequences of their actions. Third, those with power must be identifiable. Finally, the powerful must be accountable for their decisions and the resulting outcomes.



The nonaccountability of decision makers contributed to questionable decisions concerning the Delaware River. As Ackerman et al. [1974] note, the state governors and the federal representative sitting as commission members responded to their respective and separate political clientele rather than representing the interests of the river basin residents to whom they were not primarily accountable. The fact that the decision makers were largely beyond the control of the basin residents prevented the commission from relating closely to the goals and values of those people, thus weakening the cultural component upon which the DRBC should have been based. Nonaccountability further facilitated the acceptance of a narrow perspective concerning water quality and the benefits to be derived from its improvement, which led to their recommendations for changing the organizational structure to consider separately environmental maintenance, preservation, recreation and poison control. Furthermore, the continuing significance of the Corps of Engineers and the independence of local and industry units testify to the weakness of the commission's interorganizational linkages.

Hart [1975] has addressed the factors which make a region a cohesive unit, effectively controllable by the voters. These factors include the intensity of public interest (often stimulated by a crisis such as a flood, water shortage or serious pollution problem), the commonness of interest throughout the area and the potential engagement of established political units. Engagement depends upon the conformity of the problem area and jurisdictional boundaries. Where substantial differences existed, as between the Delaware Basin and most of the member states, local interests could not be expected to dominate the decisions of state representatives. Hart [1974] suggests that active interest may very well have centered in Philadelphia, the principal city in the river valley. Presumably, local representatives would have been better suited to provide responsible and accountable representation of basin interests.

The development of a viable regional unit requires geographic integration according to Craine [1971, 1972]. Geographic integration is necessary to internalize the physical interdependencies of the environmental problem area or to recognize the extent of the social-economic service area, which often encompasses many independent jurisdictions. Not only must the programs of various governments be coordinated but decisions must be made to resolve interunit conflicts, make the trade-offs among conflicting policies and decide the extent and direction of overall policy, including the basic approach to achieve the agreed upon goals. Craine believes these are best made primarily by representatives from the region itself. When there is also substantial federal and state concern, as in the case of the Great Lakes toward which Craine's study was directed, Craine also includes representatives from these governments. Representation could be afforded by the selection of representatives of interest groups or from the underlying local units of government and/or their agencies, but there is good reason in Craine's view to consider direct election to better balance the concerns of special interests.

Representation in the policy decisions is also emphasized by Swainson [1976], who believes that decisions must be made by those primarily affected by the problem and so primarily concerned with its resolution. Institutions should be arranged to identify those interested and their preferences and to generate the technical information necessary for good decision making. Institutions at the policy level must then reconcile divergent positions in the process of making and legitimizing policy.

Whereas policy decisions are the responsibility of local delegates, management should be vested in an authority responsible to the policy-making body. Management's duties would include the administration of programs for regional resource management consistent with the goals and philosophy of the governing body. It would also gather and provide information for its own use, for the policy makers and for the public. In addition, management would be responsible for the design, construction, financing and operation of facilities. In that connection, planning is also an important duty to assure consideration and integration of the full range of alternative methods for achieving specific objectives.

Interagency linkages must be well defined if a new authority is to function effectively. These linkages must be clarified at two levels. First, the powers of the policy-making or governing body must be specified as they relate to overlying and underlying units of government. For example, how much of the state's authority in the problem area will be delegated to the regional body? Can the regional unit impose constraints or conditions beyond those of the state? To what extent can it restrict the actions of underlying units? And what rights of appeal do those units have? Essentially, the problem area is to define the intervention powers of the new authority and the recourse of affected parties when they feel they have been dealt with unfairly. As Ingram [1973] notes, unless the new agency has authority and its powers are clearly delineated, it must depend upon the support of existing decision makers and will be unable to pursue an independent policy as it was intended to do.

Interagency linkages must also be specified at the management or operational level. Here the relationships between the operating units of the authority and those of federal, state and local (or other regional) units of government must be articulated in order that conflicts over authority and/or responsibility do not arise and so that the efforts of various units can be coordinated in a cooperative approach to the area-wide problems. This could include the extent to which the departments and agencies of local governments are to be involved in the construction or operation of regional facilities, how federal agencies are to coordinate their activities with regional management groups and how communication between planners in regional and local units can be facilitated.

In considering interagency linkages, whether at the policy or operational level, it is worthwhile to note that while it is necessary to delineate interrelationships clearly, it may not be appropriate to designate one or another as all-powerful in any specific area. As both Hagevik [1971] and Holden [1966] note, although relating to a somewhat different situation (regulator versus polluter), there are advantages to having some room for bargaining. Presumably there are advantages to allowing for some flexibility and maneuverability in interagency negotiations (although too much would sap the agency of its power). Certainly the ability to appeal to a higher authority is necessary should such bargaining fail, as is more likely the stricter the limitations.

The Miami Conservancy District provides a good example of how institutional arrangements--the interactions among agencies, laws, political electorates, governmental procedures and informal behavioral patterns--were modified by clearly specifying new relations under a "regional constitution." The Ohio Conservancy Act enabled the establishment of a multicounty authority to deal with area-wide problems without directly involving the state, provided that certain conditions be met [Giertz, 1974]. Aggregate benefits from the district programs had to exceed

costs, costs were to be allocated according to benefits, and the program had to be approved by a majority of representatives of the member counties. In meeting these criteria the district could be established with the power of eminent domain and taxing authority over individuals and governments in its jurisdiction. The state act served as a "fiscal constitution" to protect state taxpayers outside the district as well as those within the area from inappropriate programs and policies. While specifying the efficiency and equity ground rules and affording a means of appeal (the Conservancy Court made up of the representatives from each county), the act defined the basic interrelationships between the new authority and the state and the authority and its constituents--both local government and individuals--in such a way as to enhance the acceptability of any new district. Yet, the constraints were broadly conceived so as to allow the district substantial latitude in both policy and operations. Although Giertz does not provide detail on many of the potential interagency linkages, the careful specification of these fundamental relationships undoubtedly promoted the viability of the Miami Conservancy District.

An extensive study of water policy in Wisconsin has been conducted under the direction of Irving Fox [Fox, 1971]. A major focus of this study was existing and alternative institutional arrangements for water quality management. Based upon the judgment that institutional arrangements should reflect social values and be responsive to changes in those values, Fox specified several criteria for institutional design. Those criteria are:

- (1) Political leadership--water quality issues should be addressed in areas where political leaders will emerge to articulate and debate important issues.
- (2) Information generation--the alternative policies and programs proposed should reflect the full range of values and perceptions.
- (3) Participation--all persons affected by decisions should be able to participate directly or through representatives in making those decisions.
- (4) Bargaining opportunity--groups holding different opinions on an issue should be able to negotiate with one another in the expectation that they may be able to reach a more satisfactory settlement than otherwise.
- (5) Social efficiency--the institutional arrangement for decision making should account for external effects and utilize the most suitable technology to achieve socially efficient results.
- (6) Liberty--persons should be able to select among alternative courses of action, provided their choice does not adversely affect others.
- (7) Fair and judicious decision making--the participants in the decision-making process must believe that the process is equitable and sound.
- (8) Effectiveness--achieve the results sought.

Although an impressive list of criteria, it taints with defending the status quo. As Schmid notes, "The similarity to the perfectly competitive market model is striking with its emphasis on a pluralistic structure of competition" [1972, p. 896]. The pluralistic position is well illustrated in Fox's recommendations for alternative institutional arrangements. There it is suggested that a plan for water quality improvement would be developed by the Department of Natural Resources and distributed to all interested parties for review and comment, after which it would go to a regulatory body for hearings and a final decision. In fact, that "... different interests in water quality...should be represented by organized groups ... capable of generating good information about alternative courses of

action and their consequences..." is one of the criteria for organizational design [Fox, 1970, p. 136]. This procedure and the several means suggested to better represent certain interest groups reminds one of the proposals of Mitnick and Weiss [1974] for restructuring regulatory processes to better represent and consider the divergent interests in power plant siting decisions. There is much more emphasis by Fox on representation through informed interest groups and their interaction than upon decision making by elected representatives. While Fox admits the possibility of elected regional bodies to decide on water quality issues, he makes no pretense of having studied that alternative. Fox places considerable emphasis upon the importance of the process by which decisions are made but fails to consider the full range of alternatives which could conceivably meet his criteria. While elected representative decision making at the regional level is not always reasonable, it certainly deserves consideration.

Effective representation of the affected public is likely to be the only way in which an institution will accurately reflect social values, and particularly changes in those values. The ability of an institution to accommodate change is essential and is suggested by Wantrup[1957] as a criterion by which to judge an institution. Although an institution may successfully fulfill the "agreement" criterion (Wantrup's second basis for evaluation) at a particular time, whether it can continue to do so as conditions change determines its long-term performance. According to Wantrup, the ability of an institution to successfully accommodate change is more important than whether it achieves optimality at any particular instant.

## V. SUMMARY

This chapter is devoted to a rather extensive overview of the concept of institutions. We have outlined some desirable characteristics of environmental management organizations--which are defined by environmental institutions--and have discussed the Delaware River Basin Compact and the Miami Conservancy District. There are a multitude of other environmental quality management organizations, and the following chapter contains a survey of several different types.

### FOOTNOTES: CHAPTER 3

- 1 Wengert [1972, p.1]. Note that Wengert feels that this definition may be too limited and offers as a provisional alternative (p. 20) "An institution is the structured result or outcome of a process by which values are articulated, arranged and communicated, having continuity over a period of time, with the effect of influencing or controlling the behavior of persons involved with it and who did not necessarily participate in formulating these values (norms)."
- 2 One might add social values as the senior decision level as changes there determine constitutional decisions.
- 3 Craine [1972]. Wengert [1972] takes a similar stance in arguing that institutions not be studied as entities but instead we examine the way that institutional processes influence behavior. The alternative influencing processes he suggests are legal, economic, administrative, reorganization, persuasion, planning and general social processes.
- 4 Schmid [1972]. Perhaps one might better refer to this as neo-institutional economics as it seeks to apply sound analytical procedures to institutional studies in an effort to establish a theory of institutional economics--a theory which in this area has either been weak or lacking [Samuels, 1972]. Efforts in this direction have often relied on the public choice and property rights schools of thought [Goldberg, 1974; Ostrom, 1975].
- 5 An example of compositional research illustrating the role of economic and political power in the determination of working rules is given by Samuels [1971].
- 6 Schultz [1968] argues that institutions are not a state of nature nor do they develop in an ad hoc fashion, but evolve when the demand for the services they offer exceeds the costs (e.g., the information, contractual and policing costs). See Demsetz [1964] and Seagraves [1973]. Ciriacy-Wantrup [1969] contends that treating institutions in such a supply-demand framework is overly simplistic as the pressures for and against institutional change are determined also by distributional considerations. This point is emphasized in Bromley's [1974] and Randall's [1974] critiques of Seagraves, and in Schmid [1972] and Goldberg [1974]. Ruttan's position encompasses both these views.
- 7 Whether economists can or at least presently do successfully accomplish this has been questioned by Elkin [1974] who claims that the economist's individualistic bias renders it impossible to deal adequately with normative issues where values are important.
- 8 The issue of whether environmental policy should be a national or local program is discussed by Stein [1971].
- 9 To a large extent, the states, which prior to federal legislative backing played a minor role, also faced a similar quandary.
- 10 The technocratic models leading to benefit-cost comparisons concentrated almost solely on dissolved oxygen levels in the water, ignored the presence of poisonous contaminants, failed to incorporate property into their model the significant volume and sporadic nature of pollution due to runoff and finally ignored major alternative sources of water-oriented recreation.

Footnotes-Chapter 3 (cont.)

- 11 The assessment should be based upon the considerations noted below under responsibilities and powers, jurisdiction, representation and decision making and finance.

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## CHAPTER 4

# ALTERNATIVE ORGANIZATIONAL STRUCTURES FOR THE PROVISION OF ENVIRONMENTAL QUALITY SERVICES

### I. INTRODUCTION

In this chapter we outline several alternative organizational approaches to solving multijurisdictional environmental management problems. The focus is on regions smaller than a state but involving several counties or cities and on activities which require the interaction of a number of areas, each having a relatively large degree of political autonomy.

Attention will be paid to the promulgation and enforcement of environmental quality regulations only to the extent that such power has been delegated to the local bodies under discussion by federal and state laws and agencies; details of the powers and activities of these agencies will be presented only where necessary. Primary concern is with the political and administrative processes by which compliance with environmental quality regulations and the fulfillment of locally determined environmental quality objectives is carried out.

Four organizational types are treated, with discussion most frequently focused on a particular example which serves to represent what might be expected to be the advantages and disadvantages of a general organizational type.

The first of these is the Detroit Metropolitan Water Service. This represents an approach to regional service provision which relies on the financing advantages and economies of scale available to a relatively large municipality. This comes first in the discussion because the contracting among governments for the provision of utility services is among the least radical of the means available to implement a regionally oriented system.

### II. A METROPOLITAN UTILITY DEPARTMENT: THE DETROIT METROPOLITAN WATER SERVICE

Problems of water supply and wastewater disposal which are now of regional concern have long been faced by the more densely populated areas of the country. The political fragmentation characteristic of urbanized areas is frequently viewed as an inconvenience in their administration. In the case of the provision of water services, which requires very expensive and relatively permanent treatment and transmission facilities, the financial penalties associated with a fragmented system may be quite high.

This section looks briefly at the evolution of water supply and waste treatment services in the metropolitan area around Detroit, Michigan, as discussed by Walker and Wengert [1970] and Howards and Kaynor [1971]. Of particular interest is the relationship between the central city and the surrounding communities which purchase these services from the city. The southeastern portion of Michigan is somewhat unique in that the scarcity and poor quality of ground water and the limited surface water sources are increasing the dependence of the growing urban areas on water from Lake Huron--a source distant from many municipalities and expensive to reach on an individual basis. The limited number and relatively

small size of rivers suitable for the discharge of treatment plant effluent is also a constraint on the options of individual communities in this functional area. These factors create a pressure for joint action to a degree that might be unusual among metropolitan areas. Nevertheless, the experience of Detroit provides an interesting example of the advantages and disadvantages of expecting city government to take the initiative in providing services to surrounding communities.

The city began taking on its role as a provider of water supply and waste treatment services in the mid 1950s, with a major motivation apparently being the acquisition by the city of the Wayne County water supply system. Needing a new source of water from Lake Huron to supplement its then current Detroit River supply, the city saw an advantage in carrying through the construction of such an intake, the plans for which had previously been prepared by the county. Wishing to spread the financial burden of this project while utilizing a supply of water from the new intake which was more than adequate for the needs of the city, the city water department began actively seeking to expand its service area as a wholesale supplier of water to surrounding communities. This is in contrast to the previous stance of supplying water to fringe communities on a piecemeal basis in response to their petitions for service. It began this new policy in what was becoming an increasingly hospitable environment, as many municipalities in the Detroit area were expanding at a rate that threatened to make both their sources of raw water and their treatment facilities inadequate. The economies of scale sometimes attainable by larger treatment facilities also held the promise of lower water costs to some municipalities.

In addition to supplying water, the city of Detroit has, since the 1940s, provided wastewater treatment to some surrounding municipalities, with their number increasing in much the same fashion as for water supply. Joining the Detroit Metropolitan System holds a number of advantages for outlying communities.

The first is in economies of scale, which is felt in a somewhat different fashion than is true for water supply. As more stringent water quality regulations are enacted by both the federal and state government, the provision of increasingly sophisticated treatment is becoming quite costly for small communities. A related aspect is the relatively greater freedom which an area-wide system enjoys in transmitting its effluent to watercourses more suitable for final assimilation than the small streams on which many smaller municipalities are located.

Secondly, strong emphasis is currently being placed on regional wastewater treatment planning by the federal government through its grant policies.<sup>1</sup> Detroit Metropolitan Water Services is the most likely candidate for the role of regional wastewater treatment planning body. This financial leverage--the ability to decide which local wastetreatment facilities are eligible for federal funds--may well make independent action on the part of local communities even more disadvantageous.

What is of present interest is not the multitude of historical details involved in the actions of Detroit and surrounding communities, but rather the general nature of the conflicts which this example of service expansion by a large city has exposed.

As summarized by W. Keith Warner [in Wengert, 1972], decisions by political units concerning the purchase or provision of services are influenced by two categories of concern: (1) the political decision-making discretion which must

often be given up when the purchase of services is the chosen alternative; and (2) efficiency--the provision of services at least cost.

The first of these points describes the commonly felt fear that the autonomy of local communities will be compromised by dependence on a larger neighbor for a public service which has historically been the responsibility of local government. The method followed in the Detroit area, wherein each political unit is responsible for retail delivery and billing, would seem to be a way of minimizing such fears. However, a feature of the system in the Detroit area which seems to justifiably be of concern to those in outlying areas is the latitude enjoyed by Detroit in setting its wholesale water rates. While the rate structure has by all accounts been set up in a reasonable fashion, service contracts are not drawn in such a way that communities are likely to feel completely comfortable in abandoning their own water works over which they have complete operational control. While there is now suburban representation on the Detroit Water Board, substantial power remains with the city. It is not, as it might have been, a regional body with a regionally oriented representation formula. In their discussion of the decision by the city of Ypsilanti not to purchase water from Detroit, Walker and Wengert [1970], indicate that Ypsilanti was unable to obtain even a five year rate guarantee. In the face of such uncertainty it is little wonder that a municipality with a viable indigenous source of water or waste treatment might hesitate to enter into a service contract. Once their own facilities have been out of service for a period of time, the startup costs might be so great that their service supplier could raise rates substantially while still undercutting the cost to a small community of returning to independence.

A factor which may be of importance with respect to cities which have a history of dealing with outlying towns on a contract rather than a cooperative or regional basis is an unwillingness to give up the monopoly position presently enjoyed. While the wholesale water rate structure set up by Detroit is designed to be equitable, other cities in other states might be in a position to sell water to surrounding areas at a substantial profit. A large city, which could presumably take advantage of economies of scale not available to surrounding towns, could undercut the cost to the latter of providing their own water supply and waste treatment service while making a profit for the city. Entry into a regional program wherein customers would become voting cooperators might be seen as disadvantageous to the city.

In a similar fashion, for reasons of general political independence, communities near a large city might prefer the arms-length relationship which a service contract provides to the possibility of becoming involved in regional projects in which they do not perceive a direct interest. These same feelings might work against even the purchase of water on a wholesale basis. Water rates to outlying communities in the Detroit area apparently do not decline as their transmission facilities from the city are paid off. The revenues are used as a source of funds for investment programs in other areas which themselves will take years to be paid off. To the individual community it might appear more economical or more politically popular to invest in a separate waterworks and build equity in the facility through water rates, with the prospect of eventually being able to lower customer rates when it is paid for.

Robert Bish [1971] has raised an interesting point with respect to the purchase of services by metropolitan governments, one worth remembering when discussing the concept of efficiency. He suggests that a metropolitan department

geared toward the purchase of services rather than acting as an entrepreneur in their provision is likely to be more sensitive to the wishes of consumers. One might assume that the head of such a department will be less motivated to attempt to turn its functional area into a politically defensible empire. Rewards will accrue to the department head who can negotiate service and prices to the satisfaction of consumers, as opposed to seeing the expansion of his department's budget as the key to increasing his administrative stature.

This use of what is essentially a city purchasing department leads to a more general point brought out by Bish; there is no logical reason why a level of government appropriately sized to articulate local demand for services is also appropriate for their provision. Thus, the apparent conflicts between a desire for economies of scale in service provision and the wishes of individual jurisdictions regarding the level of services provided them need not in fact be of concern if appropriate purchasing arrangements can be made.

The Detroit Metropolitan Water Service seems to be in an interesting position with respect to area-wide planning. The expansion of service to outlying areas has become a conscious policy of the city--rather than solely as a response to the requests of communities--at the initiation of the water department rather than the city administration. While the approval of the mayor's office and the city council was sought when appropriate, it was a city department head rather than an elected official who found himself in the position of making decisions concerning service expansion which would be likely to have significant impacts on the growth of the metropolitan area and on the political relations between the city and its neighbors.

An aspect of the necessarily narrow viewpoint of a water department which could have a significant influence on the development of a region is the financing method utilized for main extensions. Water rates for each community receiving service are calculated at least partially on the basis of the engineering difficulty and therefore expense of extending service. This depends on such things as distance, the nature of intervening terrain and elevation changes. But these rates are designed to recover costs over a relatively long period of time, with the water department financing immediate construction costs. A department such as the one in Detroit, which maintains its excellent bond rating partially through conservative financial practices, may feel an incentive to extend service into those areas where the initial outlay is lowest in relation to the number of people served. This view of the costs of development cannot take into consideration the many other social costs and benefits which the residential or industrial development of different areas may entail. It is likely, for example, that water and sewer lines will be easiest to construct through the same land which is also most suited to farming and which a decision-making body with a wider perspective might wish to preserve from development. While the DMWS does serve as the water supply planning agency for the Southeast Michigan Council of Governments, it is not clear to what extent a city department can internalize the broader incentives to which a regional body must respond.

As pointed out by Howards and Kaynor [1971], the importance of the home rule concept to how service in the Detroit area developed cannot be underestimated. Service expansion was piecemeal because the city was only in a position to negotiate with customers on an individual basis. The timing and direction of service expansion was thus very much affected by the sentiment of those in charge of the water programs in each of the communities involved; which returns us to the point made initially concerning the actual hardware cost of political fragmentation.

An organization which in fact provides a service on a regional basis but which can act only when permitted by local governments jealous of their power, and which is to some degree jealous of its own independence, will allow a high level of short-run local control. But this freedom will be at the cost of constraining the long-run options of area residents through the piecemeal installation of physical plant.

### III. SPECIAL DISTRICTS

Special districts are frequently a solution to the problem of providing services to a large geographical area in cases where there is not a general purpose government financially or politically capable of carrying out the role. The Advisory Commission on Intergovernmental Relations [1973] summarizes the reasons for the existence of special districts as: (1) fiscal self-sufficiency; (2) geographic flexibility; (3) emphasis on technical specialization; and (4) efficiency.

With regard to the first of these, special districts are frequently financed by user charges on the services they provide. This enables a district to operate outside the debt limitations which often constrain the provision by local governments of such capital intensive services as water supply and wastewater treatment. This method of financing leads to a second point in favor of special districts, geographic flexibility; in principal, a service area can be defined which includes only those people willing to pay for the service. Such discrimination would be difficult for a general purpose government. Local governments have in the past differentiated among neighborhoods with respect to the provision of such things as sidewalks, sewers and streetlights. However, this often appears to have been in conformance to a master plan for city growth rather than the wishes of neighborhood residents and is sometimes difficult to accomplish when general revenues rather than special assessments are used to finance at least a portion of these services.

In the view of the general purpose governments operating in a geographical area, special districts have the advantage of being relatively nonthreatening to their political autonomy. This is due firstly to their generally limited financial powers; a special district is not in a position to compromise the financial integrity of local governments in the area. A second advantage in the view of local governments is a special district's emphasis on technical specialization. An authority charged with the provision of library services to a region is not likely to become a political rival of general purpose governments. This is not as clearly true in the case of water supply or sewer construction, since these activities have a great influence on the direction and degree of residential and industrial development in an area. But in cases where there is not a central city with clear political and financial dominance, creation of a special district may be a way for each participating community to safeguard its interests to its own satisfaction while allowing for the provision of needed services.

Specialization in service provision leads in turn to the fourth advantage of special districts mentioned in the ACIR report; efficiency in the provision of services. This must be viewed with some reservations, however. Such an advantage truly accrues when a special district is able to utilize economies of scale unavailable to local governments operating separately, or where such things as transportation or treatment costs can be minimized through the delineation of a district boundary on the basis of technical efficiency. But technical efficiency may be compromised in the long run if service areas develop in accord with immediate political acceptability to local residents rather than what are likely to be the

long-run needs of the area. For example, a local government or local voters may simply misjudge the seriousness of a pollution problem until the optimal time for their entry into a regional system had passed; sewer trunk lines might already have been laid, etc. Or, the major impact of the pollution problem originating in a local area may fall outside of its jurisdiction, and therefore outside of its concern. Thus, as was true with the contract provision of services by a metropolitan government, the maintenance of local political autonomy may have its costs.

Separation of service provision from normal local government operations may facilitate technical efficiency by removing personnel appointments from political influence. It may also, however, tend to remove decision making in this functional area from the public view. As pointed out in the ACIR report, many special districts, while financed separately from local governments, have their service charges collected along with local property taxes. This further reduces the visibility of the district with respect to local citizens.

The first example of what may be considered a special district is the set of entities known as the Texas River Authorities. The diversity in special districts will be apparent when it is seen that some of the generalizations just made do not apply to the Texas River Authorities. They are, however, of particular significance to this study both because of the broad powers each possesses and the widespread application of and experience with this type of organization in Texas.

#### The Texas River Authorities

The Texas River Authorities are a group of water quality oriented special districts provided for specifically in the Texas Constitution. Legislation stemming from this "conservation amendment" authorizes River Basin Authorities to carry out four primary roles related to water quality: (1) the financing of water quality projects; (2) the planning of programs related to pollution abatement; (3) and construction and operation of treatment plants; and (4) the enforcement of anti-pollution laws. These are in addition to other activities such as flood control, hydroelectric generation, navigation, irrigation, drainage, soil conservation, and wholesale water supply.

Three aspects of the river authorities are particularly noteworthy. The first is the state-wide nature of the constitutional provision for their existence. While no effort was made to simultaneously create river basin authorities throughout the state--each authority is established by a separate statute--the possibility for the eventual widespread adoption of this type of organization in response to local needs was recognized. At the time that the amendment was passed, local interest was more likely to be in flood control and hydroelectric power than pollution control. Nevertheless, there existed the foresight to encourage basin-wide solutions to water-related questions. This foresight was particularly easy to operationalize in the state of Texas; the intrastate nature of many of its rivers permitted the legislature to avoid many of the political difficulties which often develop when a multistate-federal compact is required.

Secondly, there is provision for taxation powers on the part of these authorities, although such power has actually been granted to only two of them. The remainder continue to rely on the more common revenue bond method of financing usually used by special districts.

A third important characteristic of authorities is that under the Texas Water Quality Act, the Water Quality Board may order communities in an SMSA to cooperate in the development of a regional wastewater treatment system to be managed by the river authority active in the basin. In this respect the authorities are more a creation of the state than a voluntary association of local governments and are on the borderline between special districts and the state utility districts to be discussed later.

River authorities are also given a planning role in the area of water quality. As described by Thomas Jacks [1970], such planning has been undertaken at basically two levels of comprehensiveness. In some cases, area-wide waste disposal plans for an urbanized basin have been developed with an eye toward regionalizing waste treatment facilities. On an even more ambitious level, a few authorities are developing basin models with the objective of identifying those variables which influence water quality throughout the length of a river. It would appear that cooperation in and compliance with these plans is voluntary on the part of local governments except as ordered by the State Water Quality Board.

Enforcement activity by the authorities is of quite limited extent according to Jacks' Law Review article, this being traced both to the financial constraints under which most of the authorities operate and their uncomfortable position as a provider of water and electric power to the same industries most likely to be water pollution offenders. A further factor is likely to be a conflict between an authority's dual roles as both a provider of wastewater treatment and water quality enforcement.

Both the legislative and administrative detail involved in the creation of a river basin authority and the differences among individual authorities will be pointed up in the following discussion of two authorities in particular, the Brazos River Authority and the San Antonio River Authority.

The Brazos River Authority is governed by a board of 21 directors appointed for staggered six-year terms by the State Board of Water Engineers. The only restriction regarding appointments is that no more than two directors can be residents of the same county at the time of their appointment. The selection of board officers rests with the membership. Board members serve on a part-time basis, compensated at a nominal per diem rate and for travel expenses.

Planning activities and other operations are, according to the legislation, to be financed by counties within the Authority District, which "may contribute to the funds from year to year ... in such amount as may be deemed an equitable part of the cost ... in the estimated relations of such expenditures to the contemplated and probable benefit ...."<sup>2</sup> Such language appears to make the year-to-year operation of the authority dependent on the financial goodwill of participating counties. As with most other authorities, the Brazos River Authority is not permitted to "issue bonds nor incur any form of continuing obligation or indebtedness" unless such a plan is approved by a majority of those district taxpayers voting.<sup>3</sup>

Basin plans approved by the directors also must be approved by the State Board of Water Engineers, which acts as the state's administrative arm relative to the authority.



What would potentially appear to be a constraint on the ability of the authority to act as a provider of regional wastewater treatment services appears in Paragraph (d) of Section 9 of the legislation creating the authority. In this paragraph it is provided that the electors in any "defined area" may choose to form themselves into a Water Control and Improvement District. These districts are authorized by general enabling legislation to be active in a number of functional areas, including "the collection, transportation, processing, disposal, and control of all domestic, industrial, or commercial wastes, whether fluids, solids, or composites ...."<sup>4</sup> However, petitions for the creation of a Water Control and Improvement District are subject to approval by the State Board of Water Engineers. Since this is the same group which must approve river authority plans, potential conflicts within a geographical area are likely to be resolved administratively.

The legislation creating the San Antonio River Authority explicitly grants it power in virtually all areas in which authorities have historically had a role. Of specific interest here is the district's: (1) potential role as a wholesale supplier of water to communities within the district; (2) power to construct and operate solid waste disposal services, providing the service by contract to local governments and others; (3) power to provide, within the basin, sewage transmission and disposal services, again under contract; and (4) power to regulate pollution (including thermal) of ground and surface water within the district, determine the penalties for violations and enforce the regulations. Regulations may in general be passed by a majority of governing board members present for a vote, with half of the board members constituting a quorum.

The district master plan and any amendments to it must be approved by a majority of the district's governing board, with a specific requirement as to how the affirmative votes must originate from members throughout the district. The district plan must also be approved by the State Board of Water Commissioners.

The district is governed by a 12 member board, two of them elected from each of three of the counties in the district and the remaining six elected from the most populous district county. The board members serve staggered six-year terms. Directors are compensated \$20 per day, with the money to be provided by the county from which the member was elected. A director may be removed from office, after a hearing before the board, by an affirmative vote of eight board members. The policies of the board are to be carried out by a district manager to be appointed by the board.

Financing of board activities, other than the compensation of directors or the construction of major water retention and transmission structures, is accomplished by a property tax of up to two cents per \$100 assessed valuation, subject to approval by a majority of those property owning electors voting in at least three of the four counties in the district. Water facilities construction or acquisition is to be paid for through revenue bonds.

A number of summary comments are appropriate relative to these examples of particular river authorities. The first observation regards the great power entrusted to the State Board of Water Engineers. Not only does it oversee district planning for the Brazos River Authority it appoints the directors of the authority. This power can be traced back to the governor who, subject to senate confirmation, appoints the three Board of Water Engineers members for six-year terms. Each must be from a different section of the state, and each must be technically qualified for the position--although the wording of the statute suggests that engineering

competence rather than necessarily an overall appreciation of the social significance of water resource questions is the appropriate measure of a board member's qualifications.

The San Antonio River Authority, on the other hand, has an elected directorship, with at least an attempt to distribute political power among counties in relation to their populations. The legislation providing for their election does not specify timing, other than the year in which each is to be elected in order to achieve the staggered terms desired. It seems reasonable to assume, however, that the election of directors would take place simultaneously with all other county-wide elections. If so, this would be likely to facilitate public interest in the authority and the fielding of party-affiliated candidates for membership on its governing board.

Both of these authorities are active in the area of regional wastewater treatment. The Brazos River Authority has constructed facilities to serve several adjacent cities on a contract basis, with each city responsible for a proportionate share of operating and administrative costs. The San Antonio Authority is following suit with a similar plan.

An important aspect of river authorities, one not treated explicitly by the law, involves the nature of the political process which leads to the creation of an authority. The state legislature is presumably not actively seeking basins in which to create new authorities, but rather does so in response to local needs. It is not clear to what extent city and county governments possess a clearly defined mechanism by which their desires can be expressed to the legislature. The existence of such a mechanism--perhaps voter or local government petition--would provide a means of articulating the frequently dispersed but genuine environmental concerns of residents of a region. And it would perhaps open any debate concerning the establishment of an authority to greater public scrutiny.

A factor tending to further inhibit the involvement of local governments in the creation of river authorities is the power of the State Board of Water Engineers. Where authority directors are selected by the board, local governments might find it difficult to lend support to the creation of an authority governed by a body whose responsiveness to local needs has yet to be determined.

#### Washington State Metropolitan Municipal Corporations

An alternative type of authority is in operation in the state of Washington. A Metropolitan Municipal Corporation can be created in an urbanized area by any one of a number of methods: (1) by a vote of the electors after a resolution by the city council of a central city, the city councils of two or more component cities, or the board of commissioners of a central county; or (2) by a petition signed by at least four percent of the voters in the metropolitan area and after a hearing called by the board of commissioners of the central county. The explicit nature of this mechanism for creating a Metropolitan Municipal Corporation is in contrast to the case of the Texas River Authorities just discussed.

A central city or county is the city or county with the largest population in a metropolitan area; a component county is any county partially included within incorporation boundaries; and a component city is any incorporated city or town within a metropolitan area. In order to be authorized to form a corporation, an area must contain two or more cities, at least one of which is a city of the first

class. This would seem to effectively limit the use of this mechanism to areas of adequate size to reap its advantages. At the same time formation of a corporation cannot be used by small cities or towns as a means of avoiding cooperation with a regional body.

Corporation boundaries must include all or none of any city, and no city can be included in more than one corporation. The setting of corporation boundaries and any subsequent modification of those boundaries is the primary responsibility of the county commissioners of the most populous county to be included in the district. On the basis of a public hearing, the commissioners are empowered to modify, as they see fit, the boundaries of the proposed corporation except: (1) they may not create an island of included or excluded land; (2) they may not delete any portion of a city; and (3) where water pollution abatement will be a function of the proposed corporation, they may not delete any area "which is contributing or may reasonably be expected to contribute to the pollution of any water course or body of water in the proposed area ..."<sup>5</sup> Territory may be added to the corporation by the county commissioners, subject to the requirement that a further public hearing be held in cases where the proposed addition follows the first hearing.

Subsequent to the delineation of corporation boundaries by the county commissioners, an election is held. In this election, both a majority of those voting inside the central city and a majority of those voting in the metropolitan area but outside the central city must approve of the metropolitan corporation before it can be created.

At the same time, voters are asked to approve a "one year one mill levy" in excess of "any constitutional or statutory limitation for authorized purposes of the metropolitan municipal corporation."

Such proposition to be effective must be approved by a majority of at least three-fifths of the persons voting on the proposition to levy such tax and the number of persons voting on the proposition shall constitute not less than 40 percent of the total number of votes cast in the area of the proposed metropolitan municipal corporation at the last preceding county or state general election.<sup>6</sup>

The corporation is governed by a council selected in a relatively complex manner by the local governments of the area in which the corporation is operating. It is composed of:

(1) One member selected by, and from, the board of commissioners of each component county;

(2) One additional member selected by the board of commissioners of each component county for each county commissioner district containing 20,000 or more persons residing in the unincorporated portion of such commissioner district lying within the metropolitan municipal corporation who shall be a resident of such unincorporated portion: Provided, that one additional member shall be selected by and from the board of county commissioners for each county commissioner district containing less than 20,000 persons in its unincorporated area.

(3) One member who shall be the mayor of the central city.

(4) One member from each of the three largest component cities containing a population of 10,000 or more other than the central city, selected by, and from, the mayor and city council of each of such cities.

(5) One member representing all component cities other than the four largest cities with a population of 10,000 or more, to be selected from the mayors and city councils of such smaller cities by the mayors of such cities in the following manner: The mayors of all such cities shall meet on the second Tuesday following the establishment of a metropolitan municipal corporation and thereafter on the third Tuesday in June of each even numbered year at two o'clock p.m. at the office of the board of county commissioners of the central county. The chairman of such board shall preside. After nominations are made successive ballots shall be taken until one candidate receives a majority of all votes cast.

(6) One member selected by, and from, the city council of the central city.

(7) One member selected by, and from, the city council of each component city containing a population of 50,000 or more.

(8) One additional member selected by and from the city council of each component city containing a population of 100,000 or more.

(9) One additional member selected by, and from, the city council of each component city containing a population of 100,000 or more for each 100,000 population over and above the first 100,000.

(10) One member, who shall be chairman of the metropolitan council, selected by the other members of the council. He shall not hold any public office other than that of notary public or member of the military forces of the United States or of the State of Washington not on active duty.

Each member serves at the pleasure of the individual or organization making the appointment and is compensated \$25 per day plus expenses while engaged in corporation business. A majority of the council members constitutes a quorum.

A corporation is permitted by state law to undertake one, several, or all of the following functions: (1) sewage disposal; (2) water supply; (3) public transportation; (4) garbage disposal; (5) metropolitan parks or parkways; and (6) comprehensive planning. The actual activities undertaken by each corporation depend on those named in original petition or resolution and authorized by the voters. Additional functions may be undertaken by much the same petition/resolution-hearing-voting process as is required for initial formation of the corporation.

With regard to sewage disposal, a function of particular interest in this study, corporations are allowed: (1) "To prepare a comprehensive sewage disposal and storm water drainage plan for the metropolitan area;" (2) build or acquire transmission and treatment facilities (though acquisition from local governments or water districts must be by their consent); (3) "require counties, cities, special districts and other political subdivisions" to discharge sewage collected

by them into corporation facilities when the metropolitan council declares that the public welfare requires it; (4) set rates; and (5) set minimum standards and approve local government sewer construction plans.

The powers of a metropolitan municipal corporation with respect to garbage disposal are quite similar to its sewage disposal powers; it can develop a metropolitan plan, build or acquire disposal facilities and set rates for the use of its services.

The powers of a corporation are, at least potentially, substantially like those of a Texas River Authority. The essential difference appears to be the relative importance of local governments to the creation of districts and the administration of their powers. A metropolitan municipal corporation comes into being only by local initiative and local approval is required during the setting of boundaries and functional areas in which the corporation will operate. This contrasts to the clear legislative origins of a river authority.

Representation on the governing board of a municipal corporation is of a clearly different nature than was the case with the two Texas Authorities discussed. The state government is far less important to the operation of a corporation, with local government representatives being in complete control of its actions. But the absence of any provision for the direct election of representatives removes one possibility for citizen input that sometimes exists in Texas.

Further discussion of representational alternatives is best left until after discussion of the remaining organizational alternatives to be treated in this chapter. The Council of Governments method of dealing with interjurisdictional governance shows a striking similarity in its most frequently used representational scheme to the metropolitan municipal corporation. It is this organization option which will be discussed next.

#### IV. COUNCILS OF GOVERNMENTS

In this section we will discuss those regional organizations which are developed from the essentially cooperative efforts of local governments. Councils of Governments and Regional Planning Commissions are two variants on this cooperative theme. The Advisory Commission on Intergovernmental Relations makes a useful distinction between the two when it makes the presence or absence of active state participation the key element. Planning commissions are generally established by state legislation with state agencies frequently acting as integral parts of the planning process. Councils of Governments have been, at least until recently, established primarily at local initiative; the growing presence of the federal government in this process is to be discussed shortly.

For the purposes of this study, a distinction will not be drawn between Councils of Governments and Regional Planning Commissions. While the latter may be somewhat more capable of operationalizing plans requiring state governments' assistance, local government autonomy is retained to the extent that consensus and voluntary cooperation are required for action. The discussion will thus deal explicitly only with Councils of Governments, with the understanding that the characteristics crucial to the discussion also apply to planning commissions.

A Council of Governments is in general a regional body made up of elected local government officials or their representatives, brought together by voluntary

agreement of the governments concerned. The powers of a Council of Government (COG) are limited to those agreed upon by the participants, since they are the only source of its power. Since participation in a council is voluntary, the handling of controversial issues is limited by the need for consensus; the council has no means of enforcing its decisions upon recalcitrant members.

In the past, financial support has generally been limited to those funds contributed by participating governments, although federal government funding for the establishment and operation of local grant application review agencies has been available more recently. While the local share of the costs of operating the council is usually divided among participating governments on a prearranged basis, there often is no method of requiring compliance.<sup>8</sup>

Representation in a COG is generally on a one government-one vote basis. While this is sometimes modified to take account of large cities which might be unwilling to participate if given only one vote, representation is not, as a rule, on an equal population basis. Voting rules are in fact one of the primary stumbling blocks to effective voluntary regional organization efforts near urban areas. Local governments controlling much land are jealous of their independence, as is the central city government which often controls most of the population and wealth in an area. A further point of division in some cases may be the unwillingness of a heavily suburban-rural COG to address those aspects of government which are of primary concern only in or near the more heavily urbanized areas. Thus, it may be difficult for such an organization to hold the interest of a city government preoccupied with the survival of its own jurisdiction.

A factor which has made a contribution to at least the visibility of Councils of Governments is the growing federal insistence on a regional review of local government grant applications. Section 204 of the Demonstration Cities and Metropolitan Development Act of 1966, Housing and Urban Development "701" grants, Title IV of the Intergovernmental Cooperation Act of 1968, and Circular A-95, which set forth the administrative regulations covering the regional review process, all have been expressions of a desire on the part of federal agencies to see a locally based organization become active in the setting of local funding priorities. The presence of elected local government officials in such a review body was highly favored in the federal regulations. The HUD act, for example, provided for grants to organizations with such a structure, while the Demonstration Cities and Metropolitan Development Act suggests that a regional review body be "to the greatest practicable extent" composed of or responsible to locally elected officials.

These and other similar sentiments on the part of federal agencies served, at least on the surface, to strengthen the role of Councils of Governments. As suggested by Mogulof [1971], however, a voluntary organization which depends on the mutual good will of all of its participant governments for its continued functioning is not likely to be very effective in the setting of local priorities. The federal viewpoint would prefer an organization which could help agencies sense local preferences as to how resources should be allocated among a number of functional and geographic areas within a single metropolitan area. The development of a regional plan against which local government plans could be measured was the most desirable outcome. What COG review often gave the federal government was a process in which local governments sought only to maximize the total of federal resources allotted to all functional areas and all participating governments, with little effort to set priorities.

A primary reason for this is often said to be the inability of members of a voluntary organization such as a COG to agree on an area-wide plan which will to any degree disadvantage any local government. Councils of Governments are made up of representatives of local governments who are often present primarily to advance the interests of their constituencies. Particularly when a COG-type organization is formed in response to federal grant requirements rather than locally felt needs, one might expect a perfunctory review. To do otherwise would be to create dissension within the council and perhaps undermine its credibility as a regionally representative body; something which would be to the advantage of no local government seeking federal funds.

Another factor which is likely to be significant in any local grant review process is the limited temporal perspective which local governments have regarding federal funding of local programs. One would expect even a COG, with its acknowledged representational inadequacies, to be somewhat capable of ordering funding priorities within a metropolitan area if there was some evidence that program choices were mutually exclusive. But where both funding sources and program alternatives are numerous, and actual appropriation levels difficult to predict on a year-to-year basis, it is not hard to see why a reviewing agency at the local level would be disinclined to argue against a grant request on the part of a local government. To do so might be to sabotage a potential injection of federal funds into the area with no guarantee of an offsetting gain in future funding for--from an area-wide perspective --a more advantageous functional or geographic area.

The importance of federal funding to the activities of Councils of Governments is highlighted by a study by John Bielec, described by the Advisory Committee on Intergovernmental Relations [1973], wherein of 120 councils studied, less than five percent "had undertaken any action without Federal funds." Quoting from Bielec's work, the commission report states that:

...the councils' actual ordering of functional expenditure preferences is based on a maximization of Federal financial support to the metropolitan region rather than some maximization of public program functional utility. For those functional areas where little or no Federal funding existed there was also unanimous financial inaction on the part of metropolitan regional councils.

Councils of Governments can perhaps be summarized as a step beyond many special districts in that elected officials are involved in the decision-making process, making the councils perhaps responsive to citizen input. But COGs are susceptible to crippling impasses where controversial issues are in need of resolution.

An organization which is something of an extension of the Council of Governments idea is the Twin Cities Metropolitan Council in the Minneapolis-St. Paul area. It encompasses seven counties and almost 3,000 square miles and has powers beyond those of more conventional COGs.

The precursor to the council was the Twin Cities Metropolitan Planning Commission which was established in the mid 1950s. Originally covering a five-county area, it was later expanded to seven, with a final total of 29 commission members. Twenty-two of them represented general and special-purpose governments in the area: one from each of seven counties and two special districts, two each from Minneapolis and St. Paul, two representing all townships and seven representing incorporated suburbs--one from each suburb for each 50,000 person population increment. In addition to the 22 governmental delegates, seven were appointed by the governor to represent the citizenry. The commission thus possessed a more complicated pattern of representation than many Councils of Governments, with some attention paid to the distribution of population within the region and the relative political strength of the component groups.

The powers of the commission, however, were quite limited. Its primary role, according to Baldinger [1971], was to serve as an advisory body when requested by local governments. However, in addition to its official function, it served to initiate local discussions on the processes by which the area was governed. This fostered a more regional attitude among many leaders in local communities and, together with research on the actual local problems which a more coordinated leadership might better address, generated part of the momentum which led to the establishment of the Metropolitan Council.

A number of factors were selected by Baldinger as being of primary importance in leading the metropolitan area toward adoption of the present council in place of the relatively ineffectual commission. Legislative reapportionment was one of these. It reduced the relative legislative power of "outstate" interests which felt, to some degree, that a coordinated metropolitan government might threaten the balance of power between urban and rural areas. This brings out an important aspect of the current Metropolitan Council: created by the state legislature, its makeup and rules were determined by state as well as local political consideration. Reapportionment is not likely to have as important an influence on the development of a regional body at the present time as it did at the time the Twin Cities Council was created. However, the experience of Minneapolis-St. Paul does point out that proposed changes in the political organization of a heavily populated and industrialized center will generate interest throughout its area of economic and social influence.

Another factor important to the establishment of the council was the elimination by the legislature of many of the home-rule provisions of the Minnesota Constitution. Since 1958, the constitution had prohibited the passage of special laws applicable to limited geographic areas without the approval of those in the area affected. This provision would have made establishment of the council dependent on the consent of all those political jurisdictions to be included. This was thought to represent such an obstacle to the enactment of legislation creating the council that virtual elimination of the home-rule provision was thought necessary. Similar home-rule provisions are operative in other states, including Wisconsin; the potential influence of this aspect of state law on the creation of regional environmental management organizations should be noted.

The federal government provided a third incentive for the creation of the council through its support of regional review bodies to oversee the grant requests of local governments. The previous Metropolitan Planning Commission did not have adequate power to carry out the review role. For one thing, it could only review those plans voluntarily submitted to it by local governments, something which they never did. While federal law also acted to confuse the situation by pushing for regional review bodies organized along the lines of Councils of Governments, the general thrust of the federal effort was toward the development of more powerful regional planning and review bodies.

The Metropolitan Council which emerged covers the same geographical territory as the previous commission. Its structure is much different, however. The seven counties are divided into 14 districts of approximately equal population, each district created by combining two state senatorial districts. Each district has one representative appointed by the governor for a six-year term. A chairman serves as the 15th council member and is appointed by and serves at the pleasure of the governor. The appointment of all 15 council members is subject to confirmation of the senate.



The powers of the council go considerably beyond those possessed by the Metropolitan Planning Commission which it succeeded. It is charged by law with the preparation of a comprehensive development guide for the region, "consisting of policy statements, goals, standards, programs and maps prescribing the orderly development of the area" [Baldinger 1971, p. 159]. Among the subjects within the purview of the council are sewage and solid waste disposal, transportation, parks and open space. This legislative mandate is in contrast with most COG-style organizations which have their planning efforts constrained by the necessity for consensus among all involved parties. The Metropolitan Council can indefinitely suspend planned actions on the part of special districts in the seven county area and can appoint a nonvoting member to their governing bodies. Another relatively strong power is veto authority over open-space acquisitions.

The Metropolitan Councils' powers with respect to the actions of local general purpose governments are more restricted, however. It cannot suspend local government plans, but rather can only act to facilitate compatibility among them. Its approach is to keep potentially interested parties in the region informed as to proposed local government actions and mediate any resulting conflicts. The council also reviews and comments on federal grant applications from local governments. Its views, however, are only advisory in nature.

Financing of its operations is an area where the council has particular strength, since it has the power to levy a tax on all taxable property within the seven counties. Not only does this power permit its independence from local governments, which many COGs rely on for financial support, but resolution of this subject by the legislature also eliminates financing as a continuing point of local contention.

Of particular interest in the context of the present study is the first problem dealt with by the council on a comprehensive basis; development of a metropolitan sewerage plan. The primary point of controversy was the allocation of costs among communities, particularly between established areas with treatment plants already in operation and growing suburban areas requiring large capital expenditures. As described by Baldinger, the council approached this problem in an iterative fashion, proposing a "preliminary concept plan," and revising it several times on the basis of feedback from local governments.

It is interesting to note that the council acted more as a center for communication and compromise than as a decision-making body. Final power for adoption of a metropolitan plan rested with the state legislature. It was the apparent role of the council to sense not only the positions of local governments with respect to the plan, but also the inclinations of legislators and to facilitate agreement among them. This distribution of political power has important implications for the incentives which local governments have to cooperate in a plan of this nature. Even if the Metropolitan Council were a COG with no powers to plan implementation, possession of such power by the state legislature would motivate local governments to attempt to influence the direction of state legislation through the regional body. Given the certainty of state action, withdrawing from the regional planning process would not be a productive tactic.

It must be concluded that the most important distinction between the Twin Cities Metropolitan Council and other Councils of Governments is the relatively strong position taken by the state legislature with regard to both their creation and operation. Council representation is appointed according to equal population

districts with the possibility of eventual elected representation. But this compliance with the 14th amendment one person-one vote requirement for a legislative body is at the point essentially unnecessary, since the real power to implement regional projects rests with the state legislature. The council thus offers two simultaneous but alternative possibilities for how a multijurisdictional coordinative agency might evolve: (1) a properly representative body created by and answerable primarily to the state legislature and relying on the legislature for the implementation of its plans; or (2) a powerful and properly representative body created by the legislature rather than solely by local efforts and consensus and given considerable plan implementation authority. In following the former of these alternatives, one is trading the frequently ineffectual nature of a COG for the involvement of state-wide political considerations in what may frequently be decisions the impacts of which will be restricted to a local area. This consideration makes the alternative of a powerful representative body the clear choice. But the difficulties of persuading a legislature to delegate authority to a potentially competitive political force, combined with the practical problems of developing a system of representation which is both constitutional and acceptable to a majority of local governments, makes a regional body dependent on legislative authority a possibly more viable alternative.

#### V. STATE-WIDE ENVIRONMENTAL SERVICE AUTHORITIES

This type of organization is the last step in this discussion of bodies charged with the provision of environmental planning and services to multijurisdictional areas. It is placed last not because it has been judged most desirable, but because it reflects the final step in a progression of authority from a single independent municipality providing service to a surrounding area through differing combinations of local cooperation and state authority to this final concept of state authority and essentially mandatory local compliance or cooperation.

##### Maryland Environmental Service

The Maryland Environmental Service (MES), as outlined by Haskel and Price [1973], is another type of public corporation -- but one operated at the state level. It is authorized to provide solid and liquid waste treatment and water supply services at the wholesale level to local governments or industries. Administered by the Maryland Department of Natural Resources, it enters into the provision of these services either as a participant in a cooperative long-range plan involving the local governments in an area when specifically requested by a local government or when directed to by the secretary of the Department of Natural Resources or of Health and Mental Hygiene. This last alternative may be exercised when a local government is in violation of state regulations. The service does not have the option of refusing service. It must accommodate any party requesting service although it may charge any rates necessary to cover costs.

A state-wide authority is seen as: (1) better able to take advantage of economics of scale in water supply and waste processing; (2) freer to locate treatment plants and their intakes and outfalls so as to conform to the needs of both population and industrial centers and environmental quality; (3) better able to obtain more favorable financing; and (4) able to produce more sophisticated and efficient operating procedures for treatment plants than those of which local government employees are generally capable.

The MES is governed by a director, a secretary and a treasurer. They act as a three man board of directors and are appointed by and serve at the pleasure of the secretary of the Department of Natural Resources. The service is expected to operate with a small staff by contracting out the actual planning and construction work.

The MES is intended to be financially self-supporting after an initial five year start-up period during which its planning activities are supported by appropriations from the legislature. Once a sufficient number of revenue-producing projects are operational, it is expected that the service will be able to operate on both the revenue from these and on the proceeds from revenue bonds sold to finance current planning and construction. Fees charged to customer cities or industries are allowed to be sufficient to cover not only the costs of providing the required services, but a proportion of the overhead costs of running the service. The service is also permitted some discretion in setting of user charges:

Such charges and costs to be levied against any particular municipality or person located within a service district shall take account of the value and capacity of any existing facility transferred by such municipality to person or the Service, and the costs and obligations assumed by the Service incidental to the transfer of such facility, and, to the extent deemed reasonable and practicable by the Service, charges shall also be based on but not necessarily limited to a formula reflecting the volume and characteristics of the wastes as they influence transportation, purification, final disposal, and time pattern of discharge.<sup>9</sup>

Haskel and Price interpret this as permitting the use of customer service charges as effluent charges. By such means, the rate to an individual consumer can be adjusted not only to cover the costs of disposing of the waste, but to influence the behavior of the user in production decisions so as to further the objectives of the service.

The service is normally expected to proceed as an active participant in local waste disposal projects only with the consent of those local governments. Such participation is on a contractual basis, and initially, by mutual agreement as to the terms contained in the first five year plan for the region (while the State General Assembly can adopt a plan proposed by the service in the absence of local agreement this is presumably expected to be uncommon). Article 33B, Subsection 5(i) of the Code of Maryland, however, provides for a "biennial revision and adoption of five-year plans." County public hearings must be held and revisions "reviewed" by "municipalities and persons concerned" before a plan can be updated and readopted. Whether the review entitles local government the same bargaining rights as during original plan adoption seems open to interpretation. Article 33B, Subsection 4(k) gives the service the power to "fix, alter, change, and collect rates, fees, and charges for the use of or for the services furnished by its projects." Such rate setting is subject to approval by the Public Service Commission, with its decision in turn subject to court appeal. This language seems to offer some assurance to local governments of fair treatment during plan updates and rate revisions. This is in contrast to the case of the city of Detroit where local governments sometimes preferred the higher costs of maintaining independent local water supply systems to the uncertainty of dealing with the metropolitan system.

Two points, however, might tend to induce a cautious attitude on the part of municipalities. The first is the discretion permitted the Environmental Service in its rate setting, with the actual costs of providing service being only one factor taken into consideration. With such potentially broad discretion written into the legislation, neither the Public Service Commission nor a court might be able to find grounds upon which to deny the service its prerogative. Secondly, Article 33B, subsection 10 makes it "unlawful for a municipality or person provided with projects by the service under this article to duplicate or use any other similar projects serving the same purposes." Thus, once local control over waste disposal is given up, it is apparently given up permanently. The legislation authorizing the establishment of the service assures a viable local alternative to participation in a service-sponsored project; Subsection 3B (d) guarantees the right of a municipality to continue the provision of disposal services independently so long as it is in compliance with "applicable laws and regulations." Thus, the question becomes: does legislation drafted in this manner provide adequate incentives for local governments -- frequently jealous of their independence -- to participate in a regional system? While on balance the answer would appear to be "yes," the discretion allowed in rate setting -- which might be applauded as one step closer to an effluent charge -- would appear to be a major qualification.

Legislation provided for the establishment of Councils of Governments is generally permissive in nature, allowing local governments to cooperate in the resolution of environmental quality problems. The Twin Cities Metropolitan Council, while more powerful than most COGs, was designed with an eye to both the inputs and the outputs of the decision-making process. While the legislature was interested in facilitating a measure of local self-determination, it was also interested that a regional body obtain results.

The Maryland Environmental Service can be distinguished from both of these organizations by the systematic and state-wide requirement that a level of environmental quality be attained with the understanding that a state authority, independent of local decision-making processes, has the power to step in and guarantee local performance. The service is thus not concerned, at least according to the language of the legislation creating it, with stimulating cooperative regional efforts on the part of local jurisdictions as long as they are in compliance with state environmental regulations. The service has, compared with the two previously mentioned organizations, a completely output-oriented viewpoint.

#### The Wisconsin Solid Waste Recycling Authority

The Wisconsin Solid Waste Recycling Authority is also a state-wide-oriented body, with many similarities to the Maryland Environmental Service. While narrower in purpose in that it does not deal with water-borne waste, it has the broader mission of facilitating the recovery of economically useful materials from residential and industrial solid waste. Established initially in three multicounty regions, it is financed with an initial start-up loan with the expectation that service charges and revenues from the sale of recycled material will eventually make the authority self-sustaining.

The authority is governed by a seven member board appointed by the governor and confirmed by the senate. The Wisconsin County Board Association, the League of Wisconsin Municipalities and the Wisconsin Towns Association are each allowed to recommend one member to the board.

The Wisconsin Solid Waste Recycling Authority can issue revenue bonds for the construction of facilities designed to facilitate the accumulation, separation and transportation of solid waste from the local municipalities responsible for house by house collection to the private entrepreneurs capable of profitably utilizing the recyclable components of the waste. Additionally, the authority is allowed to carry out and support research in the design and operation of waste management systems.

Like the Maryland Environmental Service, the authority is expected to rely heavily on private firms in the attainment of its objectives. An important part of this activity is the ability of the authority to engage in long-term contracts with industry as a means of assuring that private investment in recycling facilities and for the use of recycled materials will have a payoff period long enough to be attractive.

The authority is permitted to set the rates for the use of its services or those services provided by private facilities contracted for by the authority, subject to Public Service Commission approval. The setting of these rates "may be based upon any classifications or subclassifications which the authority may determine to be fair and reasonable," taking into consideration the difference between operating and debt retirement costs and the revenue from the sale of recoverable products. It thus appears that agency rate setting discretion is more constrained by law than in the Maryland case.

The authority does have the power "to require any person capable of being effectively served by the facilities of the authority to make use of such facilities ...."<sup>10</sup> While objections to inclusion in the program could presumably be expressed during the hearings which precede the setting of service area boundaries, the authority can exercise strong control over those municipalities or industries falling in a service area. To some degree this is a more powerful position than that held by the Maryland Environmental Service, which can only impose its authority through an order of the secretary of the Department of Natural Resources or the secretary of Health and Mental Hygiene.

The Recycling Authority is subject to the same state environmental regulations as any other potential source of pollution. In contrast with the Maryland Environmental Service, which is an arm of the State Department of Natural Resources, the Recycling Authority is administratively separate. While one state body will always tend to treat another with deference, at least this latter scheme promises to better assure the impartial enforcement of relevant regulation.

## VI. SUMMARY

This spectrum of multijurisdictional organizations active in the planning for and provision of environmental quality services is intended to provide a valuable perspective for helping to design institutions (and organizations) for managing environmental quality problems in a river basin such as the Lower Fox. While the specific proposal will not resemble any one of these in every detail, we will draw upon various aspects of several of them.

FOOTNOTES: CHAPTER 4

- 1 See Public Law 92-500, Sections 102(c), 204(a)(1), and 208.
- 2 State of Texas Statute, Article 8280-101 (8).
- 3 State of Texas Statute, Article 8280-101 (10).
- 4 State of Texas Statute, Article 7880-3a.
- 5 State of Washington Statute 35.58.080.
- 6 State of Washington Statute 35.58.090.
- 7 State of Washington Statute 35.58.120.
- 8 State of Wisconsin Statute 66.945(12) does provide for mandatory financial contributions by Regional Planning Commission members.
- 9 State of Maryland Statutes Article 33B, Subsection 7.
- 10 Exceptions are materials privately processed for reuse, wastes from electric or steam generating units, sludge, and agricultural and mining wastes.

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## CHAPTER 5

### INSTITUTIONAL DESIGN: THE PRESUMPTIVE IDEAL

#### I. INTRODUCTION

We are now in a position to synthesize the foregoing material and develop a tentative set of criteria for the design of environmental institutions. We say tentative since any institutional structure and its attendant organizations must be consonant with state and federal laws, which are yet to be explored.

#### II. DESIGN CRITERIA

Many authors have assessed institutions, particularly in the water management area, and have suggested criteria or identified features useful in designing and evaluating institutions for environmental management. While the criteria advanced by each is generally consistent and comprehensive with respect to specific focus, in aggregate they present a potpourri of standards. The essence of these recommendations is felt to be encompassed under the four broad criteria adopted here, criteria which are believed to define characteristics fundamental to the successful development of institutions for environmental management. The criteria call for environmental management institutions which are representative, comprehensive, integrated, and nonimposed (or self-emergent).

It is believed that institutions (working rules) formulated to meet these criteria would successfully modify behavior--and consequently outcomes--in a way consistent with the values, goals and objectives which stimulated the institutional change.

##### Representative

Institutions responsible for environmental policy and management should represent the interests and reflect the preferences of those affected by their decisions. This requires that the environmental authority be responsible (either directly or indirectly) for conditions throughout the problem area. That is, it should internalize the issue to one decision-making body, and those affected should be represented according to their stake in the issue. Both commonness and intensity of interests must be recognized. It is suggested that direct representation via representatives elected for that purpose is the most desirable means of accomplishing this objective. Representation may also be achieved by other means, such as through interest groups or through elected or appointed officials delegated from underlying jurisdictions. These, however, are considered second-best alternatives where direct election is feasible. Direct election of representatives to the authority affords the greatest potential for participation by the affected persons in the decision-making process and provides the most suitable mechanism for these persons to evaluate the alternatives among environmental and other important concerns such as growth, employment, increased tax base, school expenditures and the like. These choices involve trade-offs which can be better made by individuals than by antagonistic interest groups through a regulatory process or as public advisors to bureaucratic decision makers.

Representation of those affected assures that all the issues relevant to the policy decision will be articulated since opportunities exist for political entrepreneurs to develop a constituency by focusing attention on and promoting what might otherwise be unrecognized interests. The political nature of the authority should make it responsive to changes in the norms and values of the electorate and so improve its chances of long term-viability. Furthermore, the accountability of representative government will, if the jurisdiction and decision processes are properly designed, generate respect for the authority and its decisions; its legitimacy will be enhanced. Of the various means of achieving representation, electing representatives responsible for policy decisions in a specific area provides the greatest degree of accountability and so deserves initial consideration. The choice of the means of achieving representation depends also upon the costs of implementing each alternative. Although elected representatives may select more satisfactory outcomes, it may be a more expensive institutional form. The ultimate decision depends upon a comparison of the costs and benefits associated with each alternative.

### Comprehensive

If an environmental authority, whether representative or regulatory, is to successfully manage the environment, it must have the power to implement its decisions and to influence the behavior of persons, firms and governments. This means that it must have the power to adopt and enforce new rules or require compliance with existing ones over which it acquires authority. The authority must also be able to consider the full range of alternatives available which might be used to achieve its objectives. This includes not only a variety of technical alternatives but also the option to use any of a number of possible regulations or other positive or negative incentives to induce private and public decision makers to act in accord with social preferences as articulated through the authority.

Comprehensiveness also includes geographic and time dimensions. Environmental management institutions will function best if they are designed to account for interdependence throughout the problem area. This is likely to be facilitated by, but need not require, centering responsibility and authority in a single problemshewide agency. Comprehensiveness also requires that the responsible body have a long range perspective in pursuing answers to its problems and not be constrained to seeking immediate solutions to a succession of pressing and perhaps partly self-generating issues.

### Integrated

In order that an environmental authority function effectively, its relationships with other institutions and organizations must be well defined--that is, it must be integrated into the local decision-making system. The breadth of activity the authority can undertake without the approval of other units needs careful delineation or existing agencies and jurisdictions will undoubtedly attempt to circumvent or challenge the prerogatives of the new structure. Unless given well-defined powers, the new authority will find it difficult to establish its place in the prevailing institutional arrangement. Also, when disputes do arise, a well-defined means of appeal will be necessary. Integration, or the definition of interorganizational linkages, is necessary not only at the policy-making level but also at the operational level, for conflict there could thwart well-specified policies.

While the integration of the new authority with existing governments and their operating units is essential, there must also be well-defined linkages among the

components of the authority itself. Management functions should be separated from the policy-making unit while being responsible to it and communicating closely with it. Also, there is some basis for establishing a planning body for information generation independent of management, so that it does not get overly involved in the daily operations and can objectively assess program alternatives and future requirements.

### Nonimposed

In order that a regional environmental agency perform a valid role, it should not be imposed by another authority but should emerge on the initiative of the local problem area. This is not to imply that the federal, state or local governments should play a passive role with respect to stimulating regional authorities, nor that they cannot act on regional environmental problems without local permission. State or federal governments can play an important role in establishing conditions which facilitate the development of regional authorities in those areas where area-wide problems and interest warrant. If the intensity of interest at the local level is not adequate to generate the development of such an authority when the means are there, it is unlikely that any imposed authority will prove viable. Self-organization necessitates that the new authority in fact be a reflection of community values and of the willingness to undertake and support efforts beyond those already adopted. Federal and state governments can require and undertake environmental action to a level consistent with the interests of their constituencies. If local residents prefer additional improvements, these may be accomplished via regionally conceived and oriented institutions; the desirability of self-emergent regional authorities is in part an extension of the representation criterion.

Self-development also requires that the affected parties reach a mutually satisfactory agreement among themselves as to the structure, organization, financing and decision-making process of the new body. In essence, it requires a form of constitution building by participants. Overlying authorities can catalyze this development by establishing basic ground rules to which such units must abide and thereby restrict the bargaining in certain areas so as, for example, to protect minority interests which might otherwise be adversely affected. If the development of an institution is to receive local support, there must be the anticipation of it being effective; hence it must have power to influence decisions. While some authority may be ceded voluntarily by the underlying jurisdictions during the constitution building process, it is likely to be necessary that the state specify what powers both it and local units would relinquish if a regional authority is to be agreed upon. The constitution decision makers only then are able to estimate and weigh the potential gains against the costs.

In summary, these criteria seek to draw attention to a number of fundamental features which many feel are prerequisites to a successful environmental authority. The nonimposition or self-development criterion requires that the authority be warranted in that it reflects local values and that the local interests have agreed upon the power and decision making processes of the body. This constitution building process, if properly facilitated by senior authorities, should successfully integrate the new structure into the institutional arrangement to assure its effective operation. Effective operation is enabled by the delegation of adequate power and by allowing flexibility in approach to problem solving. Residents are most likely to be satisfied with the authority if their views are properly represented and the decision makers are accountable to those affected by its policies.

It is readily realized that these criteria are not independent of each other, for the extent to which one is met or not met will affect performance with respect to the others. Their independence, however, is not important. What is relevant is that we understand better how decisions will relate to all of these and through them affect the suitability of the resulting composite structure.

### III. FOUNDATIONS FOR INSTITUTIONAL DEVELOPMENT

The purpose of this section is to briefly highlight the major characteristics of the ideal institutional structure for a substate environmental management authority as derived from this analysis. The first part of the chapter dealt with major concerns to be addressed in the establishment of an environmental management authority. The basic recommended features emerging from that assessment are:

1. Legislation would enable, not require, the establishment of environmental management authorities. It is believed that many areas will be adequately served by the environmental protection and improvement activities of regular state agencies and not need additional or supplementary action on an area-wide basis. Area management authorities are likely to appeal to areas experiencing special environmental problems or in areas where environmental quality is of particular concern.
2. An environmental management authority would only be considered upon petition by local representatives. This petition may be made by local governments (if the problem area is sufficiently small or the government large) or by some reasonable proportion of voters or property owners in the proposed jurisdiction.
3. A state authority (e.g., a special board) or the courts would rule as to the success of a petition after hearings which would address questions concerning the proposed plan's compliance with enabling legislation and its acceptability to those who would be governed by the proposed regional authority. Relevant criteria might be that:
  - a. the jurisdiction and power of the proposed authority should be adequate to alleviate the problem;
  - b. the authority's directors (policy makers) would be elected representatives or selected from elected representatives of the area rather than appointed;
  - c. the authority could sustain itself financially from revenues levied on the basis of benefits received and for services rendered.

An authority structured along the lines suggested would largely satisfy the criteria for evaluating such institutions in the second portion of the chapter. Certainly it would initially meet the representative and nonimposed conditions. The terms of general legislation, however, cannot assure effective integration and comprehensiveness. It can only permit its development. Responsibility for seeing that these characteristics emerge depends upon the vigor of the organizers and the diligence of the state board empowered to review the petition. Even then the successful operation of a regional authority depends upon people and organizations. Satisfactory performance is not assured by desirable institutional structures; the probability of success is merely improved.

## CHAPTER 6

### THE INCREASING IMPACT OF FEDERAL LAW

#### I. INTRODUCTION

Federal legislation of significance to environmental quality questions was for a long time restricted largely to issues involving navigable interstate waters. Recently, however, the federal presence has become important in many new areas. Some laws, such as those governing emission standards for new automobiles, operate for practical purposes entirely at the federal level. Others involve varying combinations of requirements and incentives which in many cases leave lower level governments considerable discretion in their approach to environmental quality matters.

In the first part of this chapter a brief outline of the most significant of these federal laws will be presented. This is followed by a discussion of the possible impact of the U.S. Constitution on the structure and operation of a Regional Environmental Quality Authority such as might serve the Lower Fox Valley.

#### II. FEDERAL LEGISLATION AND ENVIRONMENTAL QUALITY

##### Water Quality Legislation<sup>1</sup>

A Brief History. The first federal activity in the area of water pollution control was rather specific in nature. Section 13 of the Rivers and Harbors Act of 1899 prohibited the introduction of "refuse matter"--other than domestic sewage--into navigable waters or into any tributary which will act to transport the refuse into navigable waters. An exception is in cases where anchorage and navigation will not be injured by discharge of the waste, in which case the discharge is permitted subject to the conditions of a permit to be granted by the Corps of Engineers. After decades during which permits were granted or denied on the basis of potential harm to navigation, the Supreme Court in the 1960s interpreted the act to cover all discharges other than municipal sewage. In compliance with this mandate the Corps, in conjunction with the Environmental Protection Agency, initiated an expanded permit program. Approval of permits was to be based not only on the impact of the discharge upon navigation, as judged by the Corps, but also upon its compliance with the water quality standards contained in the Federal Water Pollution Control Act, as determined by EPA. Further discussion of this permit program will follow the introduction of the other laws with which it interacts.

The next law, also conceived as limited in scope, was the Oil Pollution Act of 1924. It prohibited the intentional discharge of oil into coastal waters by vessels except in an emergency.

What might be considered the first conscious step toward federal involvement in general water pollution control took place in 1948 with passage of the Water Pollution Control Act. It was directed at the pollution of interstate waters, with provision for the formation of interstate compacts. Pollution itself was to be defined by the courts, with the act's only enforcement coming from the permission given the federal government to sue as a means of halting a public nuisance. Even

this was restrained by the requirement that such a suit be prosecuted only with the permission of the state within which the pollution originated. Other parts of the act provided for federal funding of pollution control research, the funding of state and local programs, and loans for the local construction of waste treatment facilities.

A different enforcement approach was introduced in 1956, as provision was made for a conference of federal, state and interstate agencies to discuss cases of interstate pollution. If the results of the conference were not satisfactory, the federal government could then bring suit without obtaining the state permission required by the 1948 act if requested to do so by the state suffering the effects of the pollution. Federal suits under this provision were not, however, a significant factor in alleviating pollution. A 1961 amendment removed the necessity for state approval of a federal court suit as well as expanded federal jurisdiction to include all navigable waters rather than solely interstate waters. This 1961 action corresponded to the beginning of the Kennedy Administration, which also approved large increases in the federal funding of local wastewater treatment plant construction. This was a reversal of the policy direction taken by the preceding Eisenhower Administration.

The Water Quality Act of 1965 strengthened the power of the federal government in the area of standards setting. States were given until June 30, 1967 to adopt quality regulations for interstate waters, with these standards subject to the approval of the secretary of the Department of Health, Education and Welfare. In the absence of adequate and timely state action, the secretary was empowered to adopt standards for the state. The act also created the Federal Water Pollution Control Administration within HEW<sup>2</sup> and increased the maximum grant available to any single wastewater treatment plant.

Subsequent legislation was, for the next several years, directed at specific problem areas or methods of solution. The Clean Water Restoration Act of 1966 had the major effect of increasing construction grant authorization to \$3.55 billion over five years, while a 1970 bill, passed after several years of congressional negotiation covered oil pollution, acid mine drainage, eutrophication research, vessel pollution and thermal pollution.

The 1972 Amendments. The next general piece of legislation concerned with water pollution control, the Water Pollution Control Act Amendments of 1972, will be the concern of the remainder of this section. An exhaustive analysis of this massive piece of legislation will not be attempted. Rather, those sections of particular significance to the organization and scope of local pollution control efforts will be summarized.

Water Quality and Effluent Standards. A principle feature of the 1972 act is a system by which state governments administer a system of water quality regulations according to guidelines drawn up by the federal government. Two categories of standards are provided for under this system: (1) water quality standards; and (2) effluent standards.

Water quality standards would apply to geographically defined bodies of water and would indicate the minimum permissible water quality for that area to be maintained or achieved by means to be defined by the state. The parameters by which quality might be defined include fecal coliform concentration, dissolved oxygen level, temperature, turbidity and the concentration of heavy metals and



suspended solids. In Wisconsin there are three primary surface water categories: (1) those suited for fish and aquatic life including special standards for trout streams; (2) for recreational use; and (3) those suited for public water supplies.

As stated in Wisconsin Administrative Code section NR 102.03, "It is the goal of the Department of Natural Resources that, wherever attainable, surface waters in Wisconsin shall provide for the protection and propagation of fish and aquatic life and provide for recreational uses in and on the water by July 1, 1983." This goal is to be achieved by application of the "best available control technology" except in cases where there is "no reasonable relationship" between the economic and social benefits and costs of attaining the goal. Sections NR 103 and NR 104 specify intermediate uses and standards to be achieved by July 1, 1977. These consist of a series of variances applicable to individual lakes, rivers and sections of rivers.

Effluent standards will be used to enforce the water quality standards described above. Federal standards specify that by mid 1977, all nonmunicipal point source dischargers will be required to treat their effluent to the maximum degree attainable through use of the "best practicable control technology currently available." Municipal treatment plants will be required to employ at least secondary treatment by that date.

By 1983 presently existing municipal treatment plants will be expected to employ that "best practicable waste treatment technology over the life of the works," while all other presently existing point dischargers will be required to use the "best available technology economically achievable." The meaning of these terms is to be defined in regulations promulgated by the U.S. Environmental Protection Agency.

New point sources will be required to meet a separate series of regulations drawn up so as to be specific to each industry. These standards will be designed to reflect the "best available demonstrated control technology."

The final goal of these requirements is that "the discharge of pollutants into the navigable waters be eliminated by 1985." There is considerable controversy over the practicality and desirability of this goal and uncertainty as to how the aforementioned concern with balancing social and economic costs and benefits will be reflected in its implementation.

Effluent standards are to be enforced through the use of a permit system for each point source discharger. Administered initially by the federal Environmental Protection Agency, the issuance of permits is turned over to states as they individually develop acceptable enforcement programs. EPA retains a veto power over individual permits and may rescind a state's right to issue permits if it finds that the state's program is not performing adequately.

States are permitted to enforce standards more stringent than those imposed by federal regulations. And the federal law itself states that in some cases the attainment of water quality standards may require that dischargers treat their effluent to a greater degree than the "best practicable control technology currently available" or any of the other generalized statements of intent described earlier.

The permits themselves specify what effluents may be emitted by the permit holder and in what quantity and often contain a schedule of compliance with future

effluent standards. Permit holders are expected to monitor effluent quality and quantity and submit periodic reports as also detailed in the permit.

Area-wide Water Quality Planning. As indicated earlier, the 1972 act is a large and complex piece of legislation. A provision of particular interest to this study is Section 208 which encourages states to organize their water pollution control programs in such a way that problems are attacked on a regional basis. Two types of regional authorities are described by Section 208 as being necessary to effective area-wide water quality management. One type would be a single agency responsible for developing an integrated plan for the whole of a geographic area. This second type, of which there might be any number in a given planning area, would actually implement at least a part of the plan.

In the case of the first type of agency, the governor of each state is given the responsibility of identifying "each area within the state which, as a result of urban-industrial concentrations or other factors, has substantial water quality control problems." The governor is thereafter responsible for designating a "single representative organization, including elected officials from local governments or their designees, capable of developing effective area-wide waste treatment management plans for such an area." The governor is given 180 days to complete this process after which local governments are free to organize themselves into area-wide bodies. Federal funding is available to subsidize a large proportion of their operations.

Not later than one year after its designation, the organization is expected to have in operation a "continuing area-wide waste treatment management planning process." The area-wide plans produced by these processes are to be annually certified by the governor or his designee as being consistent with "applicable basin plans." The scope of the plan is to include not only point effluent sources, but nonpoint sources. Provisions must also be made for the disposal of the residuals produced by wastewater treatment plants in a manner such that ground and surface water is not polluted.

After such plans have been developed, the governor is responsible for designating "one or more waste treatment management agencies" for each area. All future wastewater treatment facility grants are to be made to these agencies for work in conformance with the area-wide plan. Likewise, future effluent permits are to be granted only if in conformance with the plan.

The agency must have adequate authority to implement the area-wide plan. This includes such things as the ability to finance necessary facilities and to enforce pretreatment standards with respect to municipalities and industries contributing waste to treatment facilities under the agency's authority.

There are currently three area-wide waste treatment planning agencies in operation in Wisconsin; among them is the Fox Valley Water Quality Planning Agency which has been created to coordinate water quality management efforts in the Fox River Basin. This latter agency will be discussed in greater detail in Chapter 11.

Financial Aids for Wastewater Treatment. Title 11 of the 1972 amendments contains significant new federal financial incentives for the construction of municipal wastewater treatment plants. The influence of these aid programs on the water quality-related decisions made by local governments and industries is the topic of this section.

The most basic provision of the program is that the federal government will pay 75 percent of the cost of constructing municipal treatment plants. The remainder of the cost is borne by local governments, often with state aid in the form of grants or loans. Federal funds are to be allocated among states on the basis of their relative need for new treatment plants. The federal grants are subject to a number of conditions, among them:

- (1) The plant to be constructed must conform to state and area-wide water quality plans.
- (2) Provisions must be made for adequate maintenance and operation.
- (3) All users of the system must pay for their share of both its operating and replacement costs. Industries contributing wastewater to the system must, in addition, pay for the proportion of the federal investment required to treat their wastewater.

Some of the revenues obtained from industrial users are to be returned to the federal treasury.

While the funds effectively available through the aid programs are much more limited than its originators hoped, it has been successful in stimulating plant construction throughout the country. Specific provisions of the act have, however, sometimes tended to produce results which might be viewed as less than optimal.

While the specifics of the area-wide water quality planning process have already been discussed, it is worth noting here its relationship to the municipal treatment plant subsidy program. The timetable for the implementation of PL92-500 seems to have significantly underestimated the time necessary for the development of their programs. Consequently, the grant program often began funding new municipal construction before consideration could be given to the regional implications of the new plant. It is ironic that the large urban areas, which could probably benefit most from a carefully considered regional system, were probably under the greatest pressure to initiate cleanup measures quickly because of the impact of their effluent on receiving waters.

The federal subsidy for plant construction is widely suspected to contribute to a tendency to design capital-intensive treatment plants rather than what might in some cases be a better balance between physical plant expenses and other variable cost inputs. While the federal construction subsidy deserves some of the blame for this tendency in plant design, there are certainly other factors at work. The consulting firms responsible for the design of most plants will have their work judged to some degree on the performance of the plants they design. They may wish to rely as little as possible on what sometimes prove to be slipshod operating procedures on the part of inadequately trained plant personnel. It also seems reasonable to expect the fees paid designers to be commensurate with the expense and impressiveness of the physical plant.

Also related to the widespread use of consultants for plant design is a conflict between an explicit purpose of the construction grant program and the reality of its implementation. Section 201(b) of the act states that, "Waste treatment management plans and practices...shall provide for the consideration of advanced waste treatment techniques." This encouragement of innovative approaches to improving water quality is maintained throughout the document. As a recent draft report by the staff of the National Commission on Water Quality [1975] indicates, however, the actual planning process often does not follow with imaginative alter-

natives. Much of this is ascribed to the low profile adopted by the federal EPA when it comes to dealing with the specifics of local plans. Technical expertise is often only available from private consultants who have little incentive to break new ground technologically.

It is also suggested that conventional treatment plans are implicitly encouraged by the federal review process where an innovative design is likely to require a longer period for approval than a conventional design. A consultant is likely to want to minimize both the duration of the firm's involvement with a given project and the time spent justifying unconventional features. A community may want to expedite the planning process so as to qualify for federal and state funding as soon as possible, thus reducing the likelihood that it may in the future be forced to proceed without the benefit of these aids. Thus, both the consultant and the client may feel a further incentive to proceed with a well established design.

Also related to the technology adopted is the specific requirement for the secondary treatment of municipal waste. While the technology to attain this degree of treatment is not specified in the act, the regulations drawn up to guide its implementation specify effluent standards generally attained by conventional secondary treatment plants. This in effect rules out the use of alternative systems which may produce an effluent balance having different characteristics but which may have a similar impact on receiving waters. Similarly, effluent standards are faulted by some for not distinguishing among plants on the basis of the quality of the receiving water. Except in areas having extremely poor water quality, where stricter standards may apply, all municipalities and industries of a given size and type are treated approximately equally. Maintaining these uniform standards throughout an industry will tend to neutralize any competitive advantage which might accrue to a firm located in a relatively unpolluted basin to which lower standards might reasonably apply. But the suggested equity of this approach may be at a substantial efficiency cost, as investments are made for pollution control in regions which may not be in greatest need of environmental improvement.

The provisions of PL92-500 relating to the relationship of industries to municipal treatment plants are likely to be of particular interest in the Lower Fox Valley. While industries contributing wastewater to municipal plants are specifically required to repay the proportion of plant investment attributable to treating their waste, industries are not required to pay interest on what are often 30 year loans for plant construction. It has been suggested that this often amounts to a 45 percent federal subsidy of industrial waste treatment. This advantage is in addition to the economies of scale which municipal treatment will often give the industry--and to which the participation of the industry may contribute. Industries are also not required to pay for the excess capacity designed into the municipal system unless they specifically request the additional construction. This is both a direct monetary saving to industry and a means of reducing risk; plants with an uncertain future will not be investing in specialized equipment which may be of no use if the plant changes ownership or its primary product changes. Reliance on a municipal system may also allow an industry to avoid direct involvement in litigation resulting from local water quality violations, a saving perhaps of both money and unfavorable publicity.

Counterbalancing the advantageous aspects of industrial-municipal cooperation are the financial incentives available to companies installing their own pollution control devices. Under federal law, such equipment can be depreciated for tax purposes

on an accelerated basis. Alternatively, a tax credit is given for a percentage of money invested in pollution control equipment, with the choice between these programs left to the firm. Also available are special Industrial Revenue Bonds. Guaranteed by the federal government, these bonds allow financially viable firms to obtain funds for pollution control equipment at better than normal interest rates. Finally, local governments often exempt pollution abatement equipment from property tax. Note that these programs all tend to give the advantage to end-of-pipe treatment rather than process changes which would be less identifiable as related to pollution abatement.

These factors combine to make the choice of individual or cooperative treatment less obvious for many industries. In fact, a recent EPA report [EPA, 1975] suggests that in many cases there may not be a financial advantage to industries choosing to contribute to a municipal treatment system.

Factors beyond construction financing incentives also point in this direction. Pretreatment requirements for some industries are sometimes as stringent as would be required for direct discharge. For those industries reasonably proximate to receiving waters, paying for municipal transmission and further treatment will likely seem pointless. Plans to divert wastewater to a new region or municipal system may not prevent an industry from coming under the pressure of state or federal enforcement officials, particularly if the implementation of the public plan faces lengthy delays.

This discussion of PL92-500 is obviously incomplete; volumes have been written concerning the impact of this law on environmental quality and the incentives which have been created for improving this quality. But the points made in this section should provide an adequate basis for the discussion of environmental quality improvement efforts in the Lower Fox Valley.

### Air Quality Legislation

The history of federal air pollution control legislation is relatively brief. While there was modest financial support for research beginning in the mid 1950s, it was not until 1963 that permanent federal jurisdiction in the area of air quality was established.

The 1963 Clean Air Act, like the early water quality legislation, did not specifically define pollution. Rather, in cases where a state perceived an air pollution problem, it could request that the Department of Health, Education and Welfare step in with a set of procedures similar to those utilized in cases of alleged water pollution. A public hearing would be followed by an interagency conference and finally, if necessary, a federal court suit. In cases of interstate pollution, state permission was not a prerequisite for HEW action.

The next piece of federal air quality legislation, passed in 1965, was directed primarily at the regulation of emissions from new automobiles. HEW was given the responsibility of setting standards which it indicated would become effective in 1968.

The Air Quality Act of 1967, like the 1963 act, was directed at the abatement of air pollution in general. And, following the trend noted in the water quality area, the authority for federal initiative increased substantially. HEW was to take the lead by setting the boundaries for air quality regions. States

were authorized to then set air quality standards for these regions and submit both the standards and implementation plans to HEW for approval. Also included in the law were provisions for pollution control research and state vehicle inspection assistance and the federal registration of motor vehicle fuel additives.

The 1970 Amendments to the Clean Air Act served partially to strengthen programs initiated under earlier legislation and partially to introduce new management approaches.

The establishment of air quality control regions in areas of serious air pollution was turned over to the newly created Environmental Protection Agency. In addition, EPA was given the role of coordinating among states the delineation of state established air quality control regions.

Two air quality standards are described in the 1970 amendments: primary and secondary. These will be explained in greater detail during the description of air quality in the Lower Fox Valley in Chapter 10. For the time being, it is sufficient to note that secondary standards are usually more stringent than--and in no case less stringent than--primary standards. Both were initially established for six types of pollutants. Under the amendments, states are responsible for developing plans to attain these standards for all air quality control regions of the state. Primary standards were to be attained within three years after state plan approval by the EPA, while secondary standards were to be attained according to a "reasonable" schedule to be specified in the state plan. It was additionally provided that, regardless of the timetables described, the amendments did not sanction the deterioration of air quality below existing levels.

Section 105 of the 1970 amendments authorizes the administrator of the Environmental Protection Agency to "...make grants to air pollution control agencies in an amount up to two-thirds of the cost of planning, developing, establishing, or improving, and up to one-half the cost of maintaining programs for the prevention and control of air pollution or implementation of national primary and secondary ambient air quality standards." If the area in question includes two or more municipalities, the percentage of the federal contribution to plan development increases to three-quarters, and to three-fifths for plan maintenance. EPA assistance in the form of employee time and expenses may be charged to the federal share of the funding. In the case of an interstate agency. Section 106 provides that the federal government will pay all of the agency's costs for two years and 75 percent of its costs after two years.

As noted above, all of these grants are designed to assist in the attainment of national primary and secondary standards. This condition, written into the legislation, helps avoid directing federal subsidies toward the attainment of standards stricter than the national public interest finds necessary.

In addition to direct financial assistance, technical help with the complexities of control technology is available from EPA along with advisory committees covering each of the federally specified pollutants.

The 1970 amendments empower the EPA to establish emission standards for existing sources of any air pollutant thought to be hazardous or to contribute significantly to air pollution. The Senate Committee on Public Works subsequently specified 19 types of industrial air pollution sources for which it expected the EPA to develop

emission standards. The act additionally sets standards for the reduction of air pollution from motor vehicles and specifically authorizes the use of state and federally imposed land use controls as one means of improving air quality.

Enforcement of regulations is facilitated by the requirement that polluters assist in the gathering of information regarding their air pollutant dischargers. The EPA and state and local governments are given authority to oversee compliance with regulations. In addition, the law specifically authorizes citizens' suits against both the government and private parties to enforce provisions of the act. However, a suit may not be initiated for 60 days after notice of intent is given the EPA, the alleged violator and the state in which the violation is alleged to be taking place. In settling the suit, the court "...may award costs of litigation (including reasonable attorney and expert witness fees) to any party, whenever the court determines such award is appropriate."

The EPA administrator is also given the authority to close down facilities emitting air pollutants in a given area when there is an "eminent and substantial endangerment to the health of persons" that is not being adequately addressed by state or local governments.

Congress has recently paid considerable attention to amending the Clean Air Act. The areas of greatest concern are the present policy of allowing essentially no degradation of present air quality in any part of the country and proposals to modify future automobile emission compliance dates.

### Solid Waste Legislation

With passage of the Solid Waste Disposal Act of 1965 the federal government took first official notice of this functional area as being other than a matter of local concern. The act was nonregulatory in nature, providing for research, training programs and planning and financial assistance to state and local governments. Not only disposal, but reducing the amount of solid waste produced and resource recovery were to be research objectives.

The Resource Recovery Act of 1970 was conceived as an amendment to the 1965 act designed to strengthen the emphasis placed on waste reduction and recycling. Federal regulation of solid waste disposal was again not seen as desirable--with the exception of restrictions on ocean dumping and the disposal of hazardous wastes contained in other legislation. The 1970 act does, however, call for the drafting of waste recovery and disposal standards and model legislation to guide state and local governments in the voluntary implementation of those standards. Compliance would be mandatory only for federal installations although the likelihood of even this degree of compliance has been open to question.

The Wisconsin Department of Natural Resources currently receives a program planning grant of approximately \$65,000 per year, administered by the U.S. Environmental Protection Agency. The Wisconsin Solid Waste Recycling Authority also receives a similar federal grant through the provisions of the 1970 act.

Laws are currently being considered which would strengthen the present federal role in the area of solid waste disposal. Provisions contained in the various bills include encouraging the incorporation of disposal costs in product pricing, the development of federal guidelines for municipal solid waste and hazardous waste disposal and the funding of further research in the recycling and waste disposal areas.

One of these, Senate Bill 2150, passed the Senate in the summer of 1976.

At the state level, legislation requires the Wisconsin Department of Natural Resources to adopt minimum standards for "...the location, design, construction, sanitation, operation and maintenance of solid waste disposal sites and facilities...."<sup>3</sup> Also provided for is the voluntary development of solid waste disposal plans by each of the counties or combinations of counties and the state licensing of all disposal sites. The development of more specific regulations has been accomplished and exists as Chapter NR 151 of the Wisconsin Administrative Code.

### Other Pertinent Legislation

The National Environmental Policy Act of 1969. The primary purpose of this law is to require federal agencies to explicitly consider the impact of proposed actions on environmental quality. Specifically, agencies are required to:

(B) identify and develop methods and procedures in consultation with the Council on Environmental Quality established by Title II of this Act which will insure that presently unquantified environmental amenities and values may be given appropriate consideration in decision-making along with economic and technical considerations;

(C) include in every recommendation or report on proposals for legislation and other major Federal actions significantly affecting the quality of the human environment, a detailed statement by the responsible official on--

(i) the environmental impact of the proposed action,

(ii) any adverse environmental effects which cannot be avoided should the proposal be implemented;

(iii) alternatives to the proposed action;

(iv) the relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity and

(v) any irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented. [Pub. Law 91-190, Sec. 102].

These "environmental impact statements" required by NEPA are to be made available to the public and are to be considered throughout the process of reviewing the proposed actions of federal agencies.

A statement may be required not only where a federal agency is actively involved in the planning or construction of a project, but also where federal funds are being used by a state or local government or private party. Neither are "actions" requiring statements restricted to those involving direct changes to the physical environment; modifications to law or policy which will have the effect of causing individuals to change their actions in an environmentally significant way may also demand preparation of a statement.

Considerable litigation has resulted from this law, much of it centered around what constitutes a "major federal action" requiring an environmental impact



statement. Additionally, the courts have become heavily involved in defining the characteristics of an adequate impact statement and in reviewing the degree to which the information contained therein actually has influenced the making of decisions.

Two provisions within the Water Pollution Control Act Amendments of 1972 should be noted here because of their direct reference to NEPA.<sup>4</sup> In the first, Section 511(c)(1), most actions of the administrator of the Environmental Protection Agency are exempted from the provisions of NEPA. While a controversial provision, it was included largely because it was felt that urgently needed action in many areas of environmental quality improvement would be delayed by the NEPA review process. Further justification for the exemption could be found in the fact that the goal of NEPA was to generate an environmental quality perspective in agencies committed primarily to other missions. The Environmental Protection Agency, with its single mission being the enhancement of environmental quality, would presumably not need to have its attention so directed. Section 511(c)(2) of the 1972 amendments exempts water quality regulations established under the Water Pollution Control Act from review under NEPA.

While environmental impact statements are reviewed by the Environmental Protection Agency, the Council on Environmental Quality has general oversight duties with respect to the implementation of NEPA. Its three members serve at the pleasure of the president and, under the provisions of the act, advise him in matters of environmental policy, conduct studies in matters of environmental quality and assist in the preparation of an annual Environmental Quality Report.

A duty not given the council by law but rather by presidential order is the preparation of guidelines for the content of environmental impact statements. Operating from the Office of the President, the direction and effectiveness of the council have been described as very dependent on the whims of the White House.<sup>5</sup>

Community Planning and Development Grants. Section 701 of the Housing Act of 1954, as amended, allows the Department of Housing and Urban Development to provide funds for a wide range of state and local government planning activities. Eligible applicants include states, cities, counties and intergovernmental planning bodies, with grants available for up to two-thirds of the cost of assisted projects. Many of the planning reports which will be mentioned in the upcoming chapters discussing the Lower Fox Valley were prepared with the assistance of these "701" grants. Funding for this program is expected to decline from over \$100 million in fiscal year 1975 to approximately \$25 million in fiscal year 1977.

The Coastal Zone Management Act of 1972. Public Law 92-583 has as its objective the formulation of a comprehensive coordinated set of policies toward the coastal environment on the part of state and local governments, with financial and technical assistance provided by a federal Office of Coastal Zone Management. State participation in the program is voluntary, with both maritime and Great Lakes states eligible for program benefits.

Funding is divided into two major programs. The first assists the state in the development of a state or state-local management program. If the program complies with guidelines promulgated by the Secretary of Commerce (the department in which the federal Office of Coastal Zone Management is located), a state is eligible for financial help in implementing its program.

The primary interest of a state coastal zone program is likely to be the formulation of policies to effectively oversee environmentally significant land use decisions in the area immediately adjacent to its coast. While this is a relatively narrow objective, several factors suggest that these efforts be coordinated with previously mentioned pollution control programs; the public benefits to be gained from improving water quality will be strongly related to the degree to which the public has aesthetically desirable access to the water. Land use along the coast is likely to be an important influence on the degree to which sources contribute to water pollution in a basin. And from a more truly ecological perspective, the degree to which the improved quality of a body of water is reflected in its improved biological health will be significantly affected by how well shallow-water breeding areas are protected; these areas are a primary focus of concern in the Coastal Zone Management Act.

### III. IMPACT OF THE FEDERAL CONSTITUTION ON THE IMPLEMENTATION OF TWO ELEMENTS OF THE REQA "IDEAL "

As this report moves toward a discussion of how a Regional Environmental Quality Authority may best be structured, it is appropriate to consider the impact of the U.S. Constitution on such a body. Two issues of particular significance have been singled out for discussion: (1) whether the implementation of a system of effluent charges to further the goals of the authority would constitute a taking of private property without compensation, and thus be in violation of the Fifth and Fourteenth Amendments and (2) whether implementation of a voting scheme which reflects the distribution of potential benefits and costs arising from a REQA's activities would violate the equal protection clause of the Fourteenth Amendment.

#### Effluent Charges

In 1969, Silas Lyman completed a detailed review of potential federal and state legal limitations to the implementation of an effluent charge program.<sup>6</sup> In this section, Lyman's conclusions with respect to the taking issue will be outlined.

Dischargers in states following the riparian rule may view the implementation of an effluent charge as a taking of their right to the "reasonable use of the assimilative and transport capacity of the water."<sup>7</sup> Similarly, dischargers in appropriation states may perceive the implementation as a taking of their right to a portion of the stream's capacity. Both may also allege that the imposition of effluent charges will take their property by reducing the value of riparian lands or other property--e.g., a manufacturing plant--tied to the discharge activity.

Lyman argues that the implementation of effluent charges is a valid exercise of the police power--rather than of eminent domain--which does not require the payment of compensation. He distills three requirements from the case law which may be used to sustain a regulation that limits the use of private property:<sup>8</sup>

- (1) it must be enacted in furtherance of a proper legislative purpose;
- (2) it must bear a reasonable, not an arbitrary, relation to that purpose;
- (3) it must not be discriminatory.

Lyman concludes that none of these criteria have been violated. Pollution abatement has been recognized by the courts and legislature as a proper legislative purpose, often designated as a means to protect the public health or to fulfill the government's public trust responsibilities.<sup>9</sup> Similarly, he argues that a system of effluent charges may be seen as a reasonable approach to accomplish this end.<sup>10</sup> Finally, he notes that a system of rates based upon effluent-caused damages could be justified empirically. As long as dischargers are treated equally under this rate system, the imposition of effluent charges will probably not be unconstitutional under the Fourteenth Amendment.<sup>11</sup>

While Lyman notes that a complete prohibition of a specific beneficial use is not per se unconstitutional, he concedes that a restraint which is so onerous as to render the property practically or substantially useless for any other purpose may be an unconstitutional taking.<sup>12</sup> It is questionable from the outset whether a discharger may possess a "right to pollute" against the public. Lyman assumes, for the sake of argument, the existence of this right, but does not consider whether a riparian's "right to pollute" could be held separate from the riparian land. He assumes, instead, that it is one of a bundle of individual rights associated with the land.<sup>13</sup> Since the elimination of the right to discharge resulting from the imposition of one charge did not substantially affect the remaining rights to use the riparian land, he concludes that the prohibition would not be called a taking.

Lyman's conclusion assumes an effluent charge payment schedule based on the dollar costs of downstream damages caused by the discharge. He argues that an effluent charge based instead on treatment costs would result in an "obvious and unreasonable discrimination...because all of the persons within a class, waste dischargers similarly situated on a watercourse, discharging similar quality and quantities of wastes are not treated equally."<sup>14</sup> Failure to compensate dischargers in this case, he implies, would constitute an unconstitutional taking. Davis<sup>15</sup> disagrees with Lyman's conclusion, suggesting that it is predicated on an assumption that waste dischargers would be assessed on a per unit waste basis without regard to the impact of the treated waste after discharge into the watercourse.<sup>16</sup> Conceding that if the charge were established in this fashion, its constitutionality may be doubtful, he continues:<sup>17</sup>

But all effluent charge systems based on treatment costs so far are grounded on units of waste loading introduced into the watercourse, or on units of raw waste produced coupled with reimbursement or credit for treatment costs. In either of those situations, there would be no unequal treatment of dischargers in equivalent situations.

A final point to be noted is that any challenge of a proposed effluent charge must also overcome a strong presumption of constitutionality. The presumption is often tied to a rule of reason:<sup>18</sup>

If there is any reasonable basis upon which the legislation may constitutionally rest, the court must assume that the Legislature had such fact in mind and passed the act pursuant thereto. The court cannot try the Legislature and reverse its decision as to the facts. All facts necessary to sustain the act must be taken as conclusively found by the Legislature, if any such facts may be reasonably conceived in the mind of the Court.

Both the placement of the burden of proof on the discharger and the liberal standard of review reinforce our conclusion that the implementation of the effluent charge will not be found to be a taking.

### Voting for REQA Representatives

In Chapter 5, it was suggested that officers of the proposed REQA should be selected through election. Although the "ideal" presented did not exclude any district residents from participation, it did suggest that an elector's vote may be weighted. It is likely that the resulting voting scheme will violate the equal protection clause of the Fourteenth Amendment.

To fall within the penumbra of the equal protection clause, the action in question must involve state action. In Ex Parte Virginia,<sup>19</sup> the Supreme Court denoted state action as a "reference to actions of the political body denominated by the state, by whatever instrument or whatever mode that action may be taken."<sup>20</sup> Here the REQA is created by the state legislature to carry out a public purpose (expressed in the preamble of the enabling legislation) through a state grant of governmental power. It must be concluded that the actions of the REQA are de jure, state actions and, therefore, subject to review under the equal protection clause.

In Avery v. Midland County,<sup>21</sup> a Texas county governing body had been delegated broad policy and implementation powers by the Texas legislature.<sup>22</sup> The Texas Supreme Court found that the statutory voting scheme violated the state and federal constitutions, but rejected the lower court's conclusion that each precinct must have substantially equal population. The state supreme court argued that such factors as "number of qualified voters, land areas, geography, miles of county roads and tax values" could be used in establishing precinct boundaries.<sup>23</sup>

The federal Supreme Court disagreed, applying the one person-one vote rule earlier developed for federal and state-wide elections. In justifying the rule's application, Mr. Justice White, writing for the majority, concentrated upon the character of the county government:<sup>24</sup>

We hold today only that the Constitution permits no substantial variation from equal population in drawing districts for units of local government having general governmental powers over the entire geographic area served by the body. [Emphasis added.]

The Court suggested in dicta--language not necessary for the final determination of the case--that this strict application of the equal protection rule may have some limits in cases involving "a special purpose unit of government assigned the performance of functions affecting definable groups of constituents more than other constituents...;"<sup>25</sup> but did not outline the actual nature of these limits or establish a clear standard to distinguish the special districts. The defendants in Avery sought to have the county governing body included under the exception by noting that Midland County served primarily unincorporated lands and residents. The majority rejected the defendants' de facto description of county powers, noting that the county's potential powers did not substantially differ within incorporated or unincorporated lands (and suggested that the county's limited interest in incorporated areas might reflect the county governing body's composition rather than the statutory assignment of functions). The Court seemed therefore to limit consideration to de jure rather than de facto powers in developing an exception to the strict one person-one vote rule.

In two subsequent cases, the Supreme Court extended the strict application of the equal protection rule to two school district governing bodies, indicating that the mere label of "special district" would not be a limitation. In Kramer v. Union Free School District,<sup>26</sup> a New York law limited electors in board elections to either: (1) owners or lessees of real property within the district; (2) spouses of electors qualifying under (1); or (3) parents or guardians of children enrolled for a specific time within the district's school. The district board's power in Kramer included curriculum development, textbook selection and budget preparation. The Supreme Court rejected the "rational basis" test<sup>27</sup>--discussed in the previous section--requested by the defendant. Instead, it applied the strict scrutiny test implied in Reynolds,<sup>28</sup> requiring a showing that: (1) all excluded are in fact substantially less interested or affected than those included; (2) the classification is narrowly tailored to accomplish this exclusion; and (3) the interest promoted by the limitation constitutes a compelling state interest.<sup>29</sup> The Court found the first and second criteria had been violated by the New York statute in question. The vote requirements excluded a number of people, including grandparents and parents of pre-school children living with others, whose interest did not substantially differ from those permitted to vote. Although Kramer involves an exclusion of some district residents rather than a weighting of residents' votes--as in Avery, supra and the "ideal"--the Court has not distinguished the two forms in applying the rule. Theoretically exclusion may be considered an extreme form of weighting.

While broad language in Kramer seems to subject all elections to the strict scrutiny test,<sup>30</sup> later language suggests that there may exist some elections where the state may be justified in limiting the franchise to those "primarily interested."<sup>31</sup> The exception, noted in Avery, was therefore retained in Kramer--but the Court provided little additional insight in its application.

In a second school board case, Hadley v. Junior College District of Metropolitan Kansas City,<sup>32</sup> the Court again applied the strict scrutiny test in reviewing the apportionment of voting districts for a Junior College Board of Trustees which deviated from the one person-one vote rule. The Court rejected defendants' attempts to distinguish earlier apportionment cases on the basis of the election's purpose or importance<sup>33</sup> or upon the administrative or legislative character of the district officers duties or functions.<sup>34</sup> The Court argued that these criteria yielded no judicially manageable standard to distinguish the cases, noting also that the relative importance of an election remains a subjective determination to be made by each elector. The plaintiffs' claim that the district board's powers were equivalent to those of the county board discussed in Avery was also rejected by the Court. But in doing so, the Court found that such broad powers were not a condition precedent for the application of the strict scrutiny rule to apportionment cases. Instead, the Court articulated a dual standard, noting that the Junior College Board trustees performed (1) "important governmental functions...within the district," (2) which are general enough and have sufficient impact throughout the district to justify the conclusion that the principle...applied in Avery should be invoked.<sup>35</sup> The Court looked at two factors in determining whether an "important governmental function"<sup>36</sup> was involved. The Court first suggested that the mere fact that officials were elected rather than appointed indicates the office's importance. The election of the officer is not a sufficient condition, however; the Court also looked at the historical trend of the function in question.<sup>37</sup> The Court in Hadley noted that education has historically been treated as a governmental function, thereby finding that the first criteria had been met. The Court did not discuss extensively the district's power and the impacts of its activities--the second criteria--apparently assuming that the latter was relatively uniform throughout the district. The failure

to discuss the second standard may also suggest that the criteria are not independent. That is, if the activities involved are traditionally governmental in function or power, the court may assume that they will have significant impacts throughout the community. As their governmental character becomes more suspect, it is likely that the distributional impacts will become more important in the Court's evaluation.

Garton,<sup>38</sup> in analyzing the evolving standard of review for apportionment cases, discusses the Court's use of a historical perspective of the district's powers, functions and impacts. If the first two--powers or functions--are of a type:<sup>39</sup>

peculiarly associated with the functions, powers and prerogatives of government, then the election will be categorized as a governmental election requiring equal popular election. If, on the other hand, the functions, powers and impacts of the activity of the district are not dissimilar to those attributable to private business enterprises, then the election will probably be categorized as non-governmental" and a less exacting standard of equal protection will be applied.

Garton suggests that private enterprise often possesses the power to sue and be sued, to issue bonds, to hire personnel and to acquire property in several ways including, in limited cases, through eminent domain. He suggests two powers that are distinctively governmental--powers to levy taxes and the police power. With respect to these he concludes:<sup>40</sup>

It is a well settled doctrine that a state may not delegate its police power except to another unit of government. If the power to tax is the power to destroy, it seems equally obvious that the taxing power would not be delegated except to other units of government accountable to their constituents for its exercise.

Garton described a number of activities as governmental functions including "[p]olice protection, fire protection, [and] the operation of...sewer systems."<sup>41</sup> Other functions including "garbage removal and water for irrigation of farmland" have been performed by both private and public units and are less likely to be considered "distinctively governmental" under the Hadley rule.<sup>42</sup> Garton refuses to use the governmental proprietary distinction, often used to determine tort immunity, as a basis for defining governmental functions, suggesting that: (1) if the Court had intended this basis it would have alluded to it; (2) some districts considered governmental under the tort immunity rule have been held nongovernmental in determining an appropriate review criteria for apportionment; and (3) the basis for these two dichotomies differs, implying different factors should be considered.<sup>43</sup> Garton does not discuss the applicability of the governmental function rule, often discussed with respect to constitutional limitations on internal improvements made by a state<sup>44</sup> but points (1) and (3) seem applicable to this basis as well.

In Salyer Land Co. v. Tulare Lake Basin Water Storage District,<sup>45</sup> the Supreme Court applied the Hadley rule to a California water district. The enabling legislation for the district limited qualified electors to corporate or private landowners, weighing each vote on the basis of each owner's proportionate share of assessed property within the district. The district's functions were limited to the management of diversions, storage, conservation and distribution facilities for water, and powers were limited to those necessary to accomplish this task including the use of eminent domain and the establishment of user charges either in the form of water use rates or special assessment upon benefited lands. It had no other

powers of taxation or regulation aside from those incidental to the operation of the district's facilities. The historical underpinnings of California's water districts are briefly outlined in Salyer.<sup>46</sup> Similar districts in appropriation states were often initially private ventures by local landowners to take advantage of operational economies,<sup>47</sup> suggesting that the district's functions have not always been "peculiarly" governmental. Similarly, district powers did not include the generally recognized governmental powers of taxation or regulation. In Salyer the majority and dissent concentrated much of their respective opinions on the impacts of the district's flood control powers on nonproperty owning residents. The majority emphasized that these activities were only incidental to the district's main function. Mr. Justice Douglas, in dissent, noted that previous district water storage decisions had dramatic impacts throughout the district. In 1969, for example, the board's refusal to divert flood waters into the Buena Vista Lake Basin, based on a belief by the major corporate landowners in the district that such diversion would interfere with cropping practices on its own lands, resulted in sizable flooding elsewhere in the district. Garton resolves this issue, arguing that the impacts were not distinguishable from those arising from private or public dam building and operation and could not therefore be clearly labeled as distinctive to governmental activity.<sup>48</sup> Perhaps more importantly, flood control was only incidental to the district's primary purposes and the district's powers were limited to nongovernmental forms.

Although the Supreme Court has, following Salyer, limited further extension of the one person-one vote principle, the Hadley rule has not been repudiated.<sup>49</sup> Applying the case law to the REQA "ideal," it is apparent that the proposed REQA will be subject to the strict one person-one vote rule. First, the proposed "ideal" will possess a number of governmental powers including the police power and the power to tax. Indeed a major share of REQA activities in the area of air quality are likely to be the implementation and enforcement of regulations. Second, a number of the functions to be performed by the REQA are likely to be viewed as peculiarly governmental in nature. As noted earlier, sewerage service provision is often classified in this fashion and regulation of air quality--an exercise of the police power--is likely to be similarly treated. Even under a tort liability test<sup>50</sup> or the exception noted to the state constitution's ban of internal improvements<sup>51</sup>--tests which we noted earlier as subject to the same suspicion--the REQA's functions are also governmental functions. Third, the REQA's potential impacts are likely to be pervasive within the region. As noted in our discussion of Avery, what is at issue is the de jure power of the districts rather than the likely application of such powers by the REQA in practice. Three REQA powers--the police power, the taxing power and the power to issue general obligation bonds--may be implemented throughout the region, and their potential impact appears sufficiently dispersed to require application of the one person-one vote standard to a REQA apportionment scheme.

#### IV. SUMMARY

Federal legislation, even where it does not preempt environmentally oriented activity at the state or local level, acts as a strong force in shaping its direction. As indicated during the discussion of specific laws, the federal financial assistance which many governments have come to depend on to help support many planning and construction projects is often tied to relatively specific requirements concerning how goals are to be set and programs implemented. In some cases the line of federal assistance has been supplemented by the granting of power to federal agencies to intervene in cases where state action is found to be inadequate. Finally, state and local action is constrained by provisions of the federal constitution.

Given the package of facilitating and constraining federal incentives which has been outlined in this chapter, it is now possible to further narrow the discussion to factors which will influence the establishment of a Regional Environmental Quality Authority in Wisconsin. In furtherance of this, the chapter which follows outlines the powers of various levels of government in the state as they relate to matters of potential environmental significance.



## REFERENCES AND FOOTNOTES: CHAPTER 6

- 1 Much of the information contained here concerning federal statutes is drawn from: Curry [1975]; Dolgin and Guilbert [1974]; and from the statutes themselves.
- 2 Soon after its creation, the FWPCA was transferred to the Department of the Interior.
- 3 Wis. Stat. 144.43
- 4 See Dolgin and Thomas [1974] for a more detailed discussion of these issues.
- 5 Dolgin and Thomas, 1974.
- 6 Lyman, Silas R., The Constitutionality of Effluent Charges, (Madison, Wisconsin: The University of Wisconsin Water Resources Center), 1969. See also: Peter Davis, "Institutional Design for Water Quality Management: A Case Study of the Wisconsin River," Vol. VII, Section I, Five Legal Studies on Water Quality Management in Wisconsin, (Madison, Wisconsin: The University of Wisconsin Water Resources Center), 1970.
- 7 Lyman, *supra* note 6, at 22 (1969).
- 8 *Ibid.* at 27-28 (1969).
- 9 *Ibid.* at 28-31 (1969).
- 10 *Ibid.* at 31-37 (1969).
- 11 *Ibid.* at 37-52 (1969).
- 12 *Ibid.* at 55-59 (1969).
- 13 *Ibid.* at 58 (1969).
- 14 *Ibid.* at 198-99 (1969).
- 15 Davis, *supra* note 6 (1970).
- 16 Lyman's assumptions and conclusion may be summarized:  
The charge for each unit of waste actually discharged would be equal to the cost of reducing the total discharge by that one unit. This system would thus reflect such variables as the financial status of a waste discharger, as well as the value of his land and capital improvements, the cost and technology of his production process, and the age of his production plant. These variables would significantly affect the amount of the effluent charge for each waste discharger. Under such a system the effluent charge actually assessed would vary between two waste dischargers merely because one has newer equipment than the other, or because one may obtain financing more readily than the other, even though they are similarly situated on a water body, and even though they discharge a similar quantity and quality of waste. *Supra* note 6, at 49 (1967).

References and Footnotes: Chapter 6 (cont.)

- 17 Davis, *supra* note 6 at 179 (1970).
- 18 Lyman, *supra* note 6 at 51 (1969).
- 19 110 U.S. 339 (1970).
- 20 *Ibid.* at 347 (1879).
- 21 390 U.S. 474 (1968).
- 22 *Ibid.* at 483 (1968): "It sets a tax rate, equalizes assessments, and issues bonds. It then prepares and adopts a budget for allocating the county's funds, and is given by statute a wide range of discretion in choosing the subjects on which to spend. In adopting the budget the Court [--the Texas county governing body--] makes both long-term judgements about the way Midland County should be developed--whether industry should be solicited, much improved, recreation facilities built, and land set aside for schools--and immediate choices among competing needs."
- 23 406 S.W.2d at 428 (1968).
- 24 390 U.S. at 484-485 (1968).
- 25 *Ibid.* at 483-484 (1968).
- 26 395 U.S. 621 (1969).
- 27 "[W]hen we are reviewing statutes which deny some residents the right to vote, the general presumption of constitutionality afforded state statutes and the traditional approval given state classification if the Court can conceive of a "rationale basis" for the distinctions made are not applicable." *Ibid.* at 627-28 (1969).
- 28 377 U.S. 533 (1964) involving the apportionment of the state legislature.
- 29 395 U.S. at footnote 14, 632 (1969).
- 30 *Ibid.* at 629 (1969).
- 31 *Ibid.* at 632 (1969).
- 32 397 U.S. 50, 90 S. Ct., 791 (1970).
- 33 *Ibid.* at 55; 90 S. Ct. at 795 (1970).
- 34 *Ibid.* at 55-56; 90 S. Ct. at 795 (1970).
- 35 *Ibid.* at 54; 90 S. Ct. at 794 (1970).
- 36 Note that this language is not new. Language in Avery, recited on page 26, for example, limits the application of the strict scrutiny test to "local government having general governmental powers," implying the lesser standard, noted in note 27, in other cases.

References and Footnotes: Chapter 6 (cont.)

- 37 Ibid. at 56, 90 S. Ct. at 795 (1970).
- 38 William A. Garton, "One Person-One Vote in Special District Elections: Two Ideas and an Illustration," 20 South Dakota Law Review 245 (1975).
- 39 Ibid. at 255 (1970).
- 40 Ibid. 257-258 (1975), citing 6 McQuillan Municipal Corporations §§24.02, 24.07, 24.36 (3rd ed. rev. 1963); McCulloch v. Maryland, 17 U.S. 316, 427, 431 (1819). Possession of both of these powers is not, however, a necessary condition for a finding that a local government exercises governmental powers. In Baker v. Regional High School District No. 5, 520 F. 2nd 799 (2d Cir. 1975) the Court determined that a school board which did not possess the power to tax, still exercised sufficient general governmental powers to require a strict application of the one person-one vote test. The court noted: "The power to tax is not a sine qua non to a determination that a local board serves a governmental function. The regulatory and supervisory powers possessed here at issue are sufficiently broad to be classified as governmental activity." Ibid. at 802 (1955). The Court explicitly points out that education has been consistently recognized as a governmental function. As noted earlier, elements of governmental function, power and impact may not be independent requirements i.e., here a governmental function is clearly involved, therefore the Court may be less concerned with the remaining two elements.

The Court in Baker urges, in dicta, that possession of the power to tax is not a sufficient condition to ascertain that a local government exercises governmental powers; but the Court's dicta must be closely considered on this point. The dicta's alleged bases--Salyer Land Co. v. Tulare Lake Basin, infra note 45--does not involve a grant of a traditional power to tax and the opinion does not clearly support this point.

Two other special district cases suggest that the grant of power to issue general obligation or general revenue bonds may also require the strict application of the one person-one vote test. In Cipriano v. City of Houma, 395 U.S. 701 (1969) (per curiam) the central issue was whether a municipal election to approve the issuance of revenue bond for a municipality could be limited to property owners; in City of Phoenix v. Kolodziejcki, 399 U.S. 204 (1970) the central issue was whether a municipal election to approve the issuance of general obligation bonds for a number of municipal improvements e.g., sewers, parks, libraries, police, public safety building, etc.--could be restricted to property owners. In both cases the Court emphasized the broad impacts of the activities purchased through the bond issue and the requisite taxes to service the debt. The emphasis on impact in these cases must be qualified, however. Both involved units generally recognized as possessing general governmental power and functions generally considered governmental in nature. Therefore, the cases may not be read to make pervasive impacts a sole criteria in determining whether to apply the strict scrutiny rather than the rationale basis test.

41 Ibid. at 257 (1975).

42 Ibid. (1975).

References and Footnotes: Chapter 6 (cont.)

43 Ibid. at 256 (1975).

44 See Chapter 8, section IV, *infra*.

45 410 U.S. 719 (1973).

46 Ibid. at 721-23 (1973) shows an initial history of private ventures in California.

47 E.g., mutual water companies, Carey Act corporations, water user associations, ditch companies, etc., briefly described in MacDonal and Beuscher Water Rights, 325 (2d ed. 1973).

48 Garton, *supra* note 32, at 257 (1975).

49 Only two Supreme Court cases have discussed the application of Salyer. The first, a *per curiam* decision--Associated Enterprises Inc. v. Toltec Water Improvement District, 410 U.S. 743 (1973)--was decided the same day as Salyer. At issue was a referendum scheme, which allocated voting power in a fashion similar to Salyer, that determined whether a watershed district could be created. The district's operations were conducted solely through projects and financed through special assessments upon benefited lands. Under the applicable enabling legislation the district's functions included "the prevention and control of erosion, floodwater and sediment damages, and the storage, conservation, development utilization, and disposal of water." Ibid. at 746 (1973). The Court here held that the strict scrutiny test did not apply. Like Salyer, the district possessed limited powers which could not generally be considered governmental. District functions, however, clearly involved a mixture of governmental (e.g. flood control) and nongovernmental activities. The Court in Toltec did not determine, therefore, that the presence of a single governmental function is a sufficient condition to require the application of the strict scrutiny rule. The lack of governmental powers appears to be determinative in this case. The majority minimized the potential of pervasive impacts arising from the district's activities.

The central issue in the second case--Hill v. Stone, 421 U.S. 289 (1975) was whether a municipal election authorizing a bond issue for a city library could be restricted to residents having real, mixed or personal property listed on the tax rolls. The Court again applied the strict scrutiny rule (following Cipriano and City of Phoenix, *supra* note 40) to these facts. The Court also found that Salyer had not limited the application of the rule when the ultimate impact is pervasive. Again, however, this conclusion must be tempered; the basic decision unit--the city--is typically assumed to be endowed with general governmental powers.

50 See for example, State ex. rel. Martin v. City of Juneau, 230 Wis. 564, 300 N.W. 187 (1941); Hasslinger v. Village of Hartland, 234 Wis. 201, 290 N.W. 647 (1940)

51 See Chapter 8, section IV.

## CHAPTER 7

### INTRASTATE WATER QUALITY AGENCIES IN WISCONSIN

#### I. INTRODUCTION

In Chapter 4, we critiqued several environmental quality agencies operating at the state or intrastate level. In this chapter, we continue with a more thorough review of alternative intrastate arrangements for a single state, Wisconsin, limiting our consideration to organizations engaged in water quality regulation.

The chapter is divided into six major sections. In the initial section we explore a number of powers traditionally granted to local governments in Wisconsin. Although the list examined is not exhaustive, it is considered representative of powers possessed by intrastate organizations having water quality management responsibilities. In Section III we outline structures and powers of traditional municipal governments (city and villages) and quasi-municipal governments (towns and counties) which can affect water quality. In Section IV we detail extraterritorial powers granted to municipalities which, inter alia, may be used to accomplish water quality objectives. Powers discussed in this section are regulatory in nature and are often explicitly outlined within the applicable enabling legislation. In Section V we review intergovernmental arrangements which may be used in managing inter-jurisdictional water quality problems. In Section VI we conclude our discussion of alternative organizational structures by examining eight special district governments

The discussion of alternative organizational structures in Sections III-VI is framed in light of criteria prescribed in Chapter 5. Specifically, we consider:

1. whether the authority has sufficient powers to implement and enforce its water quality policy decisions;
2. whether the authority permits public participation in the formulation of water quality policy and the implementation of decisions;
3. whether the authority does or is capable of encompassing the problemshed; and
4. whether the authority possesses adequate financial and technical resources to implement its water quality policies.

#### II. GOVERNMENTAL POWERS

As noted earlier, enabling legislation for a REQA must permit a proposed authority to potentially exercise a wide range of governmental powers if it is to be effective. The actual powers granted to the REQA, selected from the potential powers provided by the enabling act, should be determined in a way which considers varying regional conditions. In this section we briefly describe a number of powers granted to existing governmental units having water quality management responsibilities. We also consider where in a discharger's decision-making process the government activity intervenes.

## Service Activities

A major water quality management activity of municipal and quasi-municipal governments, surveyed in subsequent sections of this chapter, involves the provision of a number of services including sewerage, drainage, soil and water conservation and solid waste disposal. Point and nonpoint sources of water pollution are affected by these activities.

The most significant water quality-related service activity, municipal treatment, is often coupled with use (connection)<sup>1</sup> or pretreatment requirements.<sup>2</sup> The former requirement eliminates one decision option--private disposal--but permits the discharger to continue to determine the mix of production inputs, outputs and processes and the quantity and quality of discharges. These factors may, however, be influenced by the user charge associated with the public service. Pretreatment requirements, in contrast, eliminate dischargers' options with respect to quality and possibly quantity of effluent. Whether the decision maker is also restricted in choosing an appropriate mode to accomplish a pretreatment requirement is dependent upon the enabling legislation--i.e., whether the pretreatment requirement specifies a quantity or quality requirement<sup>3</sup> or, alternatively, a treatment mode.<sup>4</sup>

## Regulation

In addition to connection and pretreatment requirements, municipal and quasi-municipal governments are often empowered to regulate a number of other activities which may affect water quality. Building codes, which have their origins in the colonial era, have as a primary objective the protection of the public from faulty construction. Codes typically regulate construction materials and practices with the objective of preventing unsafe or unsanitary conditions.<sup>5</sup> Other environmentally significant uses may be, for example, to regulate practices which exacerbate erosion or sedimentation.

Zoning controls also have a long history in the United States. Initially they functioned to prevent or control public nuisances. As early as 1692, colonial towns in Massachusetts were authorized to regulate the construction and operation of noxious enterprises.<sup>6</sup> Early Wisconsin statutes provided similar controls.<sup>7</sup> It was not until the early 20th century that zoning was expanded from its role as a means of nuisance control to an important means of facilitating planned community growth. The first serious attempt to utilize zoning in a comprehensive manner was made by New York City in 1916 and was subsequently sustained by the New York Supreme Court several years later.<sup>8</sup> Special legislation concerned primarily with the preservation of natural areas is of a more recent era.<sup>9</sup> In Wisconsin, shoreland protection ordinances regulating land use within 300 feet of a river or navigable stream or 1,000 feet of a navigable lake, pond or flowage may be established:<sup>10</sup>

to further the maintenance of safe and healthful conditions; prevent and control water pollution; protect spawning grounds, fish and aquatic life; control building sites, placement of structure and land uses and reserve shore cover and natural beauty.

In contrast, the Wisconsin legislature, in Ch. 614, Laws of 1965, authorized city, village and county flood plain zoning ordinances based on traditional grounds of health, safety and economic loss.<sup>11</sup>

The relative effectiveness of these regulations may be distorted by two factors. First, a number of "grandfather clauses" found within the enabling legislation permit some preexisting polluting activities to continue.<sup>12</sup> Second, the power of municipal or quasi-municipal governments to regulate other federal, state or local government activities within their boundaries may be limited.<sup>13</sup> The applicable regulatory legislation must therefore be considered on a case-by-case basis.

As noted earlier, broad regulatory powers may affect dischargers' decisions with respect to each facet of the production process, including output, input, production process and effluent treatment and disposal. The actual extent of the local government's power to regulate a specific discharge decision can be determined only through a thorough analysis of applicable enabling legislation.

### Subsidies

In-kind grants in the form of planning assistance (official maps, master plans, regional plans, etc.), technical assistance and information collection and dispersal (public hearings, information required for license issuance, etc.) represent major subsidies to dischargers and private citizens by local governments. Information collection and dispersal, for example, result in lower private information costs, thereby increasing the possibility of private solutions through bargaining or litigation. User fees, artificially lowered to encourage use of the public treatment system, also represent a typical in-kind grant to dischargers.

In Wisconsin, a number of local governments in cooperation with private industry may issue industrial revenue bonds to finance private capital projects which may include private treatment equipment.<sup>14</sup> This provision closely resembles a direct subsidy. Interest payments from approved bond issues are tax-exempt.<sup>15</sup> This tax exemption is likely to be reflected in lower bond costs. In essence, therefore, the government subsidizes a portion of these bond costs.

### Financing

Local government extracts a number of cash payments from residents within its jurisdiction which may influence private water quality related decisions.<sup>16</sup> As noted earlier, government extractions are put into play under varying circumstances and are based on different factors and have varying impacts on dischargers.

The first extraction, economic disincentives such as effluent charges, has been defined as a "monetary charge levied by [the] government on conduct which is not illegal but which does impose social costs, for the principal purpose of discouraging the conduct."<sup>17</sup> Economic disincentives are not designed to raise revenue, punish offenders or generate funds to compensate those injured by discharges. Wisconsin does not presently empower local governments to impose economic disincentives.

Fines or forfeitures are sanctions imposed for civil or criminal violations of statutory duties. These sanctions are imposed on a case-by-case basis, following a judicial or quasi-judicial proceeding. Fines and forfeitures are designed to prevent rather than discourage discharge activities. Their enactment implies an absolute public right to a clean environment, rather than an attempt to internalize social costs. The actual imposition of fines or forfeitures is the result of a judicial or quasi-judicial proceeding while the determination of economic disincentives is likely to result from a less formal administrative hearing. Fines are typically specified within a range of values by the legislature.<sup>18</sup> The judicial or quasi-judicial hearing process may lead to different extractions for similar

dischargers. In contrast, economic disincentives are likely to be uniformly imposed through the use of a schedule determined earlier in an administrative hearing.

User charges, the third extraction discussed, are payments for the actual or potential use of a public service or facilities. Sewer charges illustrate the first form. The second form--where use is not a necessary requirement--is illustrated by special assessments upon undeveloped lands adjoining sewer extensions.<sup>19</sup> Fee schedules may be established on several bases, including standard fees which may or may not reflect costs of treatment specifically associated with individual discharges.<sup>20</sup> User charges generally do not reflect social costs resulting from discharger's treated effluent.<sup>21</sup>

Taxes, another form of extraction, are established principally to generate revenues. Tax assessments are generally not related to the concept of benefits received from specific services; rather, they represent a fee for the support of government, the administration of its laws and the operation of governmental functions. Although the remaining sections of this chapter do not fully explore municipal or quasi-municipal taxing powers, their actual extent may be observed by examining the bonding powers of the respective local government. General obligation bonds, for example, are secured by the taxing power of the issuing governmental unit. They are typically paid through an irrevocable property tax levied throughout the community or within districts in the community. General obligation bonds do not limit payments to beneficiaries of the resulting capital projects. Special assessment bonds are secured by equitable liens upon benefited property--a variant of the user fee. They are paid through property taxes levied within districts upon lands allegedly benefiting from the capital project. Special assessment bonds are not debts of the issuing community and are therefore often not subject to statutory or constitutional debt limitations. The assessment practice here assumes that only property owners or lessees within the district benefit from the activity and that each benefits in proportion to the value of property held. As noted earlier, these assumptions are subject to challenge. The third form, general revenue bonds, is secured through a mortgage on the capital project or a revenue agreement. They are paid solely through revenues--user charges--from actual service recipients. Revenue bonds are generally held not to be debts of the issuing community and are not subject to statutory or constitutional debt limitations.

### Conclusion

The discussion in this section has attempted to categorize a number of powers typically held by Wisconsin's local governments in the light of our earlier discussion of the "ideal." We noted that each power may affect dischargers' decisions in a different way. The actual extent of these powers among Wisconsin's local governments is the subject of the following sections.

### III. MUNICIPAL AND QUASI-MUNICIPAL GOVERNMENTS

Municipal governments and quasi-municipal governments have historically played a major (albeit reluctant) role in the development and management of Wisconsin's water resources. As early as 1829, for example, the Wisconsin territorial legislature authorized the city of Milwaukee to construct and operate both storm sewers and public wastewater facilities. Such powers became so common that the state legislature enacted the Wisconsin General Village Government Act of 1849 to assure uniformity within the state.<sup>22</sup> Other early statutory provisions empowered local governments to regulate noxious industries,<sup>23</sup> supervise drainage activities,<sup>24</sup> establish local boards of health and enact sanitary codes.<sup>26</sup>



## Powers<sup>27</sup>

Both municipal and quasi-municipal governments presently possess considerable powers to influence water quality (see Table 7.1); both also have limited statutory powers to establish user charges reflecting dischargers' proportionate share of costs. Whether these provisions also permit sewerage charges to be used as economic disincentives is unclear. Language in Wis. Stat. §66.076 (5) (1973), for example, limits consideration to costs arising from "services rendered by the sewerage system to...users..." conceivably excluding the remaining social costs. Home rule powers may also be insufficient to permit villages and cities to utilize this form of government extraction. Home rule powers grant municipalities independent autonomy to legislate on matters of local concern. However, two extractions--taxes<sup>28</sup> and license fees<sup>29</sup>--have each been held to be matters of state-wide concern, requiring an explicit statutory authorization. It is likely, therefore, that economic disincentives would also be found outside the ambit of home rule powers.

Aside from the deficiencies of the alternative forms of these powers discussed briefly in section II, the domain of municipal and quasi-municipal powers appears adequate to meet needs arising from point and nonpoint water pollution sources.

## Local Government Autonomy

Although municipalities and quasi-municipalities have been given sizable powers many--particularly output oriented services--remain subject to strict state scrutiny (see Table 7.1). The state's supervision may be attributable to the local governments' continued reluctance to engage in some of these environmental activities. Continued state involvement may also be a fulfillment of the state's responsibility as trustee over the state's navigable waters.<sup>43</sup>

State involvement occurs in two forms. First, the state may require a municipality or quasi-municipality to engage in an activity, may specify the methods of performance or enforcement and may act itself if the local government fails to comply. The state, through the Department of Natural Resources, exercises these powers in instances of sewerage service provision,<sup>44</sup> flood plain zoning<sup>45</sup> and shoreland zoning<sup>46</sup> ordinances. Similarly, user charges extracted for municipal and quasi-municipal services are often subject to review and revision by the State Public Service Commission upon complaint.<sup>47</sup>

State involvement may also arise through concurrent domain powers. Quasi-municipal governments may also exercise concurrent jurisdiction over unincorporated lands. In subdivision control, for example, both the state and municipal or quasi-municipal governments establish standards to be followed by developers.<sup>48</sup> In case of conflict, the stricter regulation is applied. In addition, town and county governments exercise concurrent zoning powers within the town boundaries. County approval is required for any town zoning ordinance where the area in question is already subject to a county zoning plan.<sup>49</sup> County zoning ordinances also require town ratification in order to be enforceable within the town's boundaries.<sup>50</sup> With respect to subdivision controls, concurrent jurisdiction limits bargaining between dischargers and local government by establishing the state standards as minimums. Concurring zoning powers, noted here, grant virtual veto power to affected quasi-municipals, often freezing zoning regulations.

## Public Participation

Enabling legislation for traditional municipal and quasi-municipal governments

Table 7.1 Intra-jurisdictional Powers of Traditional Municipal and Quasi-municipal Governments

Services				
1. Sewerage <u>30/</u>	*yes	*yes	*yes	*yes
2. Solid Waste <u>31/</u>	*yes	*yes	*yes	*yes
3. Drainage or Storm Sewers <u>32/</u>	yes	yes	yes	
4. Soil Conservation <u>33/</u>	yes	yes	yes	yes
Regulation				
1. Zoning <u>34/</u>	yes	yes	*yes	*yes
2. Flood Plain Zoning <u>35/</u>	yes	yes	*yes	*yes
3. Shoreland Zoning <u>36/</u>	yes	yes	*yes	*yes
4. Building and Sanitary Code <u>37/</u>	yes	yes	*yes	*yes
5. Subdivision Controls <u>38/</u>	yes	yes	yes	yes
6. Solid Waste Disposal or Site Regulation <u>39/</u>	*yes	*yes	*yes	*yes
7. Offensive Industry <u>40/</u>	yes	yes	*yes	
Planning				
1. Master Plan <u>41/</u>	yes	yes	yes	*yes
2. Official Map <u>42/</u>	yes	yes	yes	*yes

[(\*)--Subject to the approval of state or local government(s) having concurring jurisdiction.]

provides a number of opportunities for public participation. At the policy formulation level, the annual town meeting assures the greatest degree of public involvement.<sup>51</sup> It permits town electors to discuss their ideas and to vote on specific policies. The effectiveness of public participation in the town meetings varies as the number of electors grows and the information required to make policy decisions becomes more complex.

At the county, city and village levels, the public is involved to a lesser degree in the preparation of specific planning devices, including the master plan and official map. This involvement is generally limited to participation in public hearings and in review proceedings before the court.

Public participation in both policy and program development is also accomplished through the election of municipal or quasi-municipal officers. Officers in these local governments are elected, under constitutional mandate, according to the one person-one vote rule. As noted in an earlier chapter, this rule may not always be desirable when electors' preferences vary widely across the governing unit's jurisdiction--a likely prospect within these municipal or quasi-municipal jurisdictions. Elections within local governments are further complicated by their multipurpose nature. This makes it difficult for electors to communicate preferences through ballots.

Public participation in the development of specific implementation programs, aside from the broad powers exercised by electors in the town meeting,<sup>52</sup> has largely been restricted to public hearings or judicial review.<sup>53</sup> Municipal and quasi-municipal electors may also indirectly influence program decisions through the bonding process. A number of these financing devices provide for public referenda upon demand;<sup>54</sup> the rejection of a proposed bond issue will obviously influence a local government's future program development.

### Problemshd

Municipal and quasi-municipal jurisdictional boundaries were, in general, created before water quality management had become a major public goal. Original boundaries, therefore, reflect the physical, social and economic needs of the communities at the time of their establishment. Traditional municipal and quasi-municipal governments have had little flexibility in adjusting jurisdictional boundaries. Boundary changes for towns, for example, are accomplished solely by the county board.<sup>55</sup> Similarly, county jurisdictions have been initially established by the state legislature and remained relatively fixed over time.<sup>56</sup> Boundary changes for municipal governments--typically accomplished through annexation--are subject to complicated proceedings often requiring the approval of the state's courts<sup>57</sup> and the electors within territory to be added.<sup>58</sup> Although water quality management has emerged as an important governmental function, municipalities and quasi-municipalities should be expected to continue to balance water quality management jurisdictional requirements against jurisdictional requirements arising from other governmental functions performed by these local units. Jurisdictional boundaries are likely to reflect the resulting compromises.

## Financing, Other Resources

With the exception of counties, municipal and quasi-municipal governments possess an adequate range of financing tools which may be used to implement water quality policies (see Table 7.2,7.3). These resources may be limited in quantity, however, since local government employees are often required to perform many diverse services. As a result, few specialists in water quality management are likely to be employed at this level.<sup>59</sup>

## Conclusion

Municipal and quasi-municipal governments generally meet the "ideal's" requirements concerning powers, public participation and adequacy of financial and technical resources. Municipal and quasi-municipal governments, however, face severe difficulties in other areas. Of prime importance is the technical inability of these governments to encompass the problemshed. As a result, a number of factors affecting water quality remain exogenous to the local government's planning and program development. Municipal and quasi-municipal governments' multiple purpose nature creates additional problems in meeting the Chapter 5 "ideal." As noted, this multiple purpose nature may impede jurisdictional adjustments and obscure elector's preferences in the general elections. Existing voting rules--one person-one vote--also deviate from the "ideal." Under the present jurisdictional scheme, elector's interests in water quality management must certainly vary while the existing voting scheme assumes equality.

Table 7.2 Financing Tools for Sewerage Service

	City	Village	Town	County
1. User fees <sup>60</sup>	Yes	Yes	Yes	Yes
2. Special Assess. <sup>61</sup>	Yes	Yes	Yes	No
3. Bond Issues	Yes	Yes	Yes	Yes
a. General Obligation <sup>62</sup>	a) Yes	a) Yes	a) Yes	a) Yes
b. General Revenue <sup>63</sup>	a) Yes	a) Yes	a) Yes	a) Yes
c. Special Assess. <sup>64</sup>	Yes	Yes	Yes	
d. Industrial Revenue <sup>65</sup>	Yes	Yes	Yes	No
Authority to Accept Grants <sup>66</sup>	Yes	Yes	Yes	Yes
Property taxes (maximum percentage of assessed value) <sup>67</sup>	3-1/2%	2%	b) 1%	1%
	a) Some forms are potentially subject to referendum			
	b) 1/2% in counties containing only one town			

Table 7.3 Financing Tools Generally Available for Selected Nonpoint Source Projects

	City	Village	Town	County
1. User fees <sup>68</sup>	Yes	Yes	Yes	Yes
2. Special Assess. <sup>69</sup>	Yes	Yes	Yes	No
3. Bonds				
a. General Obligation <sup>70</sup>	a) Yes	a) Yes	a) Yes	a) Yes
b. General Revenue <sup>71</sup>	a) Yes	a) Yes	a) Yes	a) Yes
c. Special Assess. <sup>72</sup>	Yes	Yes	Yes	No
d. Industrial Revenue <sup>73</sup>	Yes	Yes	Yes	No
4. Authority to Accept Grants <sup>74</sup>	Yes	Yes	Yes	Yes
5. Property Taxes (maximum percentage of assessed value) <sup>75</sup>	3-1/2%	2%	b) 1%	c) 1%
			b) 1/2% in counties containing a single town	
			c) 1-1/2% in counties containing a single town	
			d) See the nonpoint related services listed in Table 7.1.	

#### IV. EXTRATERRITORIAL POWERS

Several statutes extend the jurisdiction of municipal regulatory powers to adjoining unincorporated areas. This extension may reflect a belief that activities in adjoining unincorporated territory have external effects within the municipality and an awareness of the difficulties of enlarging municipal jurisdictions through annexation.

It must be conceded that few basic differences exist between extraterritorial powers and the powers permitted under intergovernmental agreements discussed in the next section. Both often involve negotiations between incorporated and unincorporated governments, but intergovernmental agreements also permit negotiations between municipalities as well. Extraterritorial powers discussed here are typically regulatory in nature while the intergovernmental agreements generally involve service activities. Procedures for exercising extraterritorial powers are generally more fully described within the enabling legislation than intergovernmental agreements. The absence of public participation in the planning and implementation of a number of extraterritorial powers has not been clearly challenged in Wisconsin.<sup>76</sup> Judicial precedents on this issue from other jurisdictions have also not resolved due process and equal protection questions.<sup>77</sup>

Table 7.4 Extraterritorial Powers of Municipalities

Municipality	Village	City
<b>Regulation</b>		
1. Extraterritorial Zoning <sup>79</sup>	*Yes	*Yes
2. Solid Waste Disposal Regulation <sup>80</sup>	*Yes	*Yes
3. Subdivision Controls <sup>81</sup>	Yes	Yes
4. Noxious Industries <sup>82</sup>	Yes	Yes
<b>Planning</b>		
1. Official Map <sup>83</sup>	Yes	Yes
2. Master Plan <sup>84</sup>	*Yes	*Yes

\*Subject to the approval of local governments with concurrent jurisdiction.

Powers

The extraterritorial powers of municipalities closely approximate their intra-jurisdictional planning and regulatory powers (see Table 7.4). Use of home rule powers, however, appears impermissible outside municipal boundaries.<sup>78</sup> The lack of flexibility in developing a comprehensive program--a combination of both services and regulations to accomplish the policy objectives of the initiating municipality--must be viewed as a major drawback of this approach.

Autonomy

The exercise of extraterritorial power is not subject to extensive state control. However, quasi-municipalities in affected areas exercise limited powers to mold these regulations and plans (see Table 7.4). In developing extraterritorial subdivision controls, municipal, town and county governments act concurrently over the same territory. In case of conflict, the stricter standard is applied. With respect to solid waste disposal regulations and the inclusion of extraterritorial lands within the municipal master plan, the affected town and county boards must give the enacting municipality permission to act extraterritorially. It is unclear whether the county may reject the ultimate plan for the unincorporated area or is limited solely to an a priori approval or disapproval of a municipal request to develop a plan for the area. Similarly, extraterritorial zoning is essentially a joint exercise. The municipality may unilaterally freeze the existing zoning pattern in the unincorporated area for a period of up to two years while a comprehensive extraterritorial zoning plan is developed.<sup>85</sup> The actual planning of the extraterritorial zoning ordinance is accomplished by a joint planning commission composed of six members, three appointed by the municipality and three by the affected town.<sup>86</sup> Final approval, implementation and enforcement of the pro-

posed ordinance prepared by the extraterritorial planning commission rests with the municipality.<sup>87</sup>

### Public Participation

Extraterritorial powers do not appear to provide for extensive public participation. Municipal residents retain most of the powers of participation outlined in section III while residents of the affected town are, in general, limited to participation in applicable hearings and appeal processes. Indirectly, town electors exercise tenuous control over policy and program development by electing town officers who, in turn, appoint three members of the joint planning commission.

### Problemshd

The application of extraterritorial powers is limited in two respects. First, they may not be applied to adjoining municipal areas, often a major source of negative external effects. Second, the enabling legislation for these extraterritorial powers arbitrarily limits their geographic application in a manner which may not coincide with the location of polluting activities (see Table 7.5).

### Financing, Other Resources

Extraterritorial regulatory powers do not require sizable capital investments to operate. However, they do require financing to provide an adequate planning and enforcement staff and monitoring equipment to prepare and carry out regulatory ordinances. The enabling legislation does not explicitly provide for financing, implying that it remains the sole responsibility of the municipality. This may be a concession due, in large measure, to the lack of quasi-municipal involvement in the decision process. Whatever the underlying rationale, the ultimate impact is to permit town and county residents, often beneficiaries of the exercise of extraterritorial powers, to be free riders.

Table 7.5 Extraterritorial Jurisdiction of Municipalities \*and 4th class cities.

Powers	City	Village*
<b>Regulation</b>		
1. Extraterritorial Zoning <sup>88</sup>	3 miles	1-1/2 mile
2. Solid Waste Disposal Regulations <sup>89</sup>	1 mile	1 mile
3. Subdivision Controls <sup>90</sup>	3 miles	1-1/2 mile
4. Noxious Industries <sup>91</sup>	4 miles	4 miles
<b>Planning</b>		
1. Official Map <sup>92</sup>	3 miles	1-1/2 miles
2. Master Plan <sup>93</sup>	any area which "bears relation" to the development of the city.	any area which "bears relation" to the development of the village

## Conclusion

As noted in the introduction, legislation creating extraterritorial powers may have initially been designed to correct the schism between the problemshd and existing municipal jurisdictions. The arbitrary limits established, however, may now have no greater relationship to the problemshd than the original jurisdiction. In addition, extraterritorial powers retain most of the deficiencies outlined for municipalities while problems of inadequate financing and public participation also emerge.

## V. INTERGOVERNMENTAL AGREEMENTS

Intergovernmental agreements permit municipalites and quasi-municipalities to engage in a number of activities affecting environmental quality. Elements of the agreement, subject to caveats discussed below, are primarily the result of negotiation among these governments rather than determinations at the state level.

Intergovernmental agreements assume three forms. The first, the council of governments, is the least powerful:<sup>94</sup>

- (1) They cut across or embrace several local jurisdictions...
- (2) They are composed of the chief elected officials of the local governments, and sometimes have representation from the state government.
- (3)...[T]hey function primarily as forums for discussion, research, and recommendation only. None has powers to compel either participation in the first instance or acceptance of recommendations in the end....
- (4) They...concern themselves with many area-wide problems.
- (5) They employ a full-time staff.

A brief inspection of two council of governments alternatives provided for under Wisconsin Law--the regional planning commission<sup>95</sup> and the local government association<sup>96</sup>--reveals major inadequacies in the councils' powers and financing. Council enabling legislation also permits participants to freely enter and leave, rendering the organizations inherently unstable. We will not, therefore, continue to examine the council form in this section.

The remaining two forms, the intergovernmental contract for services (ICS) and the intergovernmental agreement for the joint exercise of powers (JEP) are very similar to each other. In an ICS, two alternative modes of operation are possible: (1) one or more municipalities or quasi-municipalities may permit another government to sell services directly to residents within their jurisdiction or (2) the local governments themselves may purchase the services from the other for later resale to their residents. The receiving communities play minor roles in program and policy development.

In contrast, a JEP requires active negotiations between contracting local governments in every facet of the service provision. The JEP may specify that one of the contracting parties, all of the contracting parties or an independent commission created by contract will operate the service. The JEP and the ICS fully detail the responsibilities of the contracting parties. These contracts may be specifically enforced insuring stability in the relationship.



## Powers

Intergovernmental contracts for services and intergovernmental agreements for the joint exercise of power are specifically authorized by statute:<sup>97</sup>

66.30(2) In addition to the provisions of any other statutes specifically authorizing cooperation between municipalities, unless such statutes specifically exclude action under this section, any municipality may contract with other municipalities, for the receipt or furnishing of services or the joint exercise of any power or duty required or authorized by law. If municipal parties to a contract have varying powers or duties under the law, each may act under the contract to the extent of its lawful powers and duties. This section shall be interpreted liberally in favor of cooperative action between municipalities. [Emphasis added.]

The actual dimensions of the power arising under this section have not been prescribed by the Wisconsin Supreme Court. A number of pre-1975 attorney general's opinions, however, have suggested several limitations. In 1962,<sup>98</sup> the state's attorney general was asked whether, under Wis. Stat. §66.30 (1961), the county highway department could pave the parking lot of a joint school district lying within its jurisdiction. The attorney general said no, citing a dual standard:<sup>99</sup>

"[(1) The] service must be one that the receiving municipality is authorized to receive, and [(2)] which at the same time the performing community is entitled to render."

Under the 1961 statutes, the school district was authorized to pave its own lot. However, the attorney general determined that the second requirement had not been met. Quasi-municipalities may only exercise powers which are explicitly provided by statute or are necessarily implied therefrom. County enabling statutes in 1962 explicitly authorized a number of activities, including the selling of paving materials, but did not explicitly provide for the county's paving of a school district parking lot. The attorney general found that powers to pave are not "necessarily implied" from the power to sell paving matter. In a 1967 school district case, the attorney general concluded that the county could contract with the district to provide nursing services.<sup>100</sup> Again, 1967 Wisconsin statutes authorized the district's hiring of a school nurse. The statutes also authorized the county's establishing of a health nursing program to serve all county residents. This broad authorization, in contrast to the very specific language in the earlier case, was found sufficient to satisfy the second requirement and, therefore, permit the county to render nursing services to students in the school district.

The second requirement involves two aspects of power. First, each case discussed in this subsection turns on the question of domain--the scope of the providing government's power to engage in the activity in question. It is clear that a local government may not sell a program that it cannot pursue itself. Second, the contracting government must be capable of exercising the powers within the receiving area. In the cases discussed, the jurisdictional question is not outlined. The county's jurisdiction often encompasses an entire school district, thereby satisfying this requirement. With respect to municipalities, however, county jurisdictional limits become important; many of the county's powers are limited to unincorporated areas while in other cases the county could engage in activities if permitted by a municipality. Without specific jurisdictional authorization, the second requirement is not satisfied.<sup>101</sup>

Contracts under Wis. Stat. §§66.30 (1973) are limited by specific statutes dealing with the same subject.<sup>102</sup>

It is a well established standard of statutory construction that a more recent and specific statute controls and exists as an exception to a general rule.

That is, the general statute does not release a participating local government from statutory or constitutional duties.<sup>103</sup> Determination of such duties remains a question of statutory construction. Language within the enabling legislation for municipal and quasi-municipal zoning commissions suggests, for example, that neither may delegate its responsibilities.<sup>104</sup> Where a statute establishes conditions controlling specific elements of a cooperative agreement, the negotiating local governments may not be permitted to contract otherwise.<sup>105</sup> The actual extent of these limitations, however, has not been clearly outlined by the state's courts.

A 1975 amendment expanded the pre-1973 powers. Prior to the amendment, the attorney general had concluded that § 66.30 permitted local governments to cooperate only to the extent of "the powers possessed by the least of them."<sup>106</sup> The amendment now permits that "each may act under the contract to the extent of its lawful powers and duties."<sup>107</sup>

The 1975 amendment, however, does not otherwise increase the power to contract. This introductory clause underlined on page 21 remains subject to a later provision: "...of any policy or duty required or authorized by law," suggesting a continuing need to find a specific statutory authorization for the intergovernmental agreement. An examination of the legislative history also suggests a restricted reading. The amendment was drafted by and introduced on behalf of the League of Wisconsin Municipalities. An internal memorandum, outlining the league's drafting objectives, says of the language in question: "[W]e were to insure that the change could not be construed as a grant of authority to municipalities which have limited powers."<sup>108</sup>

Wis. Stat. §66.30(2) may be used by most of the municipal or quasi-municipal governments reviewed in this chapter.<sup>109</sup> The permissible scope of intergovernmental contracts between these local governments may be determined by examining their statutory duties, overlapping powers and jurisdictions, as outlined in Tables 7.1 and 7.5. In addition to the general provisions of §66.30(2), a number of other statutes explicitly authorize intergovernmental cooperation in the development and execution of specific planning, service and regulatory programs.<sup>110</sup> Authority to contract under these statutes must be determined on an issue-by-issue and party-by-party basis.

The use of Wis. Stat. §§66.30 (1973) to accomplish broad regional planning remains subject to doubt.<sup>111</sup> In addition, it is likely that few regulatory powers, aside from those authorized by specific statutes or incidental to service activities, may be contracted for. The lack of certainty with respect to the application of §§66.30 to both of these powers is a prime disadvantage of the intergovernmental agreement.

### Autonomy

The state's participation in intergovernmental agreements for services closely follows that earlier outlined for traditional municipalities and quasi-municipalities

With respect to cooperative agreements involving non-Wisconsin local governments, the state attorney general retains authority to disapprove contracts which are not "in [a] proper form and compatible with the laws of this state."<sup>112</sup>

### Public Participation

Wis. Stat. §66.30 (1973) appears to limit public involvement in the development and execution of intergovernmental agreements to participation in state permit and licensing hearings associated with a number of services and in local elections of municipal or quasi-municipal officers.<sup>113</sup> Difficulties arising from these forms of public participation have already been discussed in Section III. The enabling legislation does provide, however, that the selection process for any commission created under the contract to administer the project may be agreed upon by the participants.<sup>114</sup> The contract may, therefore, provide for a voting scheme comparable to the "ideal."

### Problemsheds

Wis. Stat. §66.30 (1973) does not explicitly limit the jurisdictional boundaries of intergovernmental agreements. It is, therefore, possible that an agreement could be negotiated which encompasses a problemshed. To accomplish this task, in addition to overcoming the sizable negotiation problems, the participants must possess adequate independent and uniform statutory authorization to perform requisite duties over the entire problemshed.

### Financing, Other Resources

Wis. Stat. §66.30(3m)(1973) permits participating local governments to finance regional projects through general obligation bonds.<sup>115</sup> Any commission created by an intergovernmental agreement may also authorize service projects through general revenue bonds.<sup>116</sup> Wis. Stat. §66.30(3) (1973) also permits:

...a plan for administration of the function or project, which may include, without limitation because of enumeration, provisions as to proration of the expenses involved, deposit and disbursement of funds appropriated, submission and approval of budgets, creation of a commission, selection and removal of commissioners, formation and letting of contracts.

This section provides for the allocation of costs among participating local governments, but does not grant participating local governments any additional authorization to establish user charges or special assessment extractions, to receive grants or to issue general revenue or special assessment bonds to meet their obligations. Thus, the limited number of financing tools may also be a major disadvantage of the approach.

### Conclusion

Intergovernmental agreements permit sufficient flexibility in program and policy development, public participation and jurisdiction to accomplish our "ideal." However, uncertainty related to the range of financing and planning and regulatory powers available under Wis. Stat. §66.30 represents a serious drawback to the approach.

## VI. SPECIAL PURPOSE DISTRICTS

The special purpose district, a relatively new form of quasi-municipality, may also be used to manage the state's water quality. Each special purpose district is created individually through procedures outlined in the enabling legislation and is designed to deal with a single or limited number of policy problems in a regional setting. It is governed by a board which is relatively independent of other traditional municipal or quasi-municipal governments.

A number of Wisconsin special purpose districts may directly or indirectly affect point or nonpoint pollution. In this section we limit our examination to eight such districts. The domain of interest for each differs. Town sanitary districts are established, in the main, to manage a major type of point source pollution--sewage. Only incidentally do these districts affect nonpoint pollution through solid waste and diffuse surface water control. In contrast, four of the remaining districts are established to deal almost exclusively with nonpoint sources--e.g., county solid waste management programs and the State Recycling Authority manage solid waste while drainage districts and soil and water conservation districts manage diffuse surface waters and soil erosion. The remaining district to be examined, the public inland lake protection and rehabilitation association, has been provided by statute to deal with the water quality of Wisconsin's lakes. As illustrated below, a sizable number of this district's powers are related to nonpoint pollution--e.g., erosion control; bottom treatment; aeration; and nutrient diversion, removal or inactivation.<sup>117</sup> As a result of a 1975 amendment, broad powers over point sources have also been delegated to them by permitting public inland lake associations to act like town sanitary districts.<sup>118</sup> Two of the districts examined, the joint sewerage commission and the county solid waste management system, may also be considered examples of intergovernmental contracts for the joint exercise of power.<sup>119</sup>

### Powers

As noted in the introduction to this section, special purpose districts have widely varying powers to accomplish many different missions (see Table 7.7). Of the districts examined, only the public inland lake protection and rehabilitation association possesses broad powers of service provision which may be used to adequately manage point and nonpoint sources of water pollution. The three sewerage districts examined have adequate powers to deal with point source pollution, but have limited powers over only two nonpoint sources--diffuse surface water (through provision of storm sewers) and solid waste (through provision of a solid waste management system)--and no powers to deal with other nonpoint sources.

The lack of broad regulatory power is a major drawback of the districts examined. Such power is tied almost exclusively to the district's provision of services (e.g., connection and pretreatment requirements associated with sewerage services<sup>120</sup> or land use controls associated with erosion control, flood prevention or water resource development contracts with private parties.<sup>121</sup>) Two districts--inland lake associations and soil and water conservation districts--may also advise municipal or quasi-municipal governments regarding land use controls. Although advice by the former carries no particular advantages, a land use plan prepared by the soil and water conservation district board and approved by the county is released from any statutory obligation to obtain town board approval (but must still be approved in a referendum by district electors).<sup>122</sup>

Table 7.6 Characteristics of Eight Wisconsin Special Districts

Characteristics	Drainage District	Soil & Water Conservation District	Metropolitan Sewerage District	Town Sanitary District	Joint Sewerage Commission	County Solid Waste Management System	State Recycling Authority	Public Inland Lake Protection and Rehabilitation Districts
<p>1. Potential Initiators more than 1/3 of the district's lands or a majority of land owners in the proposed district having more than 1/3 of the lands</p>	County Board of supervisors	Municipalities and quasi-municipalities lying within the proposed district	Owners of 51% of the proposed district's land or 51% of the landowners or by order of the DNR	Municipalities, towns, sanitary districts or the DNR	County Board of supervisors participating in legislation, State and/or quasi-municipalities	Establish in part by enabling legislation, State Recycling Authority	Municipal or town resolution, petitions signed by 51% of the lands in the proposed districts	
<p>2. Reviewing agent 130/</p>	County Court	Board of Soil and Water Conservation districts; county board of supervisors	DNR	Town Board	DNR	County Board of Supervisors	County Board of Supervisors and town board participating local governments to inter-governmental agreements	
<p>3. Basis for creation of the district, specific projects provided by statute 131/ that benefits exceed costs</p>	That public health or welfare is promoted; that property sources included will benefit from the project; that a substantial proportion of the land occupiers favor such a resolution	That conservation of soil, water or related resources present problems of public concern; that a substantial proportion of the land occupiers favor such a resolution	That territory included will be conducive to physical management, will promote sewerage management or operation consistent with municipal, quasi-municipal or regional development	If certified by the Town Board that procedural requirements of the petition have been met, the proposed works are necessary and that the public health, safety and welfare or convenience will be served; if by the DNR that private systems are located and operated in a fashion endangering the public health or comfort, and pollute the state's waters, and there is no local action to correct the situation	No conditions are specified within the enabling legislation. If a municipal unit is ordered to provide services to adjoining unincorporated territory, the municipality within 30 days following the order may commence an action to annex the territory, if the annexation fails the order shall be void	No conditions are specified within the enabling legislation permit maximum economic benefit; enhance land, water or air resources; included will be consistent with the plans of the state or affected regional planning commission(s)	That public health, convenience, necessity or welfare will be served, and that property included will be benefited and that for- mation will not cause or contribute to long range environmental problems	

Table 7.7 Powers of Wisconsin's Special Purpose Districts

Power(s)	Drainage District	Soil & Water Conservation District	Metropolitan Sewerage District	Town Sanitary District	Joint Sewerage District	County Solid Waste Management System	State Recycling Authority	Public Inland Lake Protection and Rehabilitation Districts
<b>Services</b>								
1. sewerage <u>123/</u>	no	yes	yes	yes	yes	no	no	yes
2. solid waste <u>124/</u>	no	yes	yes	yes	yes	yes	yes	yes
3. drainage or storm sewers <u>125/</u>	yes	yes	yes	yes	yes	no	no	yes
4. soil and water conservation <u>126/</u>	yes	yes	no	no	no	no	no	yes
<b>Regulation <u>127/</u></b>								
1. zoning	no	advisory	no	no	no	no	no	advisory
2. floodplain	no	advisory	no	no	no	no	no	advisory
3. building and sanitary codes	no	advisory	no	no	no	no	no	advisory
4. shoreland	no	advisory	no	no	no	no	no	advisory
5. subdivision controls	no	advisory	no	no	no	no	no	advisory
6. solid waste regulation	no	advisory	yes	yes	yes	yes	yes	advisory
7. offensive industry	no	no	no	no	no	no	no	advisory
8. other	no	may establish requirements tied to the provision of services	may refuse sewer extensions to developments which are contrary to the municipal or county master or development plans	may require installment of a private sewerage system	may exercise similar power to those held by the city or board of public works	may establish requirements tied to the provision of services	no	may require installment of a private sewerage system, via powers to act as a TSD, may establish requirements tied to the provision of services
<b>Planning <u>128/</u></b>								
1. master plan	yes	yes	yes	yes	yes	yes	yes	yes
2. official map								
3. other (comprehensive planning of service functions)	yes	yes	yes	yes	yes	yes	yes	yes

Table 7.7 Powers of Wisconsin's Special Purpose Districts (cont.)

District	Drainage District	Soil & Water Conservation District	Metropolitan Sewerage District	Town Sanitary District	Joint Sewerage Commission	County Solid Waste Management System	State Recycling Authority	Public Inland Lake Protection and Rehabilitation Districts
1. Means by selection	<p>Appointment of 3 landowners in the county including preferably a farm family drainage engineering, by county court</p> <p>Members of the agricultural and extension education committee of the county board and the board may appoint no more than 2 members who are new county board members</p>	<p>Appointment (if lying within a single county) 5 members by county boards</p> <p>Appointment (if lying in several counties) 5 members board</p> <p>Appointment (if lying in two counties) 1 member each by county board</p> <p>Appointment (if lying in the county) 5 members not having the greatest share of the district's population, the remainder by the county having the largest share</p>	<p>Elected--by district electors</p> <p>Appointment (if lying within a single town) 3 members by town board</p> <p>Appointment (if more than two governmental units) in accordance with resolutions approved by con-tracting parties</p>	<p>Appointment (in 2 governmental units) one (or two) members appointed by those earlier selected</p> <p>Appointment (if more than two governmental units) in accordance with resolutions approved by con-tracting parties</p>	<p>Appointment (if in single county) 9-15 member commission more than 5 being county board members</p> <p>Appointment (if lying in more than one county) 11 members plus 3 added members for each county to be appointed in any manner acceptable to the parties</p>	<p>Appointment 7 members appointed by the governor, 1 each from prepared lists by the county board association, the league of municipalities and the town association, by the governor</p>	<p>if created by municipal resolution, the municipality shall perform the functions of the board of commissioners; if created by a town through conversion of a TSD, or an initialing petition or by the county the association shall be governed by 3 electors or persons--at least one who resides in the district--owning property within the district; one supervisor of the soil and water conservation district; and one member of the governing body of the local government having the greatest proportion by valuation of property in the district (who owns property in the district if possible).</p>	
2. Term	3 years	not specified	5 years	6 years	6 years	3 years	6 years	6 years
3. If elected qualified voters	not applicable	not applicable	not applicable	electors	not applicable	not applicable	not applicable	electors

Table 7.7 Powers of Wisconsin's Special Purpose Districts (cont.)

Jurisdiction	Drainage District	Soil & Water Conservation District	Metropolitan Sewerage District	Town Sanitary District	Joint Sewerage Commission	County Solid Waste Management System	State Recycling Authority	Public Inland Lake Protection and Rehabilitation Districts
1. Boundary limits <u>166/</u>	County or municipality	Within a county	Territory includes at least one municipality in its entirety. No territory of a city or village which operates its own sewerage system may be included without its consent	May not include territory of incorporated units unless prior to incorporation	Determined by DNR order; contract	Determined by contract	Established by authority order	All property included must benefit from the establishment of the association. Districts may not exercise town sanitary district powers in incorporated areas unless authorized by the municipal governing body, nor within an existing town sanitary district unless the TS merges into the association



Planning by these districts is very narrow in scope, often limited to an examination of the direct benefits and costs of a specific or series of specific district project(s). As a result, broader repercussions of district projects may be ignored. To prevent this from occurring, many district programs are required to conform to municipal, quasi-municipal, regional or state development plans (see Table 7.7). But the ultimate effect of this requirement is uncertain. Metropolitan sewerage districts, for example, may refuse to extend sewer lines when such an action would conflict with a regional or municipal plan, but the district is not required to refuse the extension. Similarly, statutes requiring conformance with development plans often fail to provide any enforcement device to assure compliance.

### Autonomy

Intervention in a district's policy and program development by state or local government occurs at several levels (see Table 7.6). First, state permits and licenses continue to be required for a number of district activities. In some instances, local government approval is also required to operate district services within municipal or quasi-municipal boundaries. For example, a metropolitan sewerage district may not operate a solid waste system without county approval, nor operate a sewerage system within any municipality having a preexisting system without prior municipal approval. Second the state and local governments may also act as initiators and/or review agents of petitions which request the creation of a particular district. In this capacity, local units may play a major role in assessing the need for the district and in fixing the district's boundaries and powers. This increased participation by local governments may lessen or eliminate resistance to and assure cooperation with district programs and policies.

### Public Participation

The public may participate in the state licensing and permit hearing required for the provision of some services. In addition, the public may participate in initiating proceedings for some districts through submission of initiating petitions and participate in the creation and policy and program development hearings before the review agents and district authorities.

Only in limited instances, noted in Table 7.6, may the public have an opportunity to elect, even partially, the district governing bodies. In the remaining cases, district officials are appointed. The public may still indirectly influence district programs and policies through the election of municipal or quasi-municipal officials who select district officers, but, as noted earlier, this process does not assure that voters' preferences will be either revealed or acted upon. Voting or appointment rules for district officers do not conform to those outlined in the "ideal." Where elections are permitted, the applicable rule appears to be one person-one vote. When officials are appointed for districts which cross several municipal or quasi-municipal boundaries, the distribution of appointments is allocated among participating local governments on a basis loosely related to their proportionate share of equalized assessed value or population in the district.

Additionally, a number of districts require initiators of petitions and/or appointed officials to be residents and landowners or occupiers within the district. Aside from constitutional equal protection problems, these requirements may also deviate from the "ideal." It cannot be presumed that a landowner's interest in environmental quality deviates sizably from a nonlandowner's, the apparent assumption found in these requirements.

### Problemshed

Special districts examined in this section are generally capable of encompassing the problemshed. Inland lake protection and rehabilitation associations appear limited to lands surrounding the state's lakes, reservoirs or flowages. Town sanitary districts also are limited to unincorporated areas.

### Financing, Other Resources

Table 7.8 illustrates the variety of financing tools available to special districts. An examination of the table suggests that the existing range may not provide for an adequate treatment of nonpoint sources.

### Conclusion

The use of special purpose districts to manage the state's water quality has the advantage of increasing the likelihood of encompassing the problemshed. Special districts, because of their single purpose nature, may also be able to employ a number of specialists in water quality policy and program development. The use of the special purpose district has a number of disadvantages as well; limited powers, planning, public participation and financing tools for nonpoint pollution control projects represent major drawbacks under the present set of special districts.

## VII. CONCLUSION

In this chapter we have, albeit briefly, outlined the characteristics of a number of existing Wisconsin organizations which may affect water quality. The analysis has indicated that existing organizations deviate significantly from the "ideal." In the following chapter we will consider a number of problems in satisfying the "ideal" under Wisconsin's constitution.

Table 7.8 Financing Tools for Special Purpose Districts

Special District	Drainage District	Soil & Water Conservation District	Metropolitan Sewerage District	Town Sanitary District	Joint Sewerage Commission	County Solid Waste Management Authority	State Recycling Authority	Public Inland Lake Protection and Rehabilitation Districts
1. User Fees <u>134/</u>	no	yes <u>NP/</u>	P/ yes <u>NP/</u>	P/ yes <u>NP/</u>	P/ yes <u>NP/</u>	yes <u>NP/</u>	yes <u>NP/</u>	P/ yes <u>NP/</u>
2. Special Assess <u>135/</u>	yes <u>NP/</u>	no	P/ yes <u>NP/</u>	P/ yes <u>NP/</u>	P/ yes <u>NP/</u>	yes <u>NP/</u>	no	P/ yes <u>NP/</u>
3. Bonds								
a. General Obligation <u>136/</u>	no	no	P/ yes <u>NP/</u>	P/ yes <u>NP/</u>	P/ yes <u>NP/</u>	no	no	P/ yes <u>NP/</u>
b. Special Assessment <u>137/</u>	yes <u>NP/</u>	no	P/ yes <u>NP/</u>	P/ yes <u>NP/</u>	P/ yes <u>NP/</u>	no	no	P/ yes <u>NP/</u>
c. General Revenue <u>138/</u>	no	yes <u>NP/</u>	P/ yes <u>NP/</u>	P/ yes <u>NP/</u>	P/ yes <u>NP/</u>	no	yes <u>NP/</u>	P/ yes <u>NP/</u>
d. Industrial Revenue	no	no	no	no	no	no	no	no
4. Authority to Receive Grants <u>139/</u>	yes <u>NP/</u>	yes <u>NP/</u>	P/ yes <u>NP/</u>	P/ yes <u>NP/</u>	P/ yes <u>NP/</u>	yes <u>NP/</u>	yes <u>NP/</u>	P/ yes <u>NP/</u>
5. Property Taxes <u>140/</u>	no	(voluntary appropriations by participating local governments)	P/ yes <u>NP/</u>	P/ yes <u>NP/</u>	P/ yes <u>NP/</u>	yes <u>NP/</u>	no	P/ yes <u>NP/</u>

NP/= financing tools solely for two non-point source projects: diffuse surface water or solid waste  
 NP/= financing tools for non-point sources projects: which may also include diffuse surface water or solid waste management project  
 P/= financing tools for a point source project

## REFERENCES AND FOOTNOTES: CHAPTER 7

- 1 See, e.g., Wis. Stat §144.06 (1973) empowering towns having a population exceeding 7,500, cities and villages to "require buildings used for human habitation and adjacent to a sewer to connect..." §66,049 (1973) also authorizes "[c]ities and villages to cause the removal of ashes, garbage and rubbish...."
- 2 See e.g., Wis. Stat. §60.306 (2m) (1973) which permits the town sanitary board to "make rules and regulations and issue orders to promote and preserve public sanitation." The State DNR is also authorized to establish pretreatment standards under Wis. Stat. §147.07(2) (1973).
- 3 Ibid. This broad enabling legislation may be construed to permit both quantity or quality requirements or the specification of treatment modes. With respect to the former, the municipality or quasi-municipality may specify by rule classes or categories of pollutants which may not be introduced into the public system. See also Wis. Stat. §147.07(2)(1973) for state pretreatment standards.
- 4 Ibid. See also Wis. Stat. §145.04(1)(1973) authorizing counties to enact ordinances related to the issuance of plumbing permits. The enabling legislation may be broadly viewed to permit the counties to specify specific material or equipment requirements and installation practices (§145.01(1)(b)(1973)).
- 5 Sato and Van Alstyne, State and Local Government Law, at 1006 (1972).
- 6 Acts and Resolves of the Province of Massachusetts Bay, 1692-3, Ch. 23.
- 7 Wis. Stat. §925-52 (1898) empowered municipalities:

\* \* \* \*

(5) To compel the owner or occupant of any grocery, cellar, tallow chandler's shop, soap factory, tannery, table, bar, privy, sewers or other unwholesome or nauseous house or place to cleanse the same from time to time, or remove or abate the same, as it may be deemed necessary for the health, comfort and convenience of the inhabitants of said city.

(6) To direct the management of and to regulate breweries, tanneries and packing houses, and to direct the location, management and construction of, and regulate, license, restrain, abate or prohibit within the city and within a distance of four miles therefrom of distilleries, slaughtering establishments, glue factories, establishments for cleaning or rendering lard, tallow offal and such other substances as can or may be rendered and all establishments or places where any nauseous, offensive or unwholesome business may be carried on...

\* \* \* \*

See also Ch. 273, Laws of 1862, Ch. 9, Laws of 1871 which empowered municipalities to regulate slaughterhouses.

- 8 Lincoln Trust Co. v. The Williams Building Corp., 229 N.Y. 313, 128 N.E. 209 (1920).

References and Footnotes: Chapter 7 (cont.)

- 9 Wisconsin's Flood Plain and Shoreland Zoning Acts were both passed in 1965. Attempts to preserve portions of the natural environment are not unique to this century, however. See, e.g., an early English act entitled, "An Act for the Preservation of Spawn and Fry of Fish," (Eliz., c. 17 (1558).
- 10 Wis. Stat §144.26(1)(1973).
- 11 Wis. Adm. Code §NR 116.01(1975) empowers the municipality to "protect human life, health and to minimize property damages and economic losses."
- 12 See, e.g., Wis. Stat. §62.23(7)(h)(1973) which permits "the lawful use of a building or premises existing at the time of the adoption...of a zoning ordinance...[to] be continued although such use does not conform with the provisions of the ordinance."
- 13 See, e.g., Wis. Stat. §§144.445, 60.72(1) (1973). The former excepts governmental units operating a solid waste management system in conformance with state standards and an approved county plan from local permit requirements. The latter subjects governmental solid waste disposal systems to town zoning requirements.
- 14 Wis. Stat. §66.521(1973).
- 15 By April, 1974, 14 capital projects, which included waste treatment components, had been financed through this Wisconsin bonding provision, yielding over 55 million dollars in capital to issuing industries. Department of Business Development, Revenue Bonding for Wisconsin Industry, at 15 (1974).
- 16 Much of the discussion on extractions comes from Irwin, William A, and Richard A. Liroff, "Economic Disincentives for Pollution Control: Legal, Political and Administrative Dimensions," Office of Research and Development, U.S. Environmental Protection Agency, Washington, D.C.: 1974.
- 17 Ibid, at 6(1974).
- 18 Wis. Stat. §§59.97(1), 60.74(4), 62.23(8)(1973) respectively empower respective quasi-municipal governments to enforce zoning regulations through "appropriate fines and penalties"; and "a misdemeanor, [which provides, upon conviction, for a fine of] ...not more than\$500."
- 19 See, e.g., 66.076(5)(1973) which permits "standby"charges to property not connected but for which such facilities have been made available.
- 20 See, e.g., Wis. Stat. §§66.049 (solid waste disposal); 66.076 (5) (Sewage System) (1973). A recent federal statute establishes, as a prerequisite for a federal sewerage grant, that the sewerage charge reflect the users' proportionate share of cost of operation, maintenance or replacement. See 33 U.S.C. §1284 (b).
- 21 Irwin and Liroff, Note 16, at 9 (1974). License fees, a variant of user charges, are payment for the privilege of engaging in an activity affecting the community. In some instances license fees may include the cost of administration plus potential social costs associated with the activity. Ibid at 9 (1974).

References and Footnotes: Chapter 7 (cont.)

- 22 Ch. 52 §23 (13), R.S. 1849.
- 23 Ch. 326 §52, Laws of 1889.
- 24 Ch. 398, Laws of 1862; Ch. 64, Laws of 1862.
- 25 Ch. 167, Laws of 1883.
- 26 Ch. 26 R.S. 1849.
- 27 The enabling legislation for many of the local governments surveyed in this chapter has not been fully interpreted by Wisconsin's courts. In the absence of this prescription, we have given them the most liberal construction possible. The actual powers utilized by the respective units surveyed here may therefore deviate from the powers described here.
- 28 City of Plymouth v. Eisner, 28 Wis. 2d 102, 106, 135 N.W. 2d 2799, 801 (1965).
- 29 City of Madison v. Tolzman, 7 Wis.2d 570, 97 N.W.2d 513, 516 (1959).
- 30 See, e.g., City (CY): Wis. Stat. §§ 62.18(1)(16); 66.076, 66.077 (1973).  
Village (V): Wis. Stat. §§ 61.34(3), 61.36, 66.076, 66.077 (1973).  
City (T): Wis. Stat. §§ 60.18(12), 66.076(1), 66.077(1973).  
County (CO): Wis. Stat. § 59.07(1)(a), (1)(d)(1973).
- 31 See, e.g., CY: Wis. Stat. §§ 62.22(1), 66.049, 66.052(1973).  
V: Wis. Stat. §§ 61.34(3), 66.049(1973).  
T: Wis. Stat. §§ 60.29(19), (30); 60.64; 61.36(1973).  
CO: Wis. Stat. §§ 59.07(1)(d)(1); (135); 144.435(1973).
- 32 See, e.g., CY: Wis. Stat. § 62.18, 66.076(1973).  
V: Wis. Stat. § 61.36(1973).  
T: Wis. Stat. §§ 60.29(19), (30); 60.64, 61.36(1973).
- 33 See, e.g., CY: Wis. Stat. § 66.34(1973), as amended by Ch. 312, Laws of 1975.  
V: Wis. Stat. § 66.34(1973), as amended by Ch. 312, Laws of 1975.  
T: Wis. Stat. §§ 60.13, 60.18, 60.29(44) (as amended by Ch. 188, Laws of 1975) 66.34 (as amended by Ch. 312, Laws of 1975).  
CO: Wis. Stat. §§ 59.07 (60), 59.872, 59.874 (1973).
- 34 See, e.g., CY: Wis. Stat. § 62.23 (7) (1973).  
V: Wis. Stat. § 62.23 (7) (via 61.35) (1973).  
T: Wis. Stat. § 60.74 (1) (1973).  
CO: Wis. Stat. §§ 59.97 (4), (5) (1973).
- 35 See, e.g., CY: Wis. Stat. § 62.23 (7) (1973).  
V: Wis. Stat. § 62.23 (7) (via 61.35) (1973).  
T: Wis. Stat. § 60.74 (1) (1973).  
CO: Wis. Stat. § 114.26 (1973).
- 36 See, e.g., CY: Wis. Stat. § 62.23(7) (1973).  
V: Wis. Stat. § 62.23(7) (via 61.35) (1973).  
T: Wis. Stat. §§ 59.971 (2)(b), 60.74 (1) (1973).  
CO: Wis. Stat. § 59.971 (1) (1973).

References and Footnotes: Chapter 7 (cont.)

- 37 See, e.g., CY: Wis. Stat. §§ 62.23(7), (8)(1973).  
V: Wis. Stat. § 62.23(7), (9) (via 61.35)(1973).  
T: Wis. Stat. § 60.74(4), (1973)  
CO: Wis. Stat. § 59.07 (51)(1973).
- 38 See, e.g., CY: Wis. Stat. § 236.45(2) (1973).  
V: Wis. Stat. § 236.45(2) (1973).  
T: Wis. Stat. § 236.45(2) (1973).  
CO: Wis. Stat. § 236.45(2) (1973).
- 39 See, e.g., CY: Wis. Stat. § 144.44(2)(1973).  
V: Wis. Stat. § 144.04(2)  
T: Wis. Stat. §§ 60.52(2), 60.70, 60.72, 144.44(2)(1973).  
CO: Wis. Stat. §§ 159.07(135), 144.435, 144.44(2)(1973).
- 40 See, e.g., CY: Wis. Stat. § 66.052(1)(1973).  
V: Wis. Stat. § 66.052(1)(1973).  
T: Wis. Stat. § 66.052(1)(1973).
- 41 See, e.g., CY: Wis. Stat. § 62.23(3)(1973).  
V: Wis. Stat. § 62.23(3)(via 61.35)(1973).  
T: Wis. Stat. §§ 60.74(a)(a), (4)(1973).  
CO: Wis. Stat. § 59.97(3)(1973).
- 42 See, e.g. CY: Wis. Stat. § 62.23(6)(1973).  
V: Wis. Stat. § 62.23(6), via 61.35(1973).  
T: Wis. Stat. § 60.74(a)(a)(4)(1973).  
CO: Wis. Stat. § 59.97(3)(1973).
- 43 See, for example, our discussion of the state's role as trustee over navigable waters in Chapter 8, section 5.
- 44 Wis. Stat. §§ 144.025(2)(c), 144.07(1), 147.02(1973).
- 45 Wis. Stat. § 87.30(1973).
- 46 Wis. Stat. § 59.971(6)(1973).
- 47 See, e.g., Wis. Stat. § 66.076(9)(1973).
- 48 Wis. Stat. §§ 236.13, 236.45(2)(1973).
- 49 Wis. Stat. § 60.74(1)(am)(1973).
- 50 Wis. Stat. § 59.97(5)(c), (e)(1973).
- 51 Wis. Stat. § 60.18(1973).
- 52 Wis. Stat. § 60.18(1973). At the town meeting, for example, electors authorize a number of activities affecting the environment including the raising of money in support of town activities, the establishing of regulations for the peace, welfare and good order of the town, the purchasing of lands for public use along river and lake fronts, the raising of money to assist in the creation of water-

References and Footnotes: Chapter 7 (cont.)

shed protection areas and the giving of financial assistance to be given to local soil and water conservation districts.

- 53 See, e.g., Wis. Stats. §§147.03(d), 147.13(1)(b)(1973) providing for public hearings on the approval or modification by the DNR of treatment plant permits, if petitioned by 5 or more citizens. Wis. Stat. §144.537 (1973) also requires the department to hold public hearings on "alleged or potential environmental pollution upon a verified complaint of 6 or more citizens filed with the department." Wis. Stat. §§62.23(6)(b); (6)(f); (7)(d); (7)(e)(3); (7)(e)(10); 59.97(3)(d), (5)(a), 5(e)(3), (6); 59.971(6)(1973) provide for local public hearings or judicial proceedings in the preparation of zoning regulations or municipal or quasi-municipal plans. Municipal electors may in some cases also directly provide municipal services through initial Wis. Stats. §9.20, 66.01(6)(1973). Cutler, Zoning, Law and Practices. (1967) argues that direct legislation may be limited where state statutes uniformly provide a specific method to handle the issue in question.
- 54 See, e.g., Wis. Stats. §66.059(2m) 67.05(1973).
- 55 Wis. Stat. §59.07(22)(1973). The state legislature may also change both municipal and quasi-municipal boundaries.
- 56 Wis. Stat. §59.997(1973) permits two or more adjoining counties in the state to consolidate into a single county. The state legislature may also change county boundaries.
- 57 For a discussion of this point see, Knowles, "The Rule of Reason in Wisconsin Annexations," 1972 Wisconsin Law Review 1125.
- 58 See, e.g., Wis. Stat. §66.021(2)(b), (5)(1973). Annexation of town island by a city or village may be accomplished without the approval of electors in the affected island.
- 59 The state legislature has attempted to assure that municipal or quasi-municipal governments possess minimum levels of expertise in sewerage system provision by requiring operators to be certified. Wis. Stat. §144.025(a)(1)(1973); Wis. Adm. Code §NR 114(1973).
- 60 See, e.g., CY: Wis. Stats. §§66.069(1), 66.076(1), 66.60(16)(1973).  
V: Wis. Stats. §§66.069(1), 66.076(1), 66.60(16)(1973).  
T: Wis. Stat. §§66.069(1), 66.076(1), 66.60(16)(1973).  
CO: Wis. Stat. §59.07(1)(d)(3)(1973).
- 61 See, e.g., CY: Wis. Stat. §§66.072(1), 66.076(1), 66.60(1), 66.62(1), 66.65(1973).  
V: Wis. Stat. §§61.34(4), 66.072(1), 66.076(1), 66.60(1), 66.62(1), 66.65(1973).  
T: Wis. Stat. §§66.072(1), 66.076(1), 66.60(1), 66.62(1) 66.65(1973).
- 62 See, e.g., CY: Wis. Stat. §§ 66.069(6), 66.066(1), 66.54(9), 67.04(2)(e)(1973).  
V: Wis. Stat. §§ 66.059(6), 66.066(1), 66.54(9), 67.04(4)(a)(1973).  
T: Wis. Stat. §§ 66.059(6), 66.066(1), 66.54(9), (1973).  
CO: Wis. Stat. §§ 66.059(6), 66.066(1)(1973).



References and Footnotes: Chapter 7 (cont.)

- 63 See, e.g., CY: Wis. Stat. §§66.059(4), 66.066(2), (3), (4), 66.067(1973).  
V: Wis. Stat. §§66.059(4), 66.066(2), (3), (4), 66.067(1973).  
T: Wis. Stat. §§66.059(4), 66.066(2), (3), (4), 66.067(1973).  
CO: Wis. Stat. §§59.07(1)(d)(2), 66.059(4), 66.066(2), (3), (4),  
66.067(1973).
- 64 See, e.g., CY: Wis. Stat. §§66.54(6), (8), (10)(1973).  
V: Wis. Stat. §66.54(6), (8), (10)(1973).  
T: Wis. Stat. §66.54(6), (8), (10)(1973).
- 65 See, e.g., CY: Wis. Stat. §66.521(1973).  
V: Wis. Stat. §66.521(1973).  
T: Wis. Stat. §66.521(1973).
- 66 See, e.g., CY: Wis. Stat. §§62.11(5), 66.33, 144.22(8), 144.23(1973).  
V: Wis. Stat. §§61.34(1), (5), 66.33, 144.22(8), 144.23(1973).  
T: Wis. Stat. §§66.33, 144.22(8), 144.23(1973).  
CO: Wis. Stat. §§59.07(17), 144.22(8), 144.23(1973).
- 67 See, e.g., (Subject to Ch. 39, Laws of 1975, limiting the percentage increase  
in tax levy)  
CY: Wis. Stats. §§62.12(4), 66.067(1), 66.067(1973).  
V: Wis. Stat. §61.34(1), 61.46, 66.066(1), 66.067(1973).  
T: Wis. Stats. §§60.18(1), 66.066(1), 66.067(1973).
- 68 See, e.g., CY: Wis. Stats. §§66.60(1), 66.62, 66.65(1973).  
V: Wis. Stats. §§66.60(1), 66.62, 66.65(1973)  
T: Wis. Stats. §§66.345, 66.60(1), 66.62, 66.65(1973).
- 69 See, e.g., CY: Wis. Stats. §§66.06(1), 66.069(1), 66.60(16)(a)(1973).  
V: Wis. Stats. §§66.069(1), 66.60(16)(a)(1973).  
T: Wis. Stats. §§66.069(1), 66.60(16)(a)(1973).  
CO: Wis. Stats. §§59.07(1)(d)(3)(1973).
- 70 See, e.g., CY: Wis. Stats. §§66.059(6), 66.066(1), 66.067, 66.54(9), 67.04(2)  
(e)(7)(1973).  
V: Wis. Stats. §§66.059(6), 66.066(1), 66.067, 66.54(9), 67.04(4)  
(a)(1973).  
T: Wis. Stats. §§66.059(6), 66.066(1), 66.067, 66.54(9)(1973).  
CO: Wis. Stats. §§66.059(b), 66.066(1), 66.07, 67.04(1)(j), (3) (1973).
- 71 See, e.g., CY: Wis. Stats. §§66.059(4), 66.066(2), (3), (4), 66.67(1973).  
V: Wis. Stats. §§66.059(4), 66.066(2), (3), (4), 66.67(1973).  
T: Wis. Stats. §§66.059(4), 66.066(2), (3), (4), 66.67(1973).  
CO: Wis. Stats. §§59.07(1)(d)(2); 66.059(4), 66.066(2), (3), (4),  
66.67(1973).
- 72 See, e.g., CY: Wis. Stats. §§66.54(6), (8), (10)(1973).  
V: Wis. Stats. §§66.54(6), (8), (10)(1973).  
T: Wis. Stats. §§66.54(6), (8), (10)(1973).
- 73 See, e.g., CY: Wis. Stat. §66.521(2)(b)(1973).  
V: Wis. Stat. §66.521(2)(b)(1973).  
T: Wis. Stat. §66.521(2)(b)(1973).

References and Footnotes: Chapter 7 (cont.)

- 74 See, e.g., CY: Wis. Stats. §§ 62.11(5), 66.33, 144.22(8), 144.23(1973)  
V: Wis. Stats. §§ 61.34(1), (5), 66.33, 144.22(8), 144.23(1973).  
T: Wis. Stats. §§ 66.33, 144.22(8), 144.23 (1973).  
CO: Wis. Stats. §§ 59.07(17), (135)(k), 59.874, 144.22(8), 144.23(1973).
- 75 See, e.g., (Subject to Ch. 39, Laws of 1975, limiting the percentage increase in tax levies)  
CY: Wis. Stats. §§ 62.12(4), 62.18, 66.049, 66.066(1), 66.072(1973).  
V: Wis. Stats. §§ 61.34(1), 61.35(1), 61.46, 66.049, 66.066(1), 66.0671, 66.072(1973).  
T: Wis. Stats. §§ 60.18(11), (21), (22), 60.29(29), (49), 66.066(1), 66.067, 55.072(1973).  
CO: Wis. Stats. §§ 59.07(5), (60), (66), (96), (135)(1), (135)(o), 59.872, 70.62(2)(1973).
- 76 In Walworth County v. Elkhorn, 27 Wis. 2d 30, 133 N.W.2d 256(1965), the Wisconsin Supreme Court found, inter alia, that an interim extraterritorial zoning ordinance, enacted without the prior approval of the affected town or county, did not violate due process or equal protection clauses of the Fourteenth Amendment. The enabling legislation, Wis. Stat. § 62.23(7a), permitted the municipality to enact an interim ordinance which was effective up to a two year period, until a comprehensive extraterritorial zoning plan had been prepared. The case may not be read as a denial of the right of representation of affected town residents. Instead, the interim ordinance represented only an initial freeze. The actual extraterritorial zoning plan was to be prepared by an extraterritorial zoning board, composed in part of members representing the town and appointed by the town board. The representation of the town interests was "an integral feature of the bill...." (Vol. 111, p. 137, of the 1963 report of the legislative council). The freeze maintained the preexisting zoning ordinances which representatives of the town residents had help create. The freeze also could be overturned by town residents if they could show it to be "unreasonable."
- 77 See, City of West Frankfort v. Fullop, 6 111.2d 609, 129 N.E.2d 682(1955), Schliantz v. City of North Platte, 172 Neb.477, 489, 490, 110 N.W.2d 5866-67 (1961), Accord., City of Raleigh v. Morand, 247 N.C.363, 100 S.E.2d 970(1957). Contra, Malone v. Williams, 118 Tenn. 390, 1035 W798(1907).
- 78 Home rule powers are limited to matters of local concern. Although "local concern" has not been defined in this context, it seems clearly limited to within the municipal boundaries. Similarly, if extraterritorial zoning is, arguendo, a matter of local concern, it remains subject to the applicable state enabling legislation which is applied uniformly across municipal units. For further exposure on this point, see Chapter 8, note 78, infra.
- 79 See, e.g., CY: Wis. Stat. § 62.23(7a), (1973).  
V: Wis. Stat. § 62.23(7a), via 61.35(1973)
- 80 See, e.g., CY: Wis. Stat. § 66.052(21)(1973).  
V: Wis. Stat. § 66.052(21)(1973).
- 81 See, e.g., CY: Wis. Stat. § 236.45(2)(1973).  
V: Wis. Stat. § 236.45(2)(1973).

References and Footnotes: Chapter 7 (cont.)

- 82 See, e.g., CY: Wis. Stat. § 66.052(1)(1973)  
V: Wis. Stat. § 66.052(1)(1973)
- 83 See, e.g., CY: Wis. Stat. § 62.23(6d)(1973),  
V: Wis. Stat. § 62.23(6d)via 61.35 (1973).
- 84 See, e.g., CY: Wis. Stat. § 62.23(2)(1973).  
V: Wis. Stat. § 62.23(2), via 61.35(1973).
- 85 Wis. Stat. § 62.23(7a)(b)(1973). The interim zoning ordinance may be extended an additional year if authorized by the extraterritorial zoning commission.
- 86 Wis. Stat. § 62.23(7a)(c)(1973).
- 87 Wis. Stat. § 62.23(7a)(~~h~~)(1973).
- 88 See, e.g., CY: Wis. Stat. § 62.23(7a)(a)(1973).  
V: Wis. Stat. § 62.23(7a)(a)(1973).
- 89 See, e.g., CY: Wis. Stat. § 66.052(2)(1973).  
V: Wis. Stat. § 66.052(2)(1973).
- 90 See, e.g., CY: Wis. Stat. § 236.02(2)(1973).  
V: Wis. Stat. § 236.02(2)(1973).
- 91 See, e.g., CY: Wis. Stat. § 66.052(1)(1973).  
V: Wis. Stat. § 66.052(1)(1973).
- 92 See, e.g., CY: Wis. Stat. § 62.23(6)(d)(1973).  
V: Wis. Stat. § 62.23(b)(d), via 61.35(1973).
- 93 See, e.g., CY: Wis. Stat. § 62.23(2)(1973).  
V: Wis. Stat. § 62.23(2), via 61.35(1973).
- 94 Sato and Van Alstyne, State and Local Government Law, at 389(1970), quoting Advisory Commission on Intergovernmental Relations, 1968 State Legislative Program, 388-389(1967).
- 95 Wis. Stat. § 66.945(1973).
- 96 See, e.g., Wis. Stats. §§ 59.07(27), 60.29(17a)(1973).
- 97 Wis. Stat. § 66.30(2)(1973), as amended by Ch. 123, Laws of 1975.
- 98 51 op. Wis. Att'y Gen. 168 (1962).
- 99 Ibid. At 168(1972), citing 48 Op. Wis. Att'y. Gen. 231 (1960).
- 100 56 Op. Wis. Att'y. General 69 (1967).

References and Footnotes: Chapter 7 (cont.)

- 101 See, e.g., 47 Op. Wis. Att'y Gen. 278, 279(1958), The attorney general argues in this opinion that a local government may not employ another to perform a statutory duty if the latter is without an independent statutory authorization. The example offered, a city hiring the county to operate its schools, goes to jurisdictional power rather than domain. See also 60 Op. Wis. Att'y. Gen. 85, 89 (1971)
- 102 60 Op. Wis. Att'y. Gen. 313, 315 (1971) quoting Grant County Service Bureau, Inc. v. Treweek, 19 Wis. 2d 548, 120 N.W.2d 634 (1963).
- 103 See, e.g., 59 Op. Wis. Att'y. Gen. 72 (1969), 60 Op. Wis. Att'y. 85 (1971), Op. Wis. Att'y. To Mr. David Deda, District Attorney, Price Co. (March 25, 1976).
- 104 See, e.g., Wis. Stats. § 59.97(3)(a)(1973): "The (county) committee shall direct the preparation of a county development plan...of the unincorporated territory within the county and areas within incorporated jurisdictions whose governing bodies by resolution agree to have their areas included in the county's development plan." Emphasis added; § 59.97(3)(d)(1973): "The committee shall hold a public hearing on the development plan before approving it...." [Emphasis added]; § 59.97(4)(1973): "The powers granted with respect to zoning by this section shall be exercised through an ordinance..." [Emphasis added]; § 62.23(2)(1973): "It shall be the function and duty of the city or village planning commission to make and adopt a master plan...." [Emphasis added] and § 62.23(7)(d)(1)(1973): "[The city or village planning commission] shall, upon request of the [municipal] council, recommend the district plan and regulations for the city [or village]." [Emphasis added]. In contrast to the mandatory language provided above, Wis. Stat. § 59.971 (4)(1973) expressly provides for intergovernmental cooperation in the enactment of shoreland zoning ordinances. If the legislature had intended similar intergovernmental cooperation in other areas of regulation, it would have expressly provided for it. (See also, State ex. rel. Zupanic v. Schimenz, 46 Wis. 2d 22, 174 N.W.2d 533 (1970) where the court, in dicta, noted that a contract to zone made by a zoning authority is void because a municipality may not, absent specific authorization, surrender its governmental powers and functions.
- 105 Under a 1962 opinion, a county was permitted to contract with another county for the provision of sanitorium care for its residents, but the allocation of costs was held to be governed by a specific statutory condition. 51 Op. Wis. Att'y. Gen. 194, 198(1962). Similarly, a 1971 opinion argued that Wis. Stat. § 66.945(1971) which provides for regional planning, fully proscribed similar cooperative arrangements under 66.30(1971) 60 Op. Wis. Att'y. Gen. 313(1971). A 1973 Wisconsin Supreme Court decision, however, suggests that the existence of a statutory provision similar to the agreement may not limit the parties' negotiations. There, a town that had contracted with a city for sewerage services argued, inter alia, that the contracting city was subject to a number of statutes regulating public utilities. The court rejected this contention, holding the city bound only to the terms of the contract. The case may be limited, however, as involving only a problem of definition. The court appears to conclude that under the contract the city was not a public utility. If the court had found it to be a public utility the requested statutes could still have been applied. City of Racine v. Town of Mt. Pleasant, 61 Wis.2d 495, 213 N.W.2d 60 (1973).

References and Footnotes: Chapter 7 (cont.)

- 106 60 Op. Wis. Att'y. Gen. 313, 314(1971).
- 107 Ch. 123, Laws of 1975.
- 108 Letter to attorney members of the league's legislative committee from Jerry A. Edgar, Legal Council, December 28, 1972.
- 109 Wis. Stat. §66.30(1)(1973)(as amended by Ch. 123, Laws of 1975) defines "municipality" to include cities, villages, towns, counties, sanitary districts, public inland lake protection and rehabilitation associations, and regional planning commissions. See also, Wis. Stats. §§9.07 (11), 60.29(38), 61.34(2)(1973).
- 110 See, e.g., Wis. Stats. §§59.07(1), (60), (135); 59.872; 60.18(21), (22); 60.29(18), (35); 66.061; 66.064; 66.30(2g), (3m); 66.403; 66.45:66.47; 66.505; 66.508; 66.92; 92.08(2); 92.13; 140.09(14); 141.015; 141.07(services) §§27.015; 59.07(57), (65), (96), 60.29(41), (43); 140.08, 144.025(5), 144.435(1)(planning) §§59.971(4); 140.09(6), 141.04 (regulation)(1973).
- 111 See note 105, supra.
- 112 Wis. Stat. §66.30(5)(a)(1973).
- 113 Indeed, Wis. Stat. §67.05 (7)(f)(1973) lessens potential public participation by exempting bond issues for regional projects, arising under chapter 67, from being subject to referendum.
- 114 Wis. Stat. §66.30(3)(1973).
- 115 Ch. 67 (via Wis. Stat. §66.30(3m)(1973).
- 116 Wis. Stat. §66.066 (via Wis. Stat. §66.30(3m)(1973).
- 117 Wis. Stat. §33.15(4)(1973).
- 118 Ch. 197, Laws of 1975.
- 119 A third, the public inland lake protection and rehabilitation association, formerly could be erected through an intergovernmental agreement. Wis. Stat. §33.23(1)(1973). Sec. 12, Ch.197, Laws of 1975 eliminated this provision.
- 120 See, e.g., Wis. Stat. §§60.306(2m), 66.24(3)(1973).
- 121 See, e.g., Wis. Stat. §§92.08(5), (9)(1973).
- 122 Wis. Stat. §92.09(1973).
- 123 See, e.g., Drainage(D):  
Soil and Water Conservation (SW): Wis. Stat. §§92.08(1), (6)(1973).  
Metropolitan Sanitary (MS): Wis. Stat. §66.24(2)(1973).  
Town Sanitary (TS): Wis. Stat. §§60.30(1), 60.306 (2)(1973).  
Joint Sewerage (JS): Wis. Stat. §144.07(4)(1973).  
State Recycling (SR):  
Inland Lake (IL): Wis. Stat. §§60.30(1), 60.306(2)(via §33.22(3))  
as amended by sec. 11, Ch. 197, Laws of 1975.

References and Footnotes: Chapter 7 (cont.)

- 124 See, e.g., SW: Wis. Stat. §§92.08(1), (b)(1973).  
 MS: Wis. Stat. §59.07(135)(via §66.24(8) if approved by the county board)(1973).  
 TS: Wis. Stat. §§60.30(1), 60.306(2)(1973).  
 JS: Wis. Stat. §144.07(1)(1973).  
 IL: Wis. Stat. §§60.30(1), 60.306(2)(via §33.22(3) as amended by sec. 11, Ch. 197, Laws of 1975.
- 125 See, e.g., D: Wis. Stat. §§88.21, 88.22(1973).  
 SW: Wis. Stat. §92.08(1), (6)(1973).  
 MS: Wis. Stat. §66.24(7)(1973).  
 TS: Wis. Stat. 60.30(1), 60.306(2)(1973).  
 JS: Wis. Stat. §144.07(4)(c)(1973).  
 IL: Wis. Stat. §§33.15(4); 60.30(1), 60.306(via §33.22(3)) as amended by sec. 11, Ch. 197, Laws of 1975.
- 126 See, e.g., D: Wis. Stat. §§88.21(8), (9), (10); 88.22(3)(1973).  
 SW: Wis. Stat. §§92.08(1), (2), (5)(1973).  
 IL: Wis. Stat. §33.15(4)(1973).
- 127 See, e.g., SW: Wis. Stat. §§92.08(5), (9); 92.09(1973).  
 MS: Wis. Stat. §§59.07(135)(via §66.24(8))(1973).  
 TS: Wis. Stat. §§60.306(2), (2m)(1973).  
 JS: Wis. Stat. §144.07(4)(c)(1973).  
 CSW: Wis. Stat. §59.07(135)(1973).  
 SR: Wis. Stat. §§499.07(17), 499.16(use reg.)(1973).  
 IL: Wis. Stat. §§33.29; 60.306(2), (2m)(via §33.22(3) as amended by sec. 11, Ch. 197, Laws of 1975.
- 128 See, e.g., D: Wis. Stat. §88.35(2)(1973)  
 SW: Wis. Stat. §92.08(4)(1973)  
 MS: Wis. Stat. §§59.07(135)(via §66.24(18); 66.24(1), (b), (2)(1973).  
 TS: Wis. Stat. §§60.30(3), 60.306(2)(1973).  
 JS: Wis. Stat. §144.07(4)(c)(1973).  
 CSW: Wis. Stat. §59.07(135)(1973).  
 SR: Wis. Stat. §§499.07(5), (6), (7), 499.10(1973).  
 IL: Wis. Stat. §§33.13; 33.14; 33.29(1)(a), (b), (d); 60.30(8); 60.306(2)(via §33.22(3) as amended by sec. 11, Ch. 197, Laws of 1975)(1973).
- 129 See, e.g., D: Wis. Stat. §88.27(1)(1973).  
 SW: Wis. Stat. §92.05(1973).  
 MS: Wis. Stat. §66.22(1), (2)(1973).  
 TS: Wis. Stat. §§60.302, 60.303(3), 60.315(1973).  
 JS: Wis. Stat. §144.07(1)(1973).  
 CS: Wis. Stat. §59.07(135)(a)(1973).  
 SR: Wis. Stat. §499.10(1973).  
 IL: Wis. Stat. §§33.23, 33.235, 33.25(1)(as amended by secs. 12, 13, 14, 15, 16, Ch. 197, Laws of 1975)(1973)

References and Footnotes: Chapter 7 (cont.)

- 130 See, e.g., D: Wis. Stat. §§88.27(2), 88.34(3)(1973).  
 SW: Wis. Stat. §§92.04(4) (1), 92.05(1973).  
 MS: Wis. Stat. §66.22(4)(1973).  
 TS: Wis. Stat. §§60.303, 60.315(1973).  
 JS: Wis. Stat. §144.07(1)(1973).  
 CS: Wis. Stat. §59.07(135)(a)(1973).  
 SR: Wis. Stat. §499.10(1)(1973).  
 IL: Wis. Stat. §33.23, 33.235, 33.25(as amended by secs, 12, 13,  
 14, 15, Ch. 197, Laws of 1975).
- 131 See, e.g., D: Wis. Stat. §§88.28, 88.34(3)(1973).  
 SW: Wis. Stat. §92.05(1973).  
 MS: Wis. Stat. §66.24(4)(1973).  
 TS: Wis. Stat. §60.303(3), 60.315(1)(1973).  
 JS: Wis. Stat. §144.07(1m)(1973).  
 CS: Wis. Stat. §59.07 (135)(1973).  
 SR: Wis. Stat. §499.10(5)(1973).  
 IL: Wis. Stat. §33.25(3)(1973).
- 132 See, e.g., D: Wis. Stat. §88.17(1973).  
 SW: Wis. Stat. §92.06(1973).  
 MS: Wis. Stat. §66.23(1973).  
 TS: Wis. Stat. §60.30(2)(1973).  
 JS: Wis. Stat. §144.07(1)(1973).  
 CS: Wis. Stat. §59.07(135)(1973).  
 SR: Wis. Stat. §499.02(1)(1973).  
 IL: Wis. Stat. §§33.23, 33.235(1), 33.27(1), 33.28(2), 33.285  
 As amended by secs 12, 14, 18, 19, 20, Ch. 197, Laws of  
 1975)(1973) "Persons" under §33.27(1) include representatives  
 of any trust, foundation, corporation, association or or-  
 ganization owning land in the district.
- 133 See, e.g., D: Wis. Stat. §88.12(1973).  
 SW: Wis. Stat. §92.06(1973).  
 MS: Wis. Stat. §§66.22(4), (5)(1973).  
 TS: Wis. Stat. §60.30(2)(1973).  
 JS: Wis. Stat. §144.07(1)(1973).  
 CS: Wis. Stat. §59.07(135)(1973).  
 IL: Wis. Stat. §§33.22(4), 33.23, 33.235, 33.25(1), 33.26(3)  
 (as amended by secs. 11, 12, 14, 15, Ch. 197, Laws of 1975.)
- 134 See, e.g., SW: Wis. Stat. §92.08(9)(1973).  
 MS: Wis. Stat. §§59.07(135)(n)(via 66.24(8)): 66.076(1), (4);  
 66.25(3)(1973).  
 TS: Wis. Stat. §§60.306(4), 66.076(1)(via 60.306(5))(1973).  
 JS: Wis. Stat. §66.076(1)(via 144.07(4)(e))(1973).  
 CS: Wis. Stat. §59.07(135)(n), (o)(1973).  
 SR: Wis. Stat. §499.07(9), (11)(1973).  
 IL: Wis. Stat. §§33.31, 33.32 (as amended by sec. 23, Ch. 197,  
 Laws of 1975)(1973).

References and Footnotes: Chapter 7 (cont.)

- 135 See, e.g., D: Wis. Stat. §§88.35(6), 88.40, 88.48, 88.63(1973).  
MS: Wis. Stat. §§66.076(1), 66.25(1)(1973).  
TS: Wis. Stat. §§60.309(1)(1973).  
JS: Wis. Stat. §66.076(1)(via 144.07(4)(e))(1973).  
CS: Wis. Stat. §59.07(135)(o)(1973).  
IL: Wis. Stat. §33.32(1)(as amended by sec. 24, Ch. 197, Laws of 1975)(1973).
- 136 See, e.g., MS: Wis. Stat. §§66.25(4), (5); 66.54(9)(1973).  
TS: Wis. Stat. §60.307(1973).  
JS: Wis. Stat. §144.07(4)(e)(1973).  
IL: Wis. Stat. §33.31(5)(1973).
- 137 See, e.g., D: Wis. Stat. §88.34(1973).  
MS: Wis. Stat. §§66.54(6), (7), (8)(1973).  
TS: Wis. Stat. §§66.54(6), (7), (8)(1973).  
JS: Wis. Stat. §§66.076(via 144.07(4)(e)), 66.54(6), (7), (8)(1973).  
IL: Wis. Stat. §33.31 (as amended by sec. 23, Ch. 197, Laws of 1975.)
- 138 See, e.g., SW: Wis. Stat. §92.08(8)(1973).  
MS: Wis. Stat. §§66.059, 66.076(2)(via 66.25(13))  
TS: Wis. Stat. §§60.307(9), 66.059, 66.076(2)(via 60.306(6)(1973).  
JS: Wis. Stat. §66.059, 66.076(2)(via 144.07(4)(e)(1973).  
SR: Wis. Stat. §§499.07(14)(b), 499.25(3)(1973).  
IL: Wis. Stat. §66.059(as amended by sec. 27, Laws of 1975)(1973).
- 139 See, e.g., D: Wis. Stat. §88.22(3)(1973).  
SW: Wis. Stat. §92.08(7)(1973).  
MS: Wis. Stat. §§66.33, 144.21, 144.23(1973).  
TS: Wis. Stat. §§66.33, 144.21, 144.23(1973).  
JS: Wis. Stat. §§66.33, 144.07(4)(c)(1973).  
CS: Wis. Stat. §59.07(135)(k)(1973).  
SR: Wis. Stat. §499.07(2)(14)(c)(1973).
- 140 See, e.g., SW: Wis. Stat. §92.08(12)(1973).  
MS: Wis. Stat. §§66.076(1)(via 66.25(13)), 66.25(2)(1973).  
TS: Wis. Stat. §§60.306(3), 66.076(1)(via 60.306(5))(1973).  
JS: Wis. Stat. §66.076(1)(via 144.07(4)(e))(1973).  
IL: Wis. Stat. §§33.30(3), 33.32(5)(1973).



## CHAPTER 8

### STATE CONSTITUTIONAL CONSTRAINTS RELEVANT TO INSTITUTIONAL CHANGE IN WISCONSIN

#### I. INTRODUCTION

The preceding two chapters have been devoted to a study of those federal and state of Wisconsin laws and governmental organizations of present or potential significance to environmental quality improvement efforts in the state. We noted that each organization deviated from the "ideal" first positioned in Chapter 5.

In this chapter, we explore limitations, imposed by the Wisconsin Constitution, which may prevent the "ideal" from being implemented in this state. In addition, the chapter indicates a number of drafting rules which will lessen the likelihood of challenges to the enabling legislation and illustrates a number of the legal questions typically asked.

Although specific elements of proposed enabling legislation will not be discussed until the final chapter, it is necessary at this point to briefly recapitulate the "ideal." The reason for this restatement is that legal analysis involves the application of law to a set of facts. As the facts change, so too does the applicable law. Therefore, to determine potential constitutional limitations it is essential to briefly outline potential characteristics and powers of the proposed Regional Environmental Quality Authority (REQA).

For example, broadly conceived enabling legislation under the "ideal" could be expected to permit REQAs to possess some or all of the following powers:<sup>1</sup>

1. to be a body politic and corporate;
2. to sue and be sued;
3. to construct, operate and maintain solid and liquid waste collection, treatment and disposal facilities;
4. to acquire existing facilities, operated by public or private authorities, through negotiated purchases or eminent domain;
5. to coordinate operations of existing facilities and the construction, operation and extension of new public or private facilities, consistent with Department of Natural Resources regulations;
6. to coordinate state and federal subsidies to local polluters to encourage capital investments for pollution abatement equipment;
7. to provide technical assistance to private and public polluters, subject to a reasonable fee;
8. to enact and police zoning ordinances within the region, subject to the approval of the residents, through a referendum held within the entire region;
9. to establish and police building and sanitary codes within the proposed region;
10. to purchase and operate pollution monitoring equipment;
11. to require public and private polluters to develop and submit a list of characteristics of their air, liquid and solid waste discharges;
12. to establish and police water and air quality standards within the region, subject to the oversight of the Department of Natural Resources;
13. to establish user charges;
14. to establish effluent charges;
15. to receive money, real or personal property;

16. to borrow money;
17. to levy general revenue, general obligation and special assessment bonds;
18. to levy real property taxes;
19. to levy special assessments; and
20. to request and receive technical assistance from the Department of Natural Resources.

The grant by the legislature of these powers to the proposed authority raises a series of legal questions. In Chapter 6 we considered a number of questions involving the federal Constitution. In this chapter we limit our consideration to questions arising from the Wisconsin Constitution. Specifically, we ask:<sup>2</sup>

1. Whether the control of environmental pollution is a public purpose? (Section 11)
2. Whether actions of the proposed REQA violate the internal improvement clause of the Wisconsin Constitution? (Section III)
3. Whether the creation of a REQA violates the home rule provisions of the Wisconsin Constitution? (Section IV)
4. Whether the grant of environmental quality control powers to the proposed authority violates the state's trust responsibility under the Wisconsin Constitution? (Section V)
5. Whether the use of effluent charges by the proposed REQA would be in violation of the Wisconsin Constitution? (Section IV).

Each of these issues will be discussed in turn.

## II. PUBLIC PURPOSE

The public purpose doctrine, succinctly phrased, is: "Public funds may be expended for only public purposes."<sup>3</sup> Although this requirement for legislation is a "well-established constitutional tenant,"<sup>4</sup> its source remains clouded. Warren v. Nusbaum<sup>5</sup> identifies four sources: (1) the due process and equal protection clauses of the state and federal constitutions, which allegedly require the proposed state action to be for a public purpose;<sup>6</sup> (2) Section 4, Article IV of the United States Constitution, which guarantees to every state a republican form of government;<sup>7</sup> (3) Section 2, Article VIII, of the Wisconsin Constitution limiting expenditures to those authorized in pursuit of a lawful appropriation;<sup>8</sup> or (4) a judicial articulation that governmental powers may be exercised only if they benefit the entire community.<sup>9</sup> Nusbaum, while embracing the public purpose doctrine, does not point to any theory as determinative. The court holding there indicates that, regardless of the source, the doctrine remains a question to be addressed when considering enabling legislation for a REQA.

Davis notes that a two step test has been utilized to determine the existence of a public purpose.<sup>10</sup>

First, the subject matter or commodity must be one 'of public necessity convenience or welfare'...The second [consideration] is the difficulty which individuals have in providing it for themselves.

A third requirement frequently tied to the public purpose test is that it be direct. In an early case, Attorney General v. Eau Claire,<sup>11</sup> the court outlined this requirement. There the city proposed to construct a dam across the Chippewa River. The court rejected the first two purposes put forward by the municipality--to improve

navigation and to provide a public water supply for the future--as not being the primary purposes of the project. The remaining justification for the proposed dam --the leasing of all impounded waters to private parties--was found by the court to be private in nature.

The question of whether a public purpose exists is in the first instance a legislative question and the court will show great deference to this determination. The Wisconsin courts have said:

...[W]hether the present expenditure serves a public purpose is a practical question addressed to the lawmaking department, and it would require a plain case of departure from every public purpose which could reasonably be conceived to justify the interaction of a court."<sup>12</sup>

"[A] public purpose is a question for the legislature to decide, with respect to which it is vested with a large discretion, which cannot be controlled by the courts unless its action is clearly evasive.... If doubt exists it will be resolved in favor of the validity of the appropriation..."<sup>13</sup>

In State ex. rel. La Follette v. Reuther,<sup>14</sup> the Wisconsin Supreme Court recognized that the control of water pollution is a public purpose:<sup>15</sup>

The abatement of water pollution is essential to the health and welfare of all the people of the state. The primary reason in constructing pollution abatement facilities is to protect the health of all citizens of the state whose need for pure water is essential to life itself. [Emphasis added.]

The legislation being challenged in Reuther stated as its primary objective the protection of public health, satisfying the first and third requirement. The second requirement--the difficulty of private provision--is discussed within the enabling legislation.

The regulation of solid waste materials has also been found to be a public purpose in Wisconsin. In a challenge to the enabling legislation for Wisconsin's Solid Waste Recycling Authority, the court found each of the required steps were met.<sup>16</sup> The enabling legislation there outlined: (1) health and resource conservation needs of and benefits to the public from proposed authority and (2) the failure of private enterprise to satisfy the requirement.

The public purpose nature of recent state air quality statutes has not yet been challenged. Applying by analogy the language of Reuther, however, it is certain that this aspect of the proposed REQA's powers would also be upheld as involving a public purpose. Abatement of air pollution is "essential to the health of all people" and "is essential to life itself."

The use of grants to private polluters and the continued use of private solid waste disposal firms and sites, as well as other payments to private firms, does not jeopardize the public nature of the REQA. Similar uses of private corporations to accomplish public goals have been a frequent occurrence in the past--e.g., tax exemptions,<sup>17</sup> financial grants<sup>18</sup> and use of private corporations for service provision--<sup>19</sup> when the activity remained under the supervision of the government. In

justifying the delegations, the court has emphasized that: (1) the legislature possess broad discretion in choosing means to accomplish stated public purposes and (2) the legislature had satisfied its primary responsibility when it established standards controlling essentially public decisions. In the instant case, the REQA continues to establish and police environmental standards in the region and evaluate the effectiveness of proposed abatement equipment in issuing financial grants. This degree of control is sufficient to satisfy the requirement that the government retain control over essentially governmental decisions.

The broad public health aspect of pollution abatement and wide discretion allowed to the legislature makes it certain that the proposed REQA will satisfy the public purpose requirement. Good drafting practices which: (1) articulate the public needs for and benefits from the proposed authority; (2) indicate the inability of private enterprise to solve the problem; and (3) provide for governmental monitoring of private actions in performance of public purposes, within the enabling legislation, would seem to satisfy all of the requirements of the doctrine.

### III. INTERNAL IMPROVEMENT

Article VIII, Section 10 of the Wisconsin Constitution provides in part:

§10. The state shall never contract any debt for works of internal improvement or be a party in carrying on such works...

This provision has its roots in early distrust of the state's involvement in rail-road and canal construction enterprises. Also involved were fears of embarrassing the state through involvement in grand, but likely ill-fated, projects and a general belief that local municipal governments--whose residents are allegedly the prime beneficiaries of such improvements--are better able to supervise construction and operation of internal improvements.<sup>20</sup>

Definition of internal improvements has been a case-by-case exercise. Flood levees,<sup>21</sup> veteran's housing,<sup>22</sup> (later exempted by a constitutional amendment),<sup>23</sup> forest preserves,<sup>24</sup> (later exempted by constitutional amendment),<sup>25</sup> water power development,<sup>26</sup> airports<sup>27</sup> (later exempted by a constitutional amendment),<sup>28</sup> dams,<sup>29</sup> canals,<sup>30</sup> railroads,<sup>31</sup> toll roads<sup>32</sup> and urban renewal<sup>33</sup> (later limited to its facts)<sup>34</sup> have been designated over time as examples of internal improvements.

Three exceptions from the internal improvement clause--aside from those explicitly provided within the constitution--have been raised: (1) state actions in performance of governmental functions; (2) internal improvements by nonstate governmental units; or (3) state actions falling within the 1969 constitutional amendment.

#### Governmental Functions

A long series of Wisconsin cases have adopted the governmental function exception outlined in an early Minnesota case:<sup>35</sup>

"Works of internal improvement as used in the constitution, means, not merely the construction or improvement of channels of trade and commerce, but any kind of public works, except those used by and for the state in performance of its governmental functions, such as...for the purpose of.. the preservation of the public health... [Emphasis added.]

In State ex. rel. LaFollette v. Reuther,<sup>36</sup> the Wisconsin Supreme Court applied the governmental function exception to water quality improvements. The act being challenged led to the creation of the Department of Resource Development--a predecessor to the present Department of Natural Resources--and directed the department to administer a program of financial grants to aid local communities in constructing a number of water pollution abatement facilities. With respect to the internal improvement clause, the court first repeated the quoted language from the early Minnesota holding. It then took notice that pollution of the state water was, as a matter of common knowledge, "inimical" to the interest of the public. The financial grants were therefore viewed as a performance of a governmental function--the preservation of health--with the construction of abatement facilities only incidental.<sup>37</sup>

Justice Krownhort, in a concurring opinion in State ex. rel. Hamman v. Leviton,<sup>38</sup> suggested a second important governmental function served by water pollution abatement--the state's role as trustee for the public in the protection of navigable waters. In a subsequent trust doctrine case, the majority restated that the public trust represented an important governmental function.<sup>39</sup> The attorney general has also taken up this argument in a 1968 opinion.<sup>40</sup> There, the attorney general was asked whether the state could construct flood control dams. Noting first the public health aspects of the proposed dam, the attorney general added that the state's duty as trustee of navigable waters was a governmental function and actions taken by the state in the performance of that duty were not works of internal improvement.<sup>41</sup>

Capital investments for air pollution abatement<sup>42</sup> and garbage disposal<sup>43</sup> would also seem to fall within governmental function as measures having as their primary purpose the protection of the public's health.

#### Actions by Local Governments

The internal improvement prohibition has long been limited by Wisconsin courts to state government actions alone. Justice Paine wrote:<sup>44</sup>

"...the objective was only to prevent the state as a state from being a party to such works and not to prohibit the works from being carried on."

Clearly, therefore, if the enabling legislation identifies the proposed REQA as a nonstate agency, the internal improvement clause will not be applied.

Many early cases involved nonprofit corporations acting under special charters engaged in the planning, construction and operation of projects designed to accomplish public goals. State buildings,<sup>45</sup> college dormitories,<sup>46</sup> toll roads<sup>47</sup> and public utility development<sup>48</sup> have been engaged in by Wisconsin private corporations. The proposed REQA, however, does not fit within the penumbra of these uses. First, the REQA is likely to be described in the enabling legislation as a body politic and corporate while many of the organizations noted above have been denoted by the court as private corporations. Second, some of these organizations operated without or with limited state financing; the proposed REQA is likely to be the recipient of state grants to assist abatement activities. Third, no powers beyond those typically granted private corporations were given to these organizations. In contrast, the REQA would possess, inter alia, governmental powers including the power to tax and exercise the police power.

The Wisconsin Supreme Court has, however, exempted special public authorities possessing attributes similar to those given the proposed REQA.<sup>49</sup> In Warren v. Nusbaum,<sup>50</sup> for example, the Wisconsin Housing Finance Authority was challenged for, *inter alia*, violating the internal improvement clause. The authority, designated by the legislature as a body politic and corporate, possesses a number of the powers proposed for the REQA; to sue and be sued, conduct investigations of service needs and issue bonds paid for through authority revenues.

In making the determination that the authority was independent, the Wisconsin Supreme Court cited a tort action against the state's Armory Board.<sup>51</sup> The Armory Board, appointed by the governor, was empowered to: (1) hold and convey real estate; (2) hold or dispose of its own resources without expressed authority of the state; and (3) borrow, using rental incomes to repay. The court found these powers sufficient to declare the Armory Board an entity independent from the state. The proposed REQA possesses even more independence than the Armory Board. First, the REQA would possess the power to tax. Second, it would possess police power to issue regulations within its boundaries. Third, the REQA governing body would be elected rather than appointed. These additional attributes reinforce the conclusion that the proposed REQA is independent and therefore not subject to the prohibition of Article VIII, Section 10.<sup>52</sup>

#### The 1969 Constitutional Amendment

At least with respect to water quality expenditures, it is arguable that the 1969 constitutional amendment to Section 7(2), Article VIII, has withdrawn the need to consider the impact of the internal improvement clause. The amendment provides:

...Any provision of this constitution to the contrary notwithstanding:

- a. The state may contract public debt and pledges to the payment thereof its full, faith, credit and taxing policy to acquire, construct, develop, extend, enlarge or improve..waters..for public purposes.

Davis<sup>53</sup> suggests two interpretations which may be given to this amendment. The first construction would view the amendment as repealing the internal improvement clause's application to the state's navigable waters. The second less radical construction requires the provision to be read in harmony with the internal improvement clause:<sup>54</sup>

"[T]he debt limitation amendment gives the state power to contract debts for water-related facilities which it otherwise has constitutional power to engage in."

The legislature's history in passage of the constitutional amendment does not clearly embrace either interpretation. Traditional rules of construction, however, would suggest that the two constitutional provisions be read together and would therefore indicate that the internal improvement clause must still be considered in the drafting of future legislation.<sup>55</sup>

In conclusion, investment in pollution abatement equipment and facilities by the proposed REQA does not appear to be constrained by the internal improvement clause. Under the two exceptions discussed, REQA investments are constitutionally permitted.

#### IV. HOME RULE

The Wisconsin Constitution, Section 3, Article XI provides:

"Cities and villages organized pursuant to state law are hereby empowered to determine their local affairs and government, subject only to this Constitution and to such enactments of the legislature of statewide concern as shall with uniformity affect every city of village." [Emphasis added.]

The home rule amendment was perceived initially by Wisconsin's courts to accomplish two purposes: (1) to make an irrevocable grant of power to the cities and villages and (2) to limit the legislature in the exercise of its general grant of legislative power.<sup>58</sup> On a more practical level, however, the home rule amendment has served two additional functions: (1) it has freed the Wisconsin legislature from the time-consuming fashioning of specific legislative grants of powers to meet the problems of individual communities and (2) it has provided a measure of flexibility to local villages and cities in handling their local affairs.

Almost from the beginning, the courts cut away the local government's exclusive autonomy. In a 1928 case, the court "analyzed the constitutional grant as though it were of statutory origin; and this conservative analysis has been adopted in all subsequent decisions."<sup>59</sup> The consequence of this narrow reading was to increase the legislature's power to legislate in the penumbra between matters of local and state-wide concern. At least one justice of the Wisconsin Supreme Court was led to conclude:<sup>60</sup>

"There is no expressed limitation upon the power of the legislature. Such limitations as may be found therein are limitations upon the exercise of the power granted and not limitations upon the power of the legislature."

In 1928, four years after the enactment of the home rule amendment, Chief Justice Rosenberry provided a clear statement of one limitation of the exclusive autonomy--matters of state-wide concern arising from the home rule provision:<sup>61</sup>

The determination of other courts and a consideration of the fundamental reasons which underlie these determinations require us to hold that the preservation of order, the enforcement of law, the protection of life and property, and the suppression of crime are matters of statewide concern. It is true that municipalities deal with many of these subjects and have done so for many decades. However, their power to deal with these matters is not derived from the home-rule amendment but from the legislature through legislative enactment. These powers so vested by the legislature in the municipalities may be withdrawn, modified, or dealt with as the public interest requires in the opinion of the legislature. [Emphasis added.]

From the outset, the courts recognized that there did not exist a clearly drawn line between matters of local concern in which village or city powers were plenary and matters of state-wide concern. To draw this line, therefore, the court applied the "paramount interest test." Initially suggested in State ex. rel. Ekern v. City of Milwaukee,<sup>62</sup> the doctrine asserted that matters of local concern would involve activities which "more intimately and directly concern...[the] community than the casual visitor or the other parts of the state..."<sup>63</sup>

Questions of water quality have been held to be matters of state-wide concern in several Wisconsin cases. The first basis of these declarations has been the relation of water quality to public health. In State ex. rel. Martin v. City of Juneau,<sup>64</sup> the city apparently raised the home rule amendment as a defense against the state's attempted enforcement of a pollution abatement order. The court, in broad dicta--language not essential for the final determination of the case--replied:<sup>65</sup>

"In no field is the power of the state broader or more general than in the protection and the promotion of the public health...."

The court pointed to the close relationship between water quality and public health. It also noted that the enabling statute, under which the order was issued, explicitly indicated this relationship and the legislature's intent to solve the public health question. Subsequent cases indicate the court's willingness to hold as matters of state-wide concern other water quality activities which have been linked to public health enabling legislation.<sup>66</sup> This trend indicates that REQA water pollution abatement activity, if tied by an explicit recitation in the enabling legislatures to public health, faces little difficulty with the home rule amendment.

Water quality has also been described as a matter of state-wide concern in the state's role as trustee over the state's navigable waters. In the case of Muench v. Public Service Commission,<sup>67</sup> the court held that the state may not delegate matters of state-wide concern. At issue was a statute which permitted the county board, by resolution: (1) to make a determination that any proposed dam in the county would have no significant environmental impact and (2) to foreclose a Public Service Commission determination regarding the same issue. The question of the home rule amendment was not at issue in Muench, but the court's determination that the state's interest in navigation was paramount and could not be delegated has a clear implication. As Davis noted:<sup>68</sup>

"If...the state legislature cannot grant powers to local authorities over matters of state-wide concern, particularly over the waters of the state which are held in trust by the state, how could such local authorities justify a denial of state power over those matters by asserting the home rule amendment?"

A second trust doctrine case, City of Madison v. Tolzman,<sup>69</sup> indicated that regulation of use (licensing) of the state's water was a matter of state-wide concern. The city of Madison had sought to justify municipal boat licensing ordinance under its home rule powers. The ordinance in question, however, was not passed under the statutory provisions for the home rule amendments and the court's opinion on this point may be, in large measure, dicta. The dicta, however, indicates the declining importance of the home rule amendment in foreclosing state action.

Two recent cases have also indicated that solid waste disposal activities represent matters of state-wide concern. In the first, City of West Allis v. Milwaukee County,<sup>70</sup> the court upheld a state statute permitting counties to establish county-wide garbage incineration systems, financed by taxes on all county residents, including those in communities already having operating disposal systems. The court held, inter alia, that solid waste disposal has generally been recognized to be a matter of state-wide concern and the state could therefore legislate in the area.<sup>71</sup>



The second case, Wisconsin Solid Waste Recycling Authority v. Earl,<sup>72</sup> indicates, in similar fashion, that solid waste recycling is a matter of state-wide concern. At issue was the constitutionality of the Wisconsin Solid Waste Recycling Authority, a body politic and corporate established by the legislature to encourage and coordinate one aspect of solid waste disposal--recycling. The court concluded that the act was only one of a series of legislative steps showing solid waste as a matter of state-wide concern which granted: (1) the Department of Natural Resources authority to implement a solid waste management program and (2) the counties powers to establish a solid waste manage-plan.<sup>73</sup> The enabling legislation tied solid waste recycling to a number of other recognized matters of state-wide concern: (1) public health (2) energy and resource conservation; and (3) air and water pollution, a point referred to by the courts.

There has been no litigation concerning the paramount interest of the state in air quality under recently enacted state air quality legislation.<sup>74</sup> These statutes are likely to be upheld as matters of state-wide concern based on the relationship of air quality to health.<sup>75</sup> The trust doctrine may also encompass questions of air pollution. Traditionally, the trust doctrine's scope has been quite narrow, limited to navigable waters, public lands and wildlife. It has been suggested, however, that the fundamental function of the courts in the public trust area is one of "democratization."<sup>76</sup> That is, in cases in which:<sup>77</sup>

...a diffuse majority is made subject to the will of a concerted minority. For self-interested and powerful minorities often have an undue influence on the public resource decisions of legislative and administrative bodies and cause those bodies to ignore broadly based public interests. Thus, the function which the courts must perform, and have been performing, is to promote equality of political power for a disorganized and diffuse majority by remanding appropriate cases to the legislature after public opinion has been aroused.

As noted earlier, this is the likely outcome for air and water pollution. An expanded definition of the state's role as trustee represents a second basis for the state's paramount interest in air quality.

City of West Allis,<sup>78</sup> discussed earlier, seems to have further eroded the exclusive autonomy found under the home rule amendment. The court found, in dicta, that regardless of whether solid waste disposal was a matter of state-wide concern, the legislature may continue to enact such legislation if it is "uniform." The impact of this holding on any enabling legislation for the proposed REQA is apparent; enabling legislation, if written so as to permit the establishment of a REQA anywhere within the state, may be permitted under the home rule amendment.

The maintenance and improvement of air quality, water quality and solid waste disposal practices fall within the state's "paramount interest" exception to city and village authority under the home rule amendment. The exception may be underlined by careful drafting in the enabling legislation. Inclusion within the enabling legislation of the public purpose and recognized benefits to the public trust, health and welfare will clearly point out the legislature's intent to solve problems of state-wide concern.

#### V. THE TRUST DOCTRINE

Article IX, Section I of the Wisconsin Constitution provides in part:

"...[T]he navigable waters leading into the Mississippi and St. Lawrence, and the carrying places between the same, shall be common highways and forever free...without any tax, impost or duty therefore."

The historical basis of the Wisconsin trust doctrine has been on different occasions ascribed to English common law, the Northwest Ordinance, the constitutional provision noted above or other sources.<sup>79</sup> The historical origin of the doctrine is particularly important in the context of our discussion. If the basis of the doctrine is common law, it would seem that the state legislature possesses great flexibility in modifying or abolishing the state's trust responsibility. On the other hand, if the Northwest Ordinance is the source, "public rights may become federal rights,"<sup>80</sup> and not even a constitutional change may be used to modify the state's responsibility. Ellis et al. have noted that many courts have held that the Northwest Ordinance applied only to territories, "...ceasing to be effective when a region attained statehood."<sup>81</sup> The constitutional provision noted above represents a main basis for the trust doctrine and is the one to be assumed here.

Muench<sup>82</sup> illustrates the potential obstacle to the REQA enabling legislation under the trust doctrine. In Muench, the county board was given the exclusive right to determine whether any proposed dam would have serious environmental impacts. The court there utilized the trust doctrine to void this exclusive delegation.

Muench has been limited to its facts by at least one case:<sup>83</sup>

"...We would hold Muench to its facts, a situation where the authority delegated was that of vetoing state action--we see a distinction between assigning a right to block advancement of paramount interest and the delegation of a limited authority or responsibility to further proper public interests."

In Menzer,<sup>84</sup> a local ordinance prohibiting the use of power boats on Elkhart Lake on Sundays during the summer was enacted. The court suggested that such an ordinance would be upheld if a proposed statute: (1) was in the public interest; (2) "clearly and unmistakably" delegated by the legislature to the local government the power to regulate the challenged activity; and (3) provided a standard giving "adequate protection to the public."<sup>85</sup> Menzer met each criteria. First, the ordinance was found to serve a public purpose--the promotion of public safety. The court also found statutory language under the state's boating regulation which delegated such authority to the town and provided a sufficient standard: "[T]he phrase 'in the interest of public health or safety' does establish a limit and guideline."<sup>86</sup>

With respect to the proposed REQA, the two cases are enlightening. First, it is clear that the state may not delegate to the authority complete autonomy over water quality within its jurisdiction. This would be the case prohibited by Muench. Second, the enabling legislation must provide a clear guideline to insure protection of the public interest. This does not mean, however, that the guidelines must be rigidly defined standards rather than general rules. General provisions, such as protection of the public health, may be sufficient when they are coupled with review by a state agency.<sup>87</sup>

## VI. EFFLUENT CHARGES

In this section we review Lyman's conclusions concerning the restraint of law upon the imposition of effluent charges.<sup>88</sup> Our perspective here is limited to potential restraints imposed by Wisconsin's constitution. Specifically, we review Lyman's conclusions at the state level: (1) whether empowering an administrative agency to set and police effluent charges represents an unconstitutional delegation of judicial or legislative powers; (2) whether an effluent charge violates the Wisconsin Constitution Section I, Article VIII requiring uniform taxation; (3) whether municipalities

may object to effluent charges; and (4) whether effluent charges violate the state's role as public trustee over navigable waters.

Lyman concluded that the delegation of powers to set and police effluent charges is constitutional. With respect to the delegation of legislative powers, Lyman noted that the provision of statutory guidelines within the enabling legislation is sufficient to avoid the constitutional question.<sup>89</sup> Quasi-judicial powers delegated to administrative agencies in making findings of fact related to their duties have also been upheld.<sup>90</sup> Lyman has suggested that similar findings related to effluent charge would also be permitted. Davis<sup>91</sup> noted, however, that such findings must be subject to judicial appeal.

The Wisconsin Constitution, Section I, Article VIII provides in part "The rule of taxation shall be uniform...." "Lyman assumed effluent charges would be nonuniform in application and would be levied differently upon different classifications of waste discharges or dischargers."<sup>92</sup>

Lyman first discussed whether an effluent charge would be characterized as a tax by the courts:<sup>93</sup>

A tax is defined as "an enforced contribution levied upon the people by the state for the support of the government and all public needs."<sup>94</sup> But not all extractions by the state are taxes, some are regulatory fees which are levied in the exercise of the police power and not for the purpose of revenue.<sup>95</sup> To be a valid regulatory fee, the amount of the fee must bear some reasonable relationship to the costs of regulation, inspection, or police control required under the regulatory measure; if the amount materially exceeds those costs, it is held to be either a tax or an illegal exercise of the police power.<sup>96</sup>

Effluent charges, by definition, are not levied for the "purpose of revenue." The charges, however, do not necessarily exhibit a 1:1 correlation to the cost of enforcement.

Lyman notes that the general rule may permit this deviation. First, effluent charges may take into account the external ("incidental") effects to the public.<sup>97</sup> Effluent charges which include external effects may also be considered a "restraint on undesirable activity and...[therefore] part of the method adopted to regulate the activity...."<sup>98</sup> Similarly, Lyman argues that the closer effluent charges approach user fees, the less likely its deviation from the costs of enforcement will be challenged.

Lyman does not discuss whether the deviation from enforcement costs may be represented as a trust fund, designed to compensate injured parties for future damages arising from permitted pollution activity. Such a proposal differs from the traditional concept of an effluent charge which implies no transfer to injured parties. The trust fund concept, however, accomplishes two public purposes: (1) it protects existing riparian rights to clean water, avoiding one possible constitutional challenge, and (2) it limits the number of potential charges against polluters. The latter aspect permits the proposed REQA to better predict the influence of the effluent charge on a polluter's activity without a need to account for the stochastic nature of private environmental suits.

Under either theory, effluent charges would not be subject to the uniformity clause if found to be a valid exercise of the police power.

Lyman found that if an effluent charge was held to be a tax, it could reasonably be considered as a tax on the right to use the assimilative capacity of the state's waters.<sup>99</sup> Such a charge approximates a privilege or excise tax imposed on the privilege of engaging in a particular activity within a state.<sup>100</sup> Privilege and excise taxes have traditionally not been required to be uniform under Section I, Article VIII.<sup>101</sup>

Under both propositions, therefore, Lyman has concluded that imposition of an effluent charge would not violate the uniformity clause.

Lyman rejected a contention that municipalities had any right to object to the imposition of an effluent charge upon them. He noted that municipalities are creatures of the state and may be altered or abolished by the state.<sup>102</sup>

As outlined earlier, the state has an affirmative duty to protect the state's navigable waters. Lyman suggests that effluent charges are consistent with the trust responsibility in seeking to regulate and control the utilization of the assimilation capacity of the state's waters. Lyman rejected a counter argument that an effluent charge system would create an irrevocable license to pollute in conflict with the state's trust responsibility. First, with appropriate standards in the enabling legislation, the state would not have abandoned its trust responsibility. Second, the grant of the license, consistent with appropriate limitations in enabling legislation, need not be irreversible. Indeed, courts generally have been unwilling to infer the irrevocable delegation of any of the state's power.<sup>103</sup> Third, even if the license were found irrevocable, the license remains subject to the police power. Davis concluded, with respect to drafting of the enabling legislation:<sup>104</sup>

"The argument that irrevocable licenses would be created is ill-founded and unconvincing. But, Lyman suggested, it would be wise to include in effluent charge legislation a statement that all licenses would be subject to regulation, control, change, or revocation."

## VII. CONCLUSION

This analysis indicates that the proposed organizational structure and powers of a Regional Environmental Quality Authority briefly outlined in Section I are not severely limited by the Wisconsin Constitution. The sole limit arises from the state's responsibility as trustee over navigable waters. This limit prevents the legislature from granting exclusive control over water quality questions to the authority, but does permit the legislature to delegate sizable discretion to it once a standard of performance has been established. This limitation is consistent with the limitation with respect to federal statutes discussed in an earlier chapter. As noted there, state, local or regional governments must seek approval from the administrator of EPA before changing air or water quality improvement plans. In this chapter, an additional requirement--this time for state approval--has been discussed.

FOOTNOTES AND REFERENCES: CHAPTER 8

1 The list of powers outlined in this chapter closely parallels a similar set prepared by Peter Davis in a study entitled, "Constitutional Limitations on the Construction and Operation of Pollution Abatement Facilities by the State of Wisconsin" in "Institutional Design for Water Quality Management: A Case Study of the Wisconsin River," Vol. VII, Section I, Five Legal Studies on Water Quality Management in Wisconsin, Technical Research Project Completion Report. Title TT-C-1228 (1970). Mr. Davis's study centered primarily upon a state agency's provision of services--e.g., sewerage services--which might affect water quality. This chapter presents a broader perspective. It investigates constitutional limitations upon the grant of a number of powers, including the police power, to a regional agency solely concerned with environmental quality. The discussion of constitutional limitations in this chapter has been greatly aided by Mr. Davis's analysis.

2 Ibid. (1970). A series of additional constitutional questions will not be considered in this chapter (e.g.):

1. Whether the grant to the REQA of powers to make loans and issue bonds represents a loan of the state's credit in violation of Wisconsin's constitution.
2. Whether the grant to the REQA of power to make loans and issue bonds permits the REQA to establish a state debt, in violation of Wisconsin's constitution.
3. Whether enabling legislation for the REQA represents special legislation in violation of Wisconsin's constitution.

Although a thorough analysis cannot be undertaken, a brief examination suggests that, assuming appropriate drafting, these issues will not represent major limitations to the proposed REQA enabling legislation under examination. See, e.g., State ex. re. LaFollette v. Reuther, 33 Wis.2d 384, 147 N.W.2d 304 (1967).

3 59 Wis.2d 391, 208 N.W.2d 780, at 795(1973).

4 Hammermill Paper Co. v. LaPlante, 58 Wis. 2d 1, 47-48, 205 N.W.2d 784(1973).

5 Ibid., (1973).

6 Ibid, (1973), citing State ex. rel. Wisconsin Development Authority v. Damman, 228 Wis. 147, 277 N.W. 278, 280 N.W. 698 (1938); Broadhead v. Milwaukee, 19 Wis. 624 (1865).

7 Ibid., (1973), citing Hermerl v. Ozaukee County, 25 Wis. 154, 40 N.W. 2d 564 (1947).

8 Ibid., (1973), citing State ex. rel. LaFollette v. Reuther, 33 Wis. 2d 384, 147 N.W.2d 304 (1967).

9 Mills, "The Public Purpose Doctrine in Wisconsin," 1955, Wisconsin Law Review 40.

Footnotes and References: Chapter 8 (cont.)

- 10 Davis, supra note 1, at 102 (1970), quoting State ex. rel. Wisconsin Development Authority v. Damman, 228 Wis. 147, 182, 277 N.W. 278, 280 N.W. 698, 709 (1938).
- 11 37 Wis. 400 (1875).
- 12 State ex. rel. Thomson v. Giessel, 265 Wis. 207, 215-216, 60 N.W.2d at 57 (1953) quoting Carmichael v. Southern Coal & Coke Co., 301 U.S. 495, 57 S.Ct. 868 (1953). Both cases are also quoted in State ex. rel. LaFollette v. Reuther, 77 Wis. 2d 505, 521, 135 N.W.2d 269; State ex. rel. Warren, v. Nusbaum, 59 Wis.2d 391, 268 N.W.2d 80, 95 (1973).
- 13 81 C.J.S, States, §133, p. 1149, quoted in State ex. rel. Thomson v. Giessel, supra note 12 at 215, 60 N.W.2d at 767(1953).
- 14 33 Wis2d 384, 147 N.W.2d 304 (1967).
- 15 Ibid., at 397, 147 N.W.2d at 311 (1967).
- 16 Wisconsin Solid Waste Recycling Authority v. Earl, 70 Wis. 474 (1975).
- 17 Hammermill Paper Co. v. LaPlante, supra note 4.
- 18 State ex. rel. LaFollette v. Reuther, supra note 14 (1967).
- 19 Wisconsin Solid Waste Recycling Authority v. Earl, supra note 16 (1975).
- 20 Clark v. City of Janesville, 10 Wis. \*119, \*133 (1860); Buschel v. Beloit, 10 Wis. \*155 (1860); State ex. rel. Martin v. Giessel, 252 Wis. 363, 31 N.W. 2d 626 (1948).
- 21 State ex. rel. Jones v. Froehlich, 115 Wis. 32, 58, 91 N.W. 115 (1902) (safety considerations raised by the state were found to be only incidental by the court). Contra, 36 Op. Wis. Attorney General, 420 (1943).
- 22 State ex. rel. Martin v. Giessel, 252 Wis. 363, 31 N.W.2d 626 (1948).
- 23 1948 J.R.1; 1949 J.R. 1; voted 1949.
- 24 State ex. rel. Owen v. Donald, 160 Wis. 21, 151 N.W.331 (1915).
- 25 1921 J.R. 295; 192357; voted 1924.
- 26 State ex. rel. Owen v. Donald, supra note 24 (1915).
- 27 38 Op. Wis. Attorney General 233 (1949).
- 28 1943, J.R. 27; 1945 J.R. 3: voted 1945.
- 29 State ex. rel. Hamman v. Levitan, 200 Wis. 271, 228 N.W. 140 (dicta)(1929); Hasbruck v. City of Milwaukee, 13 Wis. 42, 49 (dicta)(1860)
- 30 Hasbruck v. City of Milwaukee, supra note 29 (1860).

Footnotes and References: Chapter 8 (cont.)

- 31 Clark v. City of Janesville, supra note 20 (1860); Buschel v. Beloit, supra note 20 (1860).
- 32 State ex. rel. Jones v. Froelich, supra note 21 (1902), State ex. rel. Thomson v. Giessel, supra note 12 (1955).
- 33 State ex. rel. Martin v. Giessel, supra note 22 (1946).
- 34 See State ex. rel. Warren v. Nusbaum, supra note 12 (1973). There the court distinguished State ex. rel. Martin v. Giessel, supra note 22 (1946) as a prohibition of a direct grant to actually construct housing. In Nusbaum, the court found that the underwriting of initial operating costs of the authority and the pledge of state cooperation was not a direct grant, but "constituted only the encouragement of such activity by others." [Emphasis added.] 59 Wis. 2d at 437 (1973). See also Redevelopment Authority v. Canepa, 7 Wis2d 643, 97 N.W. 2d 695 (1959).
- 35 Rippe v. Becker, 56 Minn. 100, 117, 57 N.W. 331, 335 (1894), quoted in State ex. rel. Jones v. Froehlich, supra note 21 at 38, 91 N.W. at 117 (1902); State ex. rel. LaFollette v. Reuther, supra note 8 at 401, 147 N.W. 2d at 314 (1966); State ex. rel. Owen v. Donald, supra note 24 at 79, 151 N.W. at 349 (1915). See also State ex. rel. Warren v. Nusbaum, supra note 12 at 437, 208 N.W.2d at 807 (1973).
- 36 Supra note 8 (1966).
- 37 Ibid. at 403, 147 N.W.2d 315 (1966). David, supra note 1 at 108-109 (1970) has argued that the holding in Reuther is in clear conflict with an earlier case, State ex. rel. Martin v. Giessel, 252 Wis. 363, 31 N.W. 2d 626 (1946). In Martin, the Wisconsin Supreme Court held a scheme, involving a 10% contribution to the cost of construction of veteran's housing, unconstitutional as a violation of the internal improvement clause. Although Martin was raised in the briefs, the court in Reuther did not clearly address it. Martin, however, may be distinguished. First the public purpose in Martin was not clearly articulated. The court in Martin, describing the challenged Wisconsin Housing Authority said: "[T]here is a valid distinction between providing structures necessary for the discharge of the state's function and providing structures [to] private individuals." The court in Martin, therefore clearly recognized the distinction in Reuther between the public purpose and the resulting incidental internal improvement, but did not find a valid public purpose was involved in the creation of the authority. In contrast, the court in Reuther found a vital public purpose, the protection of public health. Second, it is important to realize that the concepts of internal improvement and governmental functions are not static. The court in Reuther noted that the clause should be construed in the light of existing conditions. Thus, while veteran housing may not have been considered a vital governmental function in 1948, it may well be considered so in 1976 (See State ex. rel. Warren v. Nusbaum, supra note 12, 208 N.W.2d at 806 (1973)). Third, it is important to put Martin in a broader context. Martin was litigated on the single internal improvement issue. A close examination of the enabling legislation reveals, however, a number of difficulties in regard to unlitigated questions (e.g., whether the enabling legislation represented an improper delegation of the state's taxing powers) which may have exercised a subtle influence on the court.

Footnotes and References: Chapter 8 (cont.)

- 38 200 Wis. 271 at 283, 228 N.W. 140 (1929),
- 39 Muench v. Public Service Commission, 261 Wis. 492, 53 N.W. 2d 514, rehearing 55 N.W.2d 40 (1952).
- 40 Op. Wis. Attorney General 227 (1968).
- 41 Ibid. (1968).
- 42 Air pollution investment may also be justified as performance of the state's role as trustee of the state's air.
- 43 See for example, Wisconsin Solid Waste Recycling Authority v. Earl, supra note 16 (1975).
- 44 Clark v. City of Janesville, 10 Wis. \*119 (1859). See also Buschnell v. Beloit 10 Wis. \*195(1860).
- 45 State ex. rel. Martin v. Giessel, 252 Wis. 363, 31 N.W.2d 626 at 631 (dicta) (1948).
- 46 State ex. rel. Thomson v. Giessel, 271 Wis. 15, 72 N.W.2d 577 (1955).
- 47 State ex. rel. Thomson v. Giessel, 265 Wis. 183, 60 N.W.2d 57 (1953).
- 48 State ex. rel. Wis. Development Authority v. Dammann, 228 Wis. 147, on rehearing 228 Wis. 170 (1938).
- 49 Davis, supra note 1, at 141 (1970) notes, for example, that Wisconsin has grouped special districts with other units of government "[C]ounties and towns, school districts, metropolitan sewerage districts and drainage districts...[have been labeled together as] quasi-municipal corporations." He suggests that this grouping may be used to extend the exemption for towns and counties to special districts.
- 50 59 Wis. 2d 391, 268 N.W.2d 780 (1973).
- 51 Majerus v. Milwaukee County, 39 Wis 2d 311, 159 N.W.2d 311 (1968).
- 52 Dicta in Sullivan v. Board of Regents, 244 N.W. 563 (1932) also suggests that a similar set of powers was sufficient to substantiate a claim that a school district was an independent entity from the state.
- 53 Supra note 1 (1970).
- 54 Ibid. at 124 (1970).
- 55 Davis summarizes constitutional doctrine on this point: [N]o one [provision of the constitution] should be enforced so as to nullify or substantially impair other provisions unless that cannot be avoided; and that implied repeals are not favored." Ibid., at 124 (1970), citing 16 Am. Jur. 2d, Constitutional Law §66-69 (1964).



Footnotes and References: Chapter 8 (cont.)

- 56 Wis. Stat. §66.01 (1973).
- 57 1926 Wisconsin Law Review 423.
- 58 See, State ex. rel. Ekern v. City of Milwaukee, 190 Wis. 633 at 637-638, 209 N.W. 860, at 861 (1926).
- 59 1955 Wisconsin Law Review 145 at 148. Much of the material in this section comes from this note.
- 60 State ex. rel. Slecman v. Baxter, 195 Wis. 437 at 445, 219 N.W. 858 at 861 (1928).
- 61 VanGilder v. Madison, 222 Wis. 58 at 76, 267 N.W. 25, at 32 (1936).
- 62 Supra note 58 (1926).
- 63 Ibid. at 641, 209 N.W. at 862 (1926).
- 64 238 Wis. 564, 300 N.W. 187 (1941).
- 65 Ibid. at 569, 300 N.W. at 190 (1941). Davis, supra note 1 at 129 (1970) points out that the main question here was whether the city had provided a defense cognizable at law. Neither party argued the home rule point in their briefs. The court's statement on this point was therefore gratuitously offered.
- 66 See, e.g., State ex. rel. LaFollette v. Reuther, supra note 9 (1967).
- 67 Supra note 39 (1952).
- 68 Supra note 1 at 131 (1970).
- 69 7 Wis.2d 570. 97 N.W.2d 513 (1959).
- 70 39 Wis.2d 356, 159 N.W.2d 36 (1967).
- 71 Ibid., 159 N.W.2d at 41 (1967), citing 2 McQuillan Municipal Corporations, §4.95 at 175 (revised ed. 1966).
- 72 70 Wis. 2d 464 (1975).
- 73 Ibid. (1975).
- 74 Wis. Stat. §144.30 et. seq. (1973).
- 75 For example, health aspects have been emphasized in cases involving public nuisance arising from air pollution. See Middlestadt v. Waupaca Starch Potato Co., 93 Wis. 1, 5 66 N.W. 713, 714 (1896)
- 76 Joseph L. Sax, "The Public Trust Doctrine in Natural Resources Law: Effective Judicial Intervention," 69 Michigan Law Review 475, 559 (1970).
- 77 Ibid. at 560 (1970).

Footnotes and References: Chapter 8 (cont.)

78 39 Wis.2d 356, 366 (1967):

The legislature can thus make effective a law touching on a matter of state-wide concern in one city and not in another, provided that the classification is proper. The home rule amendment does not limit the right of the legislature to deal with matters of state-wide concern, even if, in so dealing, some cities and not others are affected. If, however, the matter enacted by the legislature is primarily of local concern, a municipality can escape the structures of the legislative enactment unless the enactment applies with uniformity to every city and village.

See also Thompson v. Kenosha County, 64 Wis.2d 673, 686, 221 N.W.2d 543 (1974).

79 See, e.g., State v. Nusbaum, supra note 12 at 413 Fn. 8 (1973), Ellis, Beuscher, Howard and DeBraal, Water-Use Law and Administration in Wisconsin, §9.03(a), at 140-141 (1970).

80 Ibid., §9.03 (a) at 141 (1970).

81 Ibid., §9.03 (b) at 142 (1970).

82 261 Wis. 492, 53 N.W. 2d 514, rehearing 55 N.W.2d 40 (1952).

83 Menzer v. Village of Elkhart Lake, 51 Wis. 70, 186 N.W.2d 290. 294-295(1971).

84 Ibid. (1971).

85 Ibid., 186 N.W.2d at 297 (1971).

86 Ibid. (1971). The court noted that a similar guideline was upheld as a sufficient basis to permit a boundaries municipality to require the use of lifejackets upon waters within the municipal boundaries. City of Madison v. Tolzman, supra note 69 at 575, 97 N.W.2d at 516 (1959). A slightly more complete set of guidelines was found sufficient to permit the state to delegate responsibility to towns to establish bulkhead lines. The line had to satisfy two statutory requirements: (1) that the bulkhead line was established in the public interest and (2) that it conformed as nearly as practicable to the existing shore. The latter requirement may not be viewed as greatly restricting the municipalities. In Ashwaubenon, for example, the court approved a line placing 137 acres in area between it and the shoreline. In Ashwaubenon, the state, through the Public Service Commission, maintained a responsibility to review the town's decision, thereby avoiding the problem raised by Muench. Town of Ashwaubenon v. Public Service Commission, 22 Wis. 2d 38, 125 N.W. 647 (1963).

87 Town of Ashwaubenon v. Public Service Commission, supra note 86 (1963).

88 S.R. Lyman, the Constitutionality of Effluent Charges, Water Resources Center Technical Report No. OWRR-A-022-Wis., University of Wisconsin, May (1969)

89 Ibid., at 61-68 (1969).

90 Ibid., at 68-71 (1969).

Footnotes and References: Chapter 8 (cont.)

- 91 *Supra* note 1 at 167 (1970).
- 92 *Ibid.* (1970).
- 93 *Ibid.*, at 167-168(1970).
- 94 Lyman, *supra* note 88, at 76 (1969).
- 95 *Ibid.*, at 76-77 (1969).
- 96 *Ibid.*, at 78-79 (1969).
- 97 *Ibid.*, at 79-81 (1969); citing, *inter alia*, a recent Wisconsin case permitting imposition of a \$200 fee/lot or grant of land of equal value upon developers. The resulting fees were used to pay for the costs of additional services to the subdivision (e.g., schools and park facilities.) Jordan v. Menomonie Falls, 28 Wis.2d 608; 137 N.W.2d 442 (1966). The court in Jordan quoted an Illinois case-- Pioneer Trust and Savings Bank v. Mt. Prospect, 22 Ill.2d 375 at 380, 176 N.E. 2d 799 (1961)--for the test of the constitutionality of conditions precedent in the approval of subdivision plots:  
"If the requirement is within the statutory grant of power to the municipality and if the burden cost upon the subdivider is specifically and uniquely attributable to his activity, then the requirement is permissible...."  
*Ibid.*, at 617 (1966). The court noted that the phrase "specifically and uniquely attributable" ought not be too narrowly read to impose an impossible burden of proof upon the municipality. The court suggested that if in the absence of contravening evidence, the municipality "establish[es] that a group of subdivisions approved over a period of years had been responsible for the bringing into the community a considerable number of people "making the facilities necessary, the test has been met. *Ibid.*, at 617-618 (1966).
- 98 Davis, *supra* note 1, at 168 (1970).
- 99 Lyman, *supra* note 88, at 93-94 (1969).
- 100 *Ibid.*, 91-93 (1969).
- 101 *Ibid.*, 97-99 (1969).
- 102 *Ibid.*, 136-139 (1969).
- 103 See, e.g., note 55.
- 104 Davis, *supra* note 1, at 178 (1970).

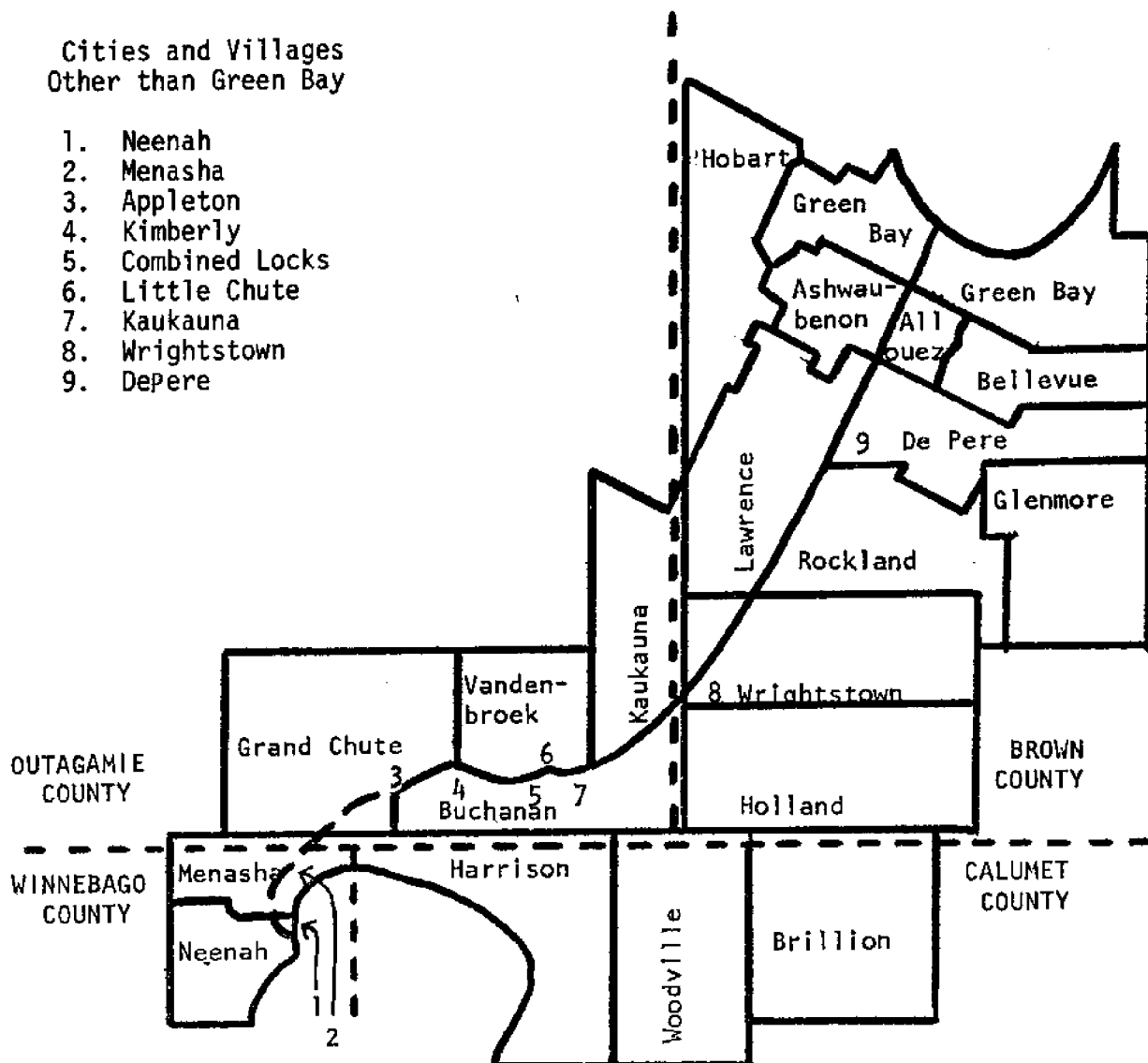
## CHAPTER 9

### SOCIAL CHARACTERISTICS OF THE LOWER FOX VALLEY

#### I. POPULATION

Parts of four Wisconsin counties--Brown, Calumet, Outagamie and Winnebago--are included in the Lower Fox Basin. Within these counties, 20 townships have portions of their jurisdictions within the basin, along with four villages and six cities.

Map 9.1 Political jurisdictions in the Lower Fox Valley



The population of the valley is concentrated predominantly in two relatively discrete areas. The first of these, at the upstream end of the river, consists of the cities of Neenah, Menasha, Appleton and Kaukauna and the villages of Kimberly, Combined Locks and Little Chute. Forming a nearly continuous stretch of urban and industrial development along the upper one-third of the river, these municipalities had a combined 1975 population of approximately 126,000. Although a small portion of Appleton is located in Calumet County, the great majority of the area and population of these communities is located in Outagamie and Winnebago Counties. Over the next 25 years, the annual population growth rate for Outagamie County is expected to be between 1.0 and 1.6 percent, while for Winnebago County it is expected to be between 1.5 and 1.7 percent [ECWRPC, Population Study, 1973]. The former rate in each case assumes a replacement level fertility rate while the latter (higher) rate assumes the 1970 fertility rate. The East Central Wisconsin Regional Planning Commission report further qualifies these projections by stating:

If the recent declining fertility rate trend continues, the replacement level fertility rate will actually be reached before 1975. Therefore, the possibility exists that even the low projection figure may be high if present trends continue. (p. 11)

For the foreseeable future, according to the projections given in this same report, urbanized counties will grow in population at a much greater rate than nonurbanized counties. Extending this principle would suggest that the heavily urbanized areas along the Lower Fox will grow at a significantly greater rate than the figures for the counties as a whole would indicate. This is supported by recent experience; those cities and villages in Outagamie County which lie within the Lower Fox Basin grew during 1974 at an average rate of 1.75 percent while the county as a whole grew at 1.36 percent. Corresponding figures for Winnebago County are 1.78 percent for communities in the basin vs. 0.22 percent for the entire country.

The second major population center, located at the entrance of the Lower Fox into Green Bay, consists of the cities of DePere and Green Bay. This metropolitan area had a combined 1975 population of 105,535 and an annual population growth rate of 1.65 percent during 1974.

Only one area with a significant population concentration is not included in the two agglomerations just mentioned; the village of Wrightstown is located along the river and between the two larger metropolitan areas. It had a 1975 population of 1,088 and grew 0.93 percent during 1974 [Wisconsin Department of Administration, Final 1975 Population Estimates..., 1975]

## II. ECONOMIC CHARACTERISTICS OF THE VALLEY

Interpretation of the information used to construct this section of the report is particularly difficult because much of the desired data is readily available only by county. This could be particularly significant in the case of Winnebago County, where the city of Oshkosh is of major importance to the economy of the county but is not located within the Lower Fox Basin. The approach followed here is to exclude Oshkosh when data is available by city, but to make no attempt to modify county data to exclude Oshkosh when only county data is available. This is not likely to do serious injury to what is intended to be a general picture of the region. And since environmental quality is the primary focus of this report, the position of Oshkosh outside the boundaries of the basin should not disguise the

impact which it certainly has on the water of Lake Winnebago and on the air quality in the area of the Lower Fox.

Table 9.1 presents employment information by county. These particular characteristics have been chosen so as to reflect the qualitative nature of the economy around the Lower Fox rather than, for instance, specific employment levels. This is done in an effort to reduce the deceptive effect of including in the table industrialized sections of the counties which do not fall within the basin, but which are similar in type of industry to those areas which do.

Table 9.1 Employment in the Lower Fox Valley

Industry	Percent of County Work Force				Percent of Region Work Force	Percent of State Work Force
	Brown	Calumet	Outagamie	Winnebago		
Agric., For. & Fishing	0.2	0.1	0.2	0.4	0.3	0.3
Mining	0.1	0.1	0.4	0.4	0.2	0.2
Construction	5.1	2.4	6.7	3.3	4.8	4.3
Manufacturing	31.6	66.1	36.8	45.4	39.0	33.5
Ord. & accessories	0.0	0.1	0.0	0.0	0.0	0.2
Food & kind. prods.	8.4	5.6	6.0	1.2	5.5	3.9
Tex. mill prods.	0.0	0.0	2.4	0.2	0.7	0.4
Appar. & other tex. prod.	0.1	0.0	X	0.8	0.3	0.4
Lbr. & wood products	0.4	0.0	0.4	2.6	1.0	1.1
Furn. & fixtures	0.6	0.6	0.7	1.2	0.8	0.6
Paper & allied prods.	11.8	0.0	13.4	17.5	13.3	27.0
Prtg. & publish	2.4	0.5	1.1	4.4	2.5	1.7
Chem. & allied prods.	0.1	0.0	X	0.1	0.1	0.6
Leath. & leath. prods.	0.8	1.4	0.0	0.1	0.4	0.7
Stone, clay, & glass prods.	0.5	0.3	0.3	0.3	0.4	0.6
Prim. metal indus.	0.5	10.4	1.3	4.4	2.4	2.0
Feb. metal prods.	1.0	6.9	0.3	1.2	1.2	3.0
Mach. (exc. elec.)	4.5	39.1	4.6	4.3	6.4	7.3
Elec. equip. & supp.	X	0.0	3.5	1.4	1.4	3.4
Trans. Equip.	0.2	1.2	0.5	4.1	1.5	2.8
Instr. & related prod.	X	0.0	0.2	0.1	0.1	0.6
All other mgf. indus.	0.2	0.1	2.1	1.4	1.0	1.6
Transp. comm. & util.	6.9	2.5	5.3	3.2	5.1	4.5
Wholesale trade	5.4	1.3	4.6	2.7	4.2	4.5
Retail trade	20.6	11.6	19.1	18.5	19.1	18.5
Finance, insurance & real estate	3.0	1.3	4.9	3.5	3.6	4.4
Services	16.4	7.0	13.9	14.0	14.5	15.0
All government	10.8	7.7	8.2	8.6	9.3	14.8
Unclassified	0.0	X	X	0.1	X	X

X Denotes less than 0.05 percent

The most striking aspect of the employment figures given in Table 9.1 is the percentage of the region's work force employed in the "Paper and Allied Products" industry -- 13.3 percent, as compared with a state figure of 2.7 percent. The primary products of this industry in the Lower Fox are tissues and paper towels, bond and specialty papers, books and publications, dense papers, cardboard and pulp. The outlook for the paper and allied products industry in this locality is good as changes in technology and reforestation in Wisconsin continue to improve local raw material supply conditions. An increasing tendency to locate production facilities nearer to market centers may, however, limit future expansion of the industry in the Lower Fox Valley [Dept. Resource Development, 1964].

"Food and kindred products" is a second industry in which the percentage employed in the Lower Fox Valley exceeds the state-wide percentage. Production is concentrated in dairy products manufacturing, baking, canning, frozen food processing and meat processing. As is true with the paper industry, food processing is centered primarily in the urban areas of the basin.

The importance of these two industries to the Lower Fox Basin is reflected not only in the employment attributable to their operations, however. Both also share another necessary input -- water. It is an input not incorporated into the final product, but rather used and discarded. Of 28 industrial effluent sources recorded in 1972, 23 were associated with paper or food processing industries. The significance of these industries to water and air quality in the Lower Fox Basin will be discussed in greater detail later in this chapter.

The port of Green Bay is another economically important asset related directly to the water resources of the valley. The port has 21 active moorings, with 19 used for cargo handling. Their primary roles are listed in Table 9.2 below:

Table 9.2 Mooring Types in the Port of Green Bay

<u>Category</u>	<u>Number</u>
Bulk miscellaneous cargo	2
Cement	1
Coal	3
General cargo	2
Limestone	3
Petroleum products	4
Salt	2
Liquid tallow	1
Woodpulp	1

Source: U.S. Army Corps of Engineers, Ports on Lake Michigan, Port Series No. 48, Part 2, U.S. Government Printing Office, Washington, D.C., 1975.

In addition to general cargo storage facilities, there is storage at or near the port for approximately 2.5 million barrels of oil. Table 10.3 details shipments from the port in 1974.

Since the nearest competing ports are Milwaukee and Chicago, the expected growth in both population and industry in the Lower Fox Valley should favorably influence the growth of the port, with the presence of the port likewise aiding local industrial growth. With respect to other forms of transportation, however,

Table 9.3 Freight Traffic Entering and Leaving the Port of Green Bay, 1974, Short Tons

COMMODITY	TOTAL	FOREIGN			DOMESTIC		
		OVERSEAS		CANADIAN	LAKEWISE		LOCAL
		IMPORTS	EXPORTS	IMPORTS	RECEIPTS	SHIPMENTS	
Total	2,531,487	29,824	57,850	81,242	2,342,593	18,815	1,163
0107 Wheat	11,970	8				11,970	
0861 Forest Products, NEC	1,163				1,605,840		1,163
0911 Fresh Fish, Except Shellfish	1,605,840				163,450		
1121 Coal and Lignite	163,450				17,736		
1411 Limestone	17,736				47,836		
1442 Sand, Gravel, Crushed Rock	90,706			42,870			
1499 Non-Metallic Minerals, NEC	103						
2011 Meat, Fresh, Chilled, Frozen	31,519						
2014 Tallow, Animal Fats and Oils	3,594						
2015 Animal By-Products, NEC	11,703						
2041 Wheat Flour and Semolina	10,864		10,864				
2049 Grain Mill Products, NEC	2		2				
2311 Apparel	20,241						
2431 Veneer, Plywood, Worked Wood	38,372			38,372			
2611 Pulp	3,210						
2819 Basic Chemicals and Prod., NEC	4		4				
2831 Drugs	16,186				14,267	1,919	
2911 Gasoline	88,658				86,569	2,089	
2914 Distillate Fuel Oil	27,032				24,467	2,565	
2915 Residual Fuel Oil	83,368				83,368		
2918 Asphalt, Tar, and Pitches	11,227				11,227		
2920 Coke, Petroleum Coke	277,559				277,559		
3241 Building Cement	10,204				10,204		
3311 Pig Iron	6,180	6,180					
3313 Coke, Pet Asphalts, Solvents	42	42					
3316 Iron and Steel Plates, Sheets	145	143					
3411 Fabricated Metal Products	20		2				
3511 Machinery, Except Electrical	381		20				
4112 Commodities, NEC			39		70	272	

Source: U.S. Army Corps of Engineers, Waterborne Commerce of the United States, Part 3: Waterways and Harbors, Great Lakes, Annual Report, 1974.



the port is disadvantaged by the seasonal nature of its operation. During the 1960s the port was sufficiently free from ice to be opened for general navigation on dates ranging from March 31 to April 27 and was closed on dates ranging from December 6 to December 30 (U.S. Dept. of Army, Ports on Lake Michigan, 1974)

### III. POLITICAL ENVIRONMENT OF THE LOWER FOX VALLEY

In this section we will discuss the political entities significant for planning in the Lower Fox Valley, particularly planning related to environmental quality. In Chapter 7 we discussed the general powers of these bodies in Wisconsin. Here, greater emphasis will be placed on identifying and describing those governments and commissions with a specific interest in this basin. Details of the work of each as it affects water and air quality and solid waste disposal will be explored in the next chapter.

The first Europeans to explore the Lower Fox Valley were the French.<sup>1</sup> They came seeking a northwest passage across the continent but remained to settle, with trapping for furs the primary activity. The area came under the control of the British in 1763 with the end of the French and Indian Wars. They lost title to the land when the United States gained independence, but did not relinquish actual control until after the War of 1812.

Any discussion of legal title to the Fox Valley area must include reference to Indian rights. The Menominee were the last tribe to dominate eastern Wisconsin. Their control effectively ended in the 1830s with the end of the Black Hawk War and the signing of the Treaty of the Cedars.

The state of Wisconsin was one of five states to be created from the Northwest Territory, entering the Union in 1848. The formation of county governments sometimes preceded statehood; of the counties through which the Lower Fox flows, Brown was the first to be created, in 1818. Calumet County was formed in 1836, followed by Winnebago in 1840 and Outagamie County in 1851.

Municipal incorporations began in the area in 1853 with the creation of Appleton and Menasha as villages. These became cities in the later years, with Kaukauna being the final city to be created thus far in the valley, this in 1885. Village incorporation continued into the twentieth century, with Combined Locks the most recent, in 1920. All six cities in the basin are currently governed by a mayor and city council.

The first interjurisdictional planning efforts to be carried out in the Lower Fox Valley were privately rather than governmentally sponsored.<sup>2</sup> At the end of World War II a joint planning committee for the cities of Neenah and Menasha was established. During its nine year existence it was responsible for, among other things, a school and park development plan, adoption of a street extension plan for the three mile planning perimeter controlled by each city and a new zoning ordinance outlining a program of public works. The work of the planning committee was financed by private donations.

The contiguous nature of these two communities made them particularly suited by a cooperative planning effort of this nature; it was a joint Chamber of Commerce which provided much of the impetus for formation of the joint planning committee. More recent studies have in fact suggested the desirability of merging the two cities.<sup>3</sup>

The joint planning committee dissolved itself in 1954. The objective in this, according to Stoner [1969], was to precipitate the creation of an official planning body for the region. This was accomplished in mid 1956 with the formation of the Fox Valley Planning Commission. Eventually included in the commission were the cities of Appleton, Kaukauna, Neenah and Menasha; the villages of Kimberly, Little Chute and Combined Locks; and the towns of Menasha, Neenah, Grand Chute and Buchanan. Each member was allowed three representatives on the commission: (1) the chief executive of the municipality; (2) a member of the local planning commission or other official appointed by the local governing body; and (3) a local citizen who was not a public official. Commission members other than the chief executives of municipalities served for three year terms.

Officers of the commission and an executive committee were elected by commission members. Rules concerning the holding of meetings and voting procedures were not specified in the agreement creating the commission and so were presumably left to the discretion of the commissioners. It was specified, however, that amendments to the agreement required the consent of the governing bodies of all member municipalities.

The agreement also specified that the commission was to receive 40 percent of its funding from private sources and 60 percent from the member governments, with the contribution of each determined by its share of the region's population. This arrangement was modified in 1960 to both eliminate the provision for partial private funding and to modify the basis for apportioning costs among members. Article V of the agreement among the communities begins:

The parties to this agreement agree to provide their proportionate share of the public funds necessary to meet the requirements of the budget in the amount represented by the percentage that their equalized valuation represents to the total equalized valuation of all members...

Since there is no indication that financing of the commission was ever an area of dispute, the degree to which commission members were bound by this clause was never tested.

The power of the commission was effective only as it was legitimized by the local governments affected. According to Wisconsin law, the cooperating governments could have adopted an agreement binding them to the decisions of the commission.<sup>4</sup> They chose instead to have each municipality act individually on issues faced by the commission, with the latter serving primarily as a coordinator.

A contract signed in 1960 between the commission and the consulting firm of Kenneth L. Schellie and Associates was one of the commission's most significant contributions to planning in the Lower Fox Valley. Reports on eight subjects resulted from the firm's work:

- 1) The History and General Character of the Fox Valley Region,
- 2) Plans of the Sewer, Water and Storm Drainage Systems in the Fox Valley Region,
- 3) The Existing Use of Land and Condition of Structures and Renewal Plan for the Fox Valley Region.

- 4) Proposed Land Use Plan for the Fox Valley Region,
- 5) Model Zoning Ordinance for Municipalities in the Fox Valley Region,
- 6) Model Subdivision Control Ordinance for Municipalities in the Fox Valley Region,
- 7) Traffic and Transportation Plan; the St. Lawrence Seaway in the Fox Valley Region and
- 8) A Public Buildings and Facilities Plan for the Fox Valley Region.

A final report, published in 1962, was entitled A Comprehensive Plan for Wisconsin's Fox Valley Region.

Stoner suggests that it was the cooperation required in the preparation of these reports that planted the concept of interjurisdictional planning firmly in the minds of local leaders. Early in 1963 the commission began the process of following up on the work of the consulting firm. A planning director and small staff were hired to advise member municipalities in their planning efforts. Advisory committees, eventually numbering eight, were formed to investigate the more technical aspects of issues faced by member communities. These function areas were:

- 1) policy,
- 2) constitution and by-laws,
- 3) finance,
- 4) open-space,
- 5) law enforcement
- 6) public works,
- 7) transportation and
- 8) Citizen's Policy Advisory Committee.

Efforts to transform the commission into a stronger body more capable of operationalizing regional plans began in the mid 1960s. This was largely due to the financial incentives offered by the federal government. As discussed earlier, an increasing proportion of the federal aid to local governments was available on the condition that local programs be reviewed for conformance to an area-wide plan. Financial aid was also available for the operation of these grant review agencies, with preference given to those composed primarily of elected local officials. According to Stoner, there was also pressure to create a body more capable of independent action and less constrained by the need for member ratification of each action.

These factors culminated in the reorganization of the commission into a Council of Governments in 1967. While the activities undertaken by the new planning body remained much the same, representation was reorganized so as to emphasize the influence of local elected officials over decisions made; of the three voting representatives from each municipality on the previous commission, only one had been

elected. The second was to have been elected or appointed while the third was a lay member. Voting representation on the Fox Valley Council of Governments was reduced to only the executive head from each municipality plus two voting citizen representatives for the region as a whole. These two were selected by a vote of the council with the requirement that each reside in a different type of political jurisdiction.

The statutory basis for the Fox Valley Council of Governments was specifically stated to be Section 66.30 of the Wisconsin Statutes, which:

... authorizes municipalities to contract for the joint exercise of any power or duty required or authorized by statute and to create a commission to this end; and defines "municipality" to include "the state or any department or agency thereof, or any city, village, town, county, school district or regional planning commission."<sup>5</sup>

Other points of comparison between the agreements creating the two planning bodies are: (1) nonvoting representatives of the state and federal governments could be appointed to the council by their respective executives; (2) both the commission and council provided for the appointment of citizen and technical advisory committees; (3) both bodies provided a procedure for the withdrawal of a municipality; and (4) amendments to the agreement establishing the council could be passed by a two-thirds majority of the votes cast by representatives to the council.

The geographical area covered by the body was also expanded when it became a Council of Governments, with the addition of the city of Oshkosh as a member in January, 1968.

Among the areas studied by the council were:

- 1) the Fox River,
- 2) transportation,
- 3) sanitary sewers,
- 4) water supply,
- 5) storm water collection,
- 6) solid waste disposal,
- 7) open space,
- 8) housing,
- 9) health planning,
- 10) fire and rescue service and
- 11) population, economy and land use.

Those activities of the council which related to environmental quality will be discussed in greater detail in the following chapter.

Interest in the formation of regional planning bodies has broadened to now include state and federal governments. Creation of the Fox Valley Planning Commission in 1956 was without precedent in the state of Wisconsin. In response to the growing sentiment that intergovernmental planning was becoming increasingly necessary throughout the state, legislation was enacted in 1959 which gives the governor authority to create regional planning commissions in response to the petitions of local units of government.<sup>6</sup>

The particulars of this legislation have been discussed elsewhere in this report. It is sufficient here to take notice of the modified procedure for the formation of regional planning commissions and the effect this was to have on planning in the Lower Fox Valley. Commissions are now formed by aggregations of counties rather than cities, villages and towns (although commission plans still must be adopted by cities, villages and towns individually in order to be binding on them). Communities which had previously been participating in the Fox Valley Council of Governments became, as of 1972, members of the new East Central Wisconsin Regional Planning Commission (ECWRPC). Included in this body are three of the counties which are partially in the Lower Fox Basin: Outagamie, Calumet and Winnebago. The remaining counties belonging to the commission lie to the south, west and north of the Fox Valley counties. Absorbed into the ECWRPC along with Fox Valley Council of Government Municipalities were those participating in what was the Northeastern Wisconsin Regional Planning Commission.

There are currently a total of nine counties actively participating in the ECWRPC; the tenth original county, Green Lake, is no longer represented. Of the 32 commissioners, at least three are chosen from each county, with the more populous counties sending up to five representatives. A majority of the commissioners are elected local officials.

In addition to the committees which aid in carrying out commission business, there is a citizen advisory committee for comprehensive regional planning and separate citizen committees for mass transit planning in the cities of Oshkosh, Fond du Lac and Appleton. Technical committees have been chosen to assist the commission in the areas of transportation and open space planning. Commission activities of particular importance to environmental quality in the region include: (1) cooperation with a state study of urbanized areas which, because of projected population growth, may face deteriorating air quality; (2) assistance to local communities developing flood plain regulations; and (3) participation in programs related to the newly enacted Lake Protection and Rehabilitation Law.

A final activity of the commission, which will be of great significance to future water quality in the Lower Fox Basin, is its cooperation with the Brown County Planning Commission in the establishment of the Fox Valley Water Quality Planning Agency. Created according to Wisconsin Statute 66.30 by the two planning bodies, the FVWQPA has been designated by the governor as an area-wide wastewater management planning agency for Brown, Calumet, Fond du Lac, Outagamie and Winnebago Counties. This is in compliance with the Federal Water Pollution Control Act Amendments of 1972 which both provide financial aid for area-wide water quality planning and demand it as a precondition for the granting of federal aid for treatment plant construction. Activities of this agency will be discussed in greater detail in Chapter 11.

In addition to the multicounty East Central Wisconsin Regional Planning Commission, each of the three counties in the planning region which are of interest to this study has its own planning body. The activities of each of these with respect to environmental quality will also be discussed in Chapter 11.

Brown County, the fourth county lying partially within the Lower Fox Basin, has the longest established county planning commission in the state. As just described, the Brown County Planning Commission was one of the bodies instrumental in the formation of the Fox Valley Water Quality Planning Agency. But for most regional planning purposes, Brown County lies within the Bay-Lake Regional Planning Commission (BLRPC) area. Formed in 1972, this planning region now contains eight counties, the remainder lying to the north, east and south of Brown County. The BLRPC is governed by 24 commissioners, three from each participating county. At the time the commission was formed, one representative from each county was appointed from the county board, with the remaining two appointed by the governor on the advice of the county board. Since that time, the governor has specified that all three commissioners from each county should be appointed by the county board. After the first commissioners, who were appointed for two, four and six year terms so as to introduce a system of staggered terms, all commissioners will serve for six years. Officers are elected by commission members. The commission is currently financed by a 0.001 percent tax apportioned among member counties according to equalized assessed property value. State law permits a tax of up to 0.003 percent.

The commission emphasizes the advisory nature of its operation by way of a policy decision that a high priority is "to assist local government by providing technical assistance, upon request, in an effort to strengthen the capacity of local governments to plan and implement programs of interest and benefit to their respective localities. Regional planning, then, is not viewed as a substitute for local planning, but rather as an important supplement to local planning activities and needs." [BLRPC, 1974, p.8]

Four committees have been formed for the study of particular topics of concern, with each composed of five or six commissioners: (1) the Economic Development and Human Resource Committee; (2) the Land Use, Natural Resources and Environmental Quality Committee; (3) the Intergovernmental Affairs, Community Assistance and Public Participation Committee; and (4) the Transportation Committee. In addition, the commission is developing programs to encourage citizen participation in the planning process.

Activities of the commission related specifically to environmental quality within the basin include: (1) a study of regional land use, ownership and zoning in cooperation with the Wisconsin Coastal Zone Management Program and (2) technical assistance to individual counties, in cooperation with the Soil Conservation Service, to aid in local solid waste planning.

#### IV. SUMMARY

The Lower Fox River Basin, as defined for the purposes of this study, contains six cities, four villages, at least portions of 20 towns and parts of four counties. Two regional planning commissions--the East Central and the Bay-Lake--have an interest in the basin. A special purpose body, the Fox Valley Water Quality Planning Agency, includes the study area as a part of the greater Fox Valley area. In Chapter 11 the environmental planning activities of the various governments and planning bodies active in the basin will be discussed in greater detail.

#### FOOTNOTES: CHAPTER 9

- 1 This section on the early history of the valley is summarized from The History and General Character of the Fox Valley Region, published by the Fox Valley Regional Planning Commission, 1960.
- 2 Part of this section summarize the information present by John E. Stoner (1969).
- 3 Separate studies carried out by the Neenah-Menasha Consolidation Feasibility Study Task Force and the Wisconsin Taxpayers Alliance (1972).
- 4 Wisconsin Statutes, c. 66.30.
- 5 Paragraph 1, Agreement by Local Governmental Units in the Fox River Valley of Wisconsin to Establish and Empower the Fox Valley Council of Government.
- 6 State of Wisconsin Statute 66.945.

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## CHAPTER 10

### ENVIRONMENTAL QUALITY IN THE LOWER FOX BASIN

#### I. INTRODUCTION

Developing a meaningful picture of the quality of the environment in the Lower Fox Basin is not a simple process. The tendency now is to define pollution or its absence in terms of technical specifications. This technical definition of pollution was not always necessary when individual lawsuits were the primary means of forcing nuisance abatement. Even the first statutes directed specifically at pollution control tended to be drawn in such a way that there was little doubt as to what practices were being controlled or mandated. But now that the enhancement of environmental quality has come to involve the detailed regulation of individual treatment plants and factories, it has become necessary to define environmental quality in terms of parameters which can be experimentally identified and their magnitudes determined. The question of whether the air around a factory smelled bad to a judge or jury has to some degree given way to the question of whether certain compounds are present in excess of concentrations specified by statute or rule. Give the reality of a finite number of regulators dealing with a problem of almost infinite complexity, there is always some uncertainty concerning the congruence between parameters which can be experimentally identified and legally defined and those factors which affect the healthfulness and aesthetic quality of life.

With these difficulties in mind, this chapter will proceed to discuss the Lower Fox Basin primarily using the language of the scientists who are most familiar with the quantification of environmental quality. But the discussion of flows and dissolved oxygen levels should not be allowed to disguise the fact that these are tools to be used as a means of describing perceptions of environmental quality in terms which have some sort of a common definition.

This chapter is divided into three sections which consider water, air and land quality respectively. While there is at least tentative acceptance of some of the variables significant to the discussion of water and air quality, land quality is a more difficult topic. It includes aesthetic values over which there is even less agreement than in the cases of air and water quality. The admittedly inadequate surrogate for land quality in this chapter will be the effectiveness of solid waste disposal practices in preventing off-site nuisance conditions. Within each of the aforementioned categories is a discussion first of the nature of the major pollutants commonly of concern with respect to that resource. Following this, the major categories of pollution sources within the Lower Fox Basin are noted. There is a somewhat artificial division of material between this chapter and the following one since a discussion of ambient quality cannot be completely separated from a detailed discussion of environmental quality "actors." It is hoped that questions left unanswered in this chapter will be treated satisfactorily in the one which follows.

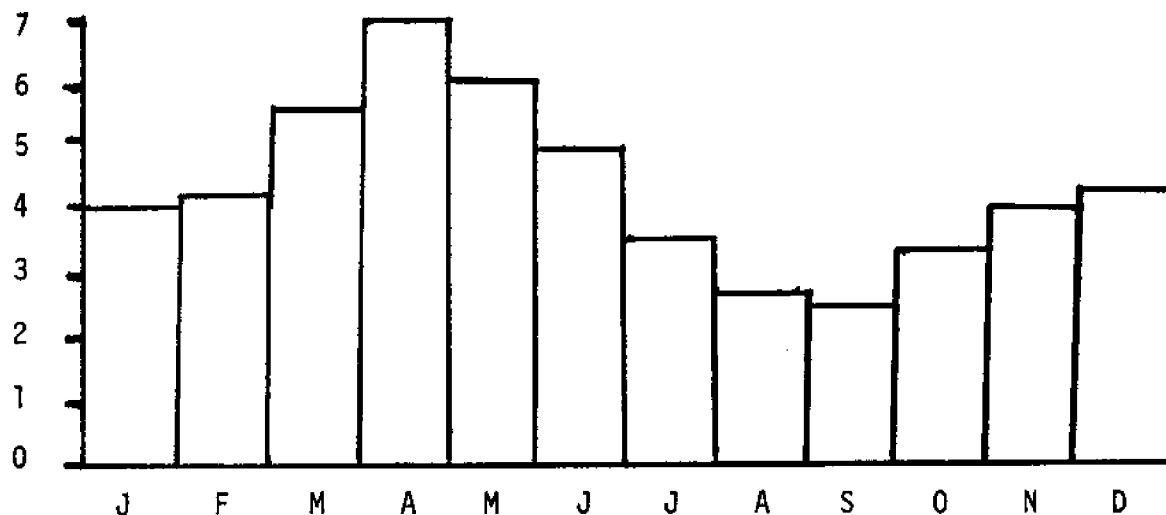
#### II. WATER QUALITY

##### Flow

As mentioned previously, the drainage basin of the Lower Fox comprises only the lower seven percent of the 6,520 square mile Fox River Basin. For this reason

the flow received from Lake Winnebago, which averages approximately 4,100 c.f.s., is of greatest quantitative importance to the river. The flow of the river itself, as measured by the U.S. Geological Survey at the Rapide Croche Dam near Wrightstown, has averaged 4,204 c.f.s. since records were begun in 1896. Seasonally, these flows have been distributed as shown in Figure 10.1.

Figure 10.1 Seasonality of Flow in the Lower Fox River  
(c.f.s. in thousands)



Source: U.S. Geological Survey, 1896-1973.

These average monthly flows for the U.S.G.S. station on the Fox River can, for practical purposes, be used as a measure of outflow from Lake Winnebago since the difference in drainage area between the two points is only about two percent. A rough approximation of the natural flow of the river at its outlet into Green Bay can be made by assuming that the runoff and groundwater characteristics of the approximately 6,150 square miles above the Rapide Croche Dam gauging station are representative of the entire 6,520 square mile Fox River Basin. By this assumption, the discharge of the Lower Fox into Green Bay, exclusive of municipal and industrial withdrawals and additions, can be estimated at an average of 4,389 c.f.s. The assumption concerning uniform runoff characteristics throughout the basin should be viewed with some suspicion, however, because the built-up nature of a large proportion of the Lower Fox Basin would be likely to increase runoff compared to less developed areas upstream.

An additional source of water to the Lower Fox is the series of communities which line the river banks; at least a dozen of these use groundwater for their municipal water supplies, but discharge sewage treatment plant effluent into the Lower Fox or its tributaries. In 1973, this discharge amounted to an average of almost 40 million gallons per day or 61 cubic feet per second [1973 annual reports to the Wisconsin Public Service Commission]. This does not include water pumped from Lake Michigan by the City of Green Bay which is discharged to the Lower Fox a very short distance above its mouth.

Recent information with respect to 18 major industrial sources of water to the river indicates an average 1973 outflow of approximately 136 million gallons per day or 207 c.f.s. [Epstein, et al, 1974]. The sources of this water--whether it is withdrawn from wells, from the river itself or purchased from municipalities by the individual industries--were not indicated. This listing is also neither exhaustive nor informative regarding the type of discharge. Many of the effluent permits on file with the Wisconsin Department of Natural Resources describe a complex picture of storm, cooling and process water discharged to municipal sanitary sewers, storm sewers and river outfalls. In fact, a clear idea of the water flow patterns within some older factories is apparently only now being pieced together by plant personnel.

#### Water Pollution in the Lower Fox: The Nature of the Pollutants

The pollution problem in the Lower Fox River is qualitatively similar to that experienced in many parts of the country; suspended solids, the release of substances with high biochemical oxygen demand (BOD) and nitrogen and phosphorus enrichment act to reduce the desirability of the water from man's point of view. The nature of the industry that has developed along the river is such that the introduction of exotic chemicals or substantial amounts of oil does not appear to be a major problem. Cleanup of the river has, and will continue to be, centered around the reduction of BOD, suspended solids and nutrients.

The effects of these on the receiving water are several. The biological degradation of pollutants with a high BOD reduces the concentration of dissolved oxygen in a body of water, often below the level which will permit many species of organisms to survive. Suspended organic matter may contribute not only to deoxygenation of the water, but to a cloudiness which restricts sunlight penetration to the degree that oxygen-producing photosynthesis is inhibited. Inorganic solids washed into the river can also have this latter effect.

Nutrient enrichment leads to heavy algae growth which is often displeasing from an aesthetic point of view. While algae can be a significant source of oxygen to the water, the decay process which follows the occasional mass die-off of these algae can often reduce oxygen to a critical level. This has the same effect on the environment as the introduction of effluent high in BOD. In addition to making the water un-aesthetic to man, these processes hasten the eventual filling in of water bodies unable to flush themselves of accumulating organic matter and sediment. To reduce algae growth it is generally believed that one must identify and control the "limiting nutrient"--the substance which is already in short supply relative to other factors necessary for maintenance of the algae population. A reduction of the amount of this limiting substance present in the water is more likely to be effective in curtailing aquatic growth than a reduction in substances already available in excess. While both might be considered polluting nutrients, phosphorus is generally of greater concern to pollution control specialists than nitrogen because the latter is so prevalent in the environment that merely reducing man's contribution would likely have little effect on overall availability, hence little effect on algae blooms.

With this introduction in mind, a more detailed discussion of conditions in the Lower Fox Valley is in order. A comprehensive review of the water quality of streams contributing to Green Bay has recently been completed by the Wisconsin Department of Natural Resources under contract to the U.S. Environmental Protection Agency [Epstein, et al., 1974]. In addition, studies by Patterson et al. [1975] and Bertrand, Lang and Ross [1976] also discuss water quality in the river-bay area and include details concerning the considerable amount of investigation which has been undertaken in the basin over the years. The reader is directed to these studies in the event that the following summary is found inadequate.

BOD and Suspended Solids. Historically, the most significant sources of these pollutants in the Lower Fox Valley have been the paper mills. However, beginning in the 1960s, their contribution to the water pollution problem has been significantly reduced. In 1973, this industry accounted for a BOD loading of approximately 185 thousand pounds per day and about 100 thousand pounds per day of suspended solids [Epstein et al., 1974]. There are also other minor commercial sources of some significance, frequently dairy-oriented processing industries. However, these smaller industries have been connecting to municipal treatment facilities, where feasible, with increasing frequency.

Municipal treatment plants discharged an average of approximately 65 million gallons per day of effluent into the Lower Fox during 1973. Included in this figure are over five million gallons per day which bypassed all treatment facilities and two million gallons per day which bypassed secondary treatment facilities. Of this 65 million gallons per day total, approximately 25 million gallons came from the Green Bay metropolitan sewage treatment plant which adds its effluent very near the mouth of the Lower Fox, thereby not influencing much of the river. BOD<sub>5</sub> loadings for these plants averaged approximately 46 thousand pounds per day in 1973, 14 thousand pounds of this due to the previously mentioned bypassing of effluent through plants of inadequate capacity. Suspended solids amount to an average of 48 thousand pounds per day.<sup>1</sup>

Surface runoff is also a major influence on the water quality of the Lower Fox. U.S. Geological Survey data [Hindall, 1972] classifies the Lower Fox as falling within the zone of 30 to 100 tons of sediment yield per square mile of drainage basin per year. This is necessarily generalized because the gauging station on the Lower Fox is not equipped to record water quality data. That the sediment load of the Fox is significant can be seen from studies summarized in Epstein et al., [1974, pp. 66-71] indicating the very rapid deposition of material in Lower Green Bay. However, some of the filling in, especially at the extreme lower end of the bay, can be ascribed to suspended solids contained in sewage plant effluent rather than general surface runoff.

Nutrients. As indicated earlier, nutrients are significant primarily as facilitators of algae growth. The flow of the river from Lake Winnebago into Green Bay means that nutrients and algae entering from Lake Winnebago will to a large degree influence the population in the river while the river will in turn influence Green Bay. Thus, particularly in the case of algae, Lake Winnebago is an important influence on water quality in the river. This influence is expressed quantitatively in Table 10.1. The lake is considered to be as important a contributor of phosphorus as the municipal sewage treatment plants downstream. As far as the river itself is concerned, approximately two-thirds of the phosphorus input, over 1.5 million pounds annually, come from municipal and industrial wastewater [Sridharan and Lee, 1972]. Most of the remaining one-third is the result of urban and rural runoff. Since this figure includes the relatively sparsely populated Wolf-Upper Fox headwaters above Lake Winnebago, it is likely that a proportion for the Lower Fox alone would favor municipal and industrial dischargers to an even greater degree. Short-term fluctuations in phosphorus levels in the river are thought to result from the assimilation and sedimentation of phosphorus at the river-riverbed interface. The effect of the Fox River on the phosphorus level in Green Bay is quite significant, providing about 80 percent of that part of the input coming from its tributaries [Epstein, et al., 1974].

Table 10.1

Average loadings to the Fox River from Lake Winnebago.

(Values in lbs./day)

	Average Flow (ft <sup>3</sup> /sec) <sup>2</sup>	Ortho PO <sub>4</sub>	Total P as PO <sub>4</sub>	NO <sub>3</sub> -N	NH <sub>3</sub> -N	COD	Suspended Solids
June-August	2,330	786	7,730	1,280	1,890	403,000	216,000
September-November	3,220	3,520	5,800	5,650	5,800	399,000	197,000
December-February	4,010	1,680	4,100	8,620	4,100	454,000	65,200
March-May	6,600	2,290	8,830	24,200	8,800	916,000	436,000
Annual Average	4,040	2,070	6,620	9,940	5,200	543,000	229,000

Multiply by 0.4536 to convert loadings to kg/day.  
 Multiply ft<sup>3</sup>/sec by 0.02832 to convert flow to m<sup>3</sup>/sec.

Source: Sager and Wiersma (1972)

As indicated earlier, nitrogen is thought to be less important to the prevention of objectionable algae blooms because its availability from the atmosphere--through organisms able to convert it from inorganic or organic forms--makes its control impossible for practical purposes. It is however, an indicator of the state of the river since high nitrogen levels are frequently associated with the decomposition of organic matter and the associated lowered dissolved oxygen levels. The significant contribution of Lake Winnebago to nitrogen levels in the river has already been indicated in Table 10.1. Nutrients added by municipal treatment plants and pulp and paper mills along the river are estimated in Table 10.2.

A simulation model of water quality conditions in the Lower Fox recently constructed by Patterson et al. [1975] identifies several sections of the river as being potentially of poorest quality, even with intensive industrial wastewater treatment. Assuming "best practicable treatment" of all point source discharges, Map 10.1 shows that extensive areas of the river are likely to fall below desirable dissolved oxygen levels on a regular basis. Two types of areas are outlined on the map; areas with any shading whatsoever are those where dissolved oxygen is likely to fall below 5.0 parts per million (ppm) while the solidly shaded areas are those where DO levels are likely to be below 3 ppm. A discussion of the assumptions underlying this simulation model will not be attempted here. The information contained in Map 10.1 is presented primarily as a general indication of the specific sections of the Lower Fox which are presently of greatest concern and to illustrate the seriousness with which trade-offs between environmental quality and cost of wastewater treatment will have to be addressed.

Table 10.2 Comparison of Sewage Plant and Pulp Mill Nutrient Loadings to the Lower Fox River.

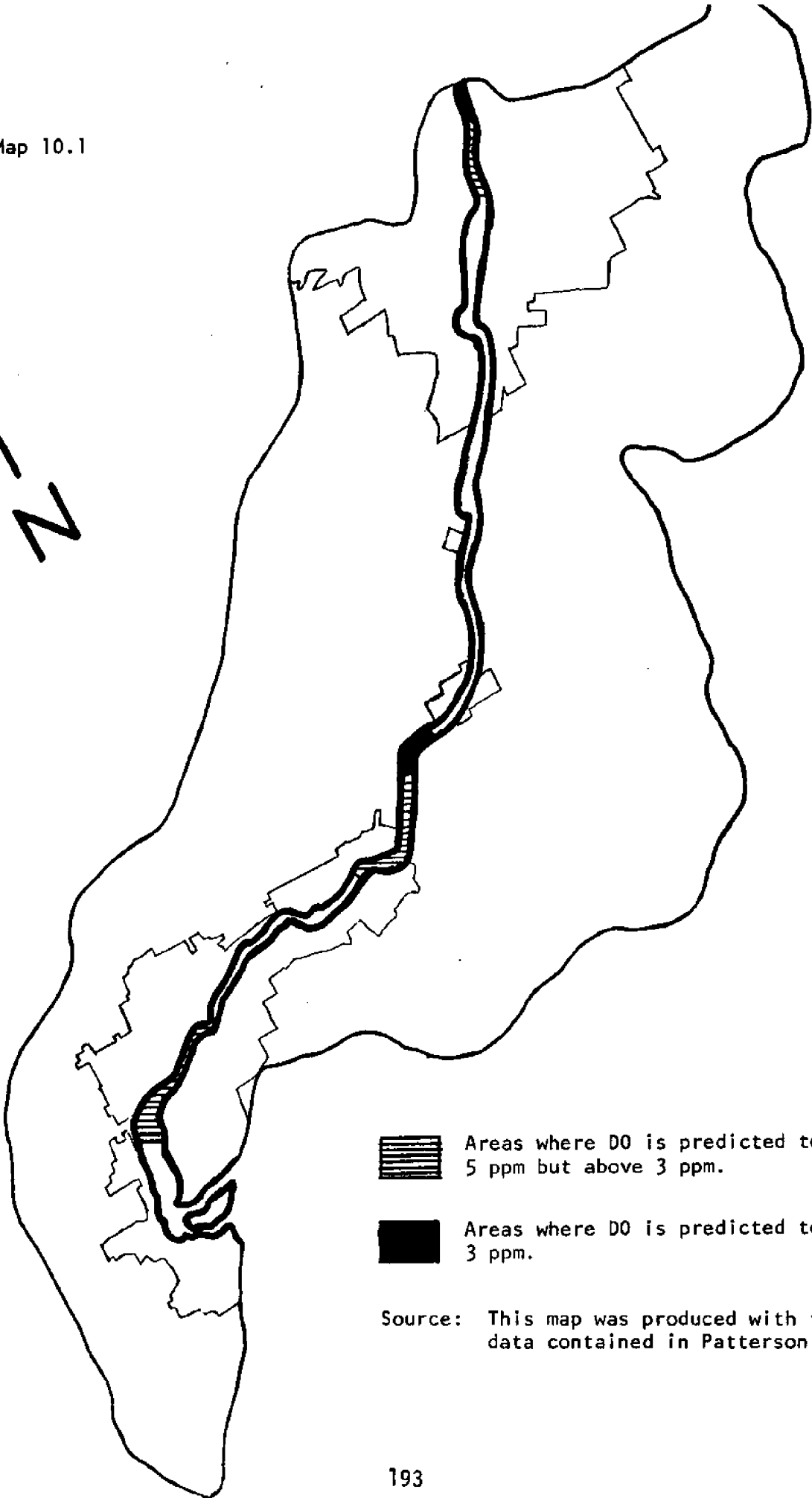
	NH <sub>3</sub> -N		NO <sub>3</sub> -N		TOTAL-P	
	Lb/Day	Kg/Day	Lb/Day	Kg/Day	Lb/Day	Kg/Day
17 Pulp and Paper Mills	8,052	3,652	598	268	1,078	488
9 Sewage Treatment Plants*	4,408	2,000	597	272	2,094	949

\*Nitrogen data include NO<sub>2</sub>

Source: Sager and Wiersma, 1972.

One compromise in water quality standards which has been found necessary is outlined in the following paragraphs taken from Section NR 104.04 of the Wisconsin Administrative Code:

Map 10.1



Areas where DO is predicted to be below 5 ppm but above 3 ppm.



Areas where DO is predicted to be below 3 ppm.

Source: This map was produced with the aid of data contained in Patterson et. al. (1975).

(1) VARIANCE. The Fox River from the upper dam at Appleton downstream to the village of Wrightstown shall meet the standards for fish and aquatic life and recreational use except that the dissolved oxygen shall not be lowered to less than 3.0 mg/l during any consecutive 8 hours of a 24-hour period nor to less than 5.0 mg/l for the remainder of the day. When natural conditions at the outlet of Lake Winnebago do not permit compliance with the above criteria, the dissolved oxygen of the water flowing from the lake in the Menasha Channel shall not be lowered more than 2.0 mg/l in the section of the Fox River from the upper dam at Appleton downstream to Wrightstown.

(2) VARIANCE. The Fox River below the village of Wrightstown downstream to the mouth shall meet the standards for fish and aquatic life and recreational use except that the dissolved oxygen shall not be lowered to less than 2.0 mg/l at any time.

These variances are indications that even if industries and municipalities treat their wastes to the standards applicable to most of the rest of Wisconsin, water quality will still not meet the fish and aquatic life goals set for all of the state's surface water. The implications of these conditions for municipalities and industries on the Lower Fox will be discussed in further detail in the next chapter.

On a more subjective level, the general water quality of Lower Green Bay, which is under the primary influence of the Fox River, has been described as poor for a great deal longer than man's influence has been significant. Early explorers (as described in Ditton and Goodale [1972]) provide descriptions of "mud and slime," with the dense population of algae prompting the name of Green Bay. More recently, the Great Lakes Basin Commission Framework Study reported 1970 data which found the Lower Fox to be "...grossly impaired between Lake Winnebago and Green Bay" [Appendix 21, Annex F, p. 199].

While waste loadings to the river from pulp and paper mills have been declining in recent years, sewage treatment plant effluent has been increasing as plant capacity has, until recently, not kept pace with population growth. A 1972 study [Ditton and Goodale, 1972] found conditions at the mouth of the Fox and in Lower Green Bay undesirable for recreation. However, new municipal treatment plant construction in the valley suggests that a reduction in total point source pollution is likely in the near future. Historical evidence tends to suggest, however, that the mere alleviation of man's detrimental influence is not likely to improve water quality to the degree which some might desire.

### III. AIR QUALITY

The Lower Fox River Basin falls within the Lake Michigan Air Quality Control Region. The heavy population and industry have led to this being one of the more intensively studied areas in the state.

Air quality in the basin is currently monitored by stations in DePere, Appleton, Green Bay, Neenah and Menasha. Particulate matter, sulfur dioxide, oxidants and "coefficient of haze" are recorded in Green Bay while at the remaining stations only particulate matter and sulfur dioxide are recorded.



Table 10.3 indicates the standards with which these observations must be compared [Wisconsin Department of Natural Resources, 1972].

Other measures of air quality are specified under current regulations, but only the three indicated above are currently monitored within the basin. Primary standards are "designed to define levels of air quality which are judged necessary, based on air quality criteria and an adequate margin of safety, to protect the public health," while "secondary ambient air quality standards define levels of air quality necessary to protect the public welfare from any unknown or anticipated adverse effect" [Wisconsin Department of Natural Resources, 1973, p. 8].

Table 10.3 State-wide Air Quality Standards

Pollutant	Time of Average	Primary Standard	Secondary Standard
Particulate Matter	Annual Geometric mean	75 mg.	60 mg.
	24 hr.	260 mg.	150 mg.
Sulfur Dioxide	Annual Arithmetic mean	80 mg.	60 mg.
	24 hr.	365 mg.	---
	3 hr.	---	---
Oxidants	1 hr.	160 mg.	160 mg.

Airborne particulate matter has been found to damage human health both by causing irritation of the respiratory tract and sometimes through a synergistic effect with other pollutants, increasing their damaging effect. Damage to property includes both the corrosive effect of some particulates and the general soiling caused by their deposition. Oxides of sulfur, coming mainly from fuel combustion, "... in combination with moisture and oxygen can yellow the leaves of plants, dissolve marble, and eat away iron and steel. They can limit visibility and cut down light from the sun. They can affect man's breathing; at sufficiently high concentrations, sulfur dioxide irritates the upper respiratory tract; at even lower concentrations, when carried on particulates, it appears to do still greater harm by injuring lung tissue" [Wisconsin Department of Natural Resources, 1973, p. 15]. Photochemical oxidants can directly irritate eyes and lungs and have a toxic effect on plant leaves. Acting as oxidizing agents, they can also physically damage some materials.

Preliminary 1975 air quality data indicate that air quality at most sampling stations within the basin met secondary standards for both suspended particulate matter and sulfur dioxide. The exception was a station in the city of Green Bay

where suspended particulate matter appears to be a significant problem. High short-term sulfur dioxide levels--which did not violate standards--were observed in Green Bay during 1975. High ozone levels have also been observed in the area, but this was a common occurrence in much of Wisconsin. The reasons for high ozone levels even in rural areas and at relatively high altitudes have not been satisfactorily explained. It is expected that more stringent emission limits on incinerators, conversion of small and medium sized coal users to another fuel and lowering of the emission limit for large coal users will allow standards to be met at some point in the future [Wisconsin Department of Natural Resources, 1972]. These plans could, however, be influenced by the current emphasis on decreasing dependence on petroleum products and natural gas.

The sources of air pollution affecting the Lower Fox Basin and the efforts now being undertaken to plan for the control of air pollution in the region will be discussed in the next chapter

#### IV. SOLID WASTE DISPOSAL

Regulations concerning solid waste disposal, while not without their controversial aspects, are being applied with considerable effectiveness. Additionally, whereas water and air are subject to some geographic generalizations with respect to ambient conditions, the environmental deterioration resulting from poor solid waste disposal practices tends to be relatively localized. For these reasons, solid waste disposal in the Lower Fox Valley will be discussed only briefly in this chapter. More emphasis will be placed on this subject in the next chapter where local environmental quality problems and improvement efforts are addressed in greater detail.

There has in recent years been an increasing movement away from the use of small solid waste disposal areas controlled by individual municipalities and toward more centralized and sophisticated waste handling facilities. Among the motivations behind such a change are: (1) municipalities are in some cases finding it difficult to secure landfill sites within their limited political jurisdictions and (2) operation of sites according to more stringent environmental regulations is increasing equipment needs at sites. The economies of scale which accompany larger sanitary landfill sites are an attractive inducement toward a multijurisdictional outlook; and (3) increasing raw material prices are making the recycling of some components of municipal waste economically attractive. These recycling centers are also subject to economies of scale both because of the equipment required and the need to aggregate a sufficient volume of recycled material to attract industrial purchasers.

The first of these three factors is not of great importance in the Lower Fox Basin because while the population of the area is large, it is split among 10 major communities in four counties. Thus, each municipality could conceivably act independently of the others, with each having a large reservoir of undeveloped land, suitable for landfill, near its outskirts.

The existence of a number of political subdivisions in such close proximity has the disadvantage of making more difficult the unified program required to take advantage of potential economies of scale in landfill operations. Brown County, which has the single large city of Green Bay as its population center, is working on plans to begin operating a county-wide waste collection and landfill system. Winnebago and Outagamie Counties, which contain most of the remaining population of the basin, are also moving rapidly toward a county-wide system. Neenah, Menasha,

Appleton, Kimberly, Combined Locks, Little Chute and Kaukauna are essentially contiguous and provide the potential focus for a regional solid waste program. This has been recognized by the Wisconsin Solid Waste Recycling Authority, which intends to use these two counties plus Fond du Lac County as an example of what is intended to eventually become a state-wide material recovery program.

It has been estimated [Wisconsin Solid Waste Recycling Authority, 1974] that as of 1975 the four counties lying partly within the Lower Fox Basin will generate a total of 1,854 tons per day of solid waste.<sup>2</sup> Since the 10 major communities within the basin account for slightly over half of the population of these four counties, the solid waste produced by residents of the basin can be expected to amount to something over half of the previously mentioned 1,854 tons per day.

At present, there are 26 Wisconsin Department of Natural Resources licensed landfill sites within the basin. It is expected that this latter number will be reduced as county-wide solid waste systems are implemented. Further details concerning local solid waste disposal planning in the basin will be presented in the next chapter.

#### V. SUMMARY

Of the three general categories just outlined, water quality is clearly the problem of greatest concern at the present time, with a large proportion of the Lower Fox River being severely affected. Instances of unsatisfactory air quality--at least as measured by standards presently in use--appear to be relatively uncommon. Largely as a result of state regulatory efforts, the adverse environmental impacts of solid waste disposal are rapidly being reduced as much as is likely to be feasible until recycling gains in popularity.

Given some understanding of the environmental quality problems of the Lower Fox Valley, the task in the coming chapters is to develop a greater understanding of some of their causes the solutions which have been studied or attempted and possible solutions for the future.

FOOTNOTES: CHAPTER 10

- 1 This information was compiled from Epstein et al., 1974, Appendix III, and supplementary information provided by the Wisconsin Department of Natural Resources. See the following chapter for more recent developments.
- 2 This includes domestic commercial, industrial bulky wastes, street refuse and brush. It excludes rubble, chemicals, sludges, ashes, agricultural and mining wastes.

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## CHAPTER 11

### ENVIRONMENTAL QUALITY MANAGEMENT EFFORTS IN THE LOWER FOX VALLEY

#### I. WATER QUALITY REGULATION AND PLANNING

A 1974 study by Epstein et al. indicated the existence, as of 1967, of 55 point effluent sources on the Lower Fox and its tributaries. Many of these, however, were very small and have since been tied into municipal treatment systems. While virtually all sources which remain would be of some importance in that they would be subject to state regulation, attention in this section will be restricted to the more significant effluent sources. The narrowing of the number of waste sources to be considered was done during preparation of the Patterson et al. simulation model reported in the previous chapter; those effluent sources discharging only cooling water or small quantities of effluent were deleted, leaving a total of 16 industrial and seven municipal sources, with some having multiple outfalls.

A similar procedure will be followed in this section. The main justification for doing so is two-fold: not only are small dischargers unlikely to be environmentally significant, but they are unlikely to be politically significant. Small industries cannot realistically expect to be powerful participants in the development of a regional waste treatment plan for their locality. It is more reasonable to assume that they will be in the position of responding to state discharge regulations in the least costly way open to them. But their ability to encourage the development of a regional treatment system with their industry as a major beneficiary will be limited.

The political aspect of environmental quality will cause this study to depart somewhat from the categorization adopted by the Patterson study, however, in that several additional publicly owned central waste treatment facilities will be included regardless of the likely environmental impact of their operation. The main reason for this is that the plants added to the lists of effluent sources are operated by utility districts and may be found to be important participants in a comprehensive wastewater treatment plan for the valley.

#### Publicly Owned Treatment Plants in the Lower Fox Valley

Under the headings which follow, the characteristics of the major publicly owned effluent sources in the various counties will be discussed. The planning efforts directed toward the subject of wastewater treatment up to the time of this writing will also be reviewed. The counties are arranged from upstream to downstream.

Table 11.1 lists the municipal treatment plants presently in operation in the Lower Fox River Valley. The county in which each of the major point sources is located is listed along with the level of effluent discharge which each will be permitted to maintain until the expiration of presently valid discharge permits in mid 1977. The location of these plants within the basin is indicated on Map 11.1.

Outagamie and Winnebago Counties. These two counties will be discussed together because of the contiguous nature of the urbanized area lying between Neenah and Kaukauna along the Lower Fox River. Joint discussion is also desirable because this was the viewpoint taken by one of the major sources of information on wastewater treatment in the area--a 1970 report by the Fox Valley Council of Governments entitled Regional Wastewater Treatment.

Table 11.1 Publicly-Owned Wastewater Treatment Facilities in the Lower Fox Basin

Name	County	Average Monthly 1977 Permitted Effluent, lbs./day BOD <sub>5</sub>	SS	Description
Neenah-Menasha Sewerage Commission	Winnebago	3,503	3,503	This plant's effluent permit is based on an average flow of 18 mgd. The Commission is presently cooperating with the eastern portion of the Town of Menasha Sanitary District #4 in a study of future alternative treatment plans.
Town of Menasha Sanitary District #4	Winnebago	793	793	The western portion of this district has contracted, in cooperation with the Butte des Morts Utility District, for a consultant's study of future joint or separate construction alternatives. DNR suggests design weekly average BOD and SS of 20 mg./l. in this area of the river.
Butte des Morts Utility District	Winnebago	213	213	The present plant, designed for a 850,000 gpd flow, is scheduled to undergo a major expansion and improvement to be completed in 1981.
City of Appleton	Outagamie	19,000	20,675	Plans for a new treatment plant for the city have been approved. The present plant is not meeting standards. At the time of a 1975 survey, only one-half of the effluent was receiving secondary treatment.
Village of Kimberly	Outagamie	250	250	This plant will be abandoned when the Heart of the Valley Sewerage Commission's new plant is in operation.
Village of Little Chute	Outagamie	260	260	The new Heart of the Valley plant, when completed, will serve this community. The existing plant, which is subject to occasional overflows and operational problems, will be abandoned.
Heart of the Valley Metropolitan Sewerage Commission	Outagamie	640	640	A new facility, plans for which have been approved by the DNR, will serve the City of Kaukauna and the Villages of Kimberly and Little Chute. The Commission has purchased and is presently operating the Kaukauna treatment plant.
Town of Holland Sanitary District	Brown	1,251	2,002	This district serves most of the community of Holland. Average effluent flow is approximately 150 thousand gpd.

Table 11.1 (cont.)

Name	County	Average Monthly 1977 Permitted Effluent, lbs./day	BOD5	SS	Description
Village of Wrightstown	Brown	162	162	162	The village operates a relatively small treatment facility. Effluent limitations have recently been modified to allow a lower level of treatment during winter months.
City of DePere	Brown	2,160 (1)	2,160 (2)	1,184 (2)	Effluent from this plant is being strictly limited to reflect its location on a water quality limited segment of the Fox. Industrial waste loading is a primary cause of effluent problems. A new treatment plant will soon be under construction.
		1,184 (2)	1,184 (2)		
Town of Wrightstown Sanitary District #1	Brown	10	10		Based on 40,000 gpd.
Green Bay Metropolitan Sewerage Commission	Brown	13,100 (3)	13,100 (3)		The Commission has recently completed construction of a new treatment plant which is currently being "debugged". The Commission now serves most of the City of Green Bay and the Towns of Allouez, Ashwaubenon, Bellevue, Hobart, Howard and Scott. The effluent permit is based on an average flow of 52.2 mgd.

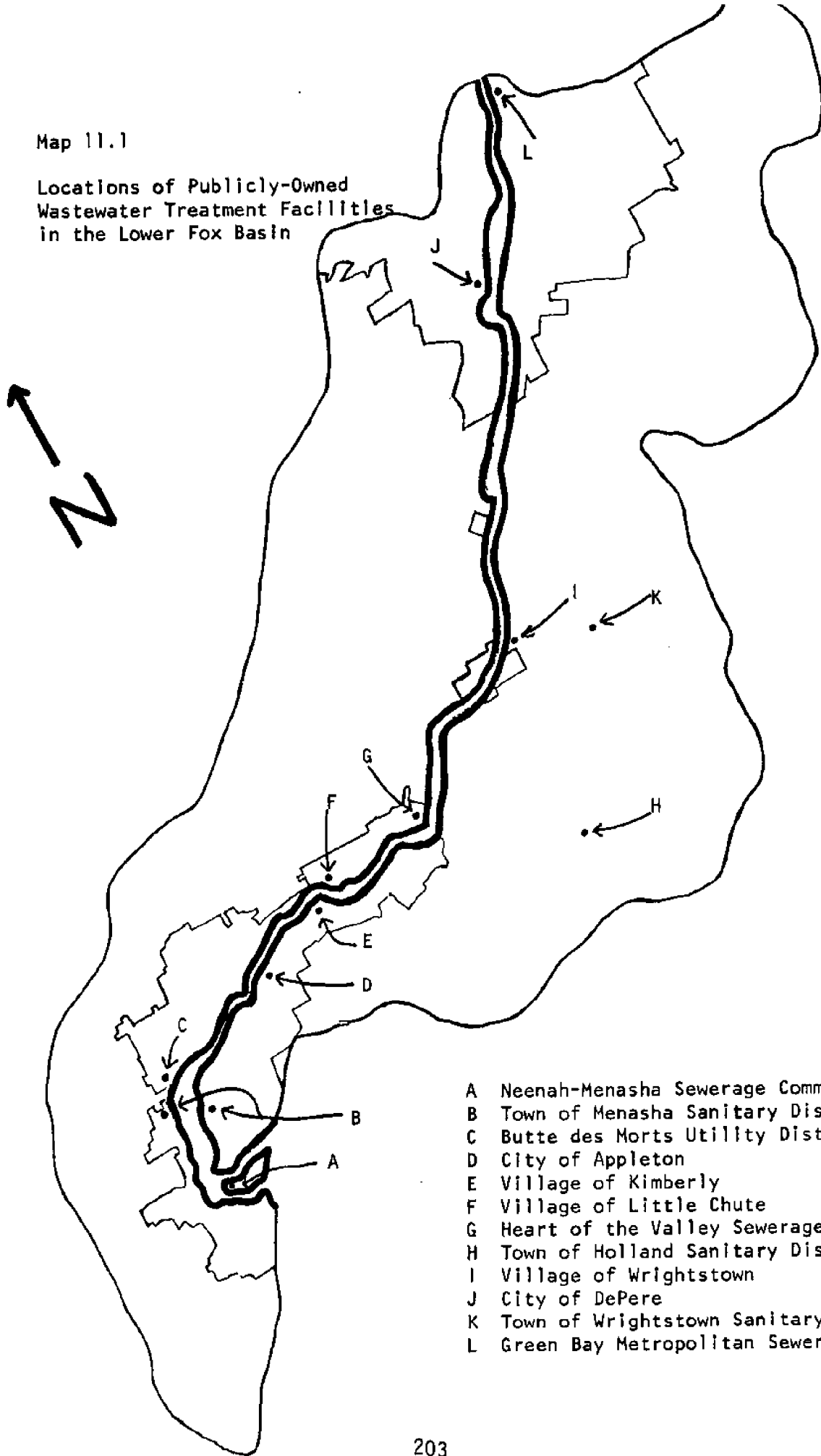
Note: This information was extracted from Wisconsin Department of Natural Resources permit files. Because of rapidly changing conditions, details may quickly become obsolete.

- (1) Assumes a flow of 3.45 mgd, this permit is valid until mid-1978
- (2) Assumes a flow of 14.2 mgd, this permit will be valid until mid-1979
- (3) This permit is valid until the end of 1978



Map 11.1

Locations of Publicly-Owned Wastewater Treatment Facilities in the Lower Fox Basin



- A Neenah-Menasha Sewerage Commission
- B Town of Menasha Sanitary District No. 4
- C Butte des Morts Utility District
- D City of Appleton
- E Village of Kimberly
- F Village of Little Chute
- G Heart of the Valley Sewerage Commission
- H Town of Holland Sanitary District
- I Village of Wrightstown
- J City of DePere
- K Town of Wrightstown Sanitary District No. 1
- L Green Bay Metropolitan Sewerage Commission

At the time of the study there were seven municipal treatment operations in existence within the Neenah-Kaukauna corridor, with another under construction. Table 11.2 lists these plants and provides details concerning their operation. In addition to these municipally operated treatment facilities, there were 23 industrial treatment plants--most of which provided only primary treatment.

The 1970 FVCOG study presented five alternative approaches to handling the future wastewater treatment needs of these communities. The first involved simply expanding the eight plants then in existence or under construction as required by local population and industrial growth. The remaining alternatives consisted of different combinations of expanded existing plants and, in several cases, a new plant at the north end of Little Lake Butte des Morts. Within these basic possibilities were further options concerned primarily with the timing of the various steps in several of the plans.

Table 11.2 Flows at Existing Treatment Facilities

	Residential (MGD)	Commercial (MGD)	Industrial (MGD)	Total (MGD)
City of Appleton	6.34	1.95	4.72	13.01
Butte des Morts Utility District	0.12	0.28	0.06	0.46
City of Kaukauna	1.12	0.23	0.57	1.92
Village of Kimberly	0.35	0.08	0.18	0.61
Village of Little Chute	0.61	0.12	0.08	0.81
Town of Menasha	0.63	--	--	0.63
Neenah-Menasha (Sum of the cities of Neenah and Menasha)	5.79	1.11	13.12	20.02

Source: Table 3-5, Fox Valley Council of Governments Report No. 50, Wastewater Collection and Treatment Study, 1969.

Note: The city of Kaukauna plant is now being operated by the Heart of the Valley Sewerage Commission.

A number of factors have a bearing on the relative desirability of these alternatives:

(1) Federal funding is available only for regionally coordinated wastewater treatment programs; it was thought possible that the simple expansion of existing plants might not satisfy this criteria.

(2) Federal funding is available for capital costs but not operating costs, producing the widely known incentive to emphasize capital-intensive projects.

(3) While it is federal policy to encourage the inclusion of industrial waste in a community's wastewater treatment planning, federal funds were not available for facilities designed primarily to treat industrial waste. In a region where industry tends to be concentrated in one geographic subarea, this rule tended to bias planning toward a few large plants, each of which serves a geographical area large enough that less than half of the waste treated comes from industry. Under the interpretation given federal law in the FVCOG report, one or more components making up a system of smaller plants might not have qualified for federal aid because of the limited clientele served.

(4) A larger plant is generally more able to tolerate a sudden loading of waste of an unusual type or quantity because of the great amount of total inflow available for dilution. Additionally, a larger plant is likely to be operated more efficiently because the operating budget permits the hiring of more highly trained personnel. Both of these factors increase the likelihood that the theoretical contribution of a treatment plant to local environmental quality will be realized in practice.

(5) The economies of scale associated with a large treatment plant must be weighed against the higher transmission costs as a single plant comes to serve a larger area.

(6) The sunk cost of plants presently in existence might to some degree be forfeited depending on the extent to which they are abandoned rather than incorporated into a regional plan.

The large number of factors which must be considered, combined with the complexity of the urban area, precluded a clear choice among the alternative regional systems. Adoption of any regional plan would first require solutions to the political aspects of coordination before operational aspects could be considered. In the time required to attain political consensus, important variables would almost certainly shift; treatment plant technology and construction costs, the rules governing federal grants, state effluent standards and population growth would make adoption of a definitive plan futile at such an early stage.

The report did recommend the establishment of a regional wastewater treatment commission composed of the chief elected official of each participating municipality. A commissioner's vote would be weighted according to the proportion of the region's population being represented. While municipalities and special districts would continue to be responsible for wastewater collection, the commission would purchase all existing treatment facilities. It would serve communities on a user fee basis, with the billing of individual customers remaining the responsibility of local jurisdictions.

Since the FVCOG report was prepared, some consolidation of treatment facilities has been initiated. A Heart of the Valley Metropolitan Sewerage Commission has been established. It will eventually be responsible for serving the city of Kaukauna and the villages of Kimberly and Little Chute with a new plant, the plans for which have already been approved. In the interim, the commission has purchased the city of Kaukauna plant.

The remaining four treatment authorities seem likely to continue operation as separate entities. Plans for a new treatment plant for the city of Appleton have been approved. The severity of the need for a new facility is indicated by records which show that, on the average, only one-half of the flow receives secondary treatment.

Future growth in the area served by the Butte des Morts utility district is dependent upon expansion of the district's wastewater treatment capacity. To meet this need, a \$2.4 million plant modernization program is being planned, to be completed in 1981. In cooperation with the town of Menasha, the district has recently contracted with a consulting firm to study the future municipal wastewater treatment needs of the area. The basic question seems to be the relative advantages of joint versus separate treatment. Similarly, the Neenah-Menasha Sewerage Commission is cooperating with the town of Menasha on a study of possible future cooperation. Efforts are now being made to coordinate these two plans.

Calumet County. The small portion of the city of Appleton which is located in Calumet County has been included in the section dealing with Outagamie County. Of the remaining two Calumet County communities falling within the Lower Fox River Basin, only Forest Junction, with a population of approximately 180, may require the construction of a community waste treatment system in the foreseeable future. According to a 1970 study by J. Roger Miller and Associates, current private septic tank-based systems are not performing adequately because of nonabsorptive soil in the area. An estimated \$100,000 would be required to construct a tertiary treatment plant and collector system to serve the 1970 population of the community. The plant would discharge its effluent into Plum Creek, a tributary of the Lower Fox.

Brown County. The primary source for information on existing sewerage facilities in Brown County is the 1972 Brown County Sewage and Solid Waste Plan carried out for the Brown County Regional Planning Commission by the consulting firms of Robert E. Lee and Associates and Roy F. Weston, Inc. In this report it is estimated that 86 percent of the residents of the county are served by public sewage treatment facilities. However, as of the time that the study was carried out, it was felt that little of the county's wastewater was being adequately treated.

The 1972 report indicated the existence of 12 publicly owned treatment plants in Brown County, several of them quite small. Nine of these fall within the Lower Fox Basin; five are on the main river while the other four are on tributary streams. Most of the county's sewered population is served by two of these plants, one in the city of Green Bay and the other in DePere.

At the time of the 1972 study, the Green Bay Metropolitan Sewerage District plant served approximately 110,000 people. Average raw sewage intake was 20 million gallons per day (mgd) with peak flows of about 47.2 (mgd). The capacity of the plant was not adequate for these flows, however. BOD removal efficiency was only 55 percent, suspended solid removal was 63 percent and phosphorus removal was 10 percent.

The DePere plant was similarly overloaded. It served a population of approximately 20,000, with an average intake flow of 2.12 mgd and peak flows of about five mgd. BOD removal efficiency was 67 percent and phosphorus removal was 3 percent. Both of these plants were under DNR orders to enlarge their capacity.

The remaining three publicly owned treatment plants on the main stem of the river serve the villages of Wrightstown and Little Rapids and the Hickory Grove Sanitorium, respectively.

Plants located on tributary streams include two operated by separate town of Wrightstown sanitary districts (one very small) and the town of Holland sanitary district. A number of sanitary districts operate sewage collection facilities which feed into the major transmission lines owned by municipalities operating treatment plants.

The 1972 report outlined five alternative plans for future sewer development in Brown County. These involved the use of between one and three treatment plants for the heavily urbanized DePere-Green Bay area, with smaller population centers continuing independently. The one alternative requiring the use of a third plant on the East River was eliminated from consideration on the basis of the limited assimilative capacity of this relatively small tributary to the Lower Fox.

The final plan recommended in the report would utilize the existing Green Bay and DePere treatment plants in a coordinated program of service expansion. It was deemed essential that a regional sewerage commission or authority be established to carry out such a coordinated effort.

An earlier report, the Green Bay Metropolitan Jurisdictional Planning Study (1970), also recommended that a single agency be created to operate waste treatment facilities in the Green Bay-DePere area. However, it differed somewhat in its recommendations regarding treatment facilities; the authors felt that there was no clear financial reason to choose between the use of a single expanded plant at the present Green Bay site and the use of both the Green Bay and DePere plants. But the limited assimilative capacity of the Lower Fox led them to suggest that a single plant located near the mouth of the river might be more desirable environmentally.

The two major treatment plants in the downstream portion of the valley, Green Bay and DePere, continue to be independently operated. It appears, however, that portions of the area served by the Green Bay Metropolitan Sewerage Commission will in the future be connected, on a contract basis, to the city of DePere plant.

A new Green Bay plant, opened in 1975, serves the city of Green Bay and the towns of Allouez, Ashwaubenon, Bellevue, Hobart, Howard and Scott. Treatment efficiency at the new plant, which was poor during the initial part of the start-up phase, continues to improve.

The city of DePere currently has a serious problem concerning the quality of its treatment plant effluent. It is faced with the necessity of treating substantial quantities of waste from a major industry within its jurisdiction while being hampered by the inadequate capacity and general obsolescence of its plant. Whether this problem will be resolved solely through municipal treatment plant expansion or be supplemented by industrial pretreatment requirements is as yet uncertain. A final factor which must be considered in the case of DePere is its location on a relatively heavily polluted "water quality limited" segment of the river; the effluent standards which it will be required to meet in the future are likely to be exceptionally strict. In fact, separate sets of suspended solids and BOD regulations have been promulgated to take effect in mid 1977 and 1979 respectively. This is in recognition of the fact that a new treatment plant now under construction is expected to come into service during this period.

## Industrial Effluent Sources in the Lower Fox Valley

A relative lack of emphasis on industry is not because industrial effluent treatment is not a complex and costly process--in fact it is usually a more technically difficult problem than the treatment of domestic sewage. But the planning of public treatment is socially complex; there are a greater number of factors and decision processes involved. The bonds to finance major new facilities must often be approved by local voters. Controlling the growth of an industry so as to limit its effect on the environment is likely to be easier than controlling the growth of a municipality. The sources of effluent to be treated by a municipal plant are certain to be more dispersed and physically more expensive to bring together into an economically treatable waste stream, with a great number of options for aggregating waste streams.

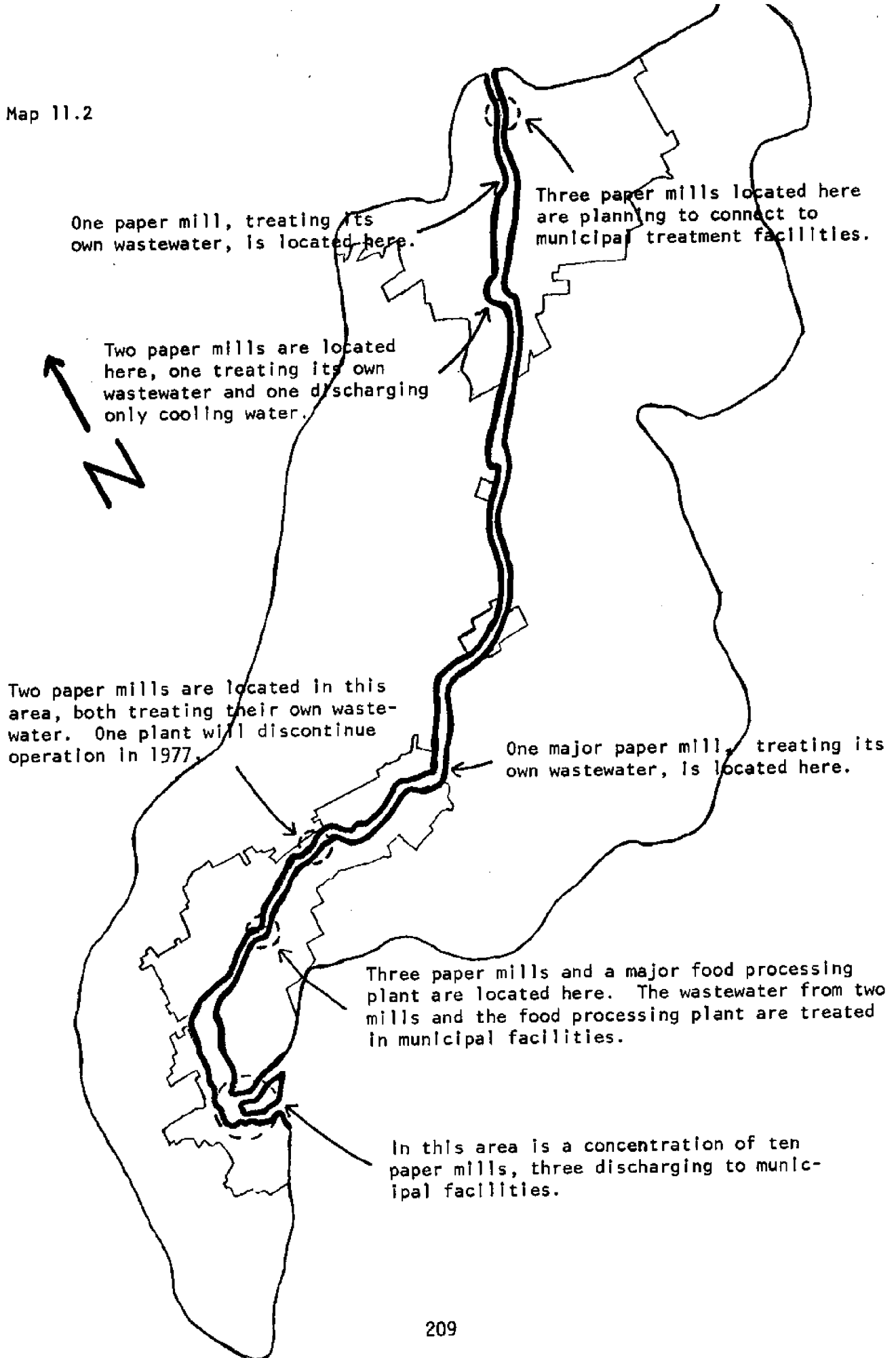
Map 11.2 illustrates the general distribution of industrial effluent sources in the Lower Fox Valley including the major industrial contributions to municipal treatment plants. These latter are included largely because their proximity to the river gives them at least the theoretical option of either continuing cooperation with a municipal system or treating their own effluent for direct discharge. Not included are firms which, because of the toxic or heavily polluted nature of their wastes, may only be required to carry out some form of pretreatment before discharging to the municipal system, but which do not clearly have the alternative of treating and disposing of their effluent wholly on their own.

A number of factors act to place industries in an uncertain position with respect to the wastewater treatment standards with which they will be expected to comply in the future. The 1972 amendments to the Federal Water Pollution Control Act require the Environmental Protection Agency to develop a classification system for industries and to promulgate effluent standards to be applied to firms according to their classification. The law allowed very little time for the research which ideally would precede the setting of such standards, and the courts were not sympathetic to delays in implementation. As a result of this rather rushed standard setting process (and sometimes merely as a delaying tactic), many effluent standards are being challenged in court as arbitrary. The individual firm faces considerable uncertainty in its pollution abatement planning, at least until such time as the standards with which it is being asked to comply have withstood legal challenge.

Industries must also take into consideration the possibility that the waste load allocation process is likely to be necessary if water quality standards in the Lower Fox are to be met and will compel them to treat their effluent to levels in excess of EPA requirements. If the possibility exists that the final effluent standards adopted will make continued production uneconomical, a firm will be reluctant to even initiate cleanup effort. And where an incremental change in standards may require a technologically different approach to pollution abatement, a similar reluctance to invest in the face of uncertainty may be encountered.

Population and industrial density in the Lower Fox Valley would be expected to facilitate cooperative treatment efforts utilizing the often considerable economies which can be realized as treatment plant size increases. But to some extent the many possibilities for joint operations can cause the expenditure of considerable time and effort in researching the least-cost alternative. This is particularly true in the absence of a planning and coordinating body which can give some direction to the many private negotiations which are characteristic of complex cooperative efforts. While the acquisition of more knowledge and the exploration

Map 11.2



of further possibilities is in principle difficult to criticize, changing conditions can often make lengthy study futile. This is particularly true at a time when inflation in the construction industry can make extended contemplation a very expensive pursuit.

The complex nature of cooperative planning can also be manipulated; it is not unknown for a firm to delay the installation of private treatment facilities on the purported grounds that it is negotiating toward participation in a joint treatment plan. Changing conditions can be continually cited as a reason for an absence of meaningful abatement progress. And the interest of state regulatory officials in encouraging efficient abatement solutions can be used to put off the needed investments. As indicated above, delay may not in the long run be economical even if the social costs of pollution occurring during the delay period are ignored. But immediate financial pressures either unique to the firm or generated by a slack national economy can preclude what would in the long run be wise decisions. And even in the absence of clearly defined pressures, it is not unreasonable to expect industry to make the occasional irrational decision.

Given these various incentives acting on individual firms--together with the financial aspects of individual versus industrial-municipal joint treatments--it is perhaps surprising to note the significant pollution abatement activity now being undertaken in the Lower Fox Basin. There appear to be examples of almost every imaginable strategy: firms which have done little but delay investment for reasons which shift at their convenience; firms which appear to have made good faith efforts to enter into cooperative municipal arrangements but which have had their plans confounded by political uncertainty; firms abandoning municipal service for individual or cooperative industrial facilities; firms turning to municipal service; most commonly, firms engaged in a continuing effort to upgrade their individual treatment facilities, often having to both develop and install new technology simultaneously, with at least the possibility of legal sanction accompanying failure; and finally, plants which may find continued operation uneconomical.

#### Area-wide Planning in the Lower Fox Basin

There are three primary levels of planning activity in the Lower Fox Basin at present. The Wisconsin DNR, in response to both federal and state law, has overall responsibility for setting ambient quality levels for streams in the state and effluent standards for individual point sources. Local governments and individual industrial plants retain the primary responsibility for carrying out these state orders.

However, a third level of responsibility exists--the regional planning body. As the preceding chapters have indicated, local governments in the Lower Fox Valley are not strangers to regional planning. The newest body--the Fox Valley Water Quality Planning Agency--has as its starting point volumes of reports and many attempts at regional cooperation. Its very creation was largely the result of the efforts of two other regional bodies, the East Central Wisconsin Regional Planning Commission and the Brown County Planning Commission.

Creation of the Fox Valley Water Quality Planning Agency was keyed to the provisions of Sections 208 of the 1972 amendments to the Federal Water Pollution Control Act. Citizens or local governments may request that the governor of their state create a body at the local level to undertake water quality planning for a specified geographic region. Such a body, effectively under the supervision of the



state DNR, becomes responsible for coordinating the efforts of municipalities and industries in meeting state standards. This is of particular significance in the Lower Fox Valley since there are indications that even the application of advanced wastewater treatment to individual point sources within the region will not improve water quality to the degree demanded by future state standards. This points to the need for a more complex management strategy for the valley, a need which the FVWQPA has been created to fill.

As can be seen in Map 11.1, the area covered by the agency is somewhat larger than that addressed by this report. Inclusion of the heavily industrialized Oshkosh area and Lake Winnebago seems reasonable; as a recreational asset, the lake is probably more important than the Lower Fox River and quite possibly Green Bay. And the importance of Lake Winnebago water quality to the quality of the Lower Fox has already been discussed. The 13 members of the agency's governing board are appointed by the two planning commissions on the basis of one representative per 39,000 people, with a minimum of one from each county. Most are elected local officials.

The agency has a five member technical staff and two secretaries. In addition, both the board and its staff consult with a 13 member Technical Advisory Committee and a 14 member Citizen's Advisory Committee. Both are appointed by the board on an equal population basis. Also advising the agency is the Area-wide Planning Advisory Committee. Composed of more than 60 individuals, this group represents a variety of federal and state agencies, local legislators and local elected officials from participating communities not formally represented on the governing board. The committee's purpose is to facilitate cooperation among the agencies and governments active in the basin in setting and attaining the agency's goals.

The objectives of the agency at present include: the identification of particular water quality problems in each of three subbasins (the Lake Winnebago and upstream area, the Lower Fox and Lower Green Bay); study of the effect of different flow rates on water quality; evaluation of the effect of present and future land use on water quality; identification of agencies and institutional processes capable of managing basin water quality on a comprehensive basis; development of alternate plans for attaining the water quality goals contained in the 1972 Water Quality Act Amendments; and submission of the management plan found most desirable to the people of the region, the governor and state and federal agencies. The U.S. Environmental Protection Agency has granted the FVWQPA \$772,000 over a two year period to carry out this work.

The heavily industrialized nature of much of the basin is providing the FVWQPA with a challenging problem; as noted in Chapter 10, the Patterson et al. model predicts that the "by the book" application of effluent standards to municipalities and industries will still leave water quality in the basin below that which the long-term goals of the state require. The agency is therefore cooperating with the DNR in designing a wasteload allocation plan for the basin. This plan will take into consideration both the technical aspects of controlling the effluent from point and nonpoint sources and the social and economic benefits and costs of various alternatives. Combining this information with what is known about the assimilative capacity of the river, the FVWQPA is expected to come up with its recommendations for a realistic set of water quality goals for various parts of the basin and an indication of how the burden of attaining these quality levels is to be distributed among the effluent sources within the basin. The technical aspects

of this study are being coordinated by the FVWQPA staff with the assistance of the DNR and a private consulting firm. One of the major tasks is to perfect the simulation model which was demonstrated in the Patterson report to the degree that it can be reliably used in the waste load allocation process. The technical complexity of industrial wastewater treatment and the possibilities for cooperative treatment planning in the basin will lead to a heavy reliance on the assistance of the agency's advisory committees. A simple extension of the somewhat arbitrary effluent standards which have been characteristic of pollution control efforts in recent years is not likely to be tolerated in a region where such a significant proportion of the economic life of the area could be affected.

The interest of the FVWQPA goes beyond point sources to include land use practices. Urban activity (particularly construction), agriculture and forestry are all thought to contribute to water quality deterioration through the addition of nutrients and sediments to runoff. The 1972 amendments specifically provide for the inclusion of these nonpoint factors during the development of an area-wide management plan. But the political controversy which surrounds virtually any proposal to modify existing land use regulations has tended to delay consideration of this topic in most areas of the country, including Wisconsin. Balancing the economic and environmental welfare of the region while distributing the costs of improving environmental quality in an acceptably equitable manner will be a challenging task for the agency.

## II. AIR QUALITY MAINTENANCE

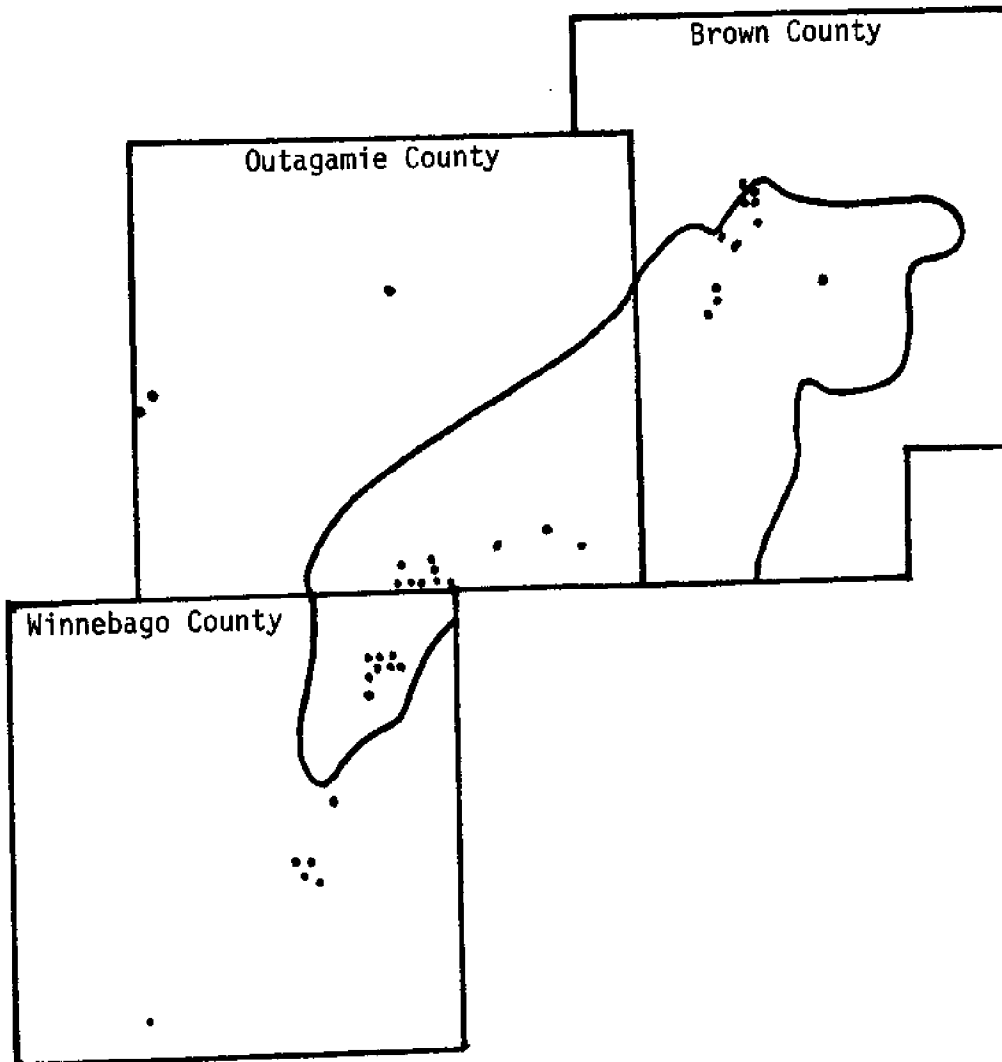
Brown, Outagamie and Winnebago Counties constitute an Air Quality Maintenance Area with respect to particulate matter, as designated by the Wisconsin DNR. This indicates that portions of the region may be in violation of air quality standards at some time in the future and that planning to avoid this should be undertaken.

While the three county region is somewhat larger than the Lower Fox River Basin, consideration of the larger area is reasonable because of the impact which emission sources outside the basin may have on local air quality. Figure 11.1 indicates the nature of the winds prevailing in the basin, as measured during the 1956-60 period at the Green Bay Airport [U.S. Department of Commerce, 1963]. The dominance of southwesterly winds highlights the influence which the communities surrounding Lake Winnebago may have on air quality in the entire Lower Fox Basin.

Existing major sources of air pollution in the air quality region have been identified and their emissions evaluated both quantitatively and qualitatively with respect to particulate matter and sulfur oxides. Map 11.3 indicates the general distribution of point sources within the three counties.

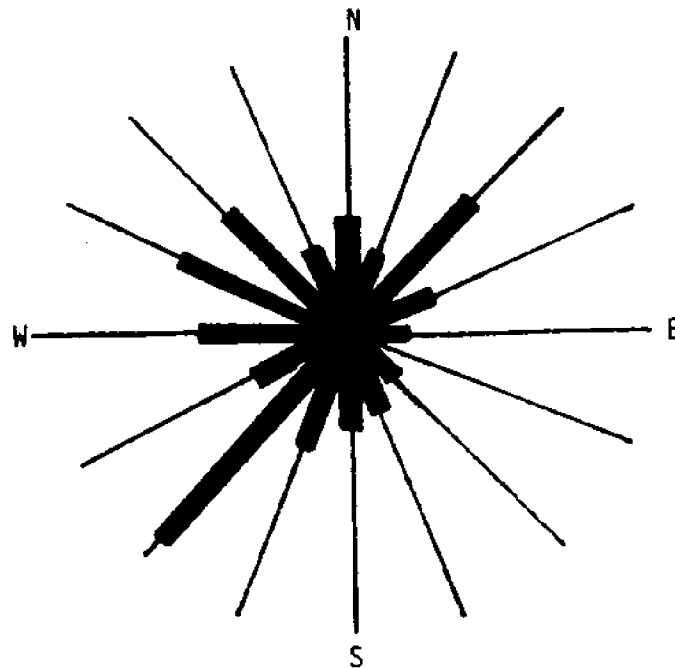
In response to the designation of these three counties as Air Quality Maintenance areas for particulate matter, the Wisconsin DNR and the University of Wisconsin are cooperating on the development of an air quality model for the area. Three types of air pollution sources are included in the model: line sources consist of main transportation routes; point sources are generally major factories, power plants or incinerators; and area sources are a catchall category for other, generally diffuse pollutant sources.

Map 11.3 Location of Major Air Pollution Point Sources in the Green Bay Air Quality Maintenance Area



Source: This map was drawn from a computer-generated map produced by Professor Kenneth Ragland, Department of Mechanical Engineering, University of Wisconsin-Madison.

Figure 11.1 Predominant Wind Directions in Green Bay



Each of the three counties has been divided into a grid of squares one mile on a side. Line and area sources are assumed to create uniform conditions throughout each one mile square, whereas point sources are treated individually. Using information on emission characteristics and meteorological data, computer models have been created which chart the dispersion of suspended particulate matter and sulfur dioxide throughout the region. These simulation runs can be aggregated to produce maps of expected yearly average pollutant concentrations. For the base year of 1975 the model results are compared to the monitoring data in order to validate the model. A number of different assumptions regarding future industrial and population growth and emission standards are then postulated and the air quality simulated.

The development of a reliable simulation model is the essence of air quality maintenance planning because it permits one to anticipate rather than react to environmental problems as they develop. A necessary component of this reaction, however, is an organization which has the authority to consider air quality in making a wide variety of land use, transportation and regulatory decisions. It is uncertain at this point how the results of the air quality maintenance study will be incorporated into the planning process in the three counties.

Emission sources are currently being regulated on an individual basis by the Wisconsin DNR. Nine of the 46 point sources which have been identified (many of which have several stacks) were, as of July 1976, under orders from the state to reduce their emission. There are an additional six orders outstanding which cover sources not included in the air quality model. By far the most significant air quality problem is that of particulate emissions; all but one of the abatement orders referred to this as being the primary problem. Significant progress appears to be taking place in most cases although in several instances prosecution by the attorney general's office has been recommended.

In addition to the regulation of existing emission sources, the effect of new air contaminant sources on ambient air quality is evaluated before construction is approved. This is in recognition that even plants meeting normal emission standards may, in some industrialized or populated areas, reduce air quality to an unacceptable degree. In addition, air quality impact is one of the factors which is included in environmental impact statements required of federal and state-assisted projects. Thus, there is an air quality counterpart to the "water quality limited" concept discussed earlier; emission sources in areas already threatened by significant pollution can be required to comply with stricter standards than would apply generally to sources of the same type operating in a different location.

### III. SOLID WASTE MANAGEMENT

In this section the solid waste disposal practices currently in use in the Lower Fox River Basin will be discussed. This aspect of environmental quality is undergoing quite rapid change in response to federal and state legislation. Both privately and publicly owned sites are now licensed by and subject to the rules of the Wisconsin Department of Natural Resources [Wis. Adm. Code NR151]. State objectives in licensing disposal sites include eliminating or minimizing the impact of solid waste disposal on:

- (1) the land, through setback and visual screening requirements, operating procedures designed to minimize windblown material and the containment of active landfill sites to the smallest practicable area;
- (2) air quality, through controls on incineration and open burning; and
- (3) water quality, through the prohibition of disposal operations near navigable water or on a floodplain and in areas where groundwater contamination may result; in addition, site drainage must be suitably controlled.

Landfill licenses must be renewed yearly, with a \$50 fee charged to cover the costs of administration and an inspection of the site, usually once per year, by DNR personnel.

Landfill regulations, which are being enforced with increasing effectiveness by the Wisconsin DNR, will serve to direct the present inquiry primarily to the question of efficiency. Performance criteria have been set administratively and are, in the great majority of cases, being met. This is in contrast to the much more difficult to solve area of water quality. This section thus becomes an inquiry into how citizens of the Lower Fox Valley are organizing and may organize in the future so as to minimize the cost of regulatory compliance.

While regulations are to be assumed largely exogenous to the present discussion, they are not to be thought of as unchanging. The sanitary landfill is technology's best current answer to the disposal of nonreclaimable waste. While specific disposal techniques will certainly change over time, it is unlikely that any advances made will be in the direction of less stringent regulations or toward less capital-intensive disposal methods than the landfill. As recycling comes increasingly into use, the financial attractiveness of consolidated waste handling sites serving increasingly larger populations becomes even stronger than is presently true for sanitary landfills. Thus any current trends toward consolidation noted in this study are likely, if anything, to grow stronger over time.

The Wisconsin Solid Waste Recycling Authority was discussed in some detail in Chapter 4. Two of the counties falling partially within the Lower Fox Basin--Outagamie and Winnebago--were included in the first of the initial solid waste recycling regions to be formed. Progress in the general direction of a recycling program is continuing as evidenced by recent moves to create central county landfills in both counties and by use of a shredder at the Outagamie County site. Actual implementation of a regional recycling program seems to be some distance in the future, however.

What follows is an outline of current disposal practices in the Lower Fox Valley. This section is based on reports issued by local and regional planning agencies, conversations with local planners and on landfill permit applications on file with the Wisconsin Department of Natural Resources. Each county will be discussed separately with respect to its current operating sites, followed by information on progress being made toward county or regional consolidation of the collection and/or disposal of solid waste.

### Brown County

According to Department of Natural Resources records, there are currently 13 solid waste disposal sites with permits to operate in that part of Brown County falling within the Lower Fox Basin. Seven of these are modified or sanitary landfills operated by villages or towns; five are noncombustible landfills used primarily for the deposition of demolition material, fly ash and paper mill waste; the final site is the newly approved county sanitary landfill.

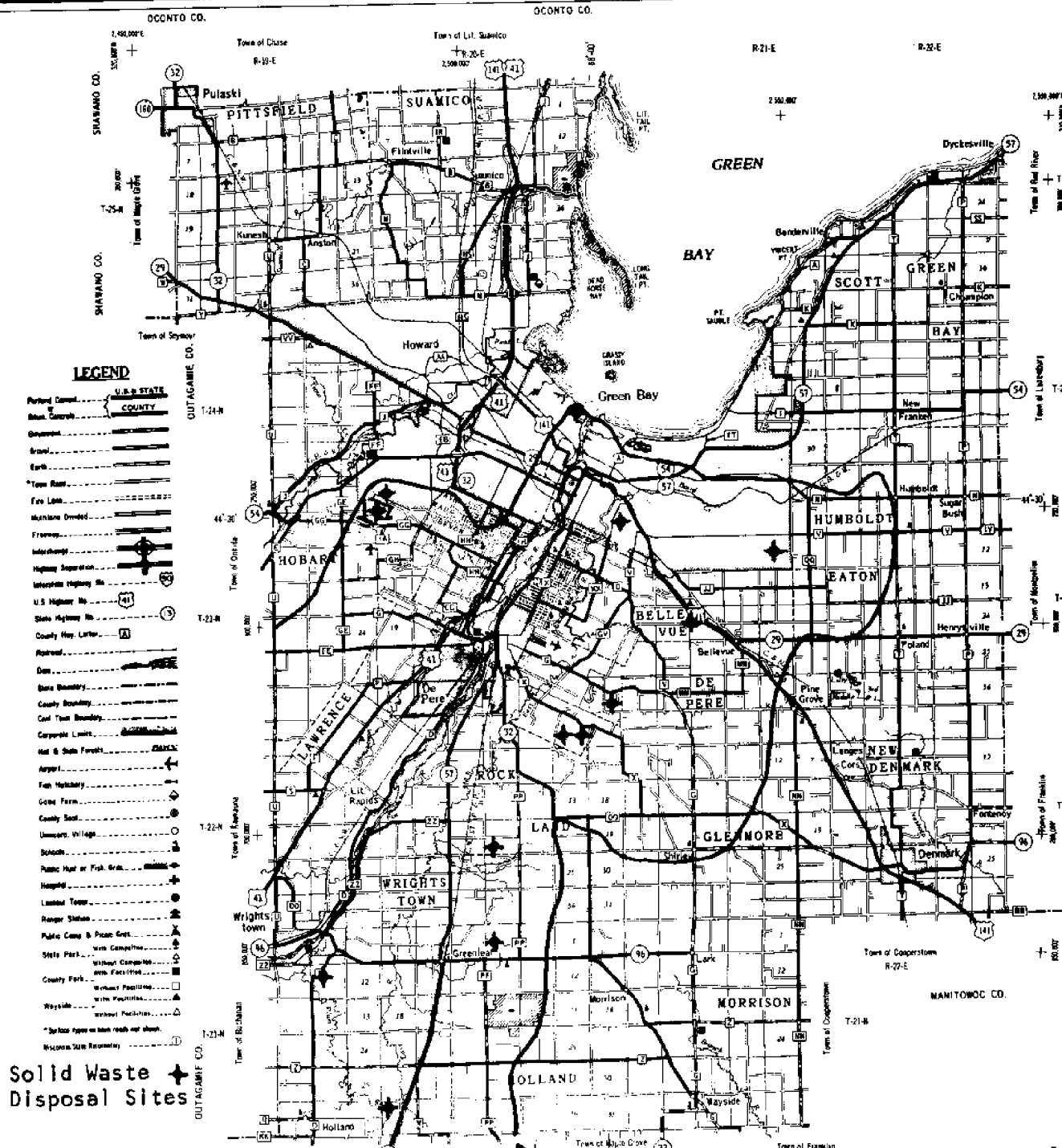
In addition to licensed sites, the Brown County Sewage and Solid Waste Plan [1972] identified nine more sites which had, at least in the past, been used for dumping. Most contained demolition material or incinerator ash and at least theoretically are not currently in use.

The 1972 report visualized the eventual use of three sanitary landfills to serve the entire county. Residents to the northwest of the Lower Fox River would be served by a north landfill area; most people to the southeast would be served by an east landfill area; a south landfill would serve the communities of DePere and Wrightstown along with those residing in the southern portion of the county. While specific landfill sites were not discussed in the report, three areas of the county--four mile diameter circles--were indicated as generally desirable locations.

The county subsequently chose to disregard the consulting firm's conclusions with respect to the number and location of landfill sites while adopting the general principle of a county operated system. Two sites have been chosen by the county and have received DNR approval. An eastern site, lying within the Lower Fox Basin, is expected to begin operation in the fall of 1976. It will initially serve the cities of Green Bay and DePere and the villages of Howard and Pulaski--the latter two lying outside the basin. A second location--on the western side of the Lower Fox but outside the basin--is expected to open somewhat later.

Use of the sites will be open to all Brown County residents on a fee basis, but communities will not be required to participate. The question of whether the sites will be available to nonresidents has not yet been determined, largely because none have expressed an interest. Since the western site is only about two miles from the Outagamie County border, it would seem likely that the question might arise in the future--but for the presence of a financial incentive to be discussed later. The newly created Brown County Solid Waste Authority will operate the

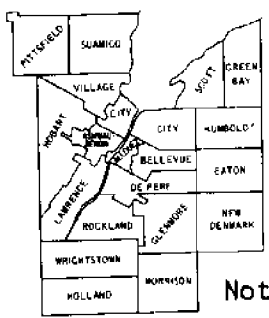
# Map 11.4 Approximate Location of Solid Waste Disposal Sites in Brown County



### LEGEND

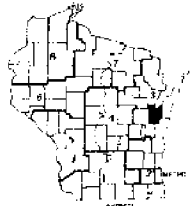
- U.S. STATE
- COUNTY
- Interchange
- Highway Separation
- Interstate Highway
- U.S. Highway
- State Highway
- County Hwy. Letter
- Roadway
- Dist.
- State Boundary
- County Boundary
- Coal Tract Boundary
- Corporate Limits
- Met & Salt Ponds
- Arroyo
- Fish Hatchery
- Game Farm
- County Seat
- Unincor. Village
- School
- Public Heat or Frig. Sta.
- Hospital
- Lumber Town
- Ranger Station
- Public Camp & Picnic Gr.
- State Park
- County Park
- Wayside
- Wagon Road

Solid Waste Disposal Sites



TOWNSHIP NUMBERING

1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16
17	18	19	20
21	22	23	24
25	26	27	28
29	30	31	32



MILES OF HIGHWAY

STATE	48
COUNTY	215
TRUCK ROADS	102
OTHER ROADS	1
TOTAL FOR COUNTY	366

Land Area

State	355,563.36
County	1,517.298
County	Green Bay

Lower Fox River Basin Boundary

**BROWN CO.**  
DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
STATE OFFICE BUILDING  
MADISON, WISCONSIN

Note: Site Locations added to DOT map on the basis of Wisconsin DNR permit files.

weigh station and billing at each site, while the remaining operations will be carried out by private contractors selected through competitive bidding.

An item of particular interest because of the manner in which it reflects the value of increased coordination among organizational missions is a recently completed agreement between the city of Green Bay and the County Solid Waste Authority. It provides for the use of municipal waste for power generation within the city, with the residual waste then to be turned over to the landfill. Along with the value of the power generated, this approach promises to lengthen the useful life of landfills, although possibly at the cost of increased air pollution.

The county ordinance providing for creation of the landfill sites required that all costs--land, administration and operation--be paid for through user fees. Modification of this principle is being considered, however. Because the sites will be turned into county parks when landfill operations are completed, it has been thought by many to be more equitable to have the land paid for by general county funds.

### Calumet County

Only a small part of Calumet County is included in the Lower Fox Basin. Located very near the basin boundary is one currently licensed solid waste facility, a modified sanitary landfill serving the town of Brillion.

Two other towns, Harrison and Woodville, are located partially within the basin. Harrison is served by a private concern having an in-basin disposal site in Outagamie County while Woodville operates a one acre site within Calumet County but outside the basin. No privately operated sites are licensed for operation in the Calumet County portion of the basin.

A report by the Calumet Department of Planning [1973] recommends initiation of a county-wide solid waste collection system but does not go as far as proposing a specific plan of action. The report mentions, however, that a new incinerator in the city of Chilton will be of sufficient capacity to accept the solid waste generated by the entire county.

For purposes of this study, Calumet County's contribution to the solid waste generated and disposed of within the basin is not significant. The incinerator in Chilton is more than a dozen miles south of the basin boundary and only two Calumet County communities, both very small, fall within the basin. A small portion of the city of Appleton falls within Calumet County, but it is likely that the solid waste generated by this population will be handled along with that generated by the larger part of Appleton, which lies within Outagamie County.

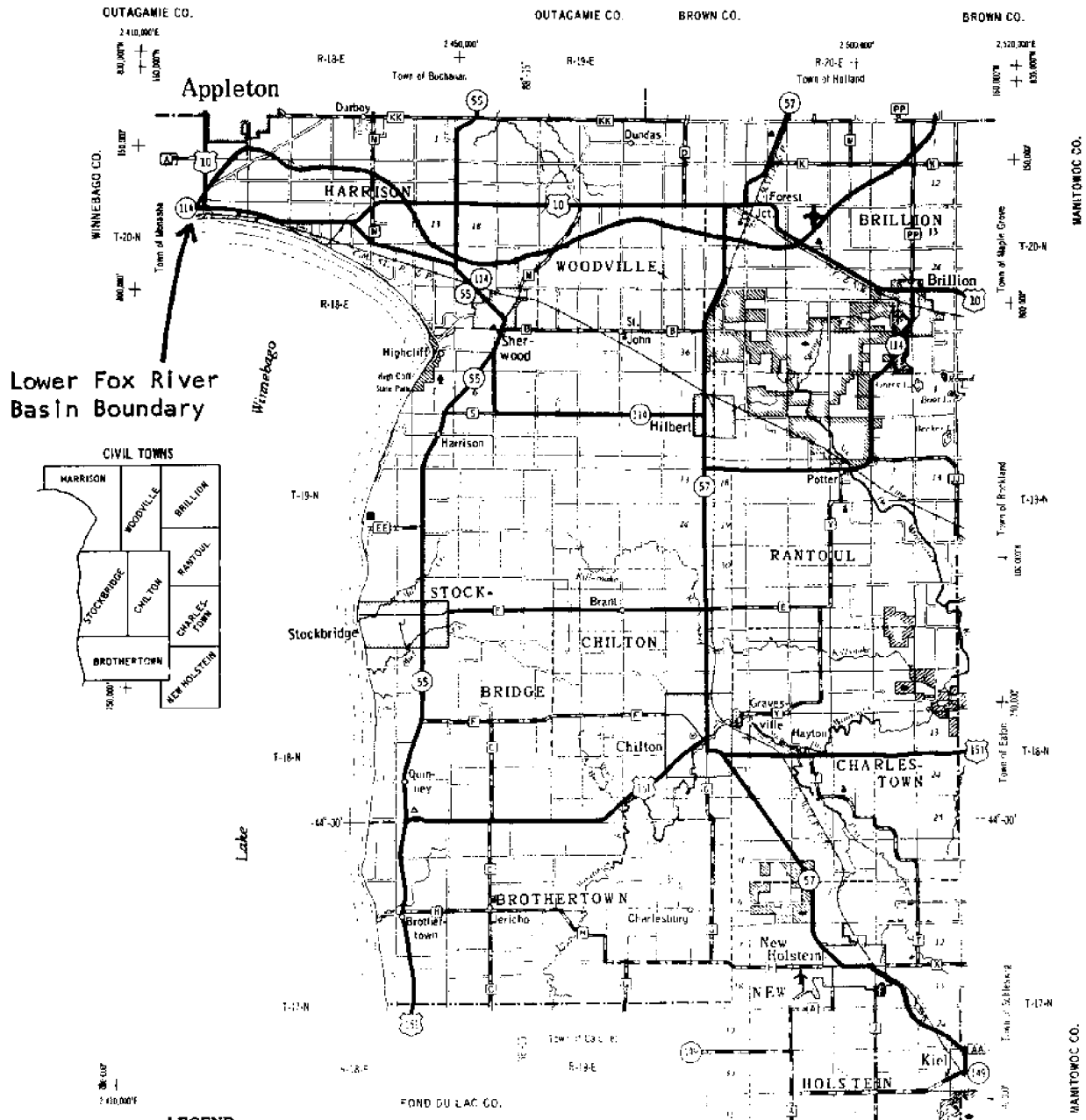
### Outagamie County

Eight Outagamie County solid waste disposal sites lie within the Lower Fox Basin. Five are sanitary landfills; one is a modified sanitary landfill; one is for noncombustible material; and one is for the disposal of ciders, woodbark, cellulose material and Kraft process mill wastes. Four of these sites are publicly operated, one of them being the newly established Outagamie County landfill. Two sites are owned by paper companies while the remaining two are largely privately owned landfills serving a number of communities and industries in both Outagamie and Calumet Counties.

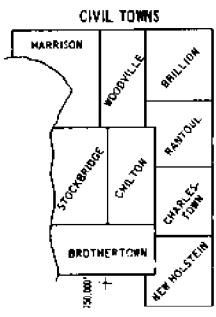


Map 11.5 Approximate Location of Solid Waste Disposal Sites in Calumet County

CALUMET 8-3



Lower Fox River Basin Boundary



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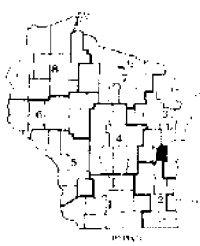
Portland Cement or Blum Concrete	U.S. STATE	Canal Town Boundary
Bituminous	COUNTY	Corporate Limits
Gravel		Nat & State Forests
Earth		Airport
*Town Road		Fish Hatchery
Fee Lane		Game Farm
Highways Divided		County Seat
Freeway		Unincorporated Village
Interchange		Schools
Highway Separation		Public Hunt or Fish Grids
Interstate Highway No.		Hospital
U.S. Highway No.		Lookout Tower
State Highway No.		Ranger Station
County Hwy. Letter		Public Camp & Picnic Grids
Roadroad		With Gas/Elctric
Dam		Without Gas/Elctric
State Boundary		County Park
County Boundary		Without Facilities
		With Facilities
		Wayside
		Without Facilities

\*Surface types on town roads not shown

**Solid Waste Disposal Sites**

TOWNSHIP NUMBERING

16	17	18	19	20	21
25	26	27	28	29	30
34	35	36	37	38	39



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DIVISION OF HIGHWAYS  
STATE OFFICE BUILDING  
MADISON, WISCONSIN

SCALE: 1" = 10 MILES

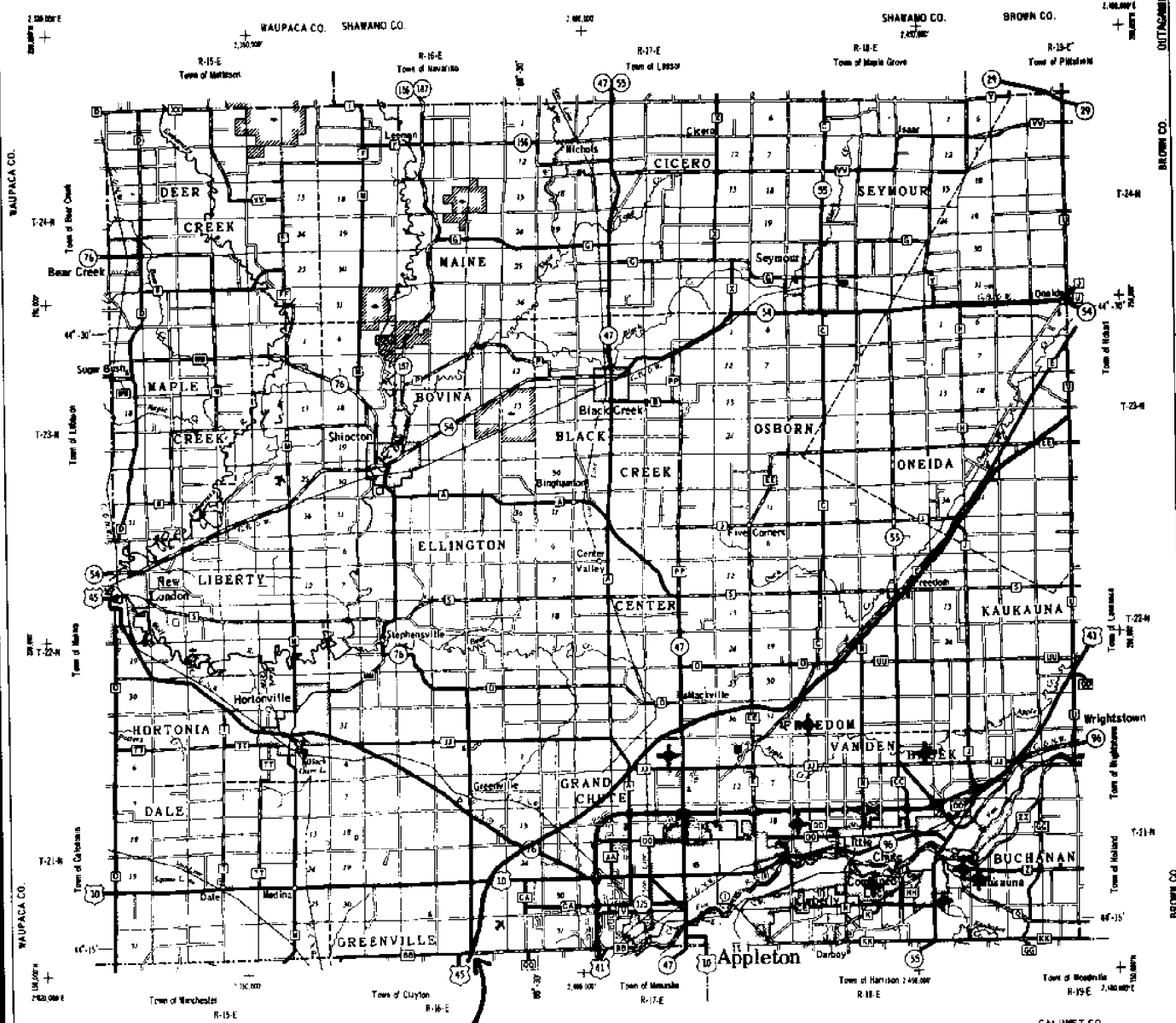
DATE: JAN. 1979

Prepared by: S.E. Quadrangles  
Based on Aerial Photographs

Note: Site Locations added to DOT map on the basis of Wisconsin DNR permit files.

CALUMET 8-3

# Map 11.6 Approximate Location of Solid Waste Disposal Sites in Outagamie County



- LEGEND**
- |                        |            |                           |
|------------------------|------------|---------------------------|
| Portland Cement        | U.S. STATE | Civil Town Boundary       |
| Open Concrete          | COUNTY     | Corporate Limits          |
| Brumstone              |            | Nat'l & State Forest      |
| Gravel                 |            | Airport                   |
| Earth                  |            | Fish Hatchery             |
| *Town Road             |            | Game Farm                 |
| Fire Lane              |            | County Seat               |
| Machine Oil            |            | Unincor. Village          |
| Freeway                |            | School                    |
| Interchange            |            | Public Plant or Fish Grd. |
| Highway Separation     |            | Hospital                  |
| Interstate Highway No. |            | Locked Tower              |
| U.S. Highway No.       |            | Ranger Station            |
| State Highway No.      |            | Public Camp & Picnic Site |
| County Hwy. Letter     |            | State Park                |
| Roadway                |            | Wired Campsite            |
| Dike                   |            | County Park               |
| Site Boundary          |            | Waste Facility            |
| County Boundary        |            | Waste Facility            |

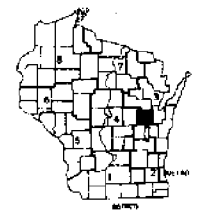
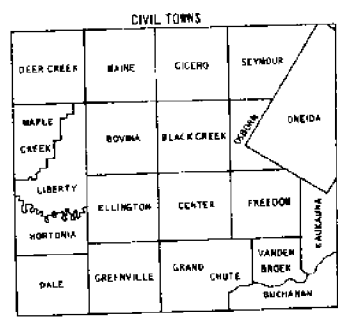
## Lower Fox River Basin Boundary

WEIRS OF HIGHWAY  
NO. 104, 1953

STATE	128	Land Area	631 Sq. Mi.
COUNTY	381	Forest Area	110,706
LOCAL ROADS	1,270	Co. Seat	Appleton
OTHER ROADS	1,074		
TOTAL FOR COUNTY	1,953		

TOWNSHIP NUMBERS

0	5	4	1	2	7
1	6	9	10	11	22
2	8	17	16	27	16
3	18	20	21	22	23
4	19	26	28	27	29
5	31	32	33	34	36



**OUTAGAMIE CO.**  
DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
STATE OFFICE BUILDING  
Madison, Wisconsin

SCALES  
1" = 10 MILES  
1" = 20 MILES

**Solid Waste Disposal Sites**

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Based on Aerial Photographs

Note: Site Locations added to DOT map on the basis of Wisconsin DNR permit files.

A considerable amount of study has gone into solid waste disposal in this county. A 1970 report by the Northeastern Wisconsin Regional Planning Commission discussed disposal sites within the county with respect to their location, use and any environmental quality problems associated with their operation. Five of the eight currently licensed sites were covered by this survey. Only one of these was reported to be operating without apparent problems. Proximity to water--surface and/or groundwater--was a problem common to all four while illegal burning was reported at one.

A 1972 study by the East Central Wisconsin Regional Planning Commission added one additional site to the five covered in the previous report, a sanitary landfill newly developed by the city of Kaukauna. Evaluation of its efficiency was not possible because it had not yet been opened for use at the time the information for the report was assembled. Of the four sites having operational problems at the time of the previous study, only one had progressed substantially in the intervening two years.

In addition to studies of existing disposal sites, several reports have analyzed alternative future disposal methods for the county. A 1970 study by the Fox Valley Council of Governments, Solid Waste Disposals in Outagamie County, discussed the impact of newly passed solid waste disposal regulations on existing facilities. In some cases dumps would have to obtain variances or close because of proximity to floodplains, highways or dwellings. In others facilities would have to be upgraded to the standards of a modified or sanitary landfill because of the large numbers of people using them.

Using the necessity for upgrading or replacing existing facilities as a basis, the FVCOG report proceeds to discuss the potential advantages to rural areas of joining a county-wide system using a few sanitary landfill sites. Participation by the county's major metropolitan areas would insure that the costs of an efficiently run landfill would not become burdensome on a per capita basis, as they might if small communities were to individually add the manpower and equipment necessary to upgrade their operations to meet state standards.

It is suggested in the report that the county is the appropriate level of government to undertake such a coordinated program--a conclusion which is not as obvious as it might first appear because the major cities in the county would also be capable of managing such a system. A user charge system of financing disposal operations is visualized, based on the amount of waste accepted from each municipality.

The physical operation of a county-wide system would involve a series of collection points around the county where residents could deposit their refuse in a transportable container. When filled, the containers would be replaced with empty ones and removed to the landfill. The hauling costs from rural pickup points would be averaged in the calculation of rates; communities distant from the landfill would be charged at the same rate as those nearby. Individual billing--rather than financing through general county revenue--would mean that hauling costs would be paid for by the rural residents generating those costs rather than by the largely urban county tax base, assuming that urban areas would continue to provide for their own waste collection and transportation to the landfill. Individual billing would also permit the operation to ignore local political boundaries in the extension of service. This would tend to be somewhat restrained by a probable unwillingness on the part of county residents to share the burden of serving a distant community lying outside the county. An alternative rate structure not suggested in the report could involve charging communities within the governing jurisdiction

on an average-cost basis but billing outside communities according to the cost of serving them, thus giving communities outside the county the option of participating. They may find such participation attractive if there is no centralized site serving them or if the cost of using a landfill in their own county would be greater.

A consultant's study [Donohue and Associate, Inc., 1970] completed at about the same time as the above mentioned report discussed the pros and cons of two alternative approaches to handling the county's solid waste. One involves the use of a single large (approximately 640 acres) landfill site over a 30 year period, while the other possibility would utilize a larger number of small sites over the same period, with perhaps only two in operation at any one time. This latter approach would have the advantage of permitting the filled areas to be turned over more rapidly to another use. This report is oriented more toward the needs of urban areas for disposal sites than the development of a program to serve rural areas and as such complements the previously mentioned FVCOG study.

In another 1970 study prepared by the Fox Valley Council of Governments, Proposed Landfill Sites for Outagamie County, the Outagamie County Ad Hoc Committee on Solid Waste Disposal recommended narrowing the choice of landfill sites to between two areas. One would be near the Outagamie County Airport while the other would be north of Appleton. Both potential sites would probably have fallen within the Lower Fox Basin.

Some of the same suggestions contained in other reports are repeated. Making use of the site available to any community on a user fee basis, including communities outside the county, is suggested. The importance of urban participation to an economically viable landfill operation is also stressed; 92 percent of the county's solid waste is produced by these urban areas. The use of a single landfill by all urban communities is not necessary, however; 50,000 tons per year is an adequate volume to support a demonstration project while metropolitan areas produced, as of 1970, over 122,000 tons per year.

Choosing an operator for a landfill is not thought to be critical. City, county and private operation should be compared with respect to convenience and cost. Ownership should be determined primarily by the proposed future use of the site after its retirement as a landfill--a factor also observed in the preceding Brown County discussion.

The report suggests that the choice of a site should be governed by a realistic appraisal of the costs involved in the entire waste disposal process. Because only about 15 percent of the annual cost of operating a sanitary landfill is associated with the cost of the land, the more expensive land near a population center might actually be more desirable than the cheaper wasteland often sought. Not only would the cost of transporting the waste be reduced, but the park which is often planned as a successor to the landfill operation would be closer to the people whom it would be designed to serve.

As in the case of Brown County, the Outagamie County site finally chosen was not among those proposed in earlier reports. It is, however, located near the heavily populated communities along the Lower Fox, thereby fulfilling one of the prime locational criteria mentioned in the 1970 FVCOG study. The county site was initially used only by the city of Appleton, with a disposal fee set at \$6.00 per ton. As of April 1, 1976 use of the site for disposal of waste generated in

Outagamie County and capable of being processed through the shredder became free. Operation of the site is financed by a combination of federal revenue sharing funds and a \$6.00 per ton charge retained for material not suitable for shredding. The absence of a dumping fee resulted in use of the county site by the city of Kaukauna, the villages of Kimberly and Combined Locks and a number of towns and private haulers. The implications of this financing policy for solid waste disposal in the Lower Fox Valley will be discussed in greater detail later on in this section.

### Winnebago County

A small portion of the northeast corner of Winnebago County falls within the Lower Fox Basin while the remainder of the county drains into the lakes upstream of the Lower Fox. There are six licensed landfill sites in this former portion of the county--one sanitary landfill, one modified sanitary landfill, three sites for noncombustibles and one dump for semiliquid wastes from a chemical company.

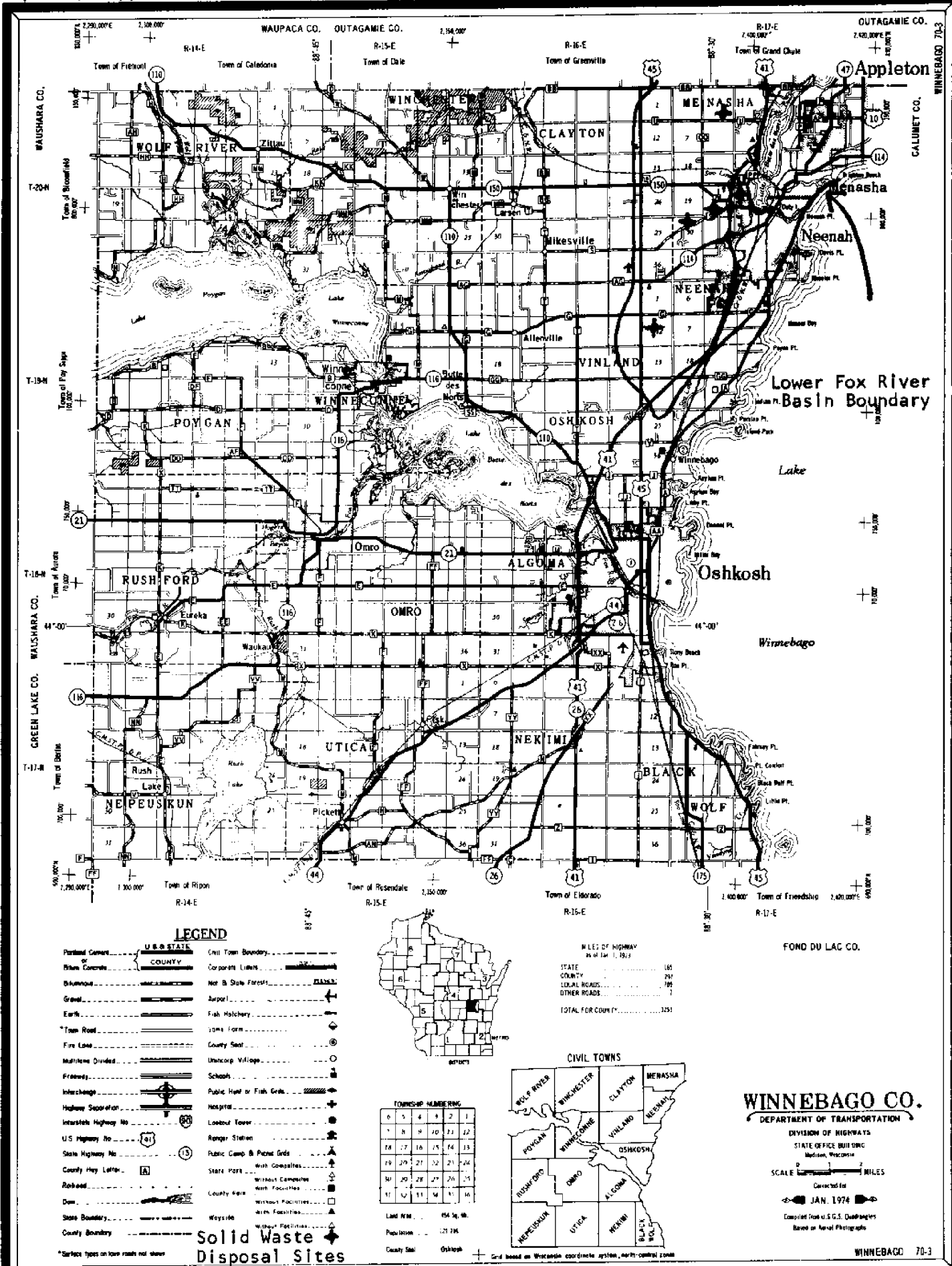
There is a considerable amount of cross-boundary transportation of solid waste in the case of Winnebago County. The cities of Neenah and Menasha are served by a privately owned disposal site in Outagamie County. The towns of Neenah and Clayton--only a small portion of the latter being within the basin--both use the town of Clayton site which is not within the basin. Additionally, a private site in Black Wolf Township in the southeast corner of the county accepts noncombustible material from sources in the towns of Neenah and Vinland.

There are only two publicly owned landfill sites in the Winnebago County portion of the Lower Fox Valley. One of these was described in a 1971 report by the Northeast Wisconsin Regional Planning Commission as having both a high and fluctuating water table, leading to intermittent saturation of the refuse. This condition could result in a water pollution problem at the site although later DNR inspections do not indicate this to be a problem. The second publicly owned site has come into use since the 1971 report was published while the private sites were not evaluated.

The 1971 report proposed the creation of five solid waste disposal service areas within the county. At the time this study was conducted, a significant number of the sites in operation in the county were either badly located with respect to water or nearby land use or were not being operated according to regulations. The five area plan was seen as a means of minimizing the number of new sites which must be found within the county while easing the total financial burden of regulatory compliance, particularly with respect to small communities. One of these five areas, region IV, would encompass most of that part of Winnebago County falling within the Lower Fox Basin. Specifically, it would have included the townships of Clayton, Menasha and Neenah and the cities of Menasha and Neenah.

It appears that the plan suggested in the 1971 report will not be enacted. Instead, it is presently anticipated that a newly formed Winnebago County solid waste board will soon open a single county landfill adjoining the present town of Oshkosh landfill. While the board has general powers allowing it to borrow money for land purchase, there is some sentiment that the land should be owned by the county. Resolution of this question is expected soon, with the landfill expected to open in the summer of 1976. The site will not be within the Lower Fox Basin.

Map 11.7 Approximate Location of Solid Waste Disposal Sites in Winnebago County



Note: Site Locations added to DOT map on the basis of Wisconsin DNR permit files.

## Summary

A subject which was initially of particular interest to this project was the movement of solid waste across basin boundaries. The primary impetus for this concern was the feeling that solid waste disposal decisions made by local governments could tend to exacerbate existing water quality problems in the valley if such decisions resulted in the large scale use of basin disposal sites by non-residents.

Concern in this area has diminished for several reasons, primary among them being the stringent controls on landfill location, design and operation discussed earlier. While total regulatory compliance may still be several years away, it is reasonable to expect that the impact of solid waste disposal on surface water quality will be reduced to insignificance in the relatively near future regardless of any cross-basin movement which might occur.

Another interaction of possibly greater significance is the effect of wastewater treatment and air quality regulations on the problem of solid waste disposal.

The previously mentioned restrictions on open burning and incineration at solid waste disposal sites, plus the apparent economic disadvantages to incineration, will also serve to increase the quantity of waste which must be disposed of at landfills beyond what one would normally expect to result from economic and population growth.

The sludge generated by wastewater treatment facilities must be disposed of, with land disposal being the only realistic possibility in the study area. This problem of sludge disposal is related not only to the population served by a treatment facility but to the level of treatment required. In the case of advanced treatment, not only must the organic matter and solids originally present in the wastewater be landfilled, but the residues from chemicals added during the treatment process pose their own added problems.

The disposal of these residuals in the Lower Fox Valley does not appear to be a major problem, at least compared to what one might expect to occur in other metropolitan areas; undeveloped land is available within a reasonable distance of all municipalities in the valley. In addition, one would expect state regulations to insure that sludge disposal does not become an environmentally degrading process.

The interrelationship between wastewater treatment and solid waste disposal deserves consideration to the extent that management decisions made in one area may influence the options open to and incentives faced by the other area. This is not the same as the more simplistic statement sometimes heard--cleaning up water pollution merely creates land pollution. The premise here is that the disposal of sewage sludge will not have a significant adverse environmental impact, but that achieving this outcome will have a significant but not unreasonable cost.

This interrelationship is sometimes used as an argument for the utilization of a single management agency to oversee both solid waste disposal and wastewater treatment for a given geographic area. It would seem, however, that the increasingly common practice of relying on private or county operation of a central landfill facility will serve quite adequately. As long as participating municipalities--or central treatment authorities, as the case may be--are billed according to the real cost of sludge disposal, there seems little need for integrated management. Those in charge of determining treatment plant design and operating procedures would be faced with the real costs of alternate treatment strategies, at least as far as sludge disposal is concerned.

A more elegant approach, and one which would support an argument for integrated management, would be to consider land and water quality as two simultaneously solvable components of a single environmental quality problem (ignoring air quality for the moment). One could conceive of a situation in which society would be willing to spend a given amount of money improving environmental quality but had not yet made a decision concerning the allocation of funds between these two functional areas. Society could, for example, accept the consequences of a less expensive and more environmentally degrading disposal method for treatment plant sludge in exchange for allowing the treatment plant to produce higher quality effluent. This would in effect be exchanging land quality for water quality. While such a trade-off would be better made politically than administratively, integration of the two functional areas into a single agency might be considered desirable as a means of facilitating the development of alternatives.

As suggested in previous paragraphs, however, there seems little practical likelihood that land disposal standards will become negotiable. While specialized techniques may come into use which permit sludge to be disposed of at a lower cost than the more heterogeneous waste generally handled by a landfill, such savings will result from increased efficiency rather than a trade-off among environmental quality parameters. Thus, given fair pricing policies, there seems little to be gained by combined management of these two areas.

Two points in particular must be made regarding pricing policy. The first is that as in the case of all waste which must be disposed of, urbanized areas will of necessity be faced with using disposal sites outside their jurisdiction. If the pricing policies of rural disposal operations are designed to tax nonresident users rather than merely recover the costs of waste disposal, a distortion of the incentives present may result.

A second distortion may result from the way in which general government funds might be used to cover the cost of some environmentally oriented activities. If solid waste disposal were to become subsidized in a manner similar to wastewater treatment, this would tend to result in the understatement of the true cost of all activities producing solid waste as a by-product--wastewater treatment among them. The landfill financing plan to be used for the remainder of 1976 by Outagamie County may in the end be an "introductory special" to demonstrate the advantages of a central landfill to county residents. For this purpose it may be quite valuable in permitting the landfill to reach an efficient scale of operation as quickly as possible. An indefinite subsidy of landfill users, however, should be considered with a full appreciation of the incentives that it would offer to the generators of solid waste.



REFERENCES: CHAPTER 11

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## Chapter 12

### OPERATIONALIZING THE "IDEAL"

#### I. INTRODUCTION

The goal of this final chapter is to operationalize the regional organizational "ideal," first outlined in Chapter 5, in light of the real world constraints discussed in subsequent chapters. In Section II, provisions of federal legislation which are important to the design of a Regional Environmental Quality Authority are reviewed.

Section III contains a rather detailed outline of the characteristics of proposed enabling legislation for the establishment of Regional Environmental Quality Authorities. While rather specific statutory language is used in this presentation, it should in all cases be viewed merely as a starting point for a discussion of the particulars of state enabling legislation. The basic functions of a REQA should be the subject of detailed discussion both at the time enabling legislation is drafted and when individual local agencies are proposed. While recommendations are made and points of view occasionally advocated in this chapter, the arguments presented here should in no way be considered substitutes for the careful analysis of the rapidly changing physical, technological and political aspects of environmental quality improvement which must precede the passage of such legislation and no substitute for the careful consideration of a specific locality's unique characteristics.

A number of rather specific recommendations are made however:

- (1) Regional Environmental Quality Authorities would be created in response to locally initiated petitions.
- (2) The state should specify a minimum set of powers required to make a REQA viable, but leave as much discretion to local residents as possible.
- (3) A REQA should be governed by elected representatives.
- (4) While the REQA will be involved in regulatory and enforcement activities, it should be considered primarily a policy making body.
- (5) The governor should have final authority concerning REQA creation and continuation, with the advice and assistance of a Board on Regional Authorities.

Finally, Section IV suggests how the opportunities offered by this enabling legislation might be implemented in the Lower Fox Valley, particularly with respect to how districts might be designed.

#### II. THE FEDERAL INTEREST IN AREA-WIDE PLANNING

It is not the intention of this section to suggest that provisions of current federal law be considered limiting factors in the search for improved organizational forms for environmental quality decision making. This would be far too narrow a view. But current law is a reflection of present (or at least recent) conception

of the national interest and is thus a valuable starting point.

As noted earlier in this report, Section 208 of the 1972 amendment to the Federal Water Pollution Control Act contains the provisions most significant with regard to the present federal viewpoint. Financial aid is available to organizations meeting certain criteria, and powers which the federal government have delegated to the states may in turn be delegated to regional bodies. The following listing provides an outline of those organizational attributes which Congress, as provided for in Section 208, considers important. Omitted are the series of deadlines specified in the act, which will be ignored as being both unrealistic and undesirable for a problem as complex as the one at hand.

- 1) For a given geographic area, the state governor is responsible for designating "... a single representative organization, including elected officials from local governments or their designees, capable of developing effective areawide waste treatment management plans for such an area." [Sec. 208 (a) (2)(B)].
- 2) The organization must be capable of developing a regional waste treatment plan and carrying out a continuing planning process [Sec. 208 (b) (1)].
- 3) It must establish treatment plant construction priorities for communities within its jurisdiction and identify agencies competent to construct and operate necessary facilities [Sec. 208. (b) (2)].
- 4) The regional agency must establish a regulatory program governing the construction and operation of treatment facilities so as to meet standards for federal grants, including the adoption of any necessary pretreatment standards for industrial or commercial wastes [Sec. 208. (b) (2)(C)].
- 5) The organization must identify and evaluate measures to control, "to the extent feasible," pollution arising from agricultural, silvicultural, construction and mining activity [Sec. 208 (b) (2)].
- 6) In addition to the regional planning agency, there may be one or more operating agencies in the area. These agencies, nominated by the planning agency and approved by the governor, are expected to have the authority to:
  - a) Raise revenues (through indebtedness, service charges and the acceptance of grants) for the design and construction of treatment facilities and contract for same. (The regional planning agency may exercise these operating powers rather than delegating them.) [Sec. 208. (c) (2)].
  - b) Operate facilities and otherwise be capable of carrying out appropriate portions of the regional plan. [Sec. 208. (c)(2)].

This summary leaves out many details and distinctions contained within Section 208 of the 1972 amendments, and those with an interest in or need to be aware of these details are encouraged to review the act itself. The outline given is considered sufficient preparation for the following discussion of the characteristics of a viable institution.

### III. SUGGESTED ELEMENTS OF REQA ENABLING LEGISLATION

The goal of this section is to outline an example of how enabling legislation might be drafted which would provide for the justification, creation and powers of Regional Environmental Quality Authorities in Wisconsin. The points discussed here represent only a part of the package which must be submitted to and approved by the legislature. Excluded, for example, are provisions for the issuance of bonds, specific notice requirements and other essential elements of a complete legislative proposal.

The components of this legislation are strongly interrelated, with the somewhat unfortunate result that the significance of portions of the early discussion cannot be appreciated without occasional reference to subsequent portions, a fact which no amount of reorganization can overcome. The reader is therefore encouraged to skim the following proposed legislation before reading the commentaries, which follow each subsection, on that legislation.

#### §1. Statement of Intent.

Continued environmental degradation has aroused widespread public concern. It has endangered the public health and threatens the public welfare. It has frustrated the state in its role as public trustee over Wisconsin's environmental resources.

Variations in natural and man-made phenomena have made difficult the adoption and implementation of a uniform state-wide program of environmental quality improvement. The purpose of this legislation is to further the attainment and maintenance of a healthful and ecologically sound environment by providing for the creation of Regional Environmental Quality Authorities. Such bodies are created at local initiative and in response to local preferences and concerns regarding the improvement of environmental quality. The legislature intends by these enactments to grant such authorities broad powers to engage in planning, rule making, the supervision and operation of financial assistance programs and the purchase, construction and operation of facilities and property for the purpose of attaining these objectives.

The legislature intends that the following provisions and resulting rules and orders of the REQA be liberally construed in favor of the policy objectives set forth in this section.

#### Commentary on § 1.

Future interpretation of the enabling legislation by both judicial and administrative authorities and other interested parties will often depend on the perceived intent of the legislature. Often, however, few provisions are made at the state level for the preservation of the legislative history which might clarify this intent. Committee reports may be incomplete and testimony at many public hearings is often not recorded. Inclusion of this provision may, therefore, provide those who regulate, those who are regulated and the court which reviews the regulation a clear basis on which to interpret the law. The above section, for example, indicates that matters of public and state-wide concern affecting the public health, welfare and trust are involved. It thereby provides an underlying rationale for rejecting constitutional challenges based on the public purpose doctrine, home rule powers or the internal improvement clause. Although the courts will not simply assume the legislature's statement as fact, they will continue to

show a great degree of deference to these legislative findings. In addition, a clear statement of intent provides guidance in interpreting the act. Also, the emphasis on local initiative as central to the process should allay local government fears that the state intends to further reduce existing local power over environmental quality matters.

## §2. Definitions.

The following definitions are intended to apply to all sections of this legislation.

- (1) "Air cleaning device" ...
- (2) "Air cleaning installation" ...
- (3) "Air contaminant"...
- (4) "Air contamination" ...
- (5) "Air contamination source" ...
- (6) "Air pollution" ...
- (7) "Air pollution control apparatus" ...
- (8) "Ambient air"
- (9) "Ambient air quality standards"
- (10) "Authority"
- (11) "Authority costs" ...
- (12) "Board" ...
- (13) "Bond resolution" ...
- (14) "Bonds" ...
- (15) "Department"
- (16) "Development costs"
- (17) "Effluent charge" ...
- (18) "Emission standard" ...
- (19) "License" ...
- (20) "License fee" ...
- (21) "Missions" ...
- (22) "Project" ...
- (23) "Property" ...
- (24) "Region" ...
- (25) "Regulation" ...
- (26) "Revenue" ...
- (27) "Special District(s)" ...
- (28) "User charge" ...

### Commentary on § 2.

Section 2 illustrates a typical definitional section which should be included in the enabling legislation. It provides a standardized vocabulary for the sections which follow and serves to clarify the public discussion of organizational alternatives by defining the exact nature of any particular grant of power to which voters might be asked to agree. It is not, however, uniformly accepted that firm definitions facilitate the coalition building which will certainly be necessary during the process of approving a particular regional authority; ambiguity can be used to provide greater room for bargaining among potential coalition members.

Standardized vocabulary would have benefits for the authority after its creation in that it facilitates understanding of the agency's powers and participation in its processes by citizens who might otherwise be intimidated by jargon. Actions taken

by an authority and petitions presented to the authority can be couched in uniform and identifiable terminology. However, this clear articulation is not without a cost; by establishing strict definitions of power, the discretion of the authority to meet changing environmental problems is clearly limited. In addition, a strict definition of proscribed activities could permit polluters, through minor changes in their production activity, to escape the authority's power while continuing in essence their pollution activity.

The relative benefits and costs arising from carefully structured ambiguity clearly represent a topic for future research.

### § 3. Creation and Organization

(1) If subsequent provisions of this act are met, the governor may create a Regional Environmental Quality Authority.

#### Commentary on § 3. (1)

The objective in making the governor directly responsible for the creation of these authorities is not only to comply with the Section 208 provisions of the Federal Water Pollution Control Act, but to provide for an identifiable and politically responsible source of such power. As will be noted below, it is not expected that the governor's office will be responsible for conducting the many technical reviews and public hearings which will certainly precede authority creation. But REQAs have the potential for fundamentally changing the way in which many quality-of-life decisions are made in this state; it is felt that their formation should not be a matter of administrative routine, as it might be if creation were totally the responsibility of a state agency.

(2) A board shall be created to be known as the Governor's Board on Regional Authorities. It shall be responsible for advising the governor concerning the creation, modification and continuance of all regional authorities and shall have authority to approve or disapprove rules, plans and actions of such authorities according to such instructions and procedures as may be specified by statute.

#### Commentary on § 3. (2).

In Chapter 5, the need to designate a state agent to review the appropriateness of requests for action under the enabling legislation was pointed out. While the governor's office should be given final responsibility for authority creation, technical review and comment should be centered in a body having adequate manpower and a mission sufficiently limited to insure that such reviews are given adequate attention.

The choice of an agent involves several factors. First, the choice must consider the type of information that must be evaluated in the review process and the degree of expertise which is required for the agent. A number of the questions to be addressed by the reviewing agent in this instance are of a highly technical nature, requiring specific expertise with respect to environmental matters. The Wisconsin Department of Natural Resources appears to possess adequate technical resources and expertise to explore these problems. In contrast, other possibilities such as the local circuit courts or a special board appointed by the governor appear to be relatively less capable. However, the highly technical nature of the material may not be a hindrance if the court or the board is authorized to appoint a referee

to take testimony and render findings of fact and of law with respect to the initiating petition. This process is authorized under Wis. Stat. 270.34 (1973) for Wisconsin courts. The court may review the report and, on motion, enter or modify the judgment and/or may require the referee to modify the report as necessary.

Second, the choice must consider the degree of discretion granted to the reviewing authority in approving the petitions. If the enabling legislation provides little discretion, that is if it only requires the agent to review factual material with respect to compliance with the enabling legislation, then the court may be justified as a review agent. In reality, however, the proposed enabling legislation is likely to permit the reviewing agent to make discretionary decisions with respect to the determination of an appropriate region, appropriate mission(s) and appropriate powers. In an analogous case, a state statute which required the circuit court to determine whether a particular annexation was "in the public interest" was found unconstitutional; the Wisconsin Supreme Court held that matters of public policy and statecraft were not appropriate questions for the courts.<sup>1</sup> This would appear, therefore, to eliminate the use of a state court as review agent under the proposed enabling legislation.

Third, the choice must also consider the role of the review agent in the development of the proposed authority. The agent, in the enabling legislation proposal, is envisioned to play an active role by providing the petitioners with technical information for the formulation of the authority's powers and jurisdiction. Many of the powers which would be assumed by a REQA are now exercised by the Wisconsin DNR, giving that department a particularly advantageous insight into some of the specific problems which the agency would face. In addition, it is expected that a regional authority would continue to rely on the DNR for technical information and possibly some enforcement assistance. Thus, giving DNR primary review power would facilitate a smooth transition from state to regional decision making without the need for an intermediary.

The DNR could also, however, be at a relative disadvantage, depending upon the powers to be possessed by the REQA. While an important objective will at least initially be to facilitate water quality improvement, local citizens may opt--initially or at a later date--to grant it more comprehensive authority over less technical and more social welfare oriented objectives. Issues of environmental quality improvement tend to merge with other problems, such as land use and transportation planning. In approving such things as sewer extensions, a REQA may at some point be expected to consider not only the impact of a pattern of development on water (or air) quality, but also the impact on the more general welfare of the area. While such considerations might not predominate at present, it would appear desirable to create a regional authority approval structure which is adaptable to changing conditions. Local citizens may, for example, find it desirable to merge a REQA with a water supply district or a regional planning commission. While such action would require modification of narrowly drawn enabling legislation, such an expansion of powers might someday be found desirable. To center the approval of authorities within a relatively single purpose agency such as the DNR would be to miss an opportunity to finally provide a mechanism to interrelate the many planning agencies and regional authorities which have been created and which are likely to grow in significance and to provide for the orderly adoption of new planning functions.

A final argument against giving the Wisconsin DNR major review power over REQA approval revolves around the desirability of having a buffer between state-level



environmental regulation and the REQA's. Regional authorities will be expected to cooperate with the DNR in developing policy and management plans. But if REQA's are to be effective, they must be free to articulate local views concerning environmental quality, subject to a clear set of state guidelines rather than being merely convenient mechanisms for carrying out DNR-dictated policies. To make their creation and presumably their continuation subject primarily to DNR review is to place them in a subservient position--one hardly likely to promote originality in thought and independence in decision making. It might be desirable that the DNR not be in a position to apply sanctions to an authority except by convincing an independent third party that such an action is necessary. This would tend to reduce the chance that REQAs might become susceptible to day-to-day staff level intimidation in their operation.

As noted in the legislation, a better approach might be to provide for a governor-appointed board--technically qualified to pass judgement in matters involving water quality but not technically oriented--to govern the formation of REQAs and provide a first level of appeal in cases of conflict between a REQA and the DNR. And as noted previously, such a board might provide a means of coordinating all intergovernmental jurisdictions to insure boundary and mission compatibility. The DNR would remain the primary source of technical advice in the case of REQAs, and it would seem likely that their views would often prevail. But the board would be free to draw upon a wide range of opinions, an option likely to be invaluable if REQAs are given duties which are related more to general social welfare than to environmental quality in the strictest sense.

The direct relationship between the board and the governor will provide for political accountability. Because the governor is ultimately responsible for decisions related to REQAs, he/she will have an incentive to choose board members with care. There will be no doubt as to where dissatisfaction with board actions will ultimately be directed. Such accountability might be lacking if the governor were able to claim only perfunctory knowledge of the manner in which authorities are created and governed.

A potential problem area, however, is the distribution of rule making authority between the governor, the board and the legislature. The legislature will certainly incorporate at least general standards for board operation into the enabling legislation. However, it seems logical that if the governor is to be expected to certify authority creation and operation he/she must have some say concerning the rules under which board decisions are made. But granting the governor complete authority would strip the board of any meaningful decision-making authority. Perhaps requiring both legislative and gubernatorial approval of the rules under which the board operates would provide an appropriate balance. The governor's ability to mold board actions would be somewhat constrained, producing a relative stability in the rules under which it operates. Such stability would seem essential if the board is to gain the public respect which will be necessary both for effective operation and the attraction of highly qualified members.

- (3). The Governor's Board on Regional Authorities shall be composed of five individuals appointed by the governor, with the advice and consent of the senate, to serve staggered terms of five years.

### Commentary on § 3(3)

The specifics of board appointment are being discussed separately because a number of significant points are involved which are somewhat separate from arguments regarding the existence of the board.

Five board members have been specified because the experience of other similar bodies suggests this to be a workable number; enough members to insure a variety of experience and opinion, but not so many that the board is likely to be split into self-reinforcing factions. Raising the number by two or four might be considered, however, if the review power of the board is extended to a larger number of regional bodies or if the REQAs are given broader powers than is anticipated here. A greater number of members would allow for an even greater array of technical expertise on the board. On the other hand, the advantages of technically trained decision makers is sometimes questioned by those who suggest that allegiance to one's profession sometimes inhibits original approaches to problem solving. A board of informed citizens may serve to insure that debate does not become totally incomprehensible to the public and that the criteria which determine the decisions made are broadly based and widely understood.

A basic issue in the matter of board accountability is how independent the board is to be from political influence. A five year term has been specified so as to provide a certain amount of freedom to board members to exercise their judgment without the fear of immediate repercussions which might accompany their service "at the pleasure of" the governor. And having the terms staggered permits some continuity in board operations even in the event of the defeat of an incumbent.

But such security is clearly purchased at the cost of political responsiveness, most directly with respect to the governor's office. If the governor is not free to replace board members as he/she sees fit, then the peoples' ability to hold the governor accountable for the board's policies is weakened. In a sense, however, the staggered terms may strike an appropriate balance; the governor is not free to respond to what may be short run political pressures by "cleaning house." But the governor is nevertheless both allowed and forced to accept some responsibility for the board's policies. Even if the public cannot demand that the governor take action against an unpopular board, they can take measure of the governor's sentiments on the basis of yearly appointments.

Another provision sometimes found in rules governing state appointments, which has been deleted here, is a role for the input of specific interest groups. While the governor will undoubtedly receive advice from many quarters regarding these appointments, it seems unwise to codify this advice by, for instance, specifying that a member be nominated by an association of local governments. Such a process would have the advantage of helping to lead important interest groups toward a cooperative approach to regional problem solving and facilitate acceptance of the authority concept by groups which otherwise might be hesitant. But it might also lead to the recommendation for board membership of people whose main asset is predictability--a perhaps undesirable characteristic for a body which will be called upon to be innovative. A further disadvantage is the fact that the interest groups specified in the law would thereby be granted a perpetual significance which changing opinions and membership in the future may not justify.

(4) Before the governor may establish an authority under (1), a petition requesting the establishment of the authority should be filed with the board and signed by m% of the electors who reside within the boundaries of the proposed authority or by t% of the municipalities having a majority of their territory within the boundaries of the proposed authority.

(a) The petition shall briefly set forth (1) the necessity for the proposed authority; (2) the mission of the proposed authority; (3) the boundaries of the proposed authority; and (4) the powers to be exercised by the proposed authority.

(b) No petition having the requisite number of signatures shall be declared null and void because of defects within the petition, unless the petitioner, following amendment(s) by the petitioners, is unable to correct the same. The petition shall be presumed to have been signed and executed by the electors whose signatures appear thereon, unless proof to the contrary is made to the governor.

#### Commentary on § 3 (4)

We noted in Chapter 5 that, ideally, legislation for a Regional Environmental Quality Authority should enable rather than establish. The primary function of this subsection is to satisfy this requirement. The opening paragraph provides that the process of establishing an authority must begin through a petition from local governments or residents within the boundaries of the proposed authority, thus assuring that the authority has at least a minimal level of public support in the region. Unlike the initiating processes outlined for several special districts in Chapter 7 (Section VI), private petitioners are not limited to landowners. This represents a recognition that concern for environmental quality is not limited to private landowners and that a number of financing devices available to the authority may directly (through user charges or license fees) or indirectly (through higher rents or product prices) affect nonproperty holders.

The choice of an appropriate proportion of electors or municipalities (m and t respectively) must be based on a number of factors. First, the legislature must consider the increasing costs of forming a larger coalition (i.e., to increase the number of petitioners). Second, the legislature should recognize that the initiating petition represents only an initial step in the process of consensus building. The public hearing process, described in subsection (3), permits other interested parties to participate in the formulation of the authority. Third, subsection (3) also requires that a majority of the electors, voting in a regional referendum, approves the format of the proposed authority. Each of these factors mitigates against a stronger than majority rule and may in fact favor a less than majority rule. However, two factors must be weighted against the less than majority rule. First, it must be recognized that the initiating petition forms the basis of subsequent discussions. In essence, nonpetitioners who argue their case in the public hearing bear the burden of persuading the board of the inadequacy of all or a portion of the petitioners' plan. Second, a less than majority rule could encourage a number of frivolous petitions. A number of the "m's" which are currently in use in Wisconsin statutes are illustrated in Table 12.1.

Table 12.1 Examples of M in Wisconsin Statutes

Activity	# of Petitioners	Referendum	Discretion of recipient of the petition	
Investigation Hearings related to 1. Alleged or protested environmental pollution	6 or more citizens	No	DNR retains authority to conduct the investigation	144.537 (1973)
Hearing on 2. Permit applications	5 or more persons	No	DNR retains authority to conduct the investigation	147.03(2)(d)(1973)
Direct Referendum 1. Home Rule	15% of votes cast in the last general election for governor	Yes	Receiving municipal government has no discretion in revising the proposed home rule amendment	§ 9.20 (via 66.01 (6) (1973)
2. Bond petition	10% of votes cast for governor in the last general election	Yes	The receiving local government initially forms the bond issue under challenge by petitioners	66.059 (2m) (1973)
Incorporation of Municipalities	25 persons who are electors and free holders, 50 if the population of the proposed municipality exceeds 300	Yes	The head of the planning function exercises sizable discretion in determining whether the proposed incorporation will include territory reasonably homogeneous and compact, satisfy minimum density requirement, possess present and potential sources of tax revenues, provide adequate levels of governmental services and will have a minimal impact on the remaining unincorporated territory.	66.014 (2)(a) (1973)

In the two petitions for investigation noted, the "m" is small. However, in both instances, the petitioners may not greatly influence the Department of Natural Resource's prosecutor's discretion. Similarly, the small "m's" for the two direct referenda and incorporation provisions outlined appear justified by the subsequent referendum requirement. In these latter two cases, however, the petitioner possesses sizable power in determining the final character of the incorporated government or the basic rule amendment.

In contrast to these examples, sizable m's have been illustrated in Table 7.6 (Chapter 7) for special districts. In these instances, the petitioner exercises substantial power in the formulation of the district in that the final district plan is not subject to voter approval.

(4)(c) At any time prior to the hearing on the petition, a bond shall be filed by the petitioners, with security approved by the board, sufficient to pay all expenses connected with the determination regarding the petitioners' request.

Commentary on § 3 (4) (c).

The requirement that petitioners back up their organizational efforts with a financial commitment of faith in its viability is designed, together with the minimum number of petition signatures specified, to reduce or eliminate the advancement of frivolous petitions. While it would be within the power of the board to return bond money to supporters of even unsuccessful petitions if it felt that the effort was undertaken in good faith, the very existence of the bond requirement would prevent an unnecessary burden on review agencies. In addition, this threat of penalty might deter the use of the petition process as a stalling tactic designed to delay such things as more stringent municipal and industrial treatment standards.

The other side of the argument is that the financial risk will not be undertaken by many otherwise well-intentioned petitioners. This might in fact be the desired outcome if petitioners are viewed as a burden upon the state regulatory process--the uncommitted should perhaps be weeded out. But if one takes the position that petitioners will in most cases be doing the citizens of the state a service by providing their time and talent in the search for improved environmental quality, then the state might be better advised to facilitate rather than restrict such expression. The benefit gained from every successful petition would probably far exceed the costs of processing unsuccessful petitions.

§§ (5) (a) Within 30 days of receipt of the petition, the board shall arrange for a hearing to be held within the jurisdiction of the proposed authority. All interested persons may be present and offer objections, criticisms or suggestions as to the necessity of the authority, the adequacy of the proposed authority's powers, the adequacy of the proposed authority's jurisdiction or the adequacy of the proposed authority's mission. Any person wishing to object to the organization of a proposed authority may, prior to the date set for the hearing, file his or her objections or suggestions for the formulation of the authority.

(b) Notices announcing the hearing and stating the general contents of the petition shall be published within the boundaries of the proposed authority in all official newspapers of record.

(c) Following the completion of hearings, if the board determines that: (1) the proposed authority will promote the public health, comfort, convenience, necessity or welfare; (2) the mission, powers and jurisdiction of the proposed authority are adequate to satisfy the purposes of this act; (3) the property included within the authority's jurisdiction will be benefited from the establishment; and (4) present and potential sources of revenue appear sufficient to defray the cost of the authority's mission, it shall by formal order declare its findings of fact.

(d) The governor shall, within 30 days of issuance of the board's order, approve or disapprove creation of the authority as detailed in the petition.

(e) The board shall, within 10 days of the governor's approval, direct clerks in municipalities having territory within the proposed authority's boundaries to submit the question to electors within the region. The petition shall be deemed approved only if the question is approved by a majority of the voters voting on the question. If the question is rejected by a majority of the voters voting on the question, the petition shall be void.

(f) If the board determines, following the initial hearing under (a), that the mission, power(s) or jurisdiction of the proposed authority fail to meet the criteria established in (c) or the board determines, based upon written or oral testimony presented at the hearing, that the proposed authority is not favored within the jurisdiction, the board shall by formal order declare its finding of deficiencies. If, within 10 days following the board's findings of deficiencies, an amended petition is presented which removes these deficiencies to the satisfaction of the board, the board may substitute the amended petition for the first petition. The board may require that the amended petition be approved by n percent of the electors residing within the boundaries established by the amendment or by s percent of the municipalities having a majority of their territory within the boundaries established by the amendment. Notices announcing a second hearing and stating the general contents of the amended petition shall be published in all official newspapers of record within the proposed boundaries of the authority. The hearing on the proposed amended petition shall be held in a fashion consistent with paragraph (a).

(g) In the case of a proposed change in an existing authority's power(s), jurisdiction or mission(s), the board shall follow the same procedure outlined in (a) to (e).

(h) If the board finds that the criteria in paragraph (c) have not been met and an amended petition has not been submitted within the 10 day period or if a majority of the electors voting on the question under (c) rejects the petition or amended petition, the board shall order the petition or amended petition dismissed. If the board determines that

the petitioners have not acted in good faith in submitting the petition or amended petition, the board may assess the cost of the review processes upon the petitioner, provided that if the board approves the petition or amended petition, the board shall not levy these costs against petitioners. If the authority is approved by the board, the governor and a majority of the electors voting upon the question, certified bills covering the reasonable cost and disbursement of the petitioners may be presented to the commission established in Section 5 and paid out of the funds of the authority.

(i) Upon receipt of certified copies of resolutions recommending the dissolution of an authority by the governing bodies of p% of the electors in the region, the board shall hold a hearing following the procedures outlined in (a) and (b). If the board determines that (1) the dissolution will not contribute to long-range state or regional environmental problems and (2) that all outstanding debts of the authority are paid, it shall certify the question to the electors in accordance with (e). The authority shall be deemed dissolved if the question is accepted by a majority of voters voting on the question. If the board determines that the petitioners have not acted in good faith in submitting the petition or amended petition, the board may assess the cost of the review processes upon the petitioner, provided that if the board approves the petition or amended petition, the board shall not levy these costs against petitioners.

(j) The orders of the board under this section shall be subject to review under ch. 227. The appeal shall be brought within 20 days after a final determination by the board. Unless an appeal is taken within such a period, the determination by the board shall be conclusive.

Commentary on § 3 (5).

Subsection (5) establishes both procedures and criteria for establishing, amending and dissolving the authority. It provides for public participation in the formulation of the authority through the public hearing. In addition, paragraph (e) provides for a revision of the initial petition based upon the board's determination of the public interest, as articulated in the public hearing. This latter paragraph lessens the burden of persuasion placed upon critics of the initiating petition and assures that public hearings are other than pro forma affairs.

The criteria provided in paragraph (c) closely parallel provisions discussed in Chapter 5. They are designed to assure that the authority is capable of fulfilling its mission and to permit the petitioners great flexibility in designing the authority to accomplish their collective purpose. The criteria require only that the jurisdiction and powers be adequate; they do not establish any legislative scheme to weigh alternative sets of jurisdictions and powers which may also satisfy the criteria. That the enabling legislation is designed to facilitate rather than prescribe is underlined by the provision for dissolution of the authority upon a vote of the people in its jurisdiction. State approval is necessary only so far as ensuring that the legal obligations of the authority have been or will be fulfilled and that the dissolution is procedurally correct. It is not expected that the governor or board would be permitted to modify or interfere in the process in any other way.

#### §4. Potential Powers of the Authority

(1) An authority created under this act shall be a body politic and corporate. The authority is constituted a public instrumentality and the exercise by the authority of powers granted it under the procedures outlined in section 3 shall be deemed to be in the performance of an essential public and governmental function. (1) The authority under the grant shall exercise all of the following powers.

- (a) Adopt bylaws and rules...
- (b) Adopt an official seal...
- (c) Maintain an office.
- (d) Sue and be sued in its own name...
- (e) Receive and accept from any source loans, contributions or grants...
- (f) Enter into contracts with any municipality or special district or private party to make studies and offer advice on matters of environmental policy for a reasonable charge.
- (g) Employ a staff.
- (h) Charge and apportion among municipalities lying in whole or in part in the region the administrative expenses incurred in the exercise of powers and duties conferred by this chapter.
- (i) Approve or disapprove all city, town or county applications for federal or state grants having a significant impact or a mission which has been granted the authority.
- (j) Order the abatement of any act or condition found in violation of any authority rule, regulation or formal order and enforce rules, regulations or formal orders through the circuit court within whose jurisdiction the alleged violation occurs.

(2) If the petition approved under Section 3 authorizes the authority's mission to include water quality management, then the authority shall be empowered to:

- (a) Develop and continually update a regional waste treatment plan.
- (b) Identify or assist in the creation of any agencies required to implement such a plan or carry out such implementation autonomously.
- (c) Develop a system of priorities for the attainment of goals expressed in the regional plan and implement such priorities.
- (d) Require that municipalities falling within the authority's jurisdiction comply with formally promulgated plans, priorities and orders.
- (e) Act as a Metropolitan Sewerage District under Wis. Stat. 66.20-29.

(3) If the petition approved under Section 3 authorizes the authority's mission to include air quality management, then the authority shall exercise the powers of a local air pollution control program under Wis. Stat. 144.41.

(4) If the petition approved under Section 3 authorizes the authority's mission to include solid waste management, then the authority shall exercise the solid waste management powers specified in Wis. Stat. 59.07 (135).

- (a) Authorize employees or agents to enter upon lands to conduct reasonable and necessary investigations and tests to determine the suitability of sites for solid waste management activities whenever permission is obtained from the property owner.



- (b) Exercise the powers of a Solid Waste Recycling Region if so authorized by the Wisconsin Solid Waste Recycling Authority under ss. 499.01 et seq. (1973).

#### Commentary on § 4

Section 4 provides the authority with a broad range of potential powers. The actual complement of powers is determined when, in Section 3, the board and governor approve the petition which establishes the authority's mission. All authorities created under this enabling legislation are required to possess a minimum set of powers as outlined in subsection (1). In passing such a law, the state legislature would of course add to or subtract from this list as it sees fit. But the point is that some minimum level of power should be specified so as to prevent the creation of inherently ineffectual authorities.

Each specific authorized mission is then tied to a specific set of powers believed by the legislature necessary to accomplish the mission's purpose. This reduces the discretion of the petitioner and the board in formulating an "adequate" plan and may in some sense be viewed as a disadvantage to this approach.

The powers outlined in this section are generally additions to, rather than in lieu of, the powers presently exercised by municipal or quasi-municipal units in the region. The authority is authorized to coordinate related activities in the region for each mission. The municipalities may continue to operate affected facilities, subject to the authority coordination plans and may establish and enforce their own regulations which are equivalent or stricter than those imposed by the authority or enforced regulations of the authority. The authority under this section is protected from allegations of improper delegation of the state's trust and responsibilities; the section clearly reserves to the state power to establish stricter standards throughout the region. The proposed enabling act also meets the standards outlined in Chapter 8 (Section V). The statement of intent (Section 1) clearly argues that the authority is in the public interest. The Section 4 "clearly and unmistakably" delegates to the authority broad powers to regulate matters of environmental concern. Finally, language within the statement of intent and in subsequent sections provides a series of standards giving "adequate protection to the public."

Subsection (1) (j) permits the authority to directly enforce its own regulations through court actions. This provision frees the authority from the typical reliance on the discretionary attorney general or local district attorney to enforce the authority's rules, regulations and orders. The relative merit of this approach is not free from doubt. It is not clear, for example, which enforcer is likely to be "captured" by special interest groups. In addition, while it is likely that the authority's resources and expertise will exceed that of the local district attorney, they may not exceed that of the state attorney general.

This listing of powers is not intended to be exhaustive. Consideration should be given to allowing local citizens to include a wide range of functions within the domain of the REQA. Water supply, for example, might quite reasonably be coordinated by an agency responsible for wastewater treatment. The powers need not be greater than those now available to municipalities. But explicit inclusion of these powers within the enabling legislation would answer any future questions concerning whether citizens may legally exercise these powers through a REQA and reduce the need for future amendments.

## §5. Authority Boundaries

In addition to complying with each of the applicable standards set forth in Section 3, in order for the proposed authority to be approved for referendum, the proposed or amended jurisdiction of the authority must be determined by the board to be in the public interest. Authority boundaries shall in general be based upon: (a) the mission(s) of the authority; (b) the distribution of benefits and costs of potential authority actions; and (c) existing municipal boundaries. In making the determination the board shall consider:

- (1) that the present and potential sources of revenue appear sufficient to defray the cost of the authority's mission;
- (2) that the included area reflects the distribution of environmental impacts;
- (3) that the included area is coterminous with existing voting districts;
- (4) that the included area will benefit from the authority's activities;
- (5) that exclusion of beneficial properties from proposed boundaries will have a minimum adverse impact on the solution of long-range environmental pollution or quality reduction and,
- (6) that the creation of an authority will have a minimum adverse impact on the potential for an authority to be established in the excluded areas or upon an existing authority.

### Commentary on § 5

The definition of an appropriate jurisdiction for the authority is an essential element in the enabling legislation. The above section places a great degree of discretion in the hands of the board and the initiators to determine whether the proposed jurisdiction is "in the public interest." The complexity of factors outlined here illustrates the difficulty of establishing a rigidly determined legislative role. The proposed jurisdiction is not required to encompass the entire problemshed. In many cases such a requirement could work to the detriment of the authority and to those seeking to formulate an acceptable authority to district residents. Subsections (1) to (7) are an attempt to minimize spillovers while trying to assure that the authority remains financially viable, physically manageable and politically acceptable.

## § 6 Commissioners.

An authority created under Sections 2 to 3 shall be governed by an m member commission for n year terms. Commissioners shall be selected by election throughout the authority's jurisdiction and shall be residents of same.

### Commentary on § 6

Section 6 addresses the issue of representation. An ideal representation structure for environmental policy and management authority represents the interests and reflects the preferences of those affected by its decisions. The representation criteria established in Chapter 5 require that "those affected should be represented according to their stake in the issue. Both commonness and intensity or interests must be recognized." Two limitations to this criteria have been noted in the preceding chapters. First the process of identifying "commonness" and "intensity" may be extremely expensive. Future research must consider the relative costs of achieving

a complete identification of these factors. Second, the United States Supreme Court is likely to hold that a representative rule which deviated from the principle of one person-one vote for an environmental quality authority exercising broad governmental powers in the performance of general governmental functions would violate equal protection provisions of the Fourteenth Amendment.

Under this section, the principle of one person-one vote is preserved through the at-large election procedures. An alternative would be the establishment of representation districts having an even greater degree of commonality of interest than is true of the authority's jurisdiction as a whole. This would be accomplished by a careful structuring of the districts to represent the distribution of environmental problems. However, a distinction must be pointed out at this juncture; the distribution of environmental problems may not be equivalent to the distribution of the intensity of public interest. For example, riparian owners who do not utilize an adjoining stream may be less interested in questions of water quality than recreationists living on the outskirts of the authority. An election rule similar to this district proposal has already been approved by the United States Supreme Court,<sup>2</sup> subject to an important caveat. If the representative district functions as if it were a voting district and if the proportion of electors allocated among the representative district is unequal, the courts may void the representation structure under the equal protection rule.

#### § 7 Financing

- (1) The authority may finance its activities through special assessments, user charges, license fees or from the proceeds of general revenue or special assessment bonds.
- (2) The authority shall charge to and apportion among municipalities those administrative costs and expenses incurred in the exercise of the powers and duties conferred by this chapter which are not identifiable as solely benefiting a subset of such municipalities. Such apportionment shall be based upon the valuation, as equalized for state purposes, of the taxable property of the municipality lying within the authority.
- (3) License fees established under this section shall be subject to the review of the board. Before the board may approve the licensing program it must, through a formal order, determine that (a) the regulations under the licensing program are reasonable; (b) the regulations under the licensing program do not discriminate against nonresidents of the authority's jurisdiction; and (c) the license fee is reasonably related to the benefits received by the licensee as a result of the authority's programs. Any party aggrieved by the board's approval or disapproval of the license program, either in whole or in part, may follow the procedures outlined in Section 3 (3) (g).
- (4) Upon complaint to the Public Service Commission by any user of the authority's services that rates, rules and practices are unreasonable or unjustly discriminatory or upon complaint of a holder of any bond issued by the authority that the rates are inadequate, the commission shall investigate according to administrative procedures then in force.
- (5) Bonds issued under this chapter shall not be deemed to constitute a debt or liability of the state or of any political subdivision thereof and shall be payable solely from the funds provided therefore under this section.

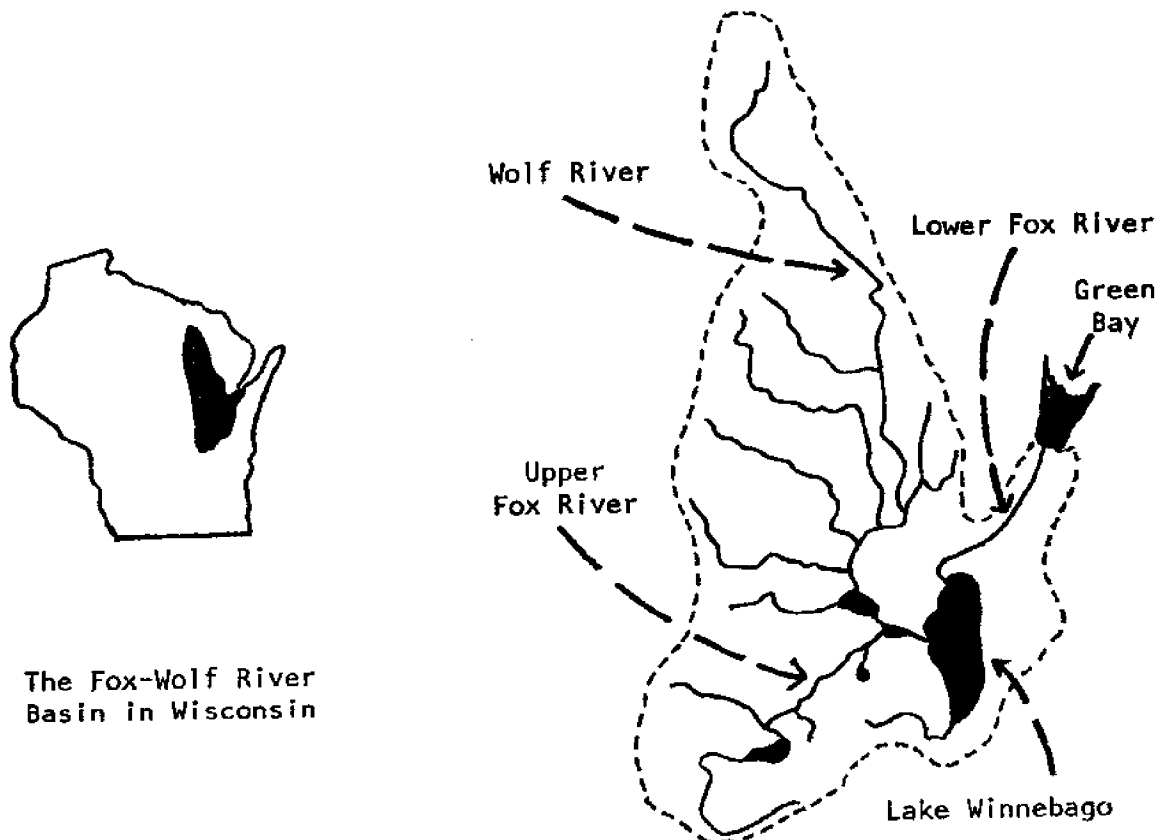
Commentary on § 7.

Section 7 provides for the financing of the authority, with most activities to be paid for through user charges reflecting the distribution of benefits arising from the authority's projects. The user fees typically capture only benefits directly attributable to the authority's facilities. The provision for license fees is designed to permit the authority to capture a number of the indirect benefits (e.g., improved fishing in the region's waters, decreased costs of treatment for water users). This should also allow the authority to use effluent charges as a means of implementing its management program. Providing for a board review of all rates and rate structures is designed to insure a certain uniformity of financing within the state and formally insure that authorities learn from the experience of others. After administrative precedents are developed, the review process is likely to become routine, but it will remain a significant safeguard. Appeal to the Public Service Commission is designed to provide one more level of fact-finding and review before it becomes necessary to resort to the courts.

IV. APPLICATION OF REQA ENABLING LEGISLATION TO THE LOWER FOX VALLEY

As detailed in Chapters 9 through 11, the Lower Fox Valley was chosen as an example region for this study because it in many ways exemplifies the complicated political and environmental scene which one would expect to lead to adoption of an interjurisdictional system of pollution abatement. The area's complexity is immediately apparent when one attempts to identify what might be reasonable boundaries for a REQA. While the answer would of course ultimately be left up to local initiative, it is useful here to review some of the physical factors which would impinge on state approval.

Map 12.1 The Fox-Wolf River Basin



The Fox-Wolf River Basin in Wisconsin

First, in the case of a water quality authority, how far upstream is it necessary to go in order to isolate the problemshed: all the way to the headwaters of the Fox-Wolf River System; to the lakes above Oshkosh; should Lake Winnebago be included; or just the Lower Fox Valley? Administrative manageability suggests that the upstream boundary be the outlet of Lake Winnebago, an idea which has been utilized throughout this study. Evidence indicates that the lake has an important natural influence on water quality, one which even a regional water quality plan might have difficulty overcoming. Also, the lake's outlet provides a convenient, clearly defined point for the state imposition of water quality standards to be attained at a regional authority boundary.

Second, how far should the boundary extend laterally from the major water bodies within the jurisdiction: only to adjacent municipalities, industries and to the Fox (-Wolf ) River and its tributaries or to the upland areas thought to contribute significant portions of the nutrient and sediment loadings which have created water quality problems in the area? Both federal and state legislation are steadily moving towards the regulation of these nonpoint sources. But blanket inclusion of the upland areas within a potential jurisdiction may doom petition efforts.

Even delineating the outer boundaries of the area potentially benefited by an authority is an uncertain task; the Fox River Basin as outlined by the Fox Valley Water Quality Planning Agency in a recent brochure differs significantly from the basin as drawn by a University of Wisconsin-Madison study team only two years earlier. Such problems will of course be more acute for an authority dealing in air quality improvement.

A political/jurisdictional problem also brought to light in the Lower Fox Valley is the relative power of heavily populated urban areas. In this case, the city of Green Bay contains more than one-fourth of the basin population as delineated by the 1973 University of Wisconsin study. Adding the city of Appleton and any one of the three remaining cities in the basin would produce a total equal to or greater than half of the basin's population. This would seem to produce the potential for abusing the authority process. Support from the urban areas could assure the creation of a jurisdiction having a statutorily adequate basis for existence but having little support in less populated areas. The power of the authority could be used to the relative advantage of the urban areas by, for instance, implementing policies having a relatively greater impact on rural nonpoint sources than on municipal or industrial discharges. The effect could be to shift the burden of complying with state water quality standards away from the cities which saw to the creation of the authority.

Resolution of this dilemma is not easy. Suggesting that localities be allowed to ratify authority participation on an individual basis produces a picture of a patchwork jurisdiction with islands of included and excluded territory. Allowing local control would also tend to perpetuate the upstream/downstream issue which is at the heart of so many water quality problems. In avoiding participation, upland areas might effectively continue to avoid responsibility for water quality conditions for which they in fact are at least partially to blame.

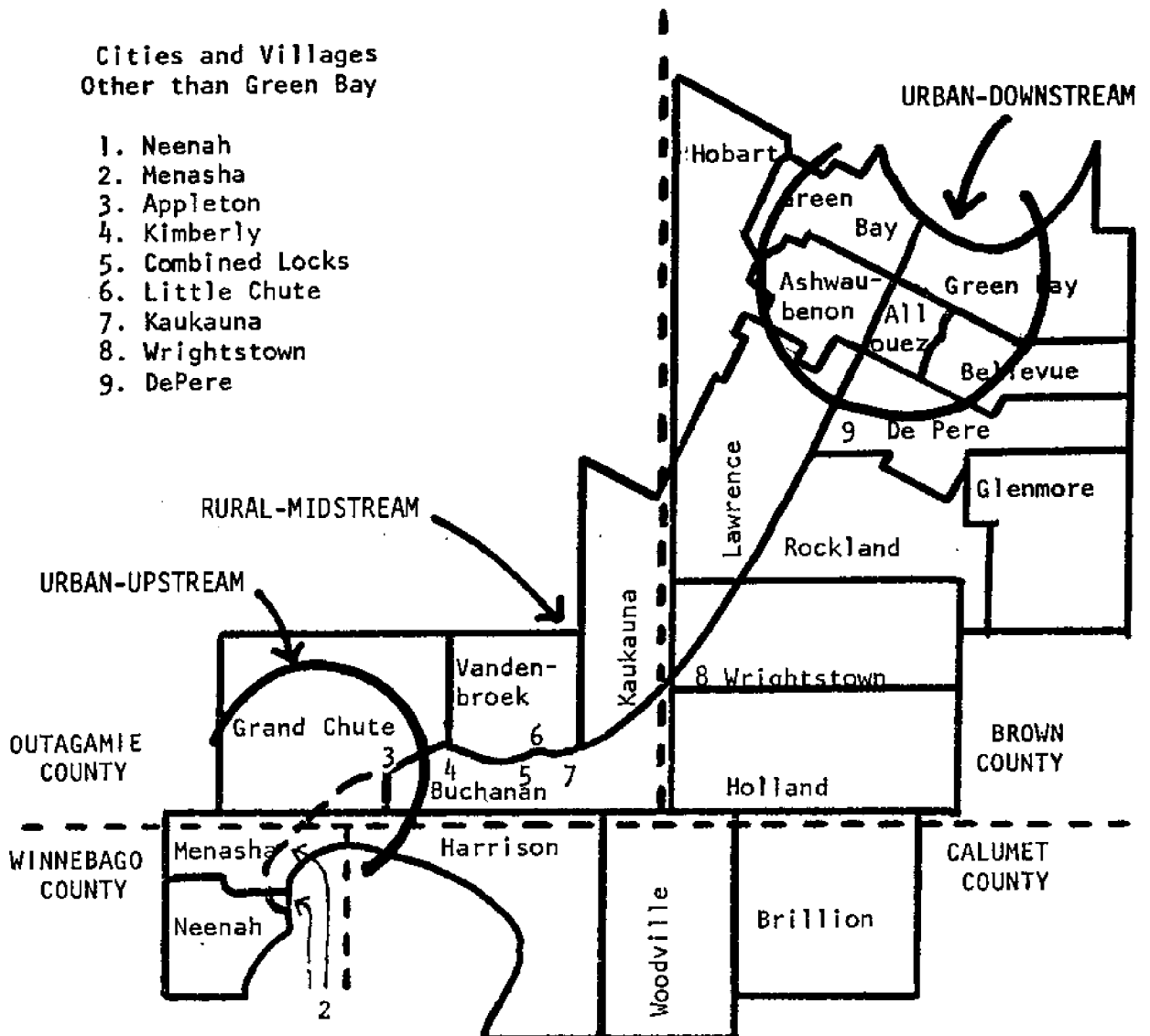
This question of jurisdiction becomes more acute as other roles are envisioned for the authority. What is a logical district to govern the preservation of scenic beauty? And how do the urban population centers relate to the power that such an authority might have? To use a perhaps absurd example, might it not be within the power of such an authority to require that all newly constructed or repainted barns be red (or white or whatever) to conform to the urbanite's view of an aesthetically pleasing countryside. Farmers might well be powerless to disagree.

If voting for commissioners is carried out on a district rather than at-large basis, what is to be the criteria for choosing district boundaries--what is to be the measure of common interest? The cities along the river are facing the common problem of treatment plant modernization and operation and so must be expected to have this interest in common. But, again, the relative upstream/downstream position of the cities is a factor which produces some divergence of interest.

Keeping in mind the factors which have just been reviewed, the following possibilities are presented as "food for thought" concerning possible election district boundaries within what might reasonably be considered to be the boundaries of the Lower Fox Valley. Discussion does not extend further upstream in the interest of manageability.

The most appealing jurisdictional alternative involves the delineation of three electoral districts on the basis of two primary criteria. The districts would be: (1) urban-upstream; (2) urban-downstream; and (3) rural-midstream. Map 12.2 is presented below to illustrate this principle in a general way.

Map 12.2 Possible Electoral District Distribution in the Lower Fox Valley.



If a commission composed of five representatives is thought to be most desirable, then it would be reasonable to have one elected from each of the three districts plus two elected at large. A similar pattern could be followed if a larger representative body is desired. It might be desirable to require that the two at-large commissioners be from different districts. This could be accomplished by staggering their terms; people from the district in which the at-large representative not up for reelection resides would not be eligible to fill the open position.

The district boundaries would be drawn so as to create areas of relatively homogeneous interest and approximately equal population. The actual drawing of boundaries is complicated by the well-known lack of congruence between metropolitan boundaries and the truly urban population. For example, while it is tempting to allow the cities of Green Bay and DePere to comprise the downstream urban district, the exclusion of adjoining unincorporated suburbs would be somewhat arbitrary. An approach which is itself somewhat arbitrary but which has its appeal would be the inclusion in urban districts of areas within a given number of miles from the river and having a population density greater than a specified number. Existing election districts could be conveniently used as a common denominator. Less convenient but perhaps equally valid for an organization primarily concerned with water quality management would be the use of districts drawn on the basis of whether or not the included households are served by sewers. Voters would almost certainly be aware of the district in which they lie. And given present data processing technology, such a distinction among voters even within a single election district would seem manageable. But evidence from recent elections indicates that the part-time nature of a poll worker's job means that system performance often falls somewhat short of potential; there may in fact be headaches accompanying intra-district distinctions among voters which exceed the possible benefits.

The considerations just stated mean that it would be pointless, at this juncture, to prescribe specific boundaries for Lower Fox Valley REQA electoral districts. But an important consideration to also be evaluated is the method by which these as yet undefined districts are to evolve; how will population growth in the valley change the effectiveness of the representational structure and how may provisions be made for responding to this growth. A lack of foresight would produce the same sort of court-ordered reapportionment which resulted from the rural-urban migration of years ago. Adding to the number of commissioners as population proportions shift might, unless care is taken, produce a representative body inclined to vote to a stalemate. But the mechanism proposed, in which approximately half of the representatives are expected to have a basin-wide constituency, would tend to reduce the sort of block voting which leads to a standoff.

Another possible voting mechanism which would eliminate worries in the present with respect to voting district criteria and in the future with respect to reapportionment is the use of an entirely at-large group of commissioners. Voters could be given one vote, with the five (for example) individuals having the greatest number of votes becoming the new representatives. Or each voter could be allowed to vote for up to five individuals, with the results tallied in the same manner.

Such a group might be more able to arrive at decisions on the basis of regional interest rather than by drawing battle lines on the basis of voting district interest. The number of representatives in an at-large commission could be changed relatively easily on the basis of experience because particular geographic areas would not necessarily be gaining or losing representatives.

Without the necessity of preserving a regional balance, all commissioners could come up for election at the same time. This would both reduce the expense of the election process and heighten public interest in the election; more people would be conducting campaigns on fewer occasions. And with the entire representative body up for election at the same time, voters might perceive themselves as more able to produce a meaningful change in REQA policy than if fewer positions were open.

A pragmatic advantage to the at-large system is that it recognizes present uncertainty as to how citizens, as individuals, perceive themselves with respect to the environmental quality of the Lower Fox Valley. Possibly the urban-downstream, urban-upstream and rural-midstream distinction made earlier is invalid. While the petition process would be certain to explore this question, it may not reach a conclusion. To make REQA creation dependent on an answer might be to doom the petition process or possibly result in a premature attempt at regional interest group identification. Many people may be able to articulate their own self-interest only after the creation of a REQA brings the relevant issues out into the open.

An at-large commissioner system would of course have its own list of possible disadvantages. There would be considerable loss of momentum in the REQA's activities in the event that a largely new group of commissioners was elected, as new individuals learn their jobs. But the sort of citizen dissatisfaction that would produce the defeat of a majority of the incumbents may indeed be a mandate for such a complete cessation and a reevaluation of the REQA's policies. Presumably there would be sufficient staff carry-over to insure that such deliberation, even within an entirely new commission, would not be carried out in ignorance.

Also of concern might be the possible domination of the commission by urban interests. As noted earlier in this section, the vast majority of those in the Lower Fox Valley reside in urbanized areas. There is the possibility that rural areas might feel themselves unrepresented if, as is quite plausible, all at-large commissioners reside in urban areas. Preventing such an occurrence brings one back to the difficulties associated with electing representatives on a sub-regional basis. Perhaps the use of the state board as an appellate body has a place here, although it seems difficult to delineate grounds for appeal which would not unduly constrain the REQA's policy-making freedom.

On the other hand, a number of details were not addressed. For instance, how should board and commission members be compensated? Should there be a full-time technical staff assisting the board in its deliberations? If staff support is drawn from state agencies, how should they be chosen and what should be the source of their compensation?

There should definitely be a process for administratively appealing the decisions of regional authorities. This is an important justification for the existence of the Governor's Board on Regional Authorities. But it may be difficult to draw the ground rules in such a way that appeal does not become standard procedure for delaying policy implementation. Perhaps the bonding concept has a place here, with those initiating appeals being financially liable if the appeal is rejected and the effort is found to not have been in good faith.



As noted in the beginning of this paper, what is offered here is not a detailed prescription for the restructuring of environmental decision making in Wisconsin in general or the Lower Fox Valley in particular. It is hoped, however, that this discussion of various collective choice principles and mechanisms will be useful to those who perceive the need to improve the quality of the environment by means which reflect both a sensitivity to the workings of representative democratic government and an understanding of the geographically and jurisdictionally complex impacts which our society has on its environment.

