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Council of State Governments, Lexington, Ky

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Foreword

Problems of the environment continue to loom larger in the eyes of the public and the public's representatives. In particular, state governments have assumed—and been assigned—more extensive roles in the management of activities controlling or bearing on the natural environment.

The Council of State Governments' State Environmental Issues project, which this report represents, is an effort to assess the most demanding environmental problems of states and to provide a vehicle for sharing information about these problems among the states.

This book and the others in this series are intended as aids to state policy and program officials. It is hoped that the information and research agenda in the series will further augment the effectiveness of future state environmental actions.

Herbert L. Wiltsee
Executive Director
The Council of State Governments

Lexington, Kentucky
June 1977

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The Environment Comes of Age: An Overview

This document is the final report of the Council of State Governments' Environmental Issues project. The project, funded by the National Science Foundation's Research Applied to National Needs program, had three essential purposes: (1) to identify current and impending environmental issues of high concern to state officials; (2) to prepare state-of-the-art reviews of these issues; and (3) to provide research agenda for the furtherance of knowledge in the selected issue areas.

Four issues were chosen on the basis of recommendations of a national advisory panel. The panel included Burton L. Carlson, former Director of State Planning Coordination, Utah; Janet McLennan, Assistant to the Governor for Natural Resources, Oregon; Stephen Born, Director of the Wisconsin State Planning Office; Jackie Swigert, Chairperson of the Kentucky Environmental Quality Commission; and State Senator Sanford Steckler of Mississippi.

The State Environmental Issues project began in the fall of 1975 when the advisory panel met at the Council of State Governments' headquarters in Lexington, Kentucky. The officials identified four areas of environmental concern for the CSG staff to analyze. Using as criteria for selection the relevance to states and the ongoing or emerging nature of the issue, the panel chose energy conservation, environmental impact assessment, nonpoint sources of pollution, and the effects of Indian rights and claims on state environmental programs as research topics.

Each of these topics became the subject of a staff-prepared report. The reports were reviewed by special committees of knowledgeable individuals chosen for each topic. A complete list of panel members is on the inside back cover. All four of these reports were published under separate covers. Part 2 of this volume contains summaries of each. A concluding chapter discusses research needs in all four areas.

Part 1 of this volume is an attempt to update the list of current environmental issues in the states and to sound out some of the more policy-oriented issues that arose during the preparation of the first four reports. Material for Part 1 was gathered from personal interviews with about 60 state officials in 10 states (California, Colorado, Georgia, Indiana, Kentucky, Massachusetts, Mississippi, New Jersey, Oregon and Wyoming).

Because the list is long and to protect the confidentiality of the officials' remarks, their names will not be listed. Their comments, knowledge and attitudes are gratefully acknowledged, however, and constitute the substance of this report.

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Special thanks also are due the staffs of the Council of State Governments' regional offices who helped in identifying key policy officials in the states, and to Edward Kelly, Project Monitor of Intergovernmental Sciences, National Science Foundation, for his guidance.

The principal authors of Part I were Tom Hauger and Anne D. Stubbs. John E. Chowning prepared the summaries contained in Part II. Overall project direction was given by H. Milton Patton, Associate Director of State Services, and James L. Breithaupt, Senior Assistant for Environmental Affairs. Additional staff assistance was provided by William R. Bernhagen. Support services were provided by Mardell Horn, Brenda Mearns, and Susan Harding.

H. Milton Patton
Associate Director
of State Services

PART 1

I. Introduction

State governments have a variety of roles in environmental management. These roles appear in recent federal laws and in initiatives by the states over a longer time. This study was undertaken to define the current extent of those state roles and to identify the types of environmental issues with which the states now must grapple.

To provide a current interpretation of these roles, two staff members of the Council of State Governments interviewed state legislators, legislative staff, heads of environmental agencies, governors' assistants, attorneys general, and state planning officers during January and February 1977. Formal questionnaires were not employed, and not all the same questions were asked of all the state officials. Instead, the interview results were used to construct mosaics of environmental activities and prevalent attitudes in the states.

In addition to asking what the current and emerging environmental issues for each state were, the interviewers explored three more general notions with the state officials. Those notions were: the increasing activism of the courts in interpreting environmental policy; a simultaneous reliance on and aversion to the use of administrative regulations for developing and articulating environmental policies; and the need for coordination among environmental programs with other actions of state government. These three notions had appeared as strong themes in four earlier reports prepared for this environmental issues project. Part of the study's purpose was to see how pervasive these themes are among state environmental officials. Except for the question of judicial activism, these themes struck responsive chords with most persons interviewed.

Court decisions are seen as being as much a part of life as the weather. They are accepted with resignation and respect. The role of the courts is not seen as a voluntary and changeable one, but as one that proceeds from the weight of evidence and precedence to the rendering of inescapable rulings of law.

The problems of regulation and coordination, however, were considered important issues for states to address. Accordingly, this report contains a chapter devoted to the discussion of each of these as revealed by the interview process. A separate chapter enumerates the emerging issues identified by the state officials.

The overriding conclusion drawn from the state visits is that state governments can and do play important parts in the enhancement and preservation of the natural environment. Environmental concerns in state government have transcended the stage of being smokestack-plugging crisis interventions and have come to be regarded as legitimate realms for state planning and management.

II. Substantative Environmental Issues

II. SUBSTANTIVE ENVIRONMENTAL ISSUES

Introduction

While the pattern of recent state involvement in environmental matters has been to implement wide-ranging existing laws, crises still arise. Some states are striving to add pieces to their complements of environmental statutes. Some of these are extraordinary, such as the 1976 Oregon ban on aerosol containers, the Colorado legislation empowering local governments to use land use controls to prevent the shading of solar energy facilities, and California's consideration of protective procedures to be followed in laboratory research on recombinant DNA. Some other areas of activity and concern are repeated across state borders, such as water supply allocation, the impacts of energy supply development, the regulation of toxic substances, and the use of land use controls to effect a diversity of policy objectives.

Water: Fewer Drops to Drink

The unusual winter weather of 1976-77 has reemphasized the unequal and unpredictable distribution of the most basic of all resources water. While much of the east was finding it necessary to dig through enormous amounts of snow, the ski slope operators of the west were languishing in loneliness; some even had to close their resorts for lack of snow. Indeed, much of the western half of the nation has been experiencing a drought since the summer of 1976.

Dwindling water supplies in the west have caused some drastic governmental proposals and actions for coping with the shortage. In the San Francisco Bay area of California, the communities of Oakland, Berkeley and Marin County have adopted severe, mandatory water rationing. In Colorado, some private water rights have been condemned and taken over by the state in order to meet its obligations under the Colorado River Basin Compact. In Oregon, there is fear that the reduced flow in the riverbeds will hamper the production of hydropower- the area's chief source of electricity.

Additionally, the great plains states with their vast reserves of coal and oil shale are now or soon will be facing the question of allocating water among several competing sectors. In Colorado and Wyoming, a state policy regarding the relative distribution of water among the chief competitors- domestic, agricultural and energy development uses has not been enunciated.

As do most western states, Wyoming and Colorado operate under the prior appropriations doctrine of water rights. Each request for or dispute over water

rights is considered in isolation by the state water engineer or by the water courts. These individual decisions are based on the legal doctrine and not in terms of the desired developmental effects the state hopes to achieve.

Water quantity management is not solely a response to recent critical shortages, however. In the relatively water-rich east, several states are beginning to recognize the necessity for addressing the future management of water supplies. In Georgia, for instance, the principal new area of environmental action before the current legislature was a bill that would give the Department of Natural Resources the authority to issue permits for major withdrawals or diversions of water. The impetus for the ascension of this issue in Georgia comes from recent projections that the Chattahoochee River in Atlanta will be dry where it passes through the city by the year 2010.

In Indiana, the estimates are not so specific, but knowledgeable public officials do not believe the White River can continue to be the sole source of domestic water for the Indianapolis metropolitan area. Similarly, in Massachusetts, while there are no formal proposals, there is an awareness of the finite capacity of current water supplies for domestic and industrial users.

The types of state responses proposed for coping with existing or expected shortages of water are wide-ranging. None of the states visited, however, seemed to have developed a comprehensive means of addressing the question of distributing scarce water resources among competing users. Most state responses to perceived water shortages resemble crisis management more than deliberate and coordinated approaches to government action. Indeed, in some states where the drought seemed particularly acute, there seemed to be an almost laissez-faire attitude toward the shortage on the part of some officials as if they hoped that the problem, like the water, would just go away.

A frequently mentioned cure suggested to relieve the drought's symptoms was the inter-basin transfer of water. (In Colorado, the talk is of trans-mountain diversion.) Simply put, this would mean taking water from river basins where there is more water than demand and diverting it to areas where demand outstrips supply. Most of the water used in populous Southern California is already derived from outside its arid basins. Proposals under consideration for future actions in California, Colorado, Indiana and Massachusetts place strong reliance on the potential of inter-basin transfers, although concern was expressed in some quarters as to both the legality and the environmental soundness of such projects.

In Massachusetts, although no schemes are now being implemented, it has been proposed that at least part of the solution be accomplished through reducing levels of demand rather than through increasing supplies. Demand can be decreased by imposing water conservation procedures, such as industrial recycling. These efforts achieve much the same purpose as the drastic rationing program in the San Francisco area, but with the burden of inconvenience more equitably distributed among users.

The most holistic attempts to deal with the water quantity question are proposals to authorize or redefine the authorities of state agencies to allocate water to major users on the basis of predetermined criteria. Legislation introduced by Georgia Governor George Busbee would give this power to the Depart-

ment of Natural Resources. In Wyoming, an effort is being made to modify the controls and procedures of the state water engineer.

There can be no single water management solution applicable in all states. Major differences in the water laws across the states are a limiting factor to the universality of solutions. Riparian rights law prevalent in the east presents entirely different opportunities for water management than does the western doctrine of prior appropriation. Variations in each of these legal theories among the states detract from the interstate transferability of mechanisms for water management.

Nonetheless, water availability or the lack of it is a question of critical proportions, especially in the drought-stricken west where energy development and new industrial growth will soon increase radically the demand for water. If states are to exercise influence over the nature and location of future developments within their borders, they must recognize what one official called the "profound implications of water on land use patterns." The notion that water can continue to flow to the highest bidder will need to be reevaluated in light of state government objectives and perceptions of the general public interest.

Energy: Demand and Supply

The energy problem continues to reveal its increasingly complex dimensions. The severe cold temperatures and increased fuel use of the 1976-77 winter helped to renew public awareness and to reemphasize particular aspects of the nation's energy concern.

Legally and economically, energy is primarily a federal issue, but there are at least two sides of the question that are of direct interest to the states. These are energy conservation and the impacts on the state of developing new and maintaining existing fuel supplies.

The states' role in energy conservation is the subject of another report in this series and a summary version is presented in Part 2. The state environmental officials interviewed in connection with this report generally viewed conservation as a necessary element in averting energy supply shortfalls, but most of them consider the federal Energy Policy and Conservation Act of 1975 and the states' roles under it as insignificant contributions toward energy savings, even though the federal program forms the essence of most state energy conservation efforts. Several thought that this was one of the few environmental areas in which public awareness and sentiment lagged behind government officials'.

While conservation programs attempt to lower the demand for energy, more serious and far-reaching environmental hazards are raised by attempts to increase energy supplies. It was the insufficient availability of natural gas that caused the closing of schools and industries and the reduced hours for public offices and private enterprises. These responses by state government and the private sector reflect an almost classic case of crisis management. The impacts from both the crisis itself and from the responses to it were largely economic—damage to public works from freezing and thawing and higher unemployment rates because of plant closings.

While economics form a basis for many decisions affecting the supply of energy, states are in a better position to feel and to mitigate the environmental

effects of maintaining and developing adequate energy supplies. The rash of oil tanker accidents and spills in late 1976 and early 1977 only symbolizes the risks inherent in energy production.

Threats of more frequent oil spills are only a part of the cause for state government anxiety over the imminent development of outer continental shelf (OCS) oil and gas reserves. Offshore drilling also is expected to cause interference with marine fishing activities as in the George's Bank area off the New England coast. Major energy corporations are evaluating several locations on both ocean coasts and in the Gulf of Mexico as possible sites for superports. Highly unstable and combustible liquefied natural gas (LNG) is an efficient mode for shipping that fuel, but the dangers to life and property in such shipment are beyond calculation.

Even allowing for the adoption of restrictions that could ameliorate the environmental consequences of these energy delivery systems, certain onshore impacts from the anticipated OCS exploration are inevitable. The secondary growth needed to receive and refine oil and to accommodate construction and oil rig workers presents an entirely separate class of environmental issues. In the coastal areas, these issues are being addressed by state coastal zone management agencies to ensure that only suitable types and levels of development occur.

Coastal states are not the only ones affected by the pressure to increase domestic energy production. Leases have already been let for mining federal coal reserves in several western states, and oil shale is still considered a viable—if distant source of fuel. Extracting these minerals implies major environmental impacts.

For one thing, strip-mining appears to be the method that will be used to remove much of the energy minerals from the ground. In the absence of federal standards to control this activity, state legislation is required to protect the land resource from imprudent mining practices. Wyoming has adopted stringent regulations and has been given authority over mining of federal as well as nonfederal lands through an agreement with the U.S. Department of Interior. Concerns still exist in Wyoming, however, over certain mining techniques, such as stripping of alluvial valleys.

The mining of western fuel minerals also places new and stronger demands on the area's water resources. Oil shale conversion into a usable energy source is a water-intensive process. Additional water would be needed if coal slurry pipelines are used to transport the coal from the mines to remote generating facilities. Even on-site coal burning for electricity production would require water for use in the generators.

Because of limited water supplies in many areas of the west, the energy-related uses of water may involve diversion of substantial amounts of water from agricultural purposes. This could mean a reduction in total acreage of productive arable land. The economic consequences of losing agricultural land could surpass any environmental cost.

Further effects of energy development in the west may be manifested in the boom-town syndrome. Under this scenario, mobile home parks and other temporary housing are developed across the landscape with little consideration for public facilities and costs.

In preparation for or in response to the environmental concerns prompted by energy development, several states are increasing their control over potential sources of deleterious effects. The federal Coastal Zone Management Act and subsequent OCS impact funds give coastal states a mechanism for addressing the problems associated with OCS exploration and the siting of other facilities in coastal areas.

Some states, such as Massachusetts, have assumed an active role in overseeing federal activity in the leasing of OCS tracts. Through this participation, the state is negotiating with the Department of Interior for the inclusion of restrictions on drilling areas and drilling procedures in its leasing regulations. Other coastal states have enacted, or are considering, laws to compensate victims of oil spills. New Jersey's Coastal Area Facility Review Act and Spill Compensation and Control Act are effective tools for dealing with energy impacts on the coast.

To cope with the expected impacts of coal development, mined land reclamation laws, similar to Wyoming's, have been adopted. Wyoming also has established an industrial siting council charged with reviewing and approving construction of major industrial facilities over $50 million. Because of the high threshold placed on developments to be reviewed, only two applications were processed in nearly a year and a half. The Council does, however, provide a unique structure for examining the environmental, social and economic impacts of large industrial developments.

Lacking federal energy policy defining the relative reliance to be placed on various energy forms and the sequence and pace for developing new sources, the states have been limited in their choices of energy policies. Adopting stopgap measures of strip-mine and facility-siting control will help alleviate some of the environmental damages these operations could impose. An expanded picture of what the nation's energy goals are to be is necessary, however, before states can identify the parameters in which broader decisions about their appropriate activities can be made.

Exotic Substances: Nowhere to Go

The state officials interviewed exhibited a growing concern over the unchecked proliferation of wastes and other products that are known to be toxic or hazardous to human health. The issue for the states is complex. First, there is a need to identify all such substances, but beyond that there is a need to define a clear state role regarding the establishment and enforcement of controls over the handling, use, and disposal of these substances.

Chief among concerns about toxic substances is disposal of radioactive wastes from nuclear power plants. Historically and statutorily, this has been a federal concern—originally under the Atomic Energy Commission and now under the Nuclear Regulatory Commission. However, the sites currently being used and the indefinite projections as to future sites are located within state boundaries, with definite implications for the state selected as the depository, and possibly for neighboring states.

Horror stories abound regarding the subterranean migration of radioactive materials from nuclear burial grounds in Hanford, Washington, and Maxey Flats,

Kentucky. State officials charged with overseeing environmental matters are aware of these occurrences and are wary of having their own states used as nuclear dumping grounds.

Georgia officials expressed some anxiety about the location of a nuclear reprocessing plant in South Carolina. Some officials interviewed say the site chosen is dangerously close to the aquifer that supplies much of northern Georgia's groundwater. The fear of water contamination has caused Georgia to look for ways to affect decisions about on-site waste disposal at the plant and the location of the plant itself.

In Colorado, radioactive military wastes were discovered in the foundations of school buildings and housing developments. While remedies were provided by the federal government, the lessons were learned. State officials now are reluctant to accept further nuclear burdens in Colorado.

State officials also are perplexed by polychlorinated biphenyls (PCBs). Bloomington, Indiana, is the location of a Westinghouse plant that uses PCBs to make electronic components. The federal ban on those chemicals through the 1976 Toxic Substances Act will prohibit their use, except in closed systems. The law does not, however, tell how to cope with the residue of PCBs that have been flowing through the city's sewer system for years.

Uncertainty pervades state officials' thinking on the matter of regulating the products of scientific achievements and technological developments. Other than through research at the federal level, there is little way for states to know which substances they must control. Furthermore, methods of control and of flushing out already infested systems may require resources and technology beyond the capabilities of most states. It is a small benefit to the states that, as one California official put it, "the documented carcinogenic effects of PCBs have demonstrated the human health effects of environmental regulations and heightened the awareness of the general public."

The federal Toxic Substances Act and the Resource Conservation and Recovery Act adopted in 1976 provide federal assistance to states to control these materials. New state legislation may also permit an increased state role in this area although the nature of some substances or their commerce may require federal action for effective regulation.

New Jersey's Spill Compensation and Control Act primarily is directed at the problems posed by petroleum products, but it also contains provisions pertaining to "hazardous substances" as defined by the Department of Environmental Protection and the federal Environmental Protection Agency. In addition, owners of major facilities that handle or produce hazardous substances are required to pay a tax into a fund to compensate parties damaged by the unauthorized release of the substances. Class actions may be filed with the Department of the Public Advocate, and civil fines may also be levied against offenders.

The problem of exotic substances release seems to be an issue of more than brief duration. As research continues, it is possible more hazards will be discovered requiring further technological and institutional solutions.

Land Use: Reconsidered

The ground swell of state activity in the enactment of land use controls of the

early 1970s has slowed. Oregon's law was challenged by a public initiative in the 1976 election; it survived. In most other states visited, state land use control was not mentioned as an item for major attention this year.

The general trend of the recent legislative sentiments toward land use seems to indicate that land use responsibilities will continue to be devolved to local governments. The 1976 California legislature adopted a coastal act which requires local governments in the coastal zone to prepare land use plans in accordance with state promulgated guidelines with state financial and technical assistance. New Jersey in 1976 passed the Local Land Use Planning Act. Massachusetts uses local land use plans as a prime element in the development of its state growth management plan. Georgia's recently redrawn constitution contains a provision which, according to one interpretation, gives the state the sole authority to plan and local governments the sole authority to zone, but the courts have yet to decide that issue.

The heart of state land use activity now appears to be in complying with the requirements of federal legislation. As the deadline for the mandatory land use element of HUD 701 plans nears, states are striving to meet it and are supplying technical assistance to local governments aiming at the same date. The land use planning component of Section 208 of the Federal Water Pollution Control Amendments is being handled by most states with caution; it has not been taken as a license to plan a state border-to-border, and its products may be rather timid.

Meanwhile, state coastal zone management continues to be "state land use planning in a microcosm." Indiana passed through its first tortured year of the federal Coastal Zone Management planning program, unsure of its continued participation. Oregon has issued guidelines for the coastal zone under its Land Conservation and Development Act. Massachusetts is anticipating approval of its management plan under the federal CZM Act. Georgia's effort moves ahead encouraged by a favorable court decision that the state owns all its ocean beaches.

III. Regulation

Introduction

One environmental concern is common to all states the pervasiveness of regulation as a tool for achieving environmental quality. The environment peaked as a national priority issue in the early 1970s. The leveling off of attention that occurred since has coincided with an economic recession and with the enactment of further federal and state statutes addressing environmental quality and resource management. Activity in the environmental area has now moved to the implementation stage. Consequently, environmental quality has become synonymous with regulation.

Environmental regulatory programs are diverse, ranging from mandatory standards on allowable effluents and emissions to regulations governing the procedures and conditions for issuance of a permit. Regulations also accompany mandatory state and local review processes, even when such reviews are designed for information rather than for permits. This chapter explores the problems associated with regulation as a policy approach to environmental objectives and the efforts of states to address these problems.

The Problem of Process

The perception is widespread that the problems associated with a regulatory approach do not lie in the fact of regulation itself. Nor do they lie in particular standards and procedures. The major problem lies in the process by which regulations have emerged and are implemented.

The scope and complexity of environmental regulation have increased dramatically. New areas of concern are subject to governmental policies and more governmental actors have entered the regulatory process. The traditional public health-local government focus of environmental concern has long been surpassed. Several states initiated environmental quality and natural resource conservation programs prior to the federal efforts of the late 1960s. However, federal programs in air and water quality, noise, solid waste, and safe drinking water serve as catalysts that bring state and local governments into far-reaching regulatory programs. Most states have further adopted regulatory controls over land resource areas such as wetlands, surface mining, and power plant siting.

The growing number and the complexity of environmental regulations bring outcries of red tape, confusion, and governmental intrusion from both the private sector and various governmental entities. Yet the onslaught of regulation as

a tool to achieve environmental policy goals is unlikely to subside. Many state officials agree that regulation can be an onerous and poor method of doing business. Yet most see few alternatives. Regulation is argued to be necessary to make environmental programs effective. Some individuals are not likely to take voluntarily the necessary steps to achieve environmental objectives. In a market economy and in a governmental system geared to crisis management, regulation may be the most feasible way to encourage actions which have immediate costs and long-term, indirect benefits.

With regulation at the forefront of environmental programs, the challenge facing state officials is to make the regulatory process less cumbersome and more efficient. Most public officials, and many businessmen, would agree with an interview comment that the "costs of environmental programs result from their procedures not their standards." The costs of instituting the technology or procedural changes necessary to meet environmental standards may be unbearable for small or marginally profitable firms. But, for larger firms the major costs and source of frustration lie not in meeting the standard, but in the costly delays caused by procedural requirements. While private business is not necessarily happy with environmental programs, its main concern is with the need for established ground rules to reduce risks and uncertainty.

For the most part the current disagreement between government and the private sector is not over the value of the environment, but over the management and enforcement of environmental programs. Thus, state officials see a need to reduce the number of environmental hoops, without reducing the commitment to a quality environment.

There is considerable sensitivity within state government to the need to improve the efficiency of the regulatory process as enforcement programs affect small businesses and individuals. Continued favorable state court rulings on state authority for environmental regulation may also depend upon the development of regulatory programs which are reasonable in their demands and procedures.

Shortcomings in the Regulatory Process

Several specific complaints against environmental regulatory programs were raised by officials in the preparation of this report. They include attacks on: (1) the overlapping jurisdictions and uncertainty associated with regulation; (2) the inflexibility in implementing regulations and standards; and (3) the costs associated with conforming to environmental standards and procedures. Similar complaints are made by private business and local governments against state regulations, and by state government against federal agencies.

Overlapping Jurisdictions

The piecemeal emergence of federal and state environmental policies and programs contributes to overlapping jurisdictions and contradictory standards. The result is confusion, uncertainty, and delays for those subject to the regulations.

Environmental programs have been cumulative, with little or no effort to

codify the various laws and attendant regulations at either the federal or state level. Consequently, overlapping and disjointed regulatory programs are common. The complexity and confusion associated with environmental regulation stem from the number of actors involved and the duality of regulatory procedures at the state and federal levels.

Most development-related activities of any scale and complexity require several different environmental permits. Typically, the various environmental permits needed for a project are issued by different state and local agencies, each of which may follow different standards and timing for review. Measures adopted to meet the standards required under a permit, such as for groundwater appropriation, may fail to meet the standards necessary under a separate permit application for water pollution discharge. State legislation and regulations requiring a permit also are not always clear on how jurisdiction is shared between the state and the locality concerning permit review and issuance and subsequent enforcement.

Particularly in public health areas (e.g., groundwater, subdivision standards), a local government and a state agency have a role is setting standards and in determining whether a proposed activity is acceptable under those standards. Too often, a mechanism to reconcile conflict created by the differing standards and permits is absent.

A major complaint against environmental regulation is the duplication of regulatory procedures. The problem arises primarily when both federal and state agencies administer similar programs in related areas. The result a proposed activity which is subject to federal and state permits and/or EIS requirements—frequently must meet dissimilar standards and procedural requirements for the same activity. When federal agencies have approved state administration of federal permit programs, the regulatory steps and procedures are somewhat simplified since fewer actors are involved. In most states, however, administration is totally federal or is shared among state and federal agencies. In such instances, an applicant must deal with federal procedures and state procedures to obtain the requisite permits. The number of regulatory actors and procedures increases when local permits are included.

The overlap in federal and state jurisdictional authority in air and water quality programs frequently leads to friction between state and federal agencies in program enforcement. One state official accused federal EPA officials of engaging in "bean-counting," or enforcement quotas, in its insistence on federal enforcement of regulatory programs also subject to state jurisdiction. With this overlap and friction among enforcement agencies, the regulated individual is frequently at an impasse regarding which measures to follow for compliance.

Many states have sought to improve state and local decisions on public and private projects having significant environmental impacts by emulating national Environmental Protection Agency requirements for an environmental impact statement (EIS). The resulting two-track system of environmental review for many projects brings charges of duplication, delay, and more red tape in obtaining necessary approval. Separate state, as well as local, EIS requirements increase the potential for legal challenges and concomitant delays to a proposed activity. Such legal challenges are frequently unrelated to substantive environmental is-

sues. NEPA-related requirements have, in the words of one state official, become "totally procedural, with everyone knowing how to play the game."

Environmental programs exacerbate the continuing tension between state and local governments over the distribution of authority and program administration. Regulations for air and water quality may be imposed by federal agencies, but local governments often view state agencies as the culprit. In some states, agencies are hesitant to rely on local governments to implement environmental programs. In some instances, local officials who fail to comply with environmental standards or to administer delegated responsibilities are perceived as part of the problem in enforcing environmental programs.

The growing experience of states in administering environmental programs has strengthened their credibility with the public. In states where environmental quality programs do not seem to have strong legislative support, the sentiment is expressed that regulation should shift to the states. Even those opposed to the direction of many environmental programs would prefer state administration of federal programs and regulations. Officials in several states cited industry's frustration with local permitting procedures as a reason for its greater willingness to work with the state in environmental programs. In one state, a survey in connection with the Coastal Zone Management program found greater confidence in state government administration than in local administration.

Regulation and Inflexibility

Local government and private sector denunciations of "red tape" in environmental programs are mirrored in state officials' charges of federal inflexibility and indecision in the administration of environmental programs. The problems lie both in federal programs which are delegated to the state for administration and in federal activities which fail to consider state environmental policies and programs.

Federal programs in air and water quality call for state administration of standards, permit issuance, and compliance plans, subject to federal approval. Currently, few state plans and programs have met full federal (EPA) approval, contributing further to the problems of duplication in permit programs. Not all states desire to administer such programs. Many of those which do administer them maintain that federal rigidity is an obstacle to effective state administration.

State officials are outspoken on the difficulty which EPA regulations cause for the creative design of programs and flexible administration of regulations. National standards and regulations cannot be applicable to the environmental, economic, and governmental peculiarities of all states. The difficulty of meshing state environmental conditions and programs with federal requirements varies according to the state involved and with the program. Even when good working relations with EPA regional offices exist, and when the differences in federal and state statutes are acknowledged, EPA's perceived rigidity in enforcing federal regulations creates hardships for state governments.

Officials in several states assert that federal insistence on adherence to federal regulations undercuts efforts to develop flexible state programs that are consis-

tent with overall state objectives. Furthermore, where state initiatives preceded federal policies, the requirement to adhere to EPA regulations may hamper an ongoing program. In such instances, federal regulations are held to be "unreal, unresponsive, unnecessary, and inflexible." Some Oregon officials estimate that their water quality program which began in the early 1950s was set back a year and a half by being confined to the requirements of the federal NPDES approach.* Further, they feel that federal NPDES regulations, perceived as "burdensome and too long in procedures," are a setback to existing state initiatives in water quality. Federal regulations and rigid enforcement provisions also are contrary to the compliance and enforcement mechanisms developed by some states.

The narrow regulatory interpretation of federal environmental programs undercuts efforts of state officials to use federal funding for such programs more creatively and effectively. In Massachusetts, where an effort is under way to use environmental programs as part of a more positive growth management strategy, the regulatory focus of federally funded programs has hampered flexibility according to some state officials.

Some state officials contend that EPA's inflexibility is matched by its indecisiveness in approving state environmental programs. State legislators are particularly sensitive to the "federal preemption" concept wherein federal agencies withhold approval of state programs developed under federal policy initiatives. State administrative officials often are irritated by federal waffling on state administration of such programs. In the words of one official, "the feds should run the programs or they should delegate them, with adequate reviews and general audits to ensure the state's ability to administer the program." An official in another state phrased it more strongly: "I want no federal EPA interference with the state's compliance and enforcement programs unless the state hasn't done its job."

A second way in which federal agencies are seen as inflexible is in federal agency compliance with state environmental programs. The management of federal lands and a number of federal developments, such as those of the Bureau of Reclamation and the Corps of Engineers, have significant implications for the management of state environmental programs. In the east, state officials often find federal noncompliance with state permit and review programs more of an irritant than a major stumbling block to state administration. Officials in states likely to be impacted by off-shore drilling, however, want the terms of federal leases to include due consideration to state environmental standards and programs.

In the western states, where federal landholdings and projects are more extensive, the problem is more severe. The issue for the states is how to design and manage effective programs when significant landholdings and activities are not subject to state jurisdiction. Jurisdiction over federal water projects and energy development projects on federal lands is a particularly sensitive area. Yet, the problem extends to other areas of resource-related activities and permits.

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*National Pollution Discharge Elimination System permitting process pursuant to Section 402 of the Federal Water Pollution Control Act Amendments of 1972.

The Bureau of Reclamation often is cited as insensitive to state water quality management plans in its development of irrigation projects. In California, decreased flows resulting from one planned dam project threaten some areas with saltwater intrusion beyond that permitted by state standards.

State officials couple their charges of federal inflexibility and noncompliance with suggestions for improving the mesh of federal and state programs by allowing greater state flexibility and latitude in enforcement. Such flexibility would permit state officials discretion in tailoring federal programs to local and regional conditions. Oregon officials say federal insistence on hard dates for compliance, on fines and injunctions undercuts state conciliation and encouragement of industry to find innovative means to comply with air and water quality standards. Oregon's traditional emphasis on conciliation and cooperation with offenders tailors the compliance methods and schedules to the individual case, while providing realistic abatement of pollution.

In arguing for greater flexibility and responsiveness to state needs, state officials do not suggest that federal programs and national interest should be handed over to the states. Saying that federal programs are "like a nervous system without a brain," one official argued for a wholesale review of federal investment and regulatory programs. Such a review should recognize differences among states, yet be supportive of the hierarchy of national interests. Physically locating EPA officials within the state may improve communication among state and federal officials and increase mutual sensitivity to their respective objectives, perspectives, and statutory mandates.

State efforts to encourage federal compliance with state standards and permits have varied. Many officials withhold judgment on federal agency flexibility and willingness to observe state programs. Federal compliance must be voluntary, in light of a California state court ruling that the state had no procedural ties over activities on federal land. Wyoming has had success in its dealings with the federal Department of the Interior under a special court agreement that the more stringent state reclamation standards apply to stripmining on federal land. Officials in other states are less optimistic that cooperative agreements with federal agencies, without enforcement mechanisms, are the answer. Some states, such as Oregon, have, through discussion with their EPA regions, established the principle that the state should be involved in decisions dealing with federal permits and with private activities on federal lands which are of significant interest to the state.

In other states, officials find that persistency can make federal agencies recognize the need to cooperate with the state in areas of mutual concern. Georgia officials feel such persistence contributed to the current system of state-federal joint notice of proposed activities requiring reviews and permits.

While state officials criticize the inflexible interpretations of federal regulations, state programs are not immune to the charge of inflexibility. Local governments, which issue and are subject to environmental regulations and permits, frequently view state regulatory agencies as the "bad guys" who refuse to give the locals adequate consideration in enforcing state standards and review procedures. California has recognized the need for greater flexibility and latitude asso-

ciated with the CEQA regulations guiding the EIR process.* The model EIR, patterned for projects and their impacts, did not easily serve the review of policies and plans, even though such proposed activities were also subject to the CEQA. Recent modifications to the law are intended to alleviate this inflexibility.

The Costs of Regulation

The difficulties associated with red tape and inflexibility contribute to a third major concern with the regulatory approach expressed by state officials determining the cost of environmental regulations. The cost to the state of instituting, monitoring, and enforcing environmental programs is seldom mentioned as a factor in evaluating regulatory programs. However, all officials express concern for the dollar costs imposed on private business and local governments which must comply with environmental review procedures. Few would go so far as one state official who said environmental quality programs actually save state and business dollars by getting environmental considerations and costs up front, rather than in *post facto* cleanup efforts.

Local government and private business appear to be accepting the need to assume certain costs for resource management. What they are not willing to assume is the cost associated with complex procedures to achieve environmental quality objectives.

In several states, local government hostility to state environmental programs is waning. Local government support for a state lead in environmental management is not without reservations. One criticism of state environmental programs is related to the distribution of program responsibility. Local officials say the state agencies, in designing regulatory environmental programs, fail to give sufficient attention to the local role in pollution control programs relative to the state role. Many local officials argue that air and water quality programs are a heavy burden on local government budgets. The burden can be significant, since local governments are potential polluters as well as regulators.

States also are becoming more aware of the costs imposed on local governments by the requirements of environmental procedures. Local governments are less capable of passing costs on to the consumer. Local officials may prefer local control of regulation, but in many states they are seeking state assistance to meet environmental requirements. However, as one state official commented, "State aid does not occur without some preemptions."

Ways of helping local governments with compliance costs and the extent to which states encourage local governments to assume such costs vary. For example, several states assume a portion of the local matching funds required to obtain federal grants for wastewater treatment facilities. One state, by taking legal steps to convince local and regional sewage authorities to act, has com-

*The California Environmental Quality Act requires the preparation of Environmental Impact Reports much as the National Environmental Policy Act requires federal Environmental Impact Statements.

pelled significant local expenditures for sewage treatment programs. But, as one official commented, "You can't close down local government for inadequate treatment of sewerage."

State agencies also are becoming aware that local officials, like private businessmen, are being buried in regulation. Environmental regulations are so complicated that many smaller communities could use, but cannot afford, a full-time lawyer for environmental programs. Local governments argue that the costs of procedures associated with planning and management programs are not adequately considered. In response, a few states are providing limited funds to local governments for costs they incur complying with state and federal environmental programs. Colorado, as an example, gives local governments an amount equal to 5 percent of federal 201 allocations* for technical assistance in water quality planning.

States are also assisting industry in meeting environmental standards. In Georgia, the Environmental Protection Division of the Department of Natural Resources works with operators of prospective new facilities in site selection and in delineating specific pollution control requirements. Colorado's joint program review process involves the private sector and local government with state officials in identifying problems and opportunities associated with new ski slope development.

Streamlining Regulatory Procedures

The charges of duplication, red tape, and the associated costs have increased states' sensitivity to regulatory procedures. State officials are unwilling to abandon the tool of regulation. However, they are conscious of the need to improve the effectiveness and simplicity of their regulatory programs. "It is now a matter not of reducing standards, but of weeding out inefficiency," says one official.

"Regulation is necessary, but it must be simple, and fairly and quickly administered." These words reflect the working premise of most state environmental officials as they seek to trim regulatory procedures without weakening the objective of a clean environment and well-managed natural resources. Several approaches are being attempted. One is an effort to create an awareness that not every environmental problem can be regulated. The second is mechanisms to address criticisms leveled against permit and review procedures.

In developing state regulatory and enforcement programs, many state officials follow the advice, "Don't take on the world." Rather than attempt to regulate every problem, state officials recognize the limitations of staff expertise and time and of available local government enforcement tools. By developing an enforcement strategy, officials seek more effective use of their resources and public credibility.

The most widespread effort to increase the effectiveness of regulatory programs is occurring with steps to streamline environmental assessment and environmental permit procedures. The effort is intended to increase the efficiency of

*Section 201 of the Federal Water Pollution Control Act Amendments of 1972, P.L. 92-500 pertains to planning and construction grants for wastewater treatment facilities.

review programs with requirements for vast quantities of data, hearings, and approvals by numerous agencies. There are several general approaches: (a) greater clarification of what constitutes adequate data and reporting of impacts; (b) improved information and early communication between public officials and applicants; (c) specified review periods for state agencies; and, most commonly, (d) some form of a one-stop permit system.

California is attempting to modify the regulations governing its environmental assessment procedures. Recent amendments to CEQA regulations are designed to reduce inefficiencies in information reporting requirements and to improve the program's flexibility. CEQA is viewed by state officials as an informational device to improve decisionmaking, not as a regulatory program. Thus, new regulations provide greater clarification of what constitutes an adequate level and range of reporting. New regulations also address the problem of repetitive reporting of basic environmental data. The state encourages a master environmental assessment base to assist state and local agencies in the EIS process. The assessment base, by aggregating all data on state resources presently maintained by state agencies, would provide a common data base for all jurisdictions. The state Office of Planning and Research also recommends that local agencies develop local master environmental assessments to provide a common set of data and to define a common context in which environmental impacts are evaluated. Developing such master environmental assessments could simplify EIS preparation and would improve the reliability of assessments.*

Improved communication between applicants and state officials responsible for permit issuance is another important way to minimize unnecessary work. One relatively simple means is to notify applicants about permits that will be required for particular activities. One of the major frustrations for applicants, particularly those with smaller projects, is determining which of the many permits (environmental and otherwise) they must obtain. Some states, including Massachusetts, Wyoming and Oregon, provide a detailed permit directory or a permit office or ombudsman.

A second way to improve communication is early, informal contacts between applicants and state officials. Several states, including Colorado and New Jersey, have instituted pre-application conferences. Both parties discuss the proposed project, its likely impacts, and its probable reception within the permit system without either party being committed. Such early and informal contact between applicants and the state, between local and state officials, and between state and federal officials can lead to projects more likely to comply with required standards. It may also lay the groundwork and provide personal contact for reducing future conflict.

Another response is to impose mandatory time schedules for agency review. New Jersey enacted legislation requiring that permits must be issued within 90 days for certain projects or the project is deemed approved. While there is some inclination to extend the mandatory review provision to other activities, there are problems with the approach. Projects which are large and complex and which

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*California, OPR. *The California Environmental Quality Act: A Review*, March 1976, Sacramento.

involve technical environmental standards and multiple impacts can seldom be adequately assessed within a short period. Requiring an agency to sign off within a relatively short time may result in superficial research and questionable decisions. As a consequence, the time saved by having a quick turnaround on an agency's decision may be offset by legal challenges from either opponents of an approved activity or by ensuing environmental costs.

The most frequently used means to improve the permit system is a version of one-stop permitting. A few states have adopted a formal one-stop permit process. Others are improving coordination among permitting agencies while still retaining an agency's prerogative to grant or deny a permit. In most states, state-local sensitivities keep local permit systems outside state efforts to make permitting more efficient.

Ways to rationalize the environmental permit system are numerous. Massachusetts has attempted to reduce the levels of bureaucracy by decentralizing the permit process and by consolidating various agency procedures at the regional level. Several states, including Oregon, New Jersey and Massachusetts, have adopted a master application form allowing the various permit review processes to begin simultaneously, often putting the burden on state agencies to identify projects over which they have permit authority. The master application does not end the necessity for individual permits. Individual permitting agencies still issue or deny permits according to statutory or administrative criteria and policy. However, a master application form, along with joint hearings, can contribute to a reduction in an applicant's paperwork and makes a more complete, uniform record available to the reviewing agencies. Both of these factors can contribute to a smoother, more efficient processing of the application.

States, such as Georgia, with an environmental superagency have used their organizational structure to develop an informal one-stop permit system for private, state and federal activities. Having the major natural resource and pollution control programs within one structure and under the leadership of one commissioner increases the potential for internal review, liaison, and coordination, as well as resolution of conflicts among the various permit granting divisions. The result can be greater coordination and more efficient and effective procedures.

Regulation as Administrative Policymaking

The charge of administrative lawmaking is seldom specific to environmental programs. It is not so much one of executive abuse of authority, but a concern for the overall complexity of bureaucracy. Charges have been made that regulatory agencies are freewheeling with the authority granted them under environmental legislation. In some instances, overly zealous state officials have been charged with using regulation to achieve environmental objectives which would not have been adopted by the legislature. This is particularly true in land use programs. In the words of one state legislator, "Since legislators shy away from land use, the planners take over." In another instance, state officials who issued regulations which they described as the "functional equivalent" of the statutory requirements were denounced by some legislators for failure to implement the law. One legislator called this administrative practice "the greatest

threat to democracy since the Reichstag Fire." While there is legitimate concern that state and federal regulatory agencies may exceed legislative intent, most officials interviewed say agencies are sensitive to the issue. Legislative control of appropriations encourages this sensitivity.

In an increasing number of states, legislatures have adopted or are considering legislative oversight of administrative regulations. Motivation for such oversight extends beyond environmental programs. It reflects a general concern for executive branch initiatives and accountability and the legislature's sense of unease over the control of state policy. As one state legislator phrased it, "the bureaucracy, not policy level people, make regulations; and the bureaucracy just rolls along at its own pace."

However, many state officials, both executive and legislative, express strong reservations about the desirability and feasibility of such legislative oversight. The arguments against legislative oversight of environmental regulations are numerous. The most frequently mentioned are the time and staff requirements for review of complex, highly technical regulations. Oversight of environmental regulations is particularly troublesome, given the technical nature of many regulatory provisions. One legislator said that even a full-time, well-staffed legislature could not conduct systematic oversight of program regulations. Legislative committees and staff seldom have the level of expertise to judge the details involved in regulation. One legislator in a state attempting to conduct committee oversight of regulations admits the legislature is "floundering" in its effort.

One possible weakness of legislative oversight is that it may become too political. Lacking sufficient time, staff, and information, the legislature may employ a "gut" reaction in selecting the programs for review. Regulations which raise the ire of an outspoken constituent are most likely to be reviewed. In such instances, procedures and substance are unlikely to be the criteria for review.

A third reservation about legislative oversight or efforts to dictate regulations by statutory requirement is the inherent complexity of a regulatory system, and the resulting need for flexibility. Efforts to restrict agency authority to promulgate regulations may backfire. An agency needs some broad authority to meet federal regulations regulations which frequently are conditions for federal funds. Since many state legislatures meet infrequently, state agencies without a sufficiently broad mandate would be severely hampered in the effort to comply with federal program requirements.

Statutory efforts to dictate guidelines for regulations may also prevent agencies from tailoring regulations to specific classes of activities or to changing conditions. Categorical "exclusions" and "inclusions" to environmental programs are difficult to design in advance. Therefore, efforts to spell out every detail in statutes take away from an administrator the necessary flexibility to administer a reasonable and equitable program.

Laws tend to be passed incrementally, with inevitable conflicts. Furthermore, the language of legislation is seldom crisp. Many bills are written to be all encompassing, with general language on goals and with little attention to the demands of implementation.

More feasible steps than legislative oversight of environmental regulations are possible to prevent actual or perceived administrative abuse. One of the most

frequently mentioned is improved access to top agency officials by the legislature. Interested legislators can then stay informed of the direction in which environmental programs are being developed. It also permits negotiation among state officials, legislators, and interested parties before regulations are effective. In some states, ad hoc committees composed of private sector, executive, and legislative members provide forums in which the exchange of information and views contribute to the development of agency regulations and procedures. Such mechanisms can lessen the pressure exerted through the legislature to weaken environmental standards or dismantle environmental programs. In other states, formal commissions composed of public, private, executive, legislative or other combinations of representation have been given the responsibility to promulgate agency regulations.

Several officials in different states from both branches of government suggested that the solution could be found in more carefully drawn statutes. This would most likely require extensive review of each bill before its final adoption to ensure that it does not conflict with existing statutes and that it does not permit an unwarranted amount of discretion to the administrator.

IV. Coordinating State Environmental Programs

Energy conservation, land use, water availability, and the typical pollution control programs are considered environmental topics open for consideration as the emerging issues for this report. It was thus only a minor surprise that the state officials interviewed brought up a wide range of current issues. It was then not unexpected that these same officials should begin defining relationships among several types of state environmental activities relationships that require improved structures or innovative mechanisms to provide the needed coordination among them.

Few of the officials interviewed questioned the need for improved coordination among environmental programs. Citing increased awareness of jurisdictional competition among programs and apparent policy gaps, most felt there is a need for regularized means of resolving conflicts and assigning responsibility.

Some of the conflicts among separate programs are inherent in the legislation authorizing them. Nearly all the gaps result from the lack of specific legislative mandates. Policy and program coordination generally originate in the executive branch where the problems arise when coordination is lacking.

State governments have sought to facilitate communications to produce a unified state posture and cost-effective action in the environmental arena. Their actions range from enunciating broad policy guidelines under which all environmental decisions are made, to assigning the same office manager to all environmental agencies. Among the most common techniques used have been reorganization, liaison officers, information sharing, and formal and informal meetings of the relevant division or department heads.

Because of the relative newness of most state environmental programs, the recognition of need for coordination is also fairly recent. The mechanisms for attaining this coordination are still evolving. This chapter presents a snapshot of these mechanisms as of early 1977.

The Structural Backdrop

The attention states have devoted to reorganizing environmental functions in recent years points to the perceived link between structural factors and coordination/effectiveness concerns. Since 1967, 15 states have created environmental superagencies. Little EPAs were established in 12 states.* However, the continu-

*The Council of State Governments. *Integration and Coordination of State Environmental Programs*, September 1975.

ing challenge of improved coordination and repeated "tinkering" with organizational structure suggest that structure is not the single or major key to policy and program coordination.

Most state officials concede that organizational structure can contribute to improved coordination. They definitely agree that improper organization of environmental programs can hinder efforts to institute coordinative mechanisms and procedures. The experiences gained in efforts to enhance coordination suggest that, though no one organizational structure will guarantee coordination, some are more conducive than others.

The organization of environmental agencies involves some degree of arbitrariness in the combinations and separations of highly interdependent functions and resources. No structure could bring in all activities affecting the environment.

A specific functional focus on water resources, on economic development, on public health, or recreation could, however, be defended in organizational terms, even as the interdependencies are recognized. The more frequent model unites pollution control programs and, sometimes, additional programs.

An organizational structure conducive to coordination also is complicated by intergovernmental factors. Authority for the planning, review, and regulation of environmental programs and activities impacting on the environment is shared among local, regional, state, and federal agencies, and often various boards and commissions. Thus, the fragmentation in structure is both horizontal and vertical. Devising a structure to encourage coordination among agencies, divisions, bureaus, and commissions at the same level is difficult; designing a structure to induce coordination among the various agencies at different levels of government may be a superhuman task.

Coordinating lines of authority and the number of boards and commissions with a policy role is more critical than bringing a number of functional programs into a single environmental agency.

In Colorado, environmental reorganization has been limited. Functional programs for air and water quality, solid waste, and noise are located within the Health Department. The policy and rulemaking authority is vested in statutory commissions. The independent bases of the commissions and their tendency to construe legislative mandates narrowly increase the difficulty of resolving conflicts among various regulatory, review, and permitting programs.

California brings several resource-related activities under the umbrella State Resources Agency. However, the numerous state and regional boards, commissions, and departments responsible for plans, policies, and permit issuance have varying degrees of autonomy from the agency head and from the state-level boards. Coordination is thus extremely difficult because there is no strong central coordinative position.

Wyoming's Department of Environmental Quality pulls together the major pollution control programs of air, water, and land. An independent environmental quality council appointed by the governor promulgates rules and regulations and serves as a hearing board on cases arising from the laws and regulations issued by the department. Department policy decisions are determined by the three advisory boards which each serve one of the major divisions. The overall council which could serve as a coordinating body is separated from line agencies

by the independent policy advisory boards and assumes more of a quasi-judicial role.

In Georgia, pollution control and resource management programs all reside within the Department of Natural Resources. Reorganization in Georgia moved a step beyond Wyoming in the degree of centralization. Thirty-three formerly independent agencies and programs were brought into a new agency, and their separate policy boards were abolished. The superagency is headed by one Board of Natural Resources which appoints the commissioner, sets policies and approves regulations for all divisions within the agency. The presence of one overall policy and rulemaking body enhances the likelihood that mechanisms to minimize inconsistencies among functional programs will be effective. Furthermore, the prospect for coordination among agencies is enhanced by the fact that the Office of Planning and Budget in the Office of the Governor has the statutory authority to resolve conflicts among agencies.

Mechanisms for Coordination

It would be improper to term all processes for coordination among state government programs as "mechanisms." Informal discussions around the coffee pot or over lunch often enable personnel of different agencies to exchange views and to bring each other up to date. Several officials said that while formal mechanisms are nice, they find that when a conflict exists between agencies, picking up the telephone and thrashing over the situation is a perfectly adequate method for achieving coordination.

Other techniques for information sharing have been more formalized within state governments. Some of them, such as the A-95 clearinghouse, are geared to a broad participation among many agencies. Some, such as permit review processes, operate only between agencies requiring frequent contact. Other mechanisms are structured to facilitate consideration of specific projects or actions.

The A-95 review process is not employed by all states to its maximum theoretical potential, but some have devised selective purposes for which it is eminently suited. In Georgia, the Office of Planning and Budget (OPB) uses reviewing agencies' comments not so much for what is said about a proposed project, but for determining the attitudes and concerns which underlie those comments. This information permits the OPB to identify possible policy or program conflicts among agencies as well as any inconsistency with the governor's goals and policies. The large number of projects which enter the A-95 system in the Department of Natural Resources for review makes detailed assessments difficult, but important issues are selectively addressed after the staff judges the project's significance and the appropriate agencies to perform the review.

In Massachusetts, the State Planning Office uses its weekly A-95 review session to coordinate programs with overall state policies. The reviews are directed toward determining project consistency with the state growth strategy. Beyond information sharing, Massachusetts is using A-95 as negative control over federally funded projects that would contradict the state's planning framework described in its growth policy statement.

Environmental impact review processes have been touted by some as a means

for sharing information and coordinating program activities. State EIR processes, however, are often seen by applicants and many state officials themselves as procedural headaches that are so narrowly focused on individual projects as to severely limit their use for broader purposes. Several states are attempting to break out of this myopic view of EIR. New Jersey has initiated a process to stimulate program coordination. The Department of Environmental Protection has bimonthly meetings of the department's division heads. Information sharing among programs is thus facilitated; and prospects for coordination are enhanced both by the centralized review and by the frequent joint meetings.

Recent reforms in the California Environmental Quality Act's impact statement requirements enhance information exchange. Under the new guidelines, the impact documents have become more manageable. Only problem areas related to proposed projects need be described at length and data does not need to be repeated from one EIR to the next: an inventory suffices for nonproblem aspects of a project, and references can be made to data in other documents.

California officials consider the fact that EIRs must be prepared an indictment of the planning process and hope that their recent encouragement of master environmental assessments will be heeded. These assessments would essentially be resource data bases from which all planning would proceed. The notion is that if all environmental planning decisions are based on the same comprehensive collection of information, better and more consistent results will be achieved than from the current process of incremental plan development and review. The coordination does not yet exist to provide the data base. The same problem of data exchange has been noted in Oregon. To address it there, a task force has been appointed to analyze alternative ways to organize the state's natural resource data gathering and use.

Besides information sharing, several states try to put state personnel in contact with one another regarding problems of common interest. In the Georgia Department of Natural Resources, one of the four branches of the Environmental Protection Division is the Program Coordination Branch. Its responsibilities include providing support services for the other branches, operating the department's management information system, and initiating contacts between the EPD and outside programs, such as coastal zone management. The use of liaison officers as initiators of such contacts is felt to be a most efficient interagency coordinating tool because those officers can choose the most appropriate entry points and people for facilitating communications on particular issues.

A similar approach is used in Indiana and Oregon. Staff assistants to the governors in those states are assigned to oversee functional areas of state activity. If conflicts between agencies occur, the relevant staff member(s) assume a liaison role by convening the appropriate agency personnel to discuss the matter and effect the executive's policy.

The various adaptations of the one-stop permit process, besides simplifying regulatory procedures, also serve a coordinative function. In Oregon, a single office is responsible for disseminating information about some 200 permit requirements (about 35 of which are environmental) and for accepting and processing master application forms. These forms describe the proposed project and are distributed among permitting agencies who must respond to the applicant within

30 days, saying whether or not they have a permit interest in the project. In Oregon and some other states, consolidated hearings may be requested by the applicant or required by law. In either case, such hearings are considered informational exchanges both between applicant and agency and between agency and agency. Such processes also help to identify potential conflicts and opportunities for cooperation among agencies.

By having joint hearings or a central permitting office that oversees all permit activities, a state might avoid the problem of the permit applicant obtaining permits one at a time beginning with the easiest and using his "beltload of trophies" to pressure the remaining agencies to follow suit. This is an acknowledged practice, state officials say, but one that may be curtailed by the one-stop processes that are becoming more apparent and more discussed in state government and within the development community.

More regularized and centrally directed coordination procedures seem to be emerging in a number of states. Some of these address the problems of advance planning for specific projects, while others are aimed more at the reconciliation of policy goals and objectives. Of fairly recent origin is the Colorado Planning and Coordinating Council. One role of the council is to pull together all those responsible for functional planning in the state. The council cannot interfere with or change the activities of the several independent, environmentally related commissions, but it does address those areas over which the governor is permitted discretion.

As a coordinating device, both on an interagency and an intergovernmental basis, Colorado has also set up a joint review process involving state officials, local government, and the U.S. Forest Service working through cooperative agreements. While serving as an informational link among governmental levels and as a forum for exchanging their points of view, it also gives developers a picture of governmental attitudes as well as the problems and opportunities that might exist in connection with proposed projects. To date, this process has been used mostly for advance review of ski slope developments, but its potential reaches beyond these considerations.

In other states, coordination is indirectly facilitated through overlapping membership on various commissions or through regular joint meetings of these commissions. There are nearly as many variations in state mechanisms as there are possible problems, but the state recognition of a need for an integrated state approach is apparent. Because problems imposed by a lack of coordination are not constant, it is unlikely that many of the mechanisms and structures discussed here will be permanent. Instead, it should be anticipated that the states will continue to revise structures, adjust programs and institute new mechanisms for a smoother blend of environmental activities.

V. The Institutionalization of Environmental Concerns

A Not-So-Delicate Balance

While problems of water shortage, energy development, hazardous materials disposal, land use and the coordination of all of these were common themes among the states visited, another frequently mentioned and always visible issue deserves particular attention. It is not easily measured, but it pervades the discussions of all environmental programs whose effect is to limit or put standards on development.

The issue is referred to as a balancing of environmental and economic concerns. In reality, there are few decisions of state government involving a clearcut choice between economic growth and environmental protection, although many decisions involve elements of both. In many cases, the issue has forced the state to assert a leadership role in distributing political victories between developmental and environmental interests.

So, while the environmentalists move toward translating their goals into the language of state programs, the development interests continue to make their claims about plant closings, increased unemployment and reduced tax base. This relationship does not suggest a balance but a battle.

To be sure, the development interests are not always the "crass nay-sayers" and the environmentalists are not always the "fuzzy-thinking idealists." There are as many different descriptions of the two parties as there are ways of manifesting the balance. In all the states, the battlegrounds for maintaining or achieving balance are multiple and dynamic. In no state is the question static or ignored.

In 1976, a major challenge was mounted in Oregon against the state's pioneering land use legislation. A citizen's initiative placed the repeal of that law on the November ballot. The state's authority in land use matters was upheld by a margin of 58 percent to 42 percent. Most of the state's environmental officials do not see this vote as a mandate for increased state action and point out that although it was a victory, the fact of the challenge should temper future related state action with caution. Meanwhile, the timber industry, a major opponent of the land use legislation, is considered the loser in this battle. Even though it supported the initiative for repeal, Oregon political observers say the timber industry would have preferred fighting particular aspects of the law in the halls of the legislature. The industry's fear now is that the expression of popular will might prevent any anticipated success in getting such legislative cooperation.

In several states, a perception of imbalance has led to vocal coalitions be-

tween organized labor and industry. In New Jersey, there is an identifiable organization, the Society for Environmental and Economic Development, that voices the group's opinions about environmental regulation. Such pressures in New Jersey have resulted in a rollback of state air quality standards to the federal minimum.

In California, the General Assembly prepared interrogatories to gather evidence addressing the question of whether environmental efforts stagnate economic progress. These were to be submitted to members of the labor, business, government and academic communities. A study was also planned by legislative staff to determine what, if any, relationship exists between environmental controls and the unemployment rate.

In Colorado, the balance issue centers, as do many other concerns, on the effects and demands of energy development. Most frequently, this entails a discussion of the allocation of water between the current agricultural and the proposed energy development uses. In Indiana, an official said he believes the state's populace is pleased with the quality of the state's environment and that they are afraid of a repeat of the recent closing of a U.S. Steel plant by the federal EPA. Many people were laid off because of the closing, and, says the official, "the air is not so dirty that we can afford to increase our unemployment like that."

The southern and border states visited are eagerly recruiting new business and industry for continued economic expansion, but they are not compromising environmental objectives to attract new jobs. Kentucky and Mississippi both are seeking clean industry. Georgia is promoting the growth of its service industries, and it goes one step further. The Environmental Protection Division of the state's Department of Natural Resources helps new industries with site selection and pollution control requirements to meet the state's rigid standards.

Environmentalists in the declining industrial northeast wish that such harmony could be established between industry and state environmental programs there. The jobless rate in Massachusetts, for instance, is high, and the ear of public officials is particularly sensitive to charges that current state policies work against increased employment.

As long as some still see environmental controls and economic development as mutually exclusive, the word "balance" will continue to be applied to their relationship. In the state political arenas, and at the federal level, these issues have been viewed as either/or options, and policymakers have struggled to establish an equilibrium. More factual, and less emotional, descriptions of the relationships between them may promote more realistic and positive steps toward each.

Making It All One

The casual observer of air quality standard rollbacks in New Jersey and the attempt to repeal Oregon's land use bill may conclude that effective environmental management by state governments is on the wane. However, New Jersey has not eliminated controls for air pollution; it has merely reduced its standards to a level consistent with the requirements of federal law, and the Oregon land use bill was upheld by the voters.

The reconsideration of various state environmental statutes and standards merely represents adjustments to attain the elusive balance. Officials in Georgia, Colorado, Wyoming, Oregon, California, Indiana and New Jersey said the majority of citizens in those states favor the preservation of a quality environment. Up to this time, however, and with the exception of federally required programs, most environmental measures have continued to meet organized opposition.

Whatever the origins and whatever obstacles were overcome, a significant amount of environmental legislation is on the books in all states. All states, for instance, have air quality, water quality and solid waste programs that enforce federally mandated standards, although a number of these state programs predate the federal initiatives, and the state standards are often more stringent than the federal standards. Nearly all states have some form of state-administered land use legislation. More than half the states have laws requiring environmental impact statements for public and occasionally private projects. It is the states which have assumed the leadership role in meeting the potential environmental consequences of new energy development. In the final analysis, the success or failure of the nation's efforts to maintain and improve the natural environment will be accomplished by the actions of the states.

The fact that the balance question is usually raised within the state capitols is evidence of the weight the state role carries. The states are perceived as the balancers precisely because they have been the focal points of environmental protection activities.

The states, bolstered by federal minimum standards for many programs and by continuing popular support for most environmental goals, have stood their ground in defending the integrity of their environmental programs. And that's the point: environmental programs are, today, as much a part of most state governments as highway departments were in the 1950s.

An item occasionally reaches the news media concerning an environmental crisis in which the state is or must become involved. However, environmental matters seldom are headline material any longer because they are being addressed by state governments on a daily basis. Issues are less likely to reach crisis proportions as they are addressed by effective state mechanisms that anticipate or are prepared to face potential large-scale problems.

In some states, environmental programs have become a working part of the government and have assumed the role of equal partners with other state agencies.

What cannot be so easily shown is the genuine pride exuded by countless state officials as they told of the strength and accomplishments of their environmental programs. It is that pride which makes the programs successful and which will prevent state environmental achievements from being overturned now that they have come of age.

PART 2

VI. Introduction

Part 2 of this report is an overview of policy considerations emerging from environmental issues at the state level. The first four reports in the "State Environmental Issues Series" are summarized to give state officials a concise guide to these specific environmental issue areas.* Abstracts of each of these four reports are included at the beginning of each summary chapter.

Chapter VII is a summary of policy implications for state energy conservation policies and programs in the public utility and building sectors. Chapter VIII is an overview of the status of the environmental impact assessment process and recommendations for its improvement. The institutional and technical challenges arising from the control of diffuse source pollution are discussed in Chapter IX. Problems of both air and water pollution caused by diffuse sources are analyzed.

The impact of Indian rights and claims on state environmental management is explored in Chapter X.

Finally, a research agenda taken from each of the specific issue areas is presented. This agenda serves as a point of departure for continuing study of environmental and related issues from the state perspective. It is hoped that the research agenda and the presentation of issues will help guide the allocation of research and research support in directions of most value to state environmental decisionmaking needs.

The four environmental issue areas discussed above energy conservation, environmental impact assessment, diffuse source pollution, and the impact of native American claims on state environmental management were identified at the outset of this project by an advisory panel of state officials, as constituting a viable list of environmental issues of pressing and immediate concern to many state governments. Review panels of state leaders made recommendations to the project team studying each problem area. Their recommendations and insights proved invaluable in preparing the reports. The review panel members for each issue were:

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*The reader is referred to the first four publications in the *State Environmental Issues Series* for a more comprehensive treatment of each topic. These four reports are:

Energy Conservation: Policy Considerations for the States;
Environmental Impact Assessment: Policy Considerations for the States;
Diffuse Source Pollution: Policy Considerations for the States, and
Indian Rights and Claims: Considerations for State Environmental Management.

Energy Conservation:

- Chart Bonham, Deputy Director, State Energy Office, Georgia;
- Jeanette Brinch, Conservation Foundation; Washington, D.C.,
- Representative Sam Gejdenson, Connecticut;
- Michael Goodwin, Architect (Former Arizona state representative) and
- Marvin E. Olsen, Senior Research Scientist, Battelle Human Affairs Research Center, Seattle, Washington.

Environmental Impact Assessment

Schuyler Jackson, Vermont Environmental Board;
Edward Kelly, Project Monitor of Intergovernmental Sciences, National Science Foundation;
Loren Kramer, Oregon Department of Environmental Quality;
John Reuss, Montana Environmental Quality Council, and
Eastern Tin, Florida Bureau of Land Planning.

Diffuse Source Pollution

Jeffry Kell, Kentucky Office of Planning and Research;
- Berton L. Lamb, Eastern Kentucky University;
Gary Pryor, Central Iowa Regional Association of Local Governments;
- Victoria Greenfield, EPA Nonpoint Sources Branch, and
- Daniel W. Varin, Rhode Island Statewide Planning Programs.

Indian Rights and Claims

John Niemisto, Department of Justice, Madison, Wisconsin;
William Mauk, Idaho Supreme Court, Boise, Idaho;
Craig Bell, Western States Water Council, Salt Lake City, Utah, and
Robert Deer, University of Wisconsin.

Energy Conservation: Policy Considerations for the States *directs attention to a critical problem in which the states are assuming a strategic role–energy conservation. Two specific issue areas are discussed as constituting sectors that are most amenable to state energy conservation efforts. These issue areas are the regulation of public utilities and improved energy conservation in buildings.*

Manipulation of the rate structure is analyzed as one means of facilitating conservation of electricity. Load management techniques such as peak-load pricing increasingly are being employed to reduce the level of peak demand by shifting demand for electricity to "off peak" periods. According to this scheme, the price is highest in those daily/seasonal periods when demand is high and conversely lower when demand is low.

Significant and long-term energy savings can be obtained through changes in building design and construction practices and through improved or supplementary energy systems within buildings. Conservation of energy can also be achieved by retrofitting existing buildings with proper insulation. The major problems to be encountered by state officials in reducing energy use in buildings will be public inertia and institutional obstacles. Therein lie the major policy considerations for state leaders as they seek to deal with the ramifications of the energy crunch.

VII. Energy Conservation: Policy Considerations for the States*

Introduction

The states have important roles to pursue in efforts to address the national objective of energy conservation. Despite limited information on patterns of energy consumption and the impacts of energy conservation efforts, state legislatures and agencies have been instrumental in providing direction to a variety of measures within the states. To improve the effectiveness of state efforts, it is important that state officials be aware of possible constraints to various energy conservation policy approaches. State officials can then better devise programs to partially negate such constraints and better define the state's role in the pursuit of energy conservation.

At the base of the energy problem lies the need to maintain the balance between energy demand and producible supply. Energy conservation is the most feasible policy option, for the intermediate period, to achieve the balance between energy demand and energy supply. However, energy conservation has long-term aspects. Although some measures may have immediate results, other measures may result in significant energy savings only over an extended period of time. Even if energy efficient buildings, appliances and automobiles are soon available, the extant stock of these durable goods is so large that the conservation impact will not be felt in the immediate future.

State officials face some further limitations on their freedom to design effective energy conservation programs. These include legislative mandates, competing policy objectives, and limited resources. Federal and state legislative action in energy conservation provides immediate directives for state policy. While legislative action does not rule out other approaches, it does set some basic parameters for energy conservation efforts in the near future. Within the limitations posed by competitive, and sometimes conflicting, policies and programs and limited resources, state officials are required to exercise both creativity and flexibility in designing conservation programs.

Two program areas are examined in this chapter regulation of public utilities and improved energy efficiency of buildings. States have the primary authority and responsibility to regulate public utilities, and numerous state agencies with this authority are adding the efficient use of energy to the declared objective of

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*This chapter represents a condensed version of *Energy Conservation: Policy Considerations for the States*. The Council of State Governments: Lexington, Kentucky, 1976.

regulation. Programs to encourage efficient energy use in building design, construction and operation have been authorized in many states. Thus, it becomes apparent that these are two particular policy areas in which the states can make contributions to the national goal of energy conservation.

States and Energy Conservation

The severity of the energy demand-supply-price problem has given rise to the need for a "division of labor" between the federal government and the states as they deal with the energy problem and seek to lessen its impacts. The complexities of supply and price of most energy sources should be addressed at the national level by the federal government in conjunction with the private sector. National patterns of energy consumption and the large interlinked energy companies reflect this problem of scale. The complexities of the energy system and its interrelationships with environmental policeis and economic activities require much of the leadership to come from the federal level.

This certainly does not mean that states are not or should not be concerned with energy policy. Several states are allocating significant funds and efforts to research alternative energy resources. Energy conservation, however, is an even more attractive policy option for the states. States are somewhat limited in their ability to influence energy supply and price. On the other hand, they do have appropriate power to influence energy conservation and sufficient flexibility to design and implement energy conservation measures in line with their needs and unique characteristics.

Energy Impacts and State Response

Most states have felt the negative impacts of the supply-demand-price aspects of the energy problem. The inflationary prices of the energy problem have raised the cost of goods and services procured and provided by state governments. Tax revenues are also negatively affected as energy-related inflation contributes to a slowdown in business and economic activity.

In certain regions of the country, the energy problem is more serious than the general problem of inflation. Severe problems may arise in accordance with climate and economic conditions, the source and type of fuel supply, or the distribution network serving a state. The uncertainty of supply and high prices of imported fuels have caused severe economic dislocations in the New England region. In the Rocky Mountain area, several states are faced with costly environmental and socioeconomic impacts should they become significant energy producing States.

The practices that most likely will result in energy savings vary among and within the states. The feasibility of certain energy conservation practices depends on many factors including climate, institutional, and market conditions.

Response to energy problems is further complicated by the relative lack of state-level data. Most research on energy conservation options is based on nationally aggregated data on energy use by the economic sector. Consequently, recommended energy conservation measures often do not adequately take into

account the difficulties of implementing energy conserving practices at the individual state level. This makes it necessary for the states to arrive at more individualized plans of action for energy conservation that take into account the unique characteristics of a particular state.

State Trends

The separate efforts currently being pursued by the states in energy conservation number in the hundreds. These actions include thermostat and lighting cutbacks in public buildings; public education and direct technical assistance for energy conservation; efforts to encourage efficient use of energy through peak-load pricing of utilities and life cycle costing; energy budgets for public facilities; voluntary or mandatory energy-cost appliance labeling; and financial incentives for the adoption of alternative energy systems.

An inventory of state legislative action since 1974 indicates the momentum and trends of state conservation activities.[1] In 1974, fewer than half of the states adopted energy conservation bills. The creation of fuel allocation offices and energy agencies to deal with fuel distribution problems was the most frequent legislative action. By the end of 1975, some two thirds of the states had enacted energy conservation legislation. The most common legislation in 1975 occurred in the area of public utilities (especially electric) regulation and encouragement of solar energy systems by financial incentives or research funds. Other measures adopted included voluntary or mandatory measures to encourage more efficient use of energy, particularly through standards for building construction.

State legislation in 1976 built on previous state initiatives for energy conservation. States have begun to implement previously enacted programs and to develop energy conservation programs in line with federal programs. A significant decline in solar energy legislation has occurred at the state level, while legislation dealing with energy conservation plans for buildings has increased. Although the sectors addressed by states in 1976 are more diverse than in previous years, the residential-commercial sector remains a common target of legislative programs. States also have begun to place new emphasis on state government directed or supported studies of energy conservation activities.

The functional areas and sectors which state programs are addressing are reinforced by the federal Energy Policy and Conservation Act of 1975 (EPCA). While the states, under this federal grant program, have latitude in developing plans for reducing the projected 1980 level of energy consumption by 5 percent, the mandatory program areas for state energy conservation coincide closely with those which several states and local governments have already enacted. These include: lighting efficiency standards for public buildings; programs for carpools, vanpools, and public transportation; energy efficiency in state procurement; thermal efficiency standards and insulation requirements for new and renovated buildings; and traffic regulations permitting right turn on red.[2]

State Policy Development

The federal EPCA sets possible parameters for immediate state energy conser-

vation activities. The states are faced with the difficult task of determining the details of how the energy conservation measures will be developed and implemented. Accordingly, attention should focus on those sectors and functional uses in which:

(1) Technological potential for energy savings is high;
(2) Public acceptance is likely;
(3) State authority and ability to act is strong, and
(4) An acceptable environmental-economic-equity tradeoff can be obtained.

These broad criteria provide guidelines for arriving at an overall energy conservation strategy. Specific policy approaches regulatory, incentive, and educational should reflect a balancing of the technological, economic, political, and administrative factors and should be optimal in terms of dollar costs, energy savings, environmental and social impacts, and administrative considerations.

Development of such optimal programs is obstructed by a number of constraints. Information across a range of topics is required for policymakers at the state level to effectively design energy conservation programs. Currently unknown or unavailable in useful form is information relating to actual and projected energy consumption and supply levels; an understanding of the market forces relative to energy consumption; consumer willingness to adopt energy conserving behavior; and the social, economic and environmental impacts of conservation measures.

Institutional considerations also influence the determination of cost-effective state energy conservation activities. The choice of the appropriate market or nonmarket conservation strategies is influenced by the economic structure of the state and its energy distribution networks. The structure of the national economy and energy systems, as well as the dynamics of intergovernmental relations, must enter into the determination of which sectors and uses are the most likely targets, and which government level should assume responsibility.

Research is under way to discover the likely results of general conservation policies, but the impacts of specific measures within particular states will be difficult to ascertain in view of the national dimensions of the energy problem, the scale of most available data, and the inextricable relationship of energy to the national economy.

Energy Conservation in the Electric Utility Sector

In the United States, the electric utility generating industry has the longest growth rate of any energy-consuming sector, with electric generating processes themselves accounting for 27 percent of the total U.S. energy demand. Approximately 38 percent of the energy used within the sector represents scarce oil and natural gas resources that are used as fuels for generating electricity.[3]

Electricity can be an efficient form of energy as used by the consumer. However, the production and transmission of electrical energy to the consumer is highly inefficient in the use of fuel resources. In combination with the scarcity, costs and impacts associated with the development of many of these fuel resources, the inefficient conversion processes draw attention to the need for conservation in the electric utilities sector.

Conservation Policy

Proposals for conserving energy in the electric utility sector can be viewed in terms of three basic tools that can be applied by state officials to reduce the amount of energy required to produce electricity. These tools are:

- Regulation: techniques that restrict the amount or duration of electrical use allowable or that require the use of more efficient technology in the energy conversion process;
- Voluntary Conservation: public relations and educational techniques designed to promote voluntary cutbacks in the consumer use of electricity;
- Rate Structure: techniques that employ variation in the price of electricity to promote energy conservation.

For political and economic reasons, regulation may not be a viable conservation measure on a widespread basis. Such techniques as interruptible service (restrictions on the amount and duration of electrical use) have not been applied on a large scale, and voluntary conservation programs have yet to demonstrate long-term favorable results. Consequently, many proposals for the conservation of electrical energy involve some manipulation of the rate structure to encourage consumers to change their level or pattern of electricity consumption. The use of rate structures as a means of conservation is based on two assumptions: elasticity of demand for electricity and public acceptance of the policy.

Under the first assumption, changes in demand respond directly to changes in prices. A dilemma lies in the fact, though, that studies of the price elasticity of demand for electricity have not been conclusive on this point. Simply stated, a number of studies have found that demand for electricity did not change in the expected manner with manipulation of the rates. This indicates that the price elasticity of electricity is more complex than originally thought and requires further scrutiny if it is to be used as an assumption in devising rate structures that foster conservation of electricity. For example, elasticity of demand has not usually been examined for its relationship to time of day, total usage, or end usage. The limited amount of data is exacerbated by the effects of the historical period and prevailing market conditions during which most of the elasticity studies were conducted. Changing market conditions due to escalating prices and the lack of substitute fuels could render obsolete all previous studies about the elasticity of demand for electricity.

In various studies of elasticity, demand has been found to be a function of numerous variables including not only the price of electricity, but also the price of alternative fuels, family income, population, life styles, and the existing stock of appliances. Changes in any one variable may have more or less than proportionate impact on electricity use.

The National Association of Regulatory Utility Commissioners has concluded, however, that the demand for electricity appears to be somewhat responsive to price in the long run. Short-term responsiveness is likely to be limited because consumers of electricity often are locked into certain life styles which require considerable time to change.[4]

The uncertainty as to the effect of price elasticity in conserving electricity has several ramifications for state policymakers. One is that rate structure changes

may do little to effectuate needed energy conservation in the short term. There is also the possibility of windfall profits for utility companies, with minimal conservation benefits. Finally, some methods using the rate structure to conserve energy may result in higher prices for consumers, thus raising the question of equity for persons on low or fixed incomes.

Efficiency

Current inefficiencies in the generation of electricity are partially attributable to the existing pricing systems which have encouraged the growth of demand. Electric utility rates have two primary objectives generating sufficient aggregate revenue and allocating scarce resources economically and fairly. The level of rates is designed for revenue purposes and the rate structure serves the allocative function. In the past, state utilities regulatory commissions have been more concerned with the level of rates than the structure of rates. Cognizant of this fact, utility companies have used the rate structure as a means of expansion. This has been accomplished by using a declining block-rate structure, whereby each successive block of kilowatt hours used is cheaper than the preceding one. Thus, the demand for electricity increased as large users had an incentive to consume more electrical energy.

Current rate structures do not generally reflect the fact that demands on the electrical energy system at times of maximum demand impose a major strain on the generating system. To meet these increases in demand, utility companies often rely on older and less efficient auxiliary generating units which are expensive to maintain and activate. Therefore the output of older auxiliary units is usually sold for less than the actual cost of their energy production.

Peak-load figures are important to energy conservation efforts for additional reasons. The construction of new power plants is often based on projected growth of peak period loads. Consumption during peak periods thus contributes directly to the construction of new facilities which might not have been required if demand were more evenly distributed. The new facilities in turn contribute to the costs of electrical energy.

Many of the solutions proposed to alleviate the problem of peak demands are based on methods that would shift a portion of the peak demand to nonpeak periods. This load-management approach entails the deliberate reshaping of a utility's load curve. The electric utility industry's major success to date in load management has been through seasonal load balancing.

One load management technique is commonly referred to as peak-load pricing. The objective of peak-load pricing is to reduce the level of peak demand by shifting demand for electricity to "off peak" periods. This approach can allow more realistic pricing but can also produce energy savings from a more constant level of demand. The energy used in off-peak periods can be generated with the more efficient base equipment which uses less energy than electricity generated by peak generating systems.

Peak-load pricing varies the price of electricity according to the demand on a utility system over a daily and/or seasonal cycle. When demand is high, the price is high and conversely lower when demand is low. With this scheme, the price of

electrical energy closely reflects the actual cost incurred in the production of the electrical energy being used.

The degree of energy savings through peak-load pricing is unclear. Several studies using simulated data suggest that both dollar and energy savings may be significant, but data from actual demonstrations are less conclusive.

Further implementation of peak-load pricing will continue to encounter problems. The cost effectiveness of adding metering equipment, that would tell when the electricity was used, is one such issue. Of great concern to both utility companies and consumers is the effect that peak-load pricing will have on the utilities' revenues. Some companies believe that peak-load pricing would result in revenue short falls, due to a decrease in demand, while some consumers believe it would result in a revenue surplus due to the direct relationship between production costs and rates.

Another problem involves consumer response to a time-of-day pricing scheme. In the industrial and commercial sectors, peak or high cost periods will most likely occur during periods of normal operations. In the residential sector, there is no evidence that price differences based on actual cost of production will be significant enough to alter consumption patterns. To reduce demand, evidence suggests that prices during peak-load periods must be six to 16 times higher than during off-peak hours.

Policy Implications

Despite uncertainties about cost effectiveness, changes in rate structure provide states with potential policy approaches to energy conservation. A better balancing of demand for electricity and the utilities' generating capacity can reduce the need for costly capital expansion and for using energy inefficient peak systems.

Peak-load pricing is an attractive policy option for several reasons. By working through market forces, it lessens the political and enforcement problems associated with regulation. The likelihood of windfall profits for utilities is limited since peak-load pricing brings prices more closely in line with actual costs.

This technique incorporates the carrot and stick approach. It offers visible dollar savings to the consumer who makes the shifts in use and meets the load management purpose of peak-load pricing and penalizes, through higher costs, the user who makes no change in his pattern of electrical consumption. By encouraging consumers to shift rather than actually reduce demand, a rate structure device minimizes the prospect that consumers will use alternate fuel sources. Finally, with its metering approach, peak-load pricing can be selectively targeted to the residential, commercial, or industrial sectors, and to individual consumers within each sector.

Conservation within the electric utilities sector inevitably involves the state by virtue of the widespread public interest in and regulation of the public utilities sector. Cooperative efforts by the states and utility companies are required for the balancing of equity concerns, market forces, the special economic and capital problems of the utility companies, and the public interest in the use and costs of electricity.

The highly complex nature of electric utilities management and rate structures and the significant and widespread impacts which electricity costs have on the economy call for a committed approach by the state. The setting and administration of specific load management and rate structure changes should be shielded from political pressures to the extent possible by delegation to public agencies such as public service commissions. The policy determination to use such approaches in the first place is of course a political judgment. This regulatory function should occur within specific parameters and under general legislative oversight.

The legislative and executive branches are directly involved in designing and implementing programs which address the equity issues and economic impacts associated with changes in the rate structure of electric utilities. A strong state role in utilities' conservation efforts is necessary to ensure that such programs are not simply temporary solutions to the current capital shortage of many utility companies, but are instituted as a part of long-term strategies for energy conservation.

States and electric utilities should begin to acquire the needed information on various conservation practices and policies by implementing pilot projects under a variety of market conditions and conservation measures. Such pilot projects can generate information on the technical and economic feasibility of peak-load pricing, the nature of consumer reaction, the type of public education programs required, and the degree of energy savings likely to result. Pilot projects might also reveal the need for additional actions by the company or the state to make peak-load pricing both equitable and cost effective.

Energy Conservation in Buildings

Residential and commercial buildings are also prime targets for state energy conservation efforts. Effective and substantial energy savings can be achieved by modifying a building's shell and its space heating and cooling systems. The localized nature of the buildings market and strong regional differences in climate and energy use make state level action particularly appropriate. Recent federal programs require and encourage conservation standards in new commercial and residential buildings. The police powers of the states, including building code authority, also help make this area of activity an important energy conservation device for the states.

The initial efforts in the United States to encourage energy conservation in residential and commercial buildings have been well publicized; for example, the requests for voluntary thermostat cutbacks. Though energy savings from such measures can be substantial, greater, more reliable, and longer term savings can be achieved through changes in building design and construction practices and through improved or supplementary energy systems within buildings.

In most states significant energy savings can be achieved by retrofitting buildings with proper insulation. Relatively little attention was given to the energy efficiency of buildings in the past. Consequently, energy requirements for heating and cooling are subject to substantial reductions in many residential-commercial buildings. The technology and materials exist to make buildings more energy

efficient and can be used to bring about significant energy savings even without reliance on experimental systems such as solar energy.

The success of energy conservation measures in the building sector also depend upon public acceptance. The dollar costs and savings of various energy conservation practices may be the most important issue in consumers' decisions to adopt conservation actions. Thus, policymakers must balance energy saving objectives and programs with an awareness of related economic costs and consequences to the consumer. This is particularly important for conservation strategies based on voluntary consumer actions. It also is necessary for mandatory conservation measures. Impacts on consumers should be a major policy consideration.

Studies of energy savings and cost effectiveness of various techniques for energy efficient buildings provide only general indicators to policymakers. Other factors such as climate conditions, type of building unit, new construction or retrofit, the price of energy, personal habits of the consumer, the price of materials and labor, financing terms, personal financial situations, and tax rates must enter into the equation that determines the optimal level and type of energy saving techniques for the individual. For the policymaker whose goal is substantial energy savings, the conclusions drawn from economic analyses of energy saving techniques are even more complicated. Investment decisions which optimize the individual's energy and dollar savings do not always result in the greatest overall energy savings.

The major difficulties to reduced energy use in residential and commercial buildings do not lie in technology or building economics. The major problems are public inertia and institutional obstacles.

Inertia and unawareness are prevalent in public attitudes and behavior toward energy conservation in buildings. Despite increased prices, consumers are slow in displaying energy conservation behavior. This is partially due to the lack of information on practical steps they can take. However, there are indications of change. In certain regions of the country, there is evidence of an emerging conservation ethic. For example, in the northeast and east coast regions where energy problems remain severe, public awareness of the problem has begun to cause a discernible demand for more energy efficient buildings in the residential and commercial sectors. Also, a number of states have initiated programs to further support this emerging ethic by direct technical assistance.

Implementing necessary energy conservation measures is further constrained by a number of marketplace forces and industry policies. Among these are the nature of the building market and construction industry, utility company rate structures, lending institution practices, and characteristics of the building stock.

Assessment of State Policies

The efficacy of present state approaches for energy conservation in buildings is not easily assessed. National energy policies and energy prices, over which states have minimal influence, affect any market-related strategy. This further impedes states in implementing efficient energy conservation standards.

The effectiveness of state conservation efforts is related to several factors

which should be addressed by state officials. These include:

1. Energy savings potential offered by building technologies;
2. Market-related constraints in the residential and commercial sectors, and
3. Administrative, legal and intergovernmental concerns.

Policies which reflect these factors should increase the likelihood that state action will lead to more efficient energy use in buildings while increasing the acceptability of such measures.

In most states, regulatory approaches to energy efficiency of buildings rely on building code programs. Regulation by building codes is a method that can achieve significant energy savings with consumer acceptance, minimal market restraints, and clear-cut legal authority. However, political and administrative problems in statewide building codes are serious. The political and intergovernmental obstacles to the adoption of a uniform statewide building code and problems of local code enforcement interplay in such a manner that code modifications are not likely to soon result in significant energy savings.

Policies to encourage the retrofitting of existing buildings and the adoption of solar and other energy augmenting devices currently rely heavily on incentives. Incentive policies are important in encouraging retrofitting, since the regulatory approach of building codes is not applicable to existing buildings. An incentive policy may achieve the desired consumer response, but it may have drawbacks. Economic incentives represent an undefined drain on the government's revenue stream.

Equity considerations also raise some objections to the incentive approach. Most current incentive programs are directed to the homeowner, not the renter. Providing equity to both owners and renters poses problems in the design and implementation of programs. Additionally, the financial incentives states can offer through exemptions of various state and local taxes are generally minimal as compared to the capital outlay required by the owner for retrofit or for solar systems.

Voluntary and incentive programs must be reinforced with public education to increase the public's awareness of the need and techniques for energy conservation. Energy conservation programs will have limited effectiveness until a widespread public demand for energy efficient buildings emerges.

Policy Implications

To achieve significant energy conservation in buildings, state policymakers must be made aware of the full range of market constraints and other forces that affect the results of conservation efforts. The following statements represent a summary of implications which state policymakers should consider:

Maximum savings are likely to result from programs which focus on innovative design and more efficient operation and maintenance in new commercial buildings as well as retrofitting existing residential units.

States should avoid a heavy reliance on the impact of solar and other alternate energy systems.

The highly variable economics of energy saving techniques for new and

retrofitted buildings calls for flexible state policies and programs to achieve savings through the use of various conservation techniques.

The costs of retrofit techniques call for financial incentive programs for most income groups.

States should consider programs, such as income tax credits, property tax exemptions, and changes in depreciation write-off, to shorten the payback period of energy conservation and alternate energy system investments.

Since energy efficiency standards for new buildings do not necessarily increase construction costs, first-cost subsidies may not be necessary for new buildings.

State policies and programs for energy conservation in buildings should supplement the owner or tenant's limited ability to use the marketplace to affect energy-related decisions made by architects and builders.

State programs should incorporate measures to educate the public about appropriate energy conservation techniques, and

Short-run conservation programs should be directed toward builders, lenders, and appraisers whose decisions affect the energy use in buildings or the value of energy efficient buildings.

FOOTNOTES

1. The illustrative sample of state energy conservation legislation 1973-1976 was developed by the Council of State Governments, based on the Council survey of state energy legislation, *Energy Legislation Update 1973-1976*, and *ECP Report*, Energy Conservation Project, Environmental Law Institute.

2. Energy Policy and Conservation Act, Title III, Part C, "State Energy Conservation Programs."

3. Energy Research and Development Administration, *A National Plan for Energy Research, Development and Demonstration: Certain Energy Choices for the Future—Volume I: The Plan*, Washington, D.C.: U.S. Government Printing Office, 1976, p. 45.

4. National Association of Regulatory Utility Commissioners, 1974 Report of the General Council of Economics, 86th Annual Convention, October 8, 1974, p. 10.

Environmental Impact Assessment: Policy Considerations for the States *presents a state-of-the-art evaluation of environmental impact assessment and suggests policy considerations for state leaders in line with the evaluation. Because of its preeminence as a means of environmental assessment the environmental impact statement (EIS) is closely scrutinized for its value and weakness at the federal and state levels. Simply stated, more attention has been paid to EIS procedural requirements than to their substantive content. The quality and content of the EIS must be upgraded so that it can become an integral component of the decisionmaking and planning processes at all levels of government. Means to accomplish this are suggested in this chapter. In essence, these suggestions entail a broadening of the scope of the impact assessment process so that it includes not only an environmental assessment, but the social, economic, and cultural impacts of a project as well.*

Four recent innovations in environmental analyses at the state level are presented as examples of improving the efficacy of the assessment process. These approaches are designed to facilitate both environmental impact analyses and solutions to other state problems. They are illustrative of the broadened scope of the impact assessment process.

VIII. Environmental Impact Assessment: Policy Considerations for the States*

Introduction

State government involvement in the environmental area during most of this century has been concentrated on the conservation of resources rather than environmental quality. In the late 1940s, states began to display greater concern for problems of environmental quality. State activity to solve pollution problems greatly increased after the enactment of major federal legislation in the mid-1960s and early 1970s. Among the most important of these enactments were the Federal Water Pollution Control Act of 1965, the Solid Waste Disposal Act of 1965, the Clean Air acts of 1965 and 1970, the 1972 amendments to the Federal Water Pollution Control Act, and the National Environmental Policy Act (NEPA) of 1969. These laws provide the basic framework for most current environmental efforts, and all require increased state roles. By 1976, environmental quality had become one of the major institutional objectives of state government.[1]

Public and governmental concern is moving beyond pollution abatement as the sole concern to the broader questions of growth and development and their environmental impacts. For example, states increasingly are adopting various land use programs. Other programs are being stimulated be federal efforts, such as Section 208 water quality planning and coastal zone management.

In accordance with this broader orientation, state measures to address the problems of growth and development can be grouped into two general categories—broad policy approach and project approval approach. The broad policy approach refers to state actions which provide a framework prior to the initiation of particular projects. They help predetermine the location, type, intensity and scale of development, and perhaps even whether there will be development. Comprehensive and enforceable policies and plans are the prime examples of this approach.

Under the project approval approach, the implementation of legislated policy awaits triggering by a development application. Under this general approach, policy may be implemented and developed on a case-by-case basis. Such case-by-

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*This chapter is a summary of *Environmental Impact Assessment: Policy Considerations for the States*. Council of State Governments: Lexington, Kentucky, 1976.

case policy may develop through the evolution of formal or informal criteria applied through the development review process.

Current state programs entail both approaches simultaneously. It is neither possible nor desirable to devise mechanisms that are distinctly one type or the other. To a certain degree, the broad policy approach infers some positive shaping of growth and development whereas the project approval approach implies ad hoc reaction to growth. Both approaches are necessary and are indicative of the trend of state policies to maintain and improve environmental quality.

An enormous range of state activities and programs could be included in a listing of each approach. Environmental assessment activities are an important part of both policy approaches. More than half of the states require some kind of environmental review, with 19 states having adopted general state environmental impact requirements.

Environmental impact analysis is becoming an integral component in planning and decisionmaking at the state level. Yet, states are questioning the present structure and role of environmental analysis. There is a general feeling among states that environmental analysis is a necessary tool, but requires changes in both technical output and program direction. Each unit within state government places different demands on virtually every aspect of environmental analyses including methodological approaches, procedural and substantive requirements, time, cost and manpower requirements.

States are passing environmental policy acts, modifying or developing assessment methodologies, strengthening existing or forming new environmental protection agencies and promoting new and innovative processes for incorporating environmental considerations into planning and decisionmaking.

State leaders have shown an awareness of the need to clearly define environmental goals and policy and to formulate criteria for evaluating the substantive content of environmental impact statements. There should be greater identification of activities subject to impact analyses and thorough examination of project alternatives. Greater quantification in the review process with consideration of EIS review comments is necessary. State leaders are increasingly cognizant of the need to incorporate the environmental assessment process into policy and decisionmaking.

State Opinions on Environmental Impact Analysis

This section deals with the collective opinions of state leaders on the value of environmental impact analyses in state planning and decisionmaking. It should be noted that these opinions are primarily the result of state leaders' experience with NEPA and the state equivalents SEPAs. As a result, the opinions reflect a strong orientation toward NEPA rather than toward environmental impact analyses in general. This NEPA orientation, however, does not diminish the significance of state opinions on environmental impact analysis, for NEPA may be the most important and widely incorporated environmental directive due to its requirement for developing an environmental impact statement (EIS).

Conversations with state officials and reviews of recent documents have revealed widely varied opinions as to the perceived value of environmental impact

analyses to state planning and decisionmaking. Interestingly, two seeming inconsistencies have arisen out of this effort. First, a number of the items noted as criticisms also have been identified as major contributions by other leaders. Secondly, obvious solutions to some of the problems noted will only aggravate other problems. For example, one criticism suggests that environmental impact analysis is not an effective planning mechanism; while on the other hand, it is also praised as an additional planning tool. The fact is that both points are valid. Few state officials would disagree that improved environmental analyses would improve their use as a planning tool. At the same time, there is no doubt that extant processes have contributed to planning and decisionmaking.

The second apparent inconsistency is true that providing solutions to one problem will aggravate another. As an example, overcoming the restricted scope of analyses may well require increased expenditures of time and money. Another example lies in the fact that EISs often are criticized as being both restrictive and excessive in their time requirements. There are no easy means by which to resolve these conflicts. The problem is one of a trade-off—if you improve one, you may aggravate another. The decisionmaker must then determine which problem is most tolerable.

NEPA and environmental impact analyses in general have achieved a number of accomplishments. These include emphasizing ecological and environmental problems; encouraging the development of quantitative and qualitative information bases; establishing a vehicle for public involvement; stimulating the development and application of analytical tools; providing a mechanism for improving federal, state, and local coordination; improving state planning and management processes; systemizing inquiries into federal actions; and contributing to more comprehensive decisionmaking. There is ample room for improvement in each of these areas, but this should not negate the gains that have occurred. Environmental impact analyses and specifically NEPA have filled a void that existed in public planning and decisionmaking.

For example, the mere existence of NEPA, with its requirements for public participation and governmental review of the proposed action through the EIS process, has considerably influenced planning and decisionmaking prior to the actual EIS stage. The fact that an action will be open for review at some point undoubtedly influences that action.

However, environmental impact analyses should not be expected to accomplish too much. There are inherent problems and imperfections in federal, state and local decisionmaking with or without environmental impact analyses. Problems and issues will continue to arise at a rate slightly ahead of institutions and laws addressing them. In a sense, NEPA has aggravated prior problems—inter- and intra-agency communications, and liaison and coordination among branches of state government.

Environmental Impact Analysis: The State-of-the-Art

Specific problems and issues associated with environmental impact analyses can be grouped into four broad categories: (1) institutional/organizational; (2) methodological and data requirements; (3) planning and decisionmaking, and (4)

time, cost, and manpower. Due to their complexity, the institutional/organizational issues and data requirements are addressed in the final chapter of this report regarding future directions and needed research, indicating the need for further refinement in terms of environmental assessment. The remaining problems identified above are examined here in three groups: planning/policy issues; time, cost, and manpower issues; and methodological issues.

Planning and Policy Issues

State agencies have, heretofore, paid greater attention to procedural requirements than to the substantive aspects of environmental impact statements. Recently, greater heed has been paid to the quality of EISs as a decisionmaking and planning tool as well as for a public information document.

Current environmental impact statements have emphasized site-specific statements: volumes of description rather than concise analysis of options; limited exploration of alternatives; cursory treatment of mitigation measures; and mandatory assessment and discussion of all impact parameters, even if irrelevant or unimportant. Accordingly, efforts are widespread to improve the substantive content of EISs and to produce a document more responsive to the needs of planners and decisionmakers.

One possible way to improve the content of EISs entails the use of standards and criteria for evaluating the presence of substantive information. This would encourage and provide direction for developing substantive input. Gordon A. Ink in *Beyond NEPA: Criteria for Environmental Impact Review* attempts to develop criteria for evaluating both the procedural and substantive aspects of EISs.

A second improvement would be to change the orientation of most statements, thereby improving the substantive content of most statements. Four areas of major improvements have been suggested by Dr. Maurice Warner.

(1) *Integrate assessment into planning.* Environmental assessment cannot be a one-step activity. A better approach is to investigate the environmental issues associated with each step in the planning sequence at the level of detail appropriate to that stage.

(2) *Balance detail and impact importance.* A great deal of effort is currently spent to "cover all the bases." Agencies have tended to be encyclopedic, with the data being descriptive rather than prescriptive. Warner indicates that a good rule seems to be to include detailed data only as needed to reach and support conclusions on impacts.

(3) *Emphasize the direct comparison of alternatives.* One of the most widespread deficiencies of impact statements is a failure to clearly state the major differences between alternatives. The comparison of the alternative actions should be direct and concise for effective communication to policymakers.

(4) *Use improved analytical tools.* Better techniques for assessing environmental impacts are continually being developed. A number of modeling tools are now available to deal with air and water quality, impacts of demographic patterns, and economic impacts. Numerous studies providing data on impacts of specific types of projects are also available.

A third improvement in the EISs would result from greater utilization of

policy and program impact statements. Policy impact statements are assessments prepared on major, specific guidelines that an agency is following. For example, a state department of transportation may have a policy of salting all state roads after a snowfall of more than one inch. In this case, a policy impact statement would assess the environmental implications of such a policy without excessive details.

Program impact statements are assessments prepared on major, but general, activities of an agency. As an example, a state department of natural resources may have a program to develop 10 new parks within three years. It might be advantageous to prepare a program impact statement on the overall consequences of acquiring land and building the necessary park facilities. Such an assessment would not be concerned with site-specific impacts but rather the general implications of developing 10 new parks. Later in the planning process, it might be necessary to include the site-specific assessments as supplementary to the broader process.

EISs: Their Role

State planners and decisionmakers voice concern that the effectiveness of impact statements is greatly diminished by their length, inclusion of extraneous detail, and lack of focus upon the most important issues. Such problems result from legal requirements that must be observed. Courts have ruled inadequate EISs that omit information or are negligent about following procedural requirements, but have been reticent in censuring those that contain excessive detail and peripheral information.

A conflict has thus arisen between planners and decisionmakers and the courts over the role of environmental impact statements. Legalities require a comprehensive document that adheres to format and procedural requirements whereas policymakers need a more flexible document. This means that there must be trade-offs between these competing uses. The environmental assessment process must result in an impact statement that is more substantively oriented without abusing basic procedural safeguards.

Emerging Role of SEPAs

In response to NEPA, many states have initiated "State Environmental Protection Acts" (SEPAs). The form of these acts closely parallels Title I (EIS requirement) Section 102 of NEPA. However, some states have slightly deviated in an effort to overcome some of the problems associated with NEPA. For example, seven states (California, Maryland, Massachusetts, Michigan, North Carolina, South Dakota, and Virginia) require an EIS to include a discussion of mitigation measures proposed to minimize impacts. Two states (California and South Dakota) require analysis of the secondary growth-inducing aspects of the proposed action. Connecticut, Texas and Wisconsin call for a summary of the costs and benefits of a proposal in both environmental and economic terms. These and other state requirements reveal innovations and modifications made at the state level.

Despite these state improvements, many of NEPA's weaknesses are also apparent in the states' application of environmental assessment processes. Specific questions that have not been addressed by most states include:

(1) How should impact statements relate to other state and local programs or planning activities, e.g., 208 planning, coastal zone management, land use planning, critical area protection?

(2) How should guidelines and procedures relate to federal requirements when a federal EIS is required for a specific project and vice versa?

(3) What procedures should be followed if a proposed project falls under the jurisdiction of two or more states?

(4) Will there be one state agency responsible for enforcing environmental requirements? How will this agency interact with other agencies? What role will the governor's office pursue in reviewing EISs?

Time, Costs and Human Resource Issues

The task of determining if an impact assessment is required for a specific project is a perplexing issue. This decision is often the responsibility of one individual or a small group of individuals with little or no environmental knowledge. This decision process is seldom systematic, replicable, comprehensive, or well-documented. Therefore, agencies often are criticized for inconsistency in determining the need for an environmental assessment.

In reaction to this, the federal Consumer Product Safety Commission (CPSC) has instituted an approach that is designed to avoid unnecessary assessments while aiding the CPSC staff in determining actions that do require assessments. This approach entails two distinct tasks. The first task involves identifying possible environmental impacts. A series of questions guide the user through the task, first by considering the most general categories of impacts and then consistently focusing on more specific areas of impact. The second task, an evaluation of the potential magnitude or significance of possible impact, involves an impact evaluation matrix. The matrix makes it possible to consider each impact individually, and as it relates to the composite picture of impact. Although this approach was designed explicitly for problems confronting CPSC, it is indicative of one type of approach that may assist in the determination of whether an environmental assessment is required.

Impact analysis methods have proliferated since NEPA's inception. Most of these tools address one or more aspects of an environmental impact analysis, while a few are designed to deal with all elements of an assessment. Each tool has inherent strengths and weaknesses.

Maurice L. Warner and Edward H. Preston suggest that an environmental impact assessment must effectively deal with impact identification, measurement, interpretation, and communication to information users.[2] Each of these steps, in turn, can be met through different methods. For example, there are approaches that use overlays, checklists, matrices or networks. Some assessments combine two or more of these devices.

There are choices in determining the most effective approach under a given set of circumstances. Determining which approach depends on existing con-

straints. Thus, there is no one right methodology or even combination of methodologies for impact assessment that can be applied uniformly. States must be aware of a range of assessment tools. This allows greater flexibility in conducting an analysis of impacts.

Addressing Common Problems

A common problem encountered is the failure to specify the region of analysis. Full comprehension of project impacts requires such specificity. Many EISs have proved deficient because of the failure to identify the regions examined. When a region is identified, a single, narrowly defined geographical area is often used, producing justifiable outcries from reviewers who are concerned about impacts outside the bounds of that region. The need is for a broader use of the term "region" to infer more than the geographic bounds of a project.

An alternative approach is to identify three types of regions: on-site region, project region, and out-region. An on-site region should be defined to encompass all direct physical changes produced by the proposed action. On-site regions should be mappable and may be specified by hydrologic basins or ecological community boundaries; governmental boundaries such as county lines; or arbitrarily set (for example, everything within one mile of the stream bank). Several subunits of the on-site region can usually be identified.

A project region should be defined large enough to include the traceable secondary impacts of a project. Appropriate boundaries will be defined as the contiguous area within which the analyst can trace out secondary, tertiary, and higher-order impacts. Generally, the significant impacts at the project region level are socioeconomic impacts, though secondary ecological or physical-chemical changes may sometimes be significant.

The out-region is the level at which statewide, interstate, or national issues come into play. These issues may include shifts in economic activities between noncontiguous regions and the project region, concern for irrevocable uses of scarce resources, and undesired alteration in unique areas of state or national significance.

Time Sequence

An adequate impact analysis must clearly treat the expected timing of impacts generated by the project. Often project-induced changes will continue to generate changes beyond the time limits of the analysis. Tying impact analysis to specific future dates is also important in that other changes occurring in the project region, but not triggered by that project, must be considered in the analysis. To adequately separate project from nonproject changes, it is necessary to state explicitly what assumptions regarding nonproject changes have been made and at what point in the future they are expected to occur.

A common error made in the development of impact statements is to assume that the "no-action" alternative is really a continuation of existing conditions. This is not always the case for change is inevitable and must be taken into account. There are no definitive rules to deal with projecting the no-action

alternative, other than to be sensitive to the fact that dynamics are likely to dictate change in existing conditions, and that such changes should be addressed.

Impact Uncertainties

Predicting a project's future impacts is usually a hazardous task. Some impacts, mostly direct physical changes, are certain to occur if a project goes forward. However, most impacts are less certain and must be based on the professional judgment of the individual. This means that they are typically incomplete and often inconclusive. Consequently, an EIS should indicate the degree of confidence an analyst has in his projections.

State Innovations in Environmental Impact Analyses

Four recent innovations in environmental analyses at the state level warrant attention at this point. They represent different responses to some of the problems and issues previously identified. These approaches are designed to facilitate both environmental impact analyses and solutions to other problems of state concern. They also illustrate current state trends that seek to upgrade the quality of environmental assessments.

North Dakota Regional Environmental Assessment Program (REAP)

In response to the state decisionmakers' need for an accurate and coordinated information and forecasting tool in the face of an exceptional rise in energy resource development, Governor Arthur Link signed House Bill 1004 (1974) establishing the North Dakota REAP. As stated in H.B. 1004, REAP is charged with "...establishing and carrying on research in regards to North Dakota's resources...for the purpose of assisting in the development of new laws, policies and governmental actions and providing facts and information to the citizens of the state." The act also specifies that REAP is responsible for "...the development of necessary data and information systems in regard to the existence of and potential use of North Dakota's natural resources in order that (North Dakotans)...may know...the alternatives available to the state in any use and development of resources in order that...any such use shall in fact enhance the quality of life of the citizens of the state."

Four primary tasks are to be achieved: (1) development of a resource information system; (2) development of an assessment/simulation modeling capacity; (3) collection of baseline information, and (4) development of a resource monitoring system. Integrating the end products of these tasks will produce a comprehensive system for the ongoing assessment and forecasts of impacts associated with potential resource development activities. REAP also is charged with the coordination of all ongoing and future resource-related studies within the state and with making the results of these studies available to decisionmakers in a usable format.

Basically, this system provides the capability to assess a region's future environmental, social and economic conditions by simulating the effects of proposed

developments against a comprehensive set of objectives and constraints. Once a program or development has been approved, the actual impacts will be monitored to test the validity of the predictive portion of the system and to maintain an adequate data file.

The Utah Process

The need for multiobjective planning spurred the development of the Utah Process. In 1971, the Office of State Planning Coordination in Utah developed an experimental process for coordinating the planning activities of state agencies, boards, and commissions. At the heart of the Utah Process is a forecasting model for projecting and evaluating alternative demographic and economic futures for the state. Although these futures are not environmental futures, they have direct environmental implications and this process has the potential for including direct environmental aspects.

Projections of population and economic impacts are achieved by computer simulation of possible combinations of likely economic events. These impacts are then analyzed and incorporated into the decisionmaking process. In accordance, state agencies formulate contingency programs and budgets for dealing with each projected future.

The Utah Process has two major functions. The first is establishing a systematic procedure for developing coordinated contingency plans and budgets by various state agenceis for potential alternative futures. The second function is extending the planning horizon beyond the one- or two-year budgetary cycle and relating the proposed projects and programs of each alternative future to budgetary requirements. This improves each agency's capabilities and provides a greater degree of interagency and intra-agency coordination.

Utah officials believe the Process has permitted a forum for policy determination, conflict resolution, and program integration. It has encouraged communication upward from the needs-assessment level and downward from the policy level. It also brings to the fore potential conflicts among agencies at the earliest stage of planning and provides a means for forecasting social and economic conditions, thereby aiding an environmental analysis.

Technology Assessment of Western Energy Development

Much concern is being expressed over the environmental impacts associated with the development of western energy resources. This is due to the emergence of new energy-related technologies in the west. As a result, there is the potential of serious social, economic, health, and environmental impacts. Further complicating the situation are the many possible strategies that could be followed in developing coal, oil shale, oil, natural gas, geothermal, and uranium resources. All levels of government have taken an interest in this development issue.

Consequently, the Office of Energy, Minerals and Industry, U.S. Environmental Protection Agency (EPA), has sponsored an integrated technology assessment study of western energy development. This is not a direct state program, but due to its applicability to states, it is relevant to this discussion.

Essentially, technology assessments are conducted for the purpose of: (1) anticipating and systematically identifying, defining, and analyzing socioeconomic, cultural, environmental, and institutional consequences of applying new modified technologies; (2) identifying, defining, and analyzing alternative policies for either mitigating undesirable consequences or enhancing beneficial consequences, and (3) identifying, defining, and evaluating implementation strategies for feasible policy options.[3]

This technology assessment, now in the first year of a three-year study, covers the period 1975-2000 and is designed to identify and quantify the diverse impacts of energy development in the west, including secondary and higher-order impacts. Additionally, the assessment will try to develop and analyze policy alternatives for dealing with the identified impacts.

One of the key purposes of an integrated technology assessment is to serve as a long-range forecasting or planning tool for decisionmakers. It provides an identification of unanticipated consequences of potential actions or technologies. Therefore, it is comparable to an EIS. However, it differs from an EIS in when and how impacts in the planning process are identified. It also differs in the specificity of those impacts and in the types of actions assessed.

A technology assessment is designed to be performed at the beginning of the planning process, prior to the selection of specific technologies or a range of alternatives. In contrast, an EIS is prepared rather late in the planning process on a selected action. A second difference involves the assessment format. An EIS adheres to a rather formal format (as a legal document), whereas a technology assessment is more flexible in its planning orientation.

Perhaps the most important distinction is the type of action assessed. An environmental impact statement traditionally deals with a specific action at a given location. A technology assessment is intended to look at a full range and combination of actions, technologies, locations, and timing alternatives.

Although technology assessments provide early warning as to impacts, they are somewhat limited in applicability because the process tends to be expensive and of relatively long duration. Technology assessments entail large data requirements and suffer from some of the same methodological problems as EISs.

Hawaii's State Center for Science Policy and Technology Assessment

Faced with the problems of high cost and long time periods for completion of technology assessments, Hawaii formed the State Center for Science Policy and Technology Assessment to resolve these and related problems. Located within the State Department of Planning and Economic Development, the Center has existed for a little over three years. It was conceived to perform six tasks:

(1) Survey Hawaii's scientific resources, research and development efforts, and future needs;

(2) Determine relevance to Hawaii of various fields of science and technology and establish priorities;

(3) Study institutions and policymaking bodies with the objective of coordinating state efforts;

(4) Select appropriate methods for and carry out assessments of opportunities for science and technology applications in Hawaii;

(5) Compile a list of authorities in forecasting and assessment and monitor ongoing developments, and

(6) Maintain liaison with projects developing environmental and social-system models for the state.[4]

The center has developed a procedure to complete an assessment within three to six months at reasonable costs. These assessments are accomplished by using a workshop technique, which involves a study on the status of the technology, a pre-workshop questionnaire to define areas of need, a workshop to formulate solutions or policies and to set priorities, refinement of results, and publication of a final report. The average cost of these mini-assessments has been $10,000 and they have been completed in three to four months. Regular technology assessments have tended to be expensive and of long duration often several years.

FOOTNOTES

1. The Council of State Governments, *Integration and Coordination of State Environmental Programs*, Lexington, Kentucky, September 1975, p. 15.

2. Maurice L. Warner and Edward H. Preston, *A Review of Environmental Impact Assessment Methodologies*, Washington, D.C., Office of Research and Development, U.S. Environmental Protection Agency, April 1974.

3. *First Year Work Plan for a Technology Assessment of Western Energy Resource Development*, Office of Energy, Minerals and Industry, Office of Research and Development, U.S. Environmental Protection Agency, Washington, D.C. (EPA-600/5-76-001), March 1976, p. 22.

4. *State Center for Science Policy and Technology Assessment* (Final Report, 1971-1974), State of Hawaii, Department of Planning and Economic Development, p. 15.

Diffuse Source Pollution: Policy Considerations for the States *directs attention to managing diffuse sources of air and water pollution and the resulting policy considerations for state government. The emphasis on point sources of pollution is no longer adequate to meet national goals of clean air and water. Amendments to the Clean Air Act and Federal Water Pollution Control Act have provided regulatory mechanisms to deal with sources of pollution not so easily identified, i.e., diffuse source pollution (DSP).*

Diffuse source pollution includes both nonpoint sources of water pollution and indirect or complex sources of air pollution. The states are responsible for devising and implementing EPA-approved plans to control diffuse source pollution to meet the national ambient air and water quality standards.

DSP control will require interjurisdictional management programs. This necessity evolves from the incremental and sporadic nature of the pollutant source and from the state-federal statutory requirements. The need for innovative intergovernmental arrangements for the successful control of DSP is highlighted.

Control techniques are not readily available for all types of diffuse source pollution. The prevention of significant air deterioration, for example, may include a complex review and permit process involving several political jurisdictions. Transportation plans and sediment control may require an intergovernmental management program. Overcoming these challenges will be a major test of the endurance and creativity of state leaders.

IX. Diffuse Source Pollution: Policy Considerations for the States*

Introduction

A major portion of the regulatory activity attempting to manage air and water quality has dealt with specific sources of pollution. Smokestacks and sewer pipes have been the main targets of past and present permitting, monitoring, and enforcement activity. However, the focus on these "point" sources is no longer adequate to meet the goals for clean air and water. Amendments to the federal Clean Air Act (CAA) in 1970 and the comprehensive Federal Water Pollution Control Act (FWPCA) Amendments in 1972 provide a regulatory mechanism to deal with sources of pollution not so easily identified. They also provide more effective means of dealing with the point sources of pollution.

Diffuse source pollution (DSP) is that type of pollutant source which is not easily identified. In and of itself, each such source may not be a significant source of pollution, yet when certain actions are taken in relation to the source, considerable pollution can result. DSP includes both nonpoint sources of water pollution and indirect or complex sources of air pollution. An example is a large shopping center or sports stadium which attracts automobiles in such quantity that the air quality over that area is adversely affected. Another example is traces of highly toxic metal carried into streams by runoff from highways.

Evidence indicates that DSP has a significant impact on air and water quality. The federal Environmental Protection Agency and the Council on Environmental Quality have found that without programs to manage DSP, our efforts to upgrade air and water quality will be severely hindered.

Air Pollution Legislation

The initial federal legislation dealing with air pollution control was passed in 1955. It dealt primarily with research into the nature and extent of the nation's air pollution problem. The 1963 Clean Air Act provided grants to state and local agencies to assist them in their own control programs and gave limited authority to the federal government to abate interstate pollution problems. In 1967 the

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*This chapter is a summary of *Diffuse Source Pollution: Policy Considerations for the States*. Council of State Governments: Lexington, Kentucky, 1977.

act was strengthened by amendment. The 1970 amendments, however, provide the strongest legal tools for air pollution control to date.

The thrust of the federal air pollution control program has been that the control of air pollution at its source is primarily the responsibility of state and local governments. However, if states fail to meet their responsibilities, the federal government has the responsibility and authority to enforce pollution controls through EPA.

Section 110 requires the states to develop plans to meet the national ambient air quality standards. These State Implementation Plans (SIPs) are the keys to the regulatory program. If considered inadequate, EPA can require modification of the plan or essentially take over a state's program.

Those aspects of a SIP, which could be categorized under the heading of diffuse source pollution in that they require a regulatory strategy which regulates how the source is used more than the source itself, include indirect source review, significant deterioration regulation, and transportation control plans. Each of these is examined later in this chapter.

Water Pollution Legislation

The Federal Water Pollution Control Act Amendments of 1972 (FWPCA), Public Law 92-500, entailed a major restructuring of the federal water pollution control program. The 1972 amendments have focused on pollution control at the source by requiring major water polluters to limit the amount of effluents discharged into a water body. Under the act, a permit system called the National Pollutant Discharge Elimination System (NPDES) has been established to oversee installation of specified levels of pollution abatement equipment for all point sources of pollution.

Secondly, the act significantly expanded the amount of federal aid to states and local units for construction of sewage treatment facilities and linked the construction grant program to water quality planning, land use management, and regulation on an areawide basis. Requirements also were set for control of pollution from diffuse sources such as construction, agriculture, and mining. Diffuse source pollution in terms of the FWPCA is called "nonpoint source pollution" and is defined as ". . .sources of pollution which enter surface or ground waters through diffused small increments." This perspective, Section 201, dealing with grants for construction of treatment works and Section 208, dealing with areawide waste treatment management, is designed to integrate land use and water planning in order to achieve water quality objectives.

Under the 1972 amendments, water quality standards will be revised by the state and reviewed or revised by EPA on a three-year basis. This review process is designed to meet the act's 1983 interim goal of achieving water quality adequate for swimming and for the protection and propagation of fish and shellfish in all water bodies of the country. The law gives EPA considerable authority to direct, oversee, and enforce the pollution control program.

As with the CAA, the FWPCA provides for ambient standards. Minimum quality is not the same nationwide, however, as is the case with air. The law now requires states to set standards, or the EPA will do it for them.

Each state must have a continuing planning process or an implementation plan. The implementation plan can be approved by EPA only if it provides at least for EPA-set effluent limitations and incorporates areawide waste treatment management plans. The implementation plan also must provide for maximum daily pollutant loads, include procedures for revision of water quality standards, and indicate that there is available authority for intergovernmental cooperation and power to implement effluent and water quality limitations and standards.

Section 208 provides for areawide waste treatment management planning. Under this section governors are called upon to designate areawide planning agencies for portions of the state which, because of "urban industrial" concentrations or other factors, have especially difficult water quality problems. For remaining portions of the state, the state itself is to serve as the planning agency. Once a plan is completed, EPA construction grants for sewage treatment facilities must be consistent with the plan and NPDES permits must be reviewed for consistency with the plan.

In the legislation, Congress set forth general guidelines to be used in areawide planning. First, the plan must specify various regulatory processes and techniques which will be used to control water pollution. The plan must include a process to regulate the "location, modification, and construction of any facilities within the planning area which may result in a discharge of any effluent in the area." Secondly, 208 plans are to include regulatory programs for implementing waste treatment management. Once the plan is approved, EPA-funded sewage treatment facilities must be consistent with the plan. The intent of the plan is to assess waste treatment needs for the region over a 20-year period. Thirdly, the plan also must include control procedures -including land use requirements—to combat nonpoint pollution. Finally, the 208 plan is to describe the measures necessary to implement the plan, including the agency or agencies that will be involved in their legal authority.

Issues in Managing DSP

When establishing an administrative and enforcement program to deal with specific point sources of pollution, there is an easily identifiable target of any regulatory activity which can be shown to be a significant source of pollution. However, when attempting to regulate DSP, there are varying opinions as to the actual sources, the type of control program to be established, if any, and the institutional arrangements needed to successfully monitor and enforce the control program.

Institutional Requirements

Point sources are often amenable to a regulatory program based on local government monitoring and enforcement once uniform standards are set. However, because diffuse sources are likely to require interjurisdictional management programs both because of the nature of the pollutant source and because of state or federal statutory requirements, institutional requirements inherent in success-

fully implementing such a program are complex. Traditional as well as innovative intergovernmental arrangements must be used if such a program is to succeed.

Control Methods

Another important distinction lies in the way the ultimate pollution source will be controlled. While technological solutions are available for controlling most point sources, such techniques may not be available for handling diffuse source pollution. For example, the review and permitting of indirect sources of air pollution may require limitations on the size or capacity of a proposed facility or may necessitate the creation of a mass transit program. The prevention of significant air quality deterioration may include a complex review and permit process involving multiple political jurisdictions. Transportation plans and sediment control may require an intergovernmental management program. These and related control problems must be overcome if an effective diffuse source pollution regulatory program is to be implemented.

Standards, Monitoring and Enforcement

One of the primary concerns over the successful implementation of a DSP regulatory program centers around who designs and implements the program, who sets the standards and on what basis, how monitoring is to be accomplished, and how the program is to be enforced if violations occur. Different levels and agencies of government will have to cope with inevitable "turf" problems as well as being cognizant of the program's impact on economic and social well-being.

With both the air and water quality programs, states are dealing with a situation where the federal government has substantially preempted standard setting although states are allowed to set more strict standards in some situations. Monitoring and enforcement, though carried out under a state program, are under substantial federal influence. Since EPA is required to review state programs for compliance with federal standards, the potential exists for EPA to promulgate and administer for the state the type of program it deems necessary.

Reasons for State Concern

States have displayed an awareness of the impact that diffuse source pollution has upon air and water quality. States have implemented both programs for which federal grants are available as well as programs for which there are no present federal financial incentives sediment control legislation and strip-mining regulation being prime examples of the latter.

State attempts at protecting environmental quality have been both helped and hindered by the federal government. Uniform federal legislation may have helped remove some of the competitive economic disadvantages which would result if only some states had acted. However, because the nature, causes, and possible means to control DSP are so variable across the States, rigid uniformity in this area can cause as many problems as it solves.

Another problem has arisen from repeated modifications and court challenges of EPA rules, regulations, and guidelines. Financial assistance also has been uncertain. The funding support for DSP regulatory programs has been subject to changes based on the mood of the federal executive or Congress. Because of the uncertainties entailed in financing such programs, efficient and effective programs must be designed to guarantee positive results when federal support begins to wane. Finally, state actions to promote acceptance of diffuse source pollution regulation face continued frustration as the Congress repeatedly postpones the consideration of clarifying amendments to the air and water acts.

Regulating DSP

Clean Air

The Clean Air Act specifies the required elements of a state implementation plan necessary to achieve and maintain national primary and secondary air quality standards. No state is required to prepare such a plan. However, if the state chooses to prepare a plan and it does not meet EPA approval or if an implementation plan is not prepared by the state, EPA itself may take the necessary steps to achieve the standards.

Diffuse source pollution has a major impact on air quality. Regulatory and management programs which have been proposed or implemented to deal with this problem include indirect source review, prevention of significant deterioration of existing air quality, and transportation control plans.

Indirect Source Review

Every State implementation plan (SIP) was to have been completed by May 31, 1972. Subsequent to the approval of these plans, the Natural Resources Defense Council (NRDC) filed suit in the U.S. Court of Appeals for the District of Columbia Circuit contending the approved state implementation plans were not adequate to insure maintenance of the standards once they were attained. EPA lost the suit, *NRDC* v. *EPA*,[1] and responded in two basic ways: (a) by requiring states to develop "air quality maintenance plans," and (b) by requiring state implementation plans to include indirect source regulations. An indirect source was defined as:

> . . .a facility which does not itself emit air pollutants, but which attracts automobiles in sufficient numbers so as to have the potential for creating concentrations of auto-related air pollutants in excess of national standards.

EPA promulgated a regulation in June 1973 requiring states to add indirect source regulations to their plans.[2] To meet EPA approval, the regulations would have to require the review of new indirect sources prior to construction and would have to provide that construction be prohibited where ambient air quality violations could occur.

Since 52 of 55 states and territories did not submit approvable regulations within the court-ordered deadline, EPA was required to promulgate its own

regulation on February 25, 1974.[3] This became part of each affected state's implementation plan.

Subsequent regulations in July 1974 required the review of the following categories of indirect sources if a project were of a certain size and location: highways and roads; parking facilities; retail, industrial, and commercial facilities; recreation, amusement, sports, and entertainment facilities; airports; office and government buildings; apartment and condominium buildings; and education facilities.[4] Whether a particular project was subject to review depended on its size. In turn, the size limitation depended on whether the project would be located in a Standard Metropolitan Statistical Area (SMSA) (a metropolitan area of 50,000 or more).

In SMSAs, a proposed indirect source listed above with an associated parking facility for 1,000 or more cars would be reviewed. Modification of a parking facility associated with an indirect source would be reviewed if it would increase parking capacity by 500 or more cars. For indirect sources outside of SMSAs, the size of an indirect source with parking facilities would double to 2,000 and 1,000 respectively. Within SMSAs, new highways with an expected average of 20,000 vehicles daily 10 years after construction, or a highway modification project with an anticipated daily traffic increase of 10,000 vehicles would be reviewed. These standards provide some insight into the extent of review of indirect sources intended by EPA when it promulgated this regulation.

Confusing the issue has been litigation over the regulations themselves. Shortly after the promulgation of EPA's indirect source regulation, 50 petitions for review were filed in every Federal Circuit Court. The petitions have all been transferred to and consolidated in the District of Columbia Circuit Court under the caption *NRDC* v. *EPA*. No action has been taken because the regulations were suspended by EPA. Several bills were introduced in the U.S. House of Representatives to either delay or prohibit their implementation. Congress also deferred implementation by restricting the use of EPA appropriations in regulating parking (a controversial part of the indirect source review).

Significant Deterioration

As a result of a 1972 challenge of EPA approvals of State Implementation Plans, the District Court for the District of Columbia held that EPA must review all state implementation plans and disapprove "any portion of a state plan which fails to effectively prevent significant deterioration of existing air quality."[5] This decision also directed EPA to promulgate regulations in the event a state plan failed to provide adequate measures to prevent significant deterioration.

Little guidance has been provided by the Clean Air Act (CAA) or the court decision in discerning what actually constitutes significant deterioration. However, EPA issued final regulations December 5, 1974, designed to meet this objective. Although the regulations became effective January 6, 1975, EPA chose not to aggressively enforce them pending their legal challenge or congressional action.

The regulations were quickly challenged by both business and industry and environmental groups, the former on grounds of severe adverse economic effects

and the latter on grounds that the regulations did not go far enough. Congress has since considered writing clarified significant deterioration requirements into the CAA, but no final legislation has been passed at this point.

Transportation Control Plans

The CAA's legislative history recognizes the need to control motor vehicle use in certain areas to achieve ambient standards. EPA was forced to require the development of transportation control measures on a very short timetable because of the decision in *NRDC* v. *EPA* requiring EPA to approve only SIPs providing for both attainment and maintenance of ambient standards. Since most states could not develop transportation control measures within the court's timeframe, EPA was forced to promulgate its own measures. Among the measures issued were: mandates to the states to set up programs to inspect/maintain all motor vehicles for compliance with emission limitations, gasoline rationing; requirements that states set up exclusive bus and carpool lanes; requirements for managing parking supply; surcharges on commercial parking; and requirements that states set up computer carpool matching programs. The outcry over the parking surcharges was particularly harsh. Consequently, the surcharge provisions were withdrawn from the several areas to which they had been applied. The other transportation controls largely remain in effect, but proposals have been introduced in Congress to amend the Clean Air Act's sections dealing with transportation control strategies. No final action has been taken in this regard.

Clean Water

Section 208 Planning

Diffuse source pollution in terms of the FWPCA is called nonpoint source pollution. Section 208 details not only how nonpoint sources shall be planned for, but also the entire range of pollutant sources which affect water quality.

Section 208 provides for the development of a continuous areawide waste treatment management planning process in areas within a state which have substantial water quality control problems as a result of urban industrial concentrations or other factors. Section 208 (a)(b) provides that the state shall act as a planning agency for all portions of the state which are not designated as areawide management areas. Although the state planning agency designated by the governor may delegate portions of its responsibilities to other state, federal, local, or interstate agencies, the state planning agency still has the responsibility of assuring that each element of the state's approved planning process is achieved.

Because of delays by EPA in implementing the 208 program, all areas had not received 100 percent in federal funds when the funding date expired June 30, 1975. This leaves some 125 areas to be designated and funded, with only 75 percent grants now available.

Furthermore, in 1975 the U.S. District Court for the District of Columbia in *NRDC et al.* v. *Train et al.*,[6] ruled that states are required to conduct the

commensurate level of 208 planning in all designated areas as would have been conducted by the local agency if the area had been designated and that the initial planning must be completed by November 1978. The court also said 208 funds must be made available to the states to help them conduct this planning from funds appropriated for fiscal year 1976.

Estimates are that some $400 million in total funding will be required to complete the initial planning by November 1978. Federal funds obligated to date cover around 60 percent of the total required.

The remaining $160 million in costs is relatively equally distributed between state and local agencies. These figures include funds only for the initial phase of the planning process. The federal budget for fiscal year 1977 has provided only $15 million for this program.

Both Congress and the courts have been concerned with the inequities surrounding Section 208. Emphasis has been placed on extending the time period for 100 percent funding of designated agencies. The U.S. District Court, on June 1, 1976, ordered EPA to keep $137 million in 100 percent 208 funds from past fiscal years available for obligation until September 30, 1977. However, the status of these funds continues to be uncertain.

Funding concerns are not the only problems 208 agencies face. This is perhaps the most complex and ambitious planning process and structure ever mandated by Congress, and regulations under FWPCA have placed substantial responsibility on the governor, the state water quality agency, designated regional agencies, and local governments. EPA regulations specify the process which a 208 planning agency must pursue to qualify for designation. Once designated, the planning agency must produce a detailed planning program relative to the 208 mission.

After approval by the governor and the EPA regional administrator, the 208 plan is to guide EPA's construction grant program for municipal treatment works and the permit program for point source discharges. Approval of construction grants and discharge permits depends upon their conformity with the plan.

Subsequent to completion of the initial plan, one or more "management agencies" are to be designated to implement the plan. Management agencies must satisfy several criteria listed in the act. They must be able to carry out the plan; design, construct, and manage waste treatment works; raise revenues and incur indebtedness; assure that communities participating in waste treatment pay their proportionate share of treatment costs; and refuse to receive wastes from municipalities which fail to comply with any provisions of an approved plan.

Final Section 208 Regulations

EPA issued its final revised regulations governing Section 208 on November 28, 1975.[7] The new regulations governing the continuing planning process, plan preparation, and application for grants for planning assistance—had been necessitated by the U.S. District Court in *NRDC* v. *Train*, requiring a more active state role in the 208 process. The intent of the revised regulations is to "unify and integrate the state and areawide water quality management planning and implementation requirements" of 208.

Crucial to the new 208 structure is the provision for an agreement between a state and the EPA on the proper level of detail and timing of state water quality management plan preparation. The agreement is to include state water quality priorities and a time scale for attaining the 1983 water quality goals. If a state determines that 208 planning is not necessary in a specific area, the state must certify that water quality problems do not exist (or are not likely to occur) during the time period of the planning process. Such an exception must be approved by the EPA regional administrator.

The designation process has also changed somewhat. The governor is to designate a state planning agency to be responsible for the overall process. If a designated areawide planning agency fails to achieve Section 208 requirements, the state planning agency is responsible for assuring the achievement of 208 requirements. EPA has indicated that it will give preference to areas of urban-industrial concentrations in the designation of areawide planning areas (as in previous regulations).

The state and areawide planning process requirements include adequate public participation during plan development, review, and adoption; intergovernmental input in plan development and implementation; coordination and integration of water quality management planning for state and areawide management planning areas with other related functional and comprehensive state, local, and federal planning; preparation of required water quality management plans, and regulatory programs to implement water quality plans. Additionally, the state process is to include the development, review, and adoption of standards for water quality; review and certification of the plans for the designated areawide agencies; and the annual preparation of the state strategy for preventing and controlling water pollution over a five-year period.

The most critical new factor in the revised regulations is the deadline for preparation. The original court order under which EPA has been operating had indicated that final plans were to be submitted for nondesignated areas no later than November 1, 1978. For the sake of uniformity, EPA also was to require that the designated areawide plans be completed in time to be submitted with the state plans. Areawide plans probably will have to be complete prior to this deadline so that the state review of areawide plans is completed in time for a coordinated submittal of the overall state plan.

The regulations indicate that intensive, detailed plans will be required in areas of heavy urban-industrial concentration. On the other hand, there will be little or no planning required in those areas where a state certifies certain types of planning and implementation activities will not be undertaken.

The court order mandated grants for both states and designated areawide agencies for 208 planning. An allocation formula has been devised which is based on both population and land area, with population being favored by a factor of three. These dual factors were introduced into the formula to reflect the necessity of considering both point and nonpoint sources, but with the emphasis still being placed on urban-industrial concentration as reflected by greater reliance on population as the water quality problem indicator.

Nonpoint Source Pollution

At this point, no 208 agency has progressed far enough to seek implementation funds. For a 208 agency to qualify for implementation funding, one of the primary concerns is the establishment of an effective means of dealing with nonpoint source pollution.

> The magnitude of the nonpoint source problem is possibly equal to or greater than the total problem caused by all point sources. EPA's responsibility in the nonpoint source management effort will be to provide guidance to the states for initiating planning and implementation of nonpoint source management in order that the 1983 water quality goals of the act may be reached. The implementation of these management programs will be a part of the areawide planning process in designated 208 areas, as well as part of the state water quality management responsibilities in non-designated areas.[8]

EPA's strategy was to aim at the eventual control of nonpoint source pollution through local combinations of treatment, preventive management techniques (contour farming, construction site terracing, abolition or strict control of clear-cutting in forests) and as a framework, legislative initiatives to promote proper land use and nonpoint source pollution control (such as EPA's model sedimentation law). EPA sought to correct the deficiencies in information surrounding nonpoint source pollution by mandating that each state:

- Develop a profile of particular state nonpoint source problems, and
- Prepare an assessment of what it considers to be the most effective mix of available prevention and control techniques for its particular set of nonpoint source pollution problems.

EPA took primary responsibility for research on the generation and effects of nonpoint sources and for the development and assessment of additional prevention and control techniques.

This coordinated effort was designed to establish by 1976 local and state programs focused on achieving the 1983 ambient goals. This objective was not achieved, and it seems apparent that nonpoint source controls may be one of the major problems in meeting the November 1, 1978, deadline for water quality management plans ordered by *NRDC* v. *Train*. This obviously places the states under severe time constraints.

Related State Programs

A variety of state laws already influence nonpoint source pollution control efforts. These range from wetlands protection and coastal zone management to floodplain regulation and highway-related legislation. The two areas of state legislation which directly affect nonpoint sources are state sediment and erosion control laws and state programs for the reclamation of surface-mined areas.

Eleven states and the Virgin Islands have enacted laws providing regulatory erosion and sediment control programs. The states are Georgia, Hawaii, Iowa, Maryland, Michigan, New York, North Carolina, Ohio, Pennsylvania, South Carolina, and Virginia. The number of state programs designed for mined-area reclamation had increased to 38 States in 1975. In several of the remaining 12 states, draft legislation is being proposed. There is a clear trend in the new state programs toward an integration of land use and mine planning, and toward requiring longer time frames and more comprehensive approaches to reclamation planning. The roles of local governments are recognized in all laws. A few of the statutes place local governments directly in the decisionmaking process with regard to the issuance of mining permits.

Issues in Implementing DSP Programs

Great concern has been expressed concerning the burdensome requirements placed on the EPA to devise guidelines for diffuse source pollution control within short timeframes. Deadlines established by both statute and court orders have severely hampered efforts to devise reasonable, effective programs. The lack of trained manpower and adequate data has resulted in further litigation and delay.

A further constraint has been the lack of dependable funding. State and local programs have often been faced with the curtailment of federal funding in any number of programs after staffing and implementation have begun. These funding problems have resulted in extreme caution on the part of state and local officials who are concerned with inheriting programs they cannot afford in the long run.

Institutional Issues

The management of diffuse source pollution is a shared responsibility among federal, state, regional, and local governments. This creative federalism approach requires certain institutional arrangements to facilitate the involvement of all agencies in an overall management structure. These institutional arrangements are now further examined within the context of coordination and federal-state relations.

Coordination

Diffuse source pollution regulations involve government entities at the state, regional, and local levels. A variety of special purpose agencies may be involved, including those concerned with air pollution control, construction regulations, transportation, water supply and pollution control, solid waste collection and disposal, and zoning and those in broader activities such as comprehensive community planning agencies and councils of governments (COGs). The governor of each state is responsible for ensuring arrangements to involve these various agencies and to ensure proper coordination.

There must also be effective integration and coordination of various function-

al bodies at different levels of government. These programs involve the coordination of transportation, land use, environmental, and all other considerations that affect planning and growth. Air and water quality considerations must be integrated into the planning and decisionmaking procedures in the above areas. Likewise, authorities responsible for land use, transportation, and other environmental functions must be integrated into the DSP control programs to ensure consistency and successful implementation.

Areawide or regional solutions are mandatory. These problems transcend local political boundaries, and solutions must bridge the functional activities of planning and implementation. This need for greater coordination is impeded by the traditional separation of planning and environmental protection at all government levels.

EPA has sought to foster greater coordination through interagency agreements at the federal level. EPA has entered into agreements for its 208 grants with both the Department of Housing and Urban Development (for 701 grants) and the Department of Commerce (for coastal zone management grants). Additionally, EPA has established working relationships with the U.S. Geological Survey, Forest Service, Soil Conservation Service, National Association of Conservation Districts, Bureau of Land Management, and Corps of Engineers.

Federal-State Relations

The federal government plays the lead role under the air and water quality legislation. It sets quality standards for the states to apply as well as regulates in great detail how programs are to operate. If EPA feels that part of a proposed state program does not comply with the legislative intent it may insert its own proposals. The courts have upheld this type of action.

While EPA may need maximum authority to force reluctant states to act, such preemption can create problems for some states because of their unique legal, political, and financial situations. These diverse situations must be recognized with some allowances for accomodation or modification.

Policy Basis of DSP Control

Although there are similarities between the Clean Air Act and the Federal Water Pollution Control Act relative to diffuse source pollution, there are also some differences which should be briefly examined. Generally, implementation of the Clean Air Act by EPA has been more rigid than that of FWPCA. This results from statutory language, court decisions, and federal administrative actions. The FWPCA provides a more participatory process. For example, Section 208 is intergovernmental in its framework and requires a high degree of public participation.

Realistic and Dependable Federal Funding

Realistic and dependable federal funding is a necessity if effective DSP programs are to be achieved. State and local leaders are justifiably leary about the

financial impacts of federally mandated programs. They repeatedly have faced the need to assume program commitments as federal financial support is withdrawn.

This concern is recognizable in Section 208 grants from the vantage of states and locales. With Section 208, the initial grants are for 100 percent of the costs, whereas subsequent grants decrease to 75 percent. At the end of the planning process, the flow stops altogether. After a period of federal funding, the states face the task of alternative funding sources or significant cuts in program and personnel.

Levels of funding by the federal government must be adequate to promote program consistency. At the same time, state and local governments should be given flexibility in shaping the program.

Rational Federal Timing and Deadlines

Throughout this study, repeated mention has been made of the burdensome requirements on EPA to devise guidelines and criteria in too short time periods. These time constraints have hindered efforts to devise realistic, workable programs. When this timeframe is combined with uncertain funding, the costs to state and local government are indeed astounding.

State Policy Issues

States face critical choices as a result of federally mandated diffuse source activities. The first choice obviously is whether to face the problems of DSP at all. It is assumed that states will confront the problem because environmental quality has become a major objective of state government. Beyond this, the Clean Air and Federal Water Pollution Control Act Amendments place legal responsibility at the state level.

Diffuse source pollution management may involve governmental entities at the federal, state, regional, and local levels. At these levels, a variety of special purpose agencies may be involved. However, the governor of each state is ultimately responsible for both the air and water quality programs to control DSP. The states must assure that appropriate arrangements are fashioned and should facilitate the involvement of these various agencies to ensure effective coordination.

For effective coordination, areawide or regional solutions may be necessary, because certain problems transcend local political boundaries.

Under Section 208 guidelines, each state is to have designated a state water quality agency to bear the responsibility for coordinating all water-quality related functional planning activities within the state. While many of these planning activities may occur within the state's environmental agency, some will be scattered organizationally. Because of the variety among the states, it is not

possible to identify the one best organizational choice for the state water quality management agency or to develop a model pattern of delegation.*

State-Local Relationships

In dealing with both air and water diffuse source pollution, there must be a high degree of cooperation and coordination among states and their local governments. Since the state is ultimately responsible, it cannot effect a 100 percent delegation of authority to local government. The state must be willing to preempt local control if local performance is inadequate.

Greater communication can be fostered by joint state-local involvement in technical planning. Areawide agencies could be served by contracting for specific technical work from the state water quality agency. This type of communication can lead to greater overall coordination between the two levels.

On the other hand, states often can turn the procedure around and assign responsibility to local government or regional agencies. States also can provide technical assistance to the lower level entities. In those states which already have developed effective means of state-local coordination, diffuse source management programs must be fully integrated into these approaches.

A major concern entails the multiplicity of special districts which have proliferated in the United States. Many of these special districts, particularly water and sewer districts, will expect to assume a special role in the 208 water quality management process. However, great care must be exercised before 208 jurisdiction is granted to special districts. Perhaps, their primary contribution lies in an advisory capacity to general purpose units of government.

As with federal-state relations, states should seek to develop a stronger state-local partnership to enhance the feasibility of their own programs. States have the opportunity to develop innovative programs within the boundaries of federal standards. Only by nurturing the partnership with other levels of government and developing a strong, unified approach can states avoid federal imposition of diffuse source pollution controls.

FOOTNOTES

1. 475 F. 2d 968 (D.C. Cir. 1973).

2. 40 *Federal Register*, 51.18.

3. 39 *Federal Register*, 7270 *et seq.*

4. 39 *Federal Register*, 25-292.

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*See State Environmental Issues Series: *Diffuse Source Pollution: Policy Considerations for the States*, p. 34-37., for general considerations for States in coordinating all water quality planning activities.

5. *Sierra Club* v. *Ruckelshaus*, 344 F. Supp. 253 (D.D.C. 1972); 4ERC 1815 (D.C. Cir. 1973); *Sierra Club* v. *Fri.*, 4 12 U.S. 541 (1973).

6. 396 F. Supp. 1386.

7. 40 *Federal Register*, 130-131.

8. Mark Pisano, Director of EPA's Water Planning Division, Water Pollution Control Federation Conference, Miami Beach, Florida, October 8, 1975.

Indian Rights and Claims: *deals with one of the more controversial issues confronting many states as they seek to implement environmental regulations and to positively affect environmental quality. This chapter focuses on questions of state-tribal jurisdiction which have been complicated by changing federal policies and inconsistent court decisions. State officials encounter major uncertainty in their efforts to apply environmental standards to Indians and Indian lands.*

The basic assumption underling this chapter is the reality of Indian self-determination and sovereignty. Consequently, the tribal governments are a fourth level of government within the intergovernmental framework. Because of the position of the states and the tribal governments, there is need for a new federal intergovernmental relations act specifically addressing state-Indian affairs.

The recent history of state and tribal relations has too often been characterized by bitter contention and adversity. While litigation is sometimes the best and often the only method of conflict resolution, it should not be the only method. The trend of judicial decisions seems to point to increasing losses for the state position. The overwhelming need is to find and actively develop new and cooperative means to develop a partnership between state and tribal governments to seek out and achieve common goals.

X. Indian Right and Claims: Environmental Management Considerations for the States*

Introduction

Despite two centuries of coexistence in territory governed by the United States, Indian groups and federal, state, and local governments continue to dispute fundamental issues of jurisdiction over the personal and property rights of Indians. In recent years, a new dimension in this ongoing dispute has emerged regarding the uncertainty of the application of environmental and natural resources management laws and regulations to Indians.

Questions of legal jurisdiction over Indians and their lands have confronted this nation since its founding. Indians increasingly have demanded self-determination and economic opportunity. At the same time, a growing concern with environmental quality and the conservation of natural resources has evolved. The result is an aggravation of long-standing disputes over the exercise of federal, state, and local authority over land and resources in territory either conceded to be or claimed to be Indian owned.

Consequently, relationships among Indian groups and governments seeking to assume jurisdiction over the lands have become hostile and resulted in extended litigation. These legal battles have involved resources in Indian lands of substantial value, such as water, minerals, and energy.

Court decisions in recent years have tended to favor Indian claims. Numerous state and local regulations have been struck down as applied to Indians and Indian lands. States have lost *de facto* jurisdiction through these decisions with the result being that their authority to control activity on Indian lands is severely limited.

The mass of legislation relating to Indians and Indian lands has contributed to confusion over the powers of tribal governments and the extent of their jurisdiction. Recurring disputes have arisen out of the confusion surrounding the separation of authority between tribal governments and the federal government. Near chaos has resulted with the increasing imposition of state authority in environmental concerns.

States and Indian tribes have turned to the federal government for guidance

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*This chapter is a condensation of *Indian Rights and Claims: Environmental Management Considerations for the States*. The Council of State Governments: Lexington, Kentucky, 1977.

in discerning the limits of their jurisdictional authority. Changes in federal legislative and judicial directions create a need to clarify the existing jurisdiction. No clear federal statutory guidelines are available and case law is both sporadic and inconsistent.

These problems clearly entail issues of intergovernmental relations within the federal system. The traditional model of three levels of government—federal, state, and local—must be modified to incorporate a fourth level—tribal government. The actors involved are numerous; their interests in environmental and natural resource jurisdiction are diverse, and their claims often conflict. Any new policy and institutional framework must reflect both prior policy and legal decisions and the concept of Indian self-determination. New devices in the environmental field must respect the special status of Indians while allowing a state to work toward reasonable environmental goals.

The Actors and Their Interests

Disputes among states and Indians over jurisdictional claims reach beyond these two major actors to other governmental entities. The federal government is involved because of its dominant authority in issues of Indian jurisdiction. Local governments often are involved. The intergovernmental aspects of state-Indian disputes are further clouded by the number of institutions at each level whose interests are affected. These interests include not only questions of sovereignty, but reach into the environmental and economic interests of individuals, private corporations and public entities concerned with the conservation or development of the environment.

Tribal Government

A primary concern of tribal governments in pressing jurisdictional claims over persons and property is the desire to preserve the cultural heritage of the tribe. To do this, the political integrity and economic viability of the Indian community must be respected and developed. Land has held a central place in the heritage of most tribes. These lands in the western states include public grazing lands, mineral and energy deposits, and water resources. A tribe's ability to regulate the use and development of these resources is a key to cultural preservation and economic viability for the tribe.

Tribal claims to self-determination and jurisdiction should not be equated with full autonomy, especially in the economic area. As a result of the long-standing dependent status and economic poverty of reservation tribes, the termination of special federal support and protection could mean economic and political disaster for many tribes.

Federal Government

It is at the federal level that the greatest number of actors and potentially conflicting interests are involved in Indian jurisdictional claims. Constitutionally, Congress and the President have dominant authority in issues of Indian jurisdic-

tion. Numerous administrative agencies also are involved in the question of jurisdiction of Indians and Indian lands.

The Department of the Interior is the primary federal agency. However, in the environmental area, the department's interests in Indian claims are severely fragmented. The Bureau of Indian Affairs is the agency charged with implementing congressional policy toward federally recognized tribes. Along with the Department of Justice, the bureau is responsible for assuring that Indian rights are not undermined by the actions of the private sector, state and local governments, and other federal agencies.

The ability of other agencies to carry out their respective policies and programs is weakened by any policies or rulings to increase tribal governments' jurisdiction. The Bureau of Land Management, the Bureau of Land Reclamation, and the Environmental Protection Agency may oppose efforts to restrict their authority to administer and regulate activities on Indian lands which affect air and water quality, water rights, land and resource development programs, conservation and reclamation programs. The Corps of Engineers also may find itself in conflict with Indian claims in pursuing its mandate.

State Government

In contrast, the states are more unified and consistent in their claims to jurisdiction over Indians and Indian lands. The states' interests in pressing jurisdictional claims in the environmental area are questions of sovereignty, policy and program administration, and economic development.

Of more immediate interest to states in pressing jurisdictional claims is growing state involvement in environmental programs. Most states are immersed in the design and implementation of environmental quality and resource management programs. Most such programs are based on regulating activities with potentially harmful effects on environmental quality and environmental health.

The difficulty of administering statewide environmental programs is increased when Indian-held lands, Indian-claimed resource rights, and activities on Indian lands are exempt from the state's regulatory authority.

The state's interest extends to the promotion and protection of economic interests of its citizens. Environmental regulations directly affect numerous economic activities related to the use and development of land and natural resources. The diminution of state jurisdictional authority reduces effective control over the allocation of access to resource rights.

Local Government

Local government interest in this issue emerges from the concerns for home rule and for the impacts associated with land and resource development. Many of the problems emerge from local government efforts to extend police power to tribal members and lands. Other common problems such as financing public services, taxation authority, and economic development are exacerbated when one entity operates under a different set of political and legal rules.

Local government may be particularly sensitive to the right of tribes to re-

ceive full public services without being subject to its taxation and regulation authority. Indian claims to resources may restrict the development and economic activity subject to local regulation and taxation. This makes the regulation of land a major local issue.

The Legal Claims to Jurisdiction*

The degree of success of tribal and state governments in pressing their respective claims of jurisdiction greatly depends on legal precedent. The issue of legal recognition of tribal governments as political entities is well established. The crucial issue now is the extent of tribal governments' sovereignty and their status in relation to the intergovernmental framework of the federal system.

Tribal Government

The case of *Worcester* v. *Georgia* (1832)[1] was the first enunciation of the principle that an Indian tribe is a political body endowed with the powers of self-government. In short, the Supreme Court held that the powers of tribes derive from their inherent original sovereignty and from their status as owners of land.

The question of present tribal powers and jurisdiction clearly rests on this and similar cases. In summary, with the exception of those powers repealed or modified by treaty or an act of Congress, Indian tribes retain inherent jurisdiction over a broad range of domestic matters and governance.

Federal Government

The federal government has always assumed dominant authority in issues of Indian jurisdiction. The United States Constitution (Article I, Section 8, Chapter 3) grants to Congress the power to regulate commerce with foreign nations, among the states, and with the Indian tribes. Treaties and acts requiring federal licensing of trade with Indian tribes are based on this clause. Federal authority is further strengthened by the constitutional grant to the President of power to make treaties by and with the advice and consent of the Senate (Article II, Section 2, Chapter 2).

The federal government has also asserted the guardian theory as a basis for its own supremacy with regard to jurisdiction. Upheld in numerous cases, this concept asserts the need for protection of the Indian people as grounds for federal jurisdiction.

Federal policy regarding Indian tribes has not been totally consistent with its claims of dominant authority. Fluctuating congressional attitudes have clouded

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*As this paper was being written, a new set of Indian assertions was being litigated and negotiated, principally in Maine, Massachusetts, and North Carolina. These are claims made by "state jurisdictional" Indians and involve the Non-Intercourse Act of 1970. These claims raise new and complex issues that are not discussed in the following analysis.

tribal and state claims to jurisdiction. The current policy of self-determination of Indian tribes was preceded by policies of isolation, then assimilation, followed by grants of specific authority to the states grants which were later revoked by Congress.

Since 1968, the existing notion of Indian self-determination and freedom from state control has been strengthened by federal policy and Supreme Court decisions. The Indian Civil Rights Act (1968) prohibited states from assuming civil and criminal consent without the express consent of affected Indians. The act also allows for "retrocession," i.e., the return of state jurisdiction over Indian lands to the federal government and the tribes. Congress also passed the Indian Self-Determination and Education Assistance Act (1975) to further establish the reality of Indian self-determination.

State Claims to Authority

The states' claims to authority over Indians and Indian lands are intertwined with federal legislation and court rulings. The states are cognizant of the dominant federal authority in Indian affairs. However, they point to three basic grounds for asserting state regulatory authority. These are specific congressional grant of authority over Indians or Indian lands; Public Law 280, and regulatory authority in public health and specific administrative grants of authority.

State claims to authority appeared to be reinforced during the federal policy of assimilation. Congress had made specific grants of criminal jurisdiction to certain states, but it was in 1950 that Congress granted its first comprehensive civil jurisdiction over Indians to the State of New York.[2] Then in 1953, Congress passed Public Law 280, an act conferring degrees of legal jurisdiction to various states to replace existing federal and tribal jurisdiction.

Public Law 280 divided the states into three categories:

—Six states were given direct civil and criminal jurisdiction;

—Thirty-six states were empowered to take jurisdiction over reservations by enactment of state legislation, and

—Eight states were empowered to assume jurisdiction by amending their state constitutions.

The third group of states was distinguished from the other states by virtue of existing enabling acts or constitutions specifically disclaiming jurisdiction over Indian lands within their borders. Congress felt that to overturn such a disclaimer would require a state constitutional amendment if it desired to legally assume jurisdiction over Indian affairs. However, some states have assumed jurisdiction without going through the amendment process arguing that provisions of P.L. 280 are sufficiently broad to allow a state and its courts to determine whether a constitutional amendment is in fact necessary.

P.L. 280 does not provide clear guidelines regarding the degree of state jurisdiction over Indians and Indian lands. Subsequent amendments contain the following exceptions to jurisdiction:

> Nothing in this section shall authorize the alienation, encumbrance, or taxation of any real or personal property, including water rights, belonging to

> any Indian or any Indian tribe, band, or community that is held in trust by the United States or is subject to a restriction against alienation imposed by the United States, or shall authorize regulation of the use of such property in a manner inconsistent with any federal treaty, agreement, or statute or with any regulation made pursuant thereto, or shall deprive any Indian or Indian tribe, band, or community of any right, privilege, or immunity afforded under federal treaty, agreement, or statute with respect to hunting, trapping, or fishing, or the control, licensing, or regulation thereof.

The federal government and P.L. 280 states differ on the extent to which this exemption restricts state claims of wide jurisdictional authority. The federal government relies upon a definition by the U.S. Supreme Court of "encumbrance" to support its position that the term should be broadly defined thereby limiting any state action which could create a burden on the land which might lessen its value to the tribe. On the other hand, the states argue that the term should be narrowly defined.

The use of P.L. 280 by states to buttress jurisdictional claims has been severely restricted by the Indian Civil Rights Act of 1968 and by a judicial trend toward a restrictive view of the state's jurisdiction. No state has used the provisions of the 1968 act which allow states to assume jurisdiction by the express consent of the tribes affected or to "retrocede," i.e., return state jurisdiction to the federal government and the tribes.

Another basis for state jurisdiction is its regulatory authority to maintain public health. The state also may gain authority by specific grant of the Secretary of the Interior. Although use of this administrative grant of authority may allow the application of state and local standards, it appears contrary to the state's claim of a wide grant of authority under P.L. 280 because it involves a more specific and narrowly defined scope of jursidiction.

The Environmental Arenas of Dispute

Extensive state involvement in state and federally initiated environmental programs has increased the incidence of conflicting state-tribal claims to jurisdiction. Jurisdictional disputes have emerged regarding land development regulation, water rights, hunting and fishing rights, air and water quality, and energy development and mineral exploitation.

The regulatory nature of most environmental programs further intensifies the conflicting claims to exercise jurisdiction over Indian-claimed land and resources and activities involving that land and resources. A very sensitive issue to states and local government is regulation of nonIndian lessees of Indian lands and resource rights.

State regulatory programs pose a number of serious issues as to the extent to which the state or its local governments may impose their regulatory schemes upon Indians and Indian lands. A careful examination of state law, federal treaties and statutes and existing case law provides no precise answer to jursidictional claims in these areas. Instead, each area of regulation must be examined for guidelines to resolution of state-tribal disputes.

Regulation of Development

The most common means of regulating development have traditionally been planning, zoning, subdivision regulations, and building codes. Nine states recently have gone beyond mere delegation of such authority to require local governments to employ these regulatory tools. Many states have begun to play a more active role in the control of development through legislation dealing with power plant siting, critical areas, and development of regional impacts.

The question naturally arises as to how much these controls can be exercised on Indian lands. It is the opinion of the American Indian Policy Review Commission that in states subject to P.L. 280, a distinction must be made between state laws of general application and local ordinances. This argument maintains that the state's authority to exercise development controls is constrained by state laws of general applicability, by the fact of encumbrance, and by the tribal government's ability to handle such functions. Local ordinances, the commission argues, have no affect on Indian lands. This distinction is important to states which rely on local governments to adopt their own programs of control or to administer state-mandated programs through local ordinances.

Litigation has been inconsistent as to whether Public Law 280 allows local governments to enforce their regulations on trust land within Indian reservations. Case law supports both sides of the question regarding whether such ordinances are of general application, whether they constitute an encumbrance, and whether they infringe on tribal sovereignty. A brief examination of some of these cases is illustrative of this point.

In *Snohomish County* v. *Seattle Disposal Company*,[3] the court held that the zoning ordinances fall within the definition of "encumbrance" and therefore are unenforceable on Indian lands. This decision is an example of the broader interpretation of the concept of encumbrance, thereby limiting the states' jursidiction over Indian lands.

The Ninth Circuit Court of Appeals, in *Santa Rosa Band of Indians* v. *King County*,[4] ruled against county jurisdiction over Indian reservation trust lands and articulated views on the importance of tribal sovereignty vis-a-vis local governments. Cases involving a particular local ordinance must be decided by the courts on a case-by-case basis.

The importance of the *Santa Rosa* case has gone beyond that of the particular situation. The court found "that P.L. 280 subjected Indian country only to the civil laws of the state, and not to local regulation." The decision also was adamant in its position that local jurisdiction should not apply to Indian lands.

Another noteworthy case is that of *Sangre de Christo Development Corporation, Inc.* v. *City of Santa Fe*.[5] The New Mexico Supreme Court examined the validity of local planning and subdivision controls on Pueblo Indian land leased to a private developer in view of the state constitution's disclaimer of right and title to Indian land. Since the disclaimer was one of proprietary interest and not a disclaimer of government control, the court held that the disclaimer did not prevent exercise of regulatory powers.

In response to other issues raised, the court said the exercise of such authority did not interfere with the self-government of the Pueblo Indians. However,

the court went on to find that Congress had preempted all control over the leasing of Indian lands by 25 U.S.C., Section 415. Under these regulations the Secretary of Interior could opt to apply the equivalent of local standards, but this decision would be up to the secretary, not the state or its local governments. The issue was not the fact of regulation, but who applies the regulations.

New Mexico subsequently filed suit in federal district court against the Secretary of Interior and the Sangre de Christo Development Corporation to establish state jurisdiction over the leased development. The court found in favor of the state, declaring 25 C.F.R., Section 1.4 to be an *ultra vires* regulation and, therefore, invalid. Thus, the state statute in question was applicable to the nonIndian lessees. The case has been appealed.

It is apparent that the issue of who has regulatory authority over development on Indian lands will continue. Extensive litigation can be expected. None of these relationships is clear, nor is the definition of encumbrance explicit at this point.

Water Rights

The allocation of water rights is of most consequence to the western states. Indian claims to these rights, based on initial ownership and upon treaties, frequently have emerged after water rights already have been allocated among the states and among users in the states. Indian claims to prior rights have made this a volatile question. Court cases generally have been decided in favor of Indian claims.

The benchmark case of Indian-state water rights conflict is *Winters* v. *United States*. In this Montana case involving diversion of river waters away from reservation lands by private individuals, the U.S. Supreme Court upheld the lower court's view that the Indians were the owners of the rights to the use of water which they retained under the treaty agreement of 1888. Since they were the grantors in the agreement, they held all of their right, title, and interest in the reservation which they did not convey to the United States. Thus, the State of Montana could not interfere or enact laws pertaining to use of Indian waters.

The second issue addressed in *Winters* was the amount of water reserved by the Indians. The court was definite about the duration of water rights "for a use which would be necessarily continued through years." It hinted that the reserved amount could be large; that beneficial use of the water could be made whether the lands were "kept for hunting, grazing roving herds of stock, or turned to agriculture and the arts of civilization."

Although the basic *Winters* doctrine subsequently was applied in other cases, the courts have not clearly defined phrases such as "arts of civilization." This phrase leaves open the question as to the exact types of activity for which the Indians have reserved water rights.

United States v. *Powers*[6] dealt with the issue of water rights on Indian allotment land later sold to nonIndians. The United States sought to enjoin the diversion of waters by nonIndian successors in the interest of the Indian allotments, to the extent that this water was needed for an Indian irrigation project. This relief was denied by the lower federal courts and was affirmed by the U.S.

Supreme Court. The Supreme Court held that under *Winters*, waters were reserved for the reservation. When allotments were duly made for exclusive use and thereafter conveyed in fee, the right to some portion of tribal waters essential for cultivation passed to the nonIndians. The court left unanswered the question of how a quantifiable amount would be ascertained.

United States v. *Walker River Irrigation District*[7] dealt with reservation lands not part of Indian aboriginal holdings. The suit sought an adjudication of a right to 1,500 cubic feet per second of water from the Walker River for the irrigation of reservation lands. The trial court ruled that the reservation doctrine did not apply to this reservation because it was not a treaty reservation. The U.S. Court of Appeals reversed the ruling, stating:

> In the *Winters* case as in this case the basic question or determination was one of intent — whether the waters of the stream were intended to be reserved for the use of the Indians or whether the lands only were reserved. We see no reason to believe that the intention to reserve need be evidenced by treaty or agreement. A statute or an executive order setting apart the reservation may be equally indicative of the intent.

With respect to the measure of the water right of the reservation, the court held that the measure was the amount reasonably necessary to supply Indian needs. It concluded that 70 years of experience demonstrated a need for adequate water to irrigate some 2,100 acres of the 10,000 irrigable acres. This action of permanently fixing the amount of water to which the Indians were entitled set an important legal precedent.

Hunting and Fishing

Disputes between Indian tribes and state governments over the regulation of hunting and fishing have proliferated. This is particularly true with regard to commercial fishing in areas where environmental problems have decreased the catch and exacerbated the competition between Indians and nonIndians.

Public Law 280 contains specific language exempting state regulation of Indian hunting and fishing. Therefore, it would appear that those states acting pursuant to P.L. 280 are prohibited from such regulation and those states not acting under 280 also are prohibited from exercising control. Jurisdiction remains with the federal government. However, case law reveals inconsistencies in decisions relative to P.L. 280 states and non-P.L. 280 states.

The most active state in attempting to resolve this jurisdictional issue has been Washington, a non-P.L. 280 state assuming jurisdiction under state statute. Two early cases[8] upheld Washington's right to regulate hunting and fishing as long as the controls did not discriminate against Indians and adhered to the "reasonable and necessary" test.

The case of *United States* v. *Washington*[9] in 1975 further refined these issues. The principal issues to be resolved were the extent of off-reservation Indian fishing rights provided by treaty to the tribes; whether the state regulatory

scheme infringed upon those rights, and, if so, what relief could be granted.

The court held that the state continued to have the power to regulate, for conservation purposes, the tribes' taking of fish at its usual off-reservation grounds if regulations did not discriminate against the treaty tribe's reserved right to fish, met appropriate standards of substantive and procedural due process, and were shown to be both "reasonable and necessary" to preserve and maintain the resource. The state must also "treat such treaty rights as an obligation and interest to be promoted in the state's regulatory management and obligation programs." However, the existing Washington laws and regulations applicable to Indian fishing were declared unlawful because they were not necessary to preserve and maintain the resource; they discriminated against the tribes; and they had been adopted and enforced in violation of appropriate standards and in derogation of the meaning and purposes of the treaty provisions.

The court also provided a formula which said the Indian tribes are entitled to have the opportunity to catch up to one-half the run of fish that normally would pass by their off-reservation sites. This decision also allows for the self-regulation of off-reservation fishing by qualifying treaty Indians.

The court's formula, of guaranteeing Indians up to a 50 percent opportunity to catch the runs of fish at off-reservation stations, has led to difficulties for both the state and commercial fisherman.

Air and Water Quality

Though legislation directing the management of air and water quality has been federally initiated, the states are allowed considerable discretion to develop and administer programs. Both the Clean Air Act Amendments of 1970 (CAA) and the Federal Water Pollution Control Act of 1972 (FWPCA) set minimum standards and allow the states to run approved regulatory programs under U.S. Environmental Protection Agency (EPA) guidance. A state can set more stringent standards than those of the federal government.

A crucial issue now emerging is the extent to which these regulatory programs are applicable to Indian lands. Those states which have assumed jurisdiction under P.L. 280 believe they have such authority. States not acting under 280 are facing the issue in a variety of ways. For example, the attorney general of Arizona has interpreted the state's constitutional disclaimers of jurisdiction to apply only to Indian lands as property and not to state sovereignty over those lands so that Arizona could claim jurisdiction over air and water quality by statute.

The major dilemma is in those states which enact standards in excess of minimum federal standards. It is not clear which standard would apply to Indian lands. The federal legislation does delegate to qualifying states the management of such programs to meet national goals. Accordingly, one view might be that the federal government, by delegating authority to the state, has also delegated the authority to regulate Indian land. On the other hand, it can be argued that Congress should bestow authority over Indian lands expressly, not implicitly.

A further problem clouding the issue is a situation in which the state regulatory program is a delegation of administration and enforcement to a local gov-

ernment acting under local ordinances. Public Law 280 jurisdiction is extended only for "those civil laws of such state or territory that are of general application to private persons or private property." The Indians and Department of Interior believe that only state statutes, not county or municipal ordinances, satisfy the requirement of "general application." If a local ordinance conforms with a state program which EPA has approved, it is not clear whether this passes the "general application" test.

State initiated programs, such as sediment control, surface mining controls and power plant siting, must meet both the "encumbrance" and "general application" tests. If a regulation places a "burden upon land depreciative of its value," it likely would not stand up in a legal challenge. States which did not acquire jurisdiction under P.L. 280 may have great difficulty in prevailing if their air and water quality standards as applied to Indian lands are legally challenged.

Two recent court cases[10] have dealt with similar problems as posed here (although they did not deal specifically with application of state air and water quality standards to Indian lands). In these cases, the court held that two federal installations discharging air and water pollutants did not have to obtain permits from states with federally approved plans. The legal basis for these decisions was that Congress had made no clear and unambiguous declarations that federal installations could not operate without a state permit. The relevancy of these cases is that a state apparently cannot require a permit, to illustrate compliance with pollution standards for Indian activities on Indian lands, if Congress fails to so specify in legislation.

Energy Development and Mineral Exploration

As the exploration for new domestic supplies of energy and minerals has increased, there has been the realization that the rights to certain coal, oil and oil shale, natural gas, rich mineral deposits, and the western states' water supply belong to the Indians. Governments at all levels now have to deal with tribes for access and the terms under which extraction will be allowed.

Consequently, Indian tribes are organizing to better protect their resources from exploitation. A coalition of 26 tribes, the Native American Natural Resouces Development Federation and the Coalition of Energy Resource Tribes, met in late 1975 to coordinate strategy for litigating their coal and water demands. In Montana, the Northern Cheyenne and the Crow tribes have filed suit to gain control of waters flowing through their reservations. Since much of this water already has been sold by federal and state authorities for eventual use by energy companies, the outcome could have negative impacts on planned electric and coal gasification plants. Other proposed energy developments in western states are similarly vulnerable to legal challenges because they would use water or coal on or near reservations, or would require transmission lines crossing reservation lands.

The decision in *Choctaw Nation* v. *Oklahoma*[11] indicates the judiciary's willingness to support such Indian rights and claims. The Supreme Court held that the Indians were owners of substantial mineral rights (oil and gas rights) which Oklahoma had previously leased to various corporations. An appraisal subse-

quently set the values of these claims at $177 million. The outcome of negotiations to settle this dispute is of major importance to the position of both the states and the tribes.

Coordination of energy development and joint planning to minimize adverse environmental, economic, and cultural impacts of resource development must be a joint responsibility among the federal government, states, Indian tribes, and energy development corporations. In seeking to improve the lines of communication between state and tribal governments in particular, both parties must realize that decisions of one will impact upon the policies and programs of the other.

Summary and Conclusions

The Legal Climate

There are several dominant factors in the prevailing legal situation pertaining to Indian jurisdictional questions as they relate to natural resource and environmental management. First are federal policies favoring Indian governmental and economic independence formalized in the Indian Civil Rights Act (1968) and Indian Self-Determination and Education Assistance Act (1975). Second is continuing confusion grounded in ambiguous and sometimes contradictory state and federal court decisions on the application of state and federal natural resource and environmental law and regulation to Indian land and disputed territories.

For several decades, the Congress and federal agencies have promoted greater tribal sovereignty with the objective of diminishing Indian political and economic dependence on the federal establishment. This effort to encourage Indian self-government and economic self-sufficiency has reinforced Indian initiatives to win political and legal confirmation of their claims to property and resources in states. In this pursuit, the Indians have come into innumerable confrontations with state and local governments.

State governments have found themselves in a serious dilemma. They are under severe political pressure to resist Indian claims from citizens and corporations resident on disputed land or dependent on disputed resources. Often, conflicts involve in-holdings or water rights that have been assumed to be legally the property of nonIndians for generations. The declared owners are adamantly opposed to any state concessions that may cloud their entitlement. They demand court challenges.

Concurrently, state governments are in a precarious position in attempting to implement environmental management policies, including those mandated by federal law and regulation. There is confusion over the applicability of land use, water and air quality and other environmental controls in Indian country. This confusion is compounded by recent uncertainty over whether supposedly settled jurisdictional doctrine encompasses Indian property or only Indian people.

Further complications are created by Indian conveyance of property and development rights to nonIndians whose subsequent operations are nonetheless within the boundaries of Indian jurisdiction. Finally, many forms of state jurisdiction given or taken under P.L. 280 have been successfully challenged. Many states which have not acted under P.L. 280 have been held by federal authori-

ties, with some court confirmation, to have no jurisdiction over Indians or their lands.

Faced with this maze of ownership, jurisdictional, management and political conflict, Indians and state and local governments have gone to court. The inevitable adversary relationship has often bred deep hostility on both sides.

States have not fared well in the courts. The precedent-setting decisions have generally favored Indian rights and claims, and federal over state and local jurisdiction. Consequently, states have usually lost *de facto* authority under which they had been applying natural resource-environmental policy in Indian domains. State program administration has substantially diminished in its regulation of both Indian and nonIndian enterprises.

The emerging 1977 water crisis in the west, coupled with accelerating demands for energy resource development, increase the dangers of conflict.

State Options

Court fights have soured state-Indian relations, and adverse decisions have weakened state administrative capacity. Even when states have won in the courts, the animosities created have made subsequent relationships hostile. Once adversary roles have been assumed, settlement of conflicts by negotiation has proven very difficult.

In some instances, resorting to the courts is a necessity for both state government and the Indians. Only through definitive court judgments can fundamental jurisdictional issues be resolved. However, in many situations, the option of negotiation is a legitimate alternative, and one that may offer a resolution of greater mutual benefit to the parties involved. The use of federal mediation is a device to facilitate agreement. Notwithstanding the political risks involved, negotiation would appear to offer states a better approach than litigation in establishing a solid legal and political foundation to sustained amicable relations with Indian groups. Such a basis of communication is critical in facilitating reasonable state influence and possible intervention in questions affecting natural resource and environmental management in Indian territory.

To further develop a positive and mutually beneficial state-Indian relationship, states would be wise to accept and promote national policies favoring Indian self-determination and economic independence. State initiatives to provide aid and technical assistance are vital to the improvement of Indian capacity for self-government and for self-sustaining economic enterprise. Through strengthening tribal organizations and economies, states will be laying the groundwork for the kind of partnership arrangements that may provide the basis for cooperative endeavors in environmental management.

It is important that state environmental and resource laws and regulations explicitly recognize the separate status of Indians and Indian lands if only to avoid unnecessary friction and legal crisis. If Indians are given a voice in framing the statutory language that relates to them, it is conceivable that they will become party to the extension of policy and management to their own domain.

State administrations might profit from looking at their own history of state-local relations, and the structures and processes they have developed to improve

intergovernmental communication, coordination, and cooperation. Although local governments are creatures of the state in a legal sense, they are generally intensely independent politically. Home rule is a constant demand. However, local governments have also tended to bypass the state capitol in establishing direct and often very dependent relations with the federal government and its agencies.

Since the passage of the federal Intergovernmental Cooperation Act of 1968, states have become increasingly conscious of the importance of closer state-local links in program administration. The act gives states a new leadership role in state-local coordination and the potential for substantial control over federal programs previously administered on a federal-local basis. In developing this role, states have devised a variety of structures and mechanisms to manage state-local relations including the creation of community affairs departments, the expansion of roles of substate regional planning and development agencies, and the delegation to the local and regional levels of program planning and administration. These mechanisms often have the dual purpose of providing the opportunity for local intervention and participation in state policymaking.

As a model for state-Indian intergovernmental communications, state-local mechanisms would require considerable alteration. Quite conceivably, there is need for a new federal intergovernmental relations act specifically addressing state-Indian arrangements. To clear up unresolved issues, such legislation specifically could delegate to states some of the residual powers of the federal government without which states can make no binding agreements with tribal governments and associations.

In summary, it would appear that the time has come for states to consider alternatives to legal challenges and court confrontations with Indians. Recent history suggests that constant resort to the courts has engendered hostility and produced detrimental legal decisions. Moreover, it has substantially limited state capacity for resource management and environmental regulation in critical areas. States should consider the following proposals for establishing a positive, productive base for state-Indian intergovernmental partnership:

Recognize the doctrine of Indian self-determination;

Assist Indians in building governmental capability;

Provide grants and technical assistance to foster Indian economic self-sufficiency;

Acknowledge special Indian status in environmental statutes and regulations;

Assert mutual state-Indian interest in resource conservation and environmental quality and develop binding agreements on resource and environmental management systems, and

Establish state-Indian intergovernmental structures and mechanisms to facilitate communication cooperation and coordination.

FOOTNOTES

1. *Worcester* v. *Georgia*, 31 U.S. 515 (1832).
2. 25 U.S.C. 233, c. 845, Sec. 1, 64 Stat. 845.

3. *Snohomish County*, v. *Seattle Disposal Company*, 425 P. 2d 22 (Supreme Court, Washington, 1959).
4. *Santa Rosa Band of Indians* v. *King County*, 532 F. 2d 655 (1975).
5. 503 P. 2d 323 (1973).
6. 305 U.S. 527 (1939).
7. 104 F. 2d 334 (9th Cir. 1939).
8. *Tulee* v. *Washington*, 315 U.S. 681 (1945); *Puyallup* v. *Department of Game of Washington*, 391 U.S. 393 (1968).
9. 520 F. 2d 676 (1975), Cert. Den., 96 S.Ct. 877 (1976).
10. *Hancock* v. *Train*, No. 74-220, July 7, 1976; *EPA* v. *State Water Resources Control Board*, No. 74-1435, July 7, 1976.
11. 397 U.S. (1970).

XI. Research Agenda: Future Directions and Needs

Introduction

The need for further research is among the most important results of the effort to identify and analyze current environmental issues and state responses. In all four issue areas, the state-of-the-art is such that further research is mandatory if the states are to effectively address the challenges posed by the myriad environmental and related problems. This conclusion has been reinforced by interviews with state officials. An oft-repeated constraint impeding state programs has been the lack of adequate information and guidance in designing and implementing action programs.

Beyond this basic information need is the increasing complexity of our understanding of environmental issues. It is no longer feasible to consider environmental problems in isolation. As an example, the enhancement or maintenance of environmental quality is inevitably related to economic development. There must be tradeoffs between these two goals if either is to be accomplished. These two concerns will not be easily reconciled. Consequently, state efforts at reconciliation can be enhanced greatly by further research.

Another recurrent theme in this environmental series has been the need for innovative governmental approaches to policymaking and program implementation. Indications are that a minimum of major additional environmental legislation will be enacted by Congress in the near future. Accordingly, states will bear the brunt of initiating any new programs or refining their existing partnership in federal programs. In either situation, state leaders must look beyond traditional institutions and programs. This implies greater coordination among agencies and levels of government, interagency and intergovernmental agreements, and innovative organizational structures. There are no easy answers to these needs.

This is not a comprehensive treatment of research needs, but it is illustrative and supportive of the need for further research. Scientific research agendas are provided for each of the environmental issues studied. A brief review of the actors involved and their interactions is discussed prior to the research agenda.

Actors Involved

Environmental quality must be the concern of all levels of government. Although their roles and concerns vary according to jurisdiction and level, each has an important position in environmental programs. Support of and involvement in research efforts are a part of the process for federal, state, and local

governments. Emphasis must be placed on the federal and state governments as they have sufficient jurisdiction and resources to augment the requisite amount and quality of environmental research.

The federal government should be at the center of this research effort. The federal government has done much to enhance environmental quality by enacting legislation such as the Clean Air Act, the Federal Water Pollution Control Act, and the Coastal Zone Management Act.

However, the concept of totally centralized federal control of environmental programs is being replaced with a renewed emphasis on the federal-state partnership. In keeping with this orientation, the federal government is perhaps the primary source of funding for research studies relating to environmental issues. Foundations and other private institutions may provide supplementary funds.

As federal programs increasingly rely upon state level implementation, the need for more adequate data, information, and innovative approaches will become more acute at the state level. Accordingly, state leaders should become initiators and users of environmental research. Interaction with the federal government, the academic community, and others is important for states in the successful design and implementation of environmental policies and programs.

Academia should not be overlooked as a vital source of expertise for state policymakers. This applies to all institutions of higher learning, but perhaps the already close relationship between states and their own university systems provides special opportunities for cooperation. As specialists in their fields of study, academicians must be further integrated into governmental research studies of environmental issues.

The various actors are cognizant of the need to increase cooperation in environmental research. Governments, private interests, or research groups cannot afford the luxury of isolating their research from the other parties involved. To do so would be counterproductive in view of the complex relationship of environmental issues with other issues such as economic development, growth management, energy, transportation, and urban decline. The impacts of these issues transcend political and jurisdictional boundaries. Only a coordinated and cooperative research effort can meet the challenges posed.

Research Agenda

This section is a suggested research agenda for the future regarding environmental issues. These research needs are identified to suggest efforts which would be of direct benefit to state government. No priority of needs within the four general issue areas is implied.

The research needs have emerged from this environmental issues series and specifically relate to energy conservation, environmental impact assessment, management of diffuse source pollution, and the impact of Indian rights and claims on state environmental policy. The agenda comes from staff analysis and suggestions by review panels in each issue area. Interviews with state officials have provided additional refinement to these research needs.

Research Agenda: State Energy Conservation Programs

1. Environmental, Social, and Economic Impacts of Energy Use Patterns and Selected Energy Conservation Policies:

Energy conservation activities are generally hampered by the absence of information on the type and degree of environmental, social, and economic consequences of various energy conservation measures. Energy conservation is essentially an environmental goal; thus, research is needed to assess possible links among air and water quality and land use programs to energy conservation programs. Research must also determine the impacts of conservation practices on various socioeconomic groups and the public's responsiveness to mandatory and voluntary programs.

2. Information Needs for Developing State Conservation Programs:

Current energy conservation programs are impeded by the lack of adequate data available to state officials. The construction of energy demand models and the development of energy conservation policies require significant amounts of data on such interactive items as available supply, energy use patterns, economic activity, and likely impacts of conservation activities.

3. Developing a State Government Planning and Decision Framework for Energy Conservation:

Energy conservation must be more fully integrated as a routine component of planning and decisionmaking in state government. Energy use must be made an important factor in the trade-offs of public decisionmaking in the areas of transportation, environmental programs, land use, public capital investments, economic development programs, and government procurement.

4. Effective Roles for State Government in Implementing Energy Conservation Goals:

The pervasiveness and complexity of energy use and the uncertainty surrounding energy conservation measures require careful consideration of the most effective state role in achieving energy conservation objectives. Research is needed to identify and develop the state roles most effective in affecting market forces which influence the level and patterns of energy consumption in the buildings, industrial, and transportation sectors. This role might include government action to alter constraints and inequities associated with an imperfect market, as well as efforts to facilitate and reinforce market forces favorable to energy conservation.

5. Education Programs to Encourage Public Cooperation with Energy Conservation Objectives:

In view of present state emphasis on voluntary measures and financial incen-

tive mechanisms, research must be directed toward effective educational programs in energy conservation to encourage public acceptance and involvement. The states are best suited for adapting and disseminating conservation techniques. Proposals for federal programs to encourage state extension programs in energy conservation reinforce the need for research in the design and implementation of state consumer education programs.

6. Land Use and Transportation Links to Energy Conservation:

Research is needed to explore the links between land use and transportation and energy use and conservation. More insight is needed as to steps a state can take to encourage more efficient land development patterns. States should focus attention on means available to reduce reliance on automobile transportation and to influence wider acceptance of mass transit as a more efficient travel mode. Barriers to governmental or citizen acceptance must also be identified so that the most viable strategies for energy conservation may be ascertained.

Research Agenda: Environmental Impact Assessment

1. Institutional and Organizational Questions in Environmental Assessment:

There are many pertinent institutional and organizational questions to be asked in assessing future environmental activities. For example, how do institutional and organizational arrangements affect decisionmaking? Do different arrangements affect the responsiveness to environmental concerns? What remedies exist?

There are also broad institutional questions regarding Section 103 of NEPA. Are agencies continually assessing potential conflicts between their mission and NEPA's policies as required under that section? The feasibility of a national information clearinghouse to promote better communication relative to environmental programs is a subject worth exploring.

A study of institutional arrangements for dealing with projects that fall under the jurisdiction of two or more states is warranted. A related area of research is determining ways to integrate state guidelines and procedures with federal (NEPA) requirements.

Two final research items that have not been adequately explored are: (1) finding ways to enable states to participate in the federal EIS process at an earlier stage and, (2) investigating institutional and organizational arrangements that achieve multiple environmental objectives at the state level.

2. Methodological Questions to Be Explored:

There are two important methodological questions that have not been thoroughly explored. The first is the development of guidelines for policy and programmatic impact statements, judicial review of the substantive content of EISs, and substantive input into the development of EISs. State leaders would then be more aware of environmental assessment criteria and would likely display greater

desire to fully integrate impact statement requirements into planning and decisionmaking. The role and content of the process would be more intelligible.

The second research direction is to examine measures for mitigating environmental impacts. The EIS process has been used primarily to prevent development rather than to resolve or mitigate impacts associated with the proposed action. There is the need for additional work on ways to allow development while maintaining environmental quality.

3. Integrating Planning and Decisionmaking and Environmental Impact Assessments:

Three major research priorities in the area of planning and decisionmaking have been identified:

(1) Explore alternatives to the EIS process for gaining environmental information;

(2) Determine ways of improving the responsiveness of EISs to decisionmaking needs, and

(3) Examine ways of holding agencies responsible for the findings of their impact assessments by monitoring projects after approval.

4. Optimal Resource Use:

Three avenues of research are recommended in striving toward optimal resource use. The first is to determine if state involvement with environmental concerns has overshadowed or created an imbalance between environmental issues and nonenvironmental issues. This is obviously a very sensitive question, but an important one for state governments.

The second research avenue is to examine ways to avoid unnecessary environmental assessments and statements. This could take several directions including: (1) determining or ranking actions that will always require assessments and statements, actions that may require assessments, and actions that will never require assessments; (2) exploring institutional and administrative means of gaining coordination and cooperation of governmental agencies in preparing statements; and (3) exploring the use of "mini" impact assessments that focus on one or two major issues or build on existing impact statements of a similar nature, thereby avoiding duplication.

The third research area reflects the importance of timing in the EIS process by focusing on the need to determine means of reviewing EISs at both the state and local levels simultaneously. The review process can also be cut by having a simultaneous review by all departments and agencies in each governmental level.

5. Data Needs for Environmental Impact Assessments:

Two primary areas of research are seen as important within the area of data requirements. The first entails comparing the data requirements of other state and local programs with environmental assessment activities to avoid duplication and to expand the information base available to all programs. Such an investiga-

tion should include the following: Section 208 water quality planning, land use planning, growth management, coastal zone management, and transportation planning, and others.

A second research need lies in exploring means of collecting, organizing and presenting data to reduce cost and improve its utility. Although such studies have been done previously, the need for improvement is apparent.

Research Agenda: Diffuse Source Pollution

1. Shortage of Data on Extent of DSP Problems:

The intermittent nature of diffuse source pollutants makes their measurement difficult and expensive. Consequently, there is little accurate data on the extent of DSP problems, particularly in relation to water nonpoint pollutants. Quantification is needed and is perhaps best achieved at the state, regional, and local levels rather than as a more cumbersome nationwide effort. There should be, of course, some mechanism at the federal level to compile the aggregate data. Efforts at managing diffuse source pollutants will continue to be impeded until greater emphasis is placed on providing adequate base-line data.

2. Questions as to the Effectiveness of Nonpoint Source Control Techniques:

One of the most perplexing dilemmas encountered in managing nonpoint source pollutants is the degree of uncertainty as to the effectiveness of control techniques. Many of the control techniques are hardly beyond the experimental stages, and others have been applied only in local instances. Meaningful cost-effectiveness analysis has not been applied on a widespread scale. Such analysis will likely be burdensome since it is possible only at a local, case-by-case basis.

Two kinds of information are mandatory to assess the various control techniques: (1) nonpoint pollution impacts and the cost of associated damage or harm, and (2) the effectiveness of each control technique in terms of pollution impacts reduced and the direct and indirect costs of implementation.

One current source of information on control techniques is the Environmental Protection Agency through its technical guidance documents on recommended control procedures. However, since these documents are intended to be nationwide in scope, they often are very general and have limited applicability to site-specific problems. This documentation should be made more sensitive to the extreme regional variation in the nature of the problems and the potential control methods.

3. Innovative Methods of Technical Assistance:

Repeated mention has been made of the need for greater technical assistance to states and local agencies as they plan and implement programs to deal with

diffuse source problems. Most state and local agencies do not possess sufficient resources and expertise to effectuate adequate DSP strategies.

A major research need lies in ascertaining methods of technical assistance that would be of greatest benefit. Tentative suggestions include intensive surveys to identify and define DSP problems at state and local levels, upgrading information and data provided by the federal government, developing and operating demonstration projects to illustrate alternatives in dealing with diffuse sources, and assisting private sector DSP contributors as they seek to meet environmental standards.

4. Inadequate Water Quality Criteria:

Current water quality criteria were designed primarily for point source pollution. An example of this inadequacy lies in the fact that sediment is not adequately addressed. Sediment is perhaps the most important of the nonpoint source pollutants. Limits established in the criteria are more oriented towards the steady-state characteristics of point sources rather than the diffuse and sporadic nature of nonpoint sources.

Closely related to the absence of adequate water quality criteria is the unclear distinction between point sources and nonpoint sources. Nonpoint sources have become a catch-all category for all of those means by which surface and ground waters become polluted, but which are not covered as permissible point sources under the NPDES permit system. There is a demonstrated need for further delineation between point and nonpoint sources as state and local governments enter critical phases in planning and implementing environmental programs.

5. Lack of Documentation of the Impacts of Diffuse Source Categories:

A major problem confronting state officials is the lack of documentation of the impacts of diffuse source pollutants in air and water quality. Most officials associated with environmental programs are cognizant of the need for DSP controls, but there is inadequate knowledge of the relationships between many kinds of diffuse sources and actual changes in air and water quality.

Diffuse sources are a significant factor in the deterioration of environmental quality. Efforts should be undertaken to obtain a more adequate capability to assess: (1) the nature and amount of diffuse source pollution resulting from specific activities and practices; (2) the relationship between such pollution loads and ambient air and water quality, and (3) the effectiveness of proposed control methods.

6. Institutional Challenges Posed by the Control of Diffuse Source Pollution:

Efforts to control diffuse source pollution have previously been given lower priority, compared to point source programs, resulting in adequate resources and a lack of management attention for DSP problems. This lack of attention and the Section 208 mandate under the Federal Water Pollution Control Act have caused friction and confusion at all levels of government.

Section 208 is exemplary of the need for new relationships between the federal, state, and local governments in order to achieve national air and water quality goals. Methods to implement the 208 planning process without undue hardships upon the states must be found. These methods may include adequate and timely financing; restructured relations between EPA, its regions, the states, areawide agencies, and local governments; and more allowance for state discretion and initiative in the control of nonpoint source pollutants.

7. Public Participation in the Control of Diffuse Source Pollution:

As a result of the often-mentioned implications of 208 and other DSP programs, increased public participation in the process is a necessity. Without public support and participation, no such program can succeed.

Accordingly, more insight is needed to determine the extent to which EPA, states and areawide agencies should go to augment interest among the citizenry. Published notices, information centers, mailing lists, and public hearings are accepted means of achieving public participation, but they have not always facilitated high levels of support or participation. All levels of government and members of the research community must display considerable creativity in upgrading such methods or designing new means of facilitating public participation.

Research Agenda: Indian Rights and Claims

1. Indian Organizations:

As States and Indian groups attempt more formalized relations, the problem of the great variety of Indian associations will be encountered. Indian groups and their domains range greatly in size; some are structured as governments, some are incorporated, some simply exist together as communities without legal form. The cultural, economic and social condition of Indian groups vary widely and thus their capacity for self-government varies. A typology of Indian organizations should be developed together with an analysis of problems created by different forms in intergovernmental relations. Proposals and recommendations for improving tribal organization structure should be included, with the provision of model structures for groups of different sizes and situations.

2. State-Indian Intergovernmental Relations Act:

Using the 1968 Intergovernmental Act as a point of departure, a study should be undertaken of actions and arrangements at the federal, state, local and tribal levels needed to stabilize and formalize intergovernmental relations involving Indian organizations. Such a study should consider the replacement of P.L. 280 with a new instrument that clearly delineates existing powers, and provides for the delegation of powers through federal-state-Indian agreement.

3. Tribal-State Compacts:

A study should be undertaken to assess the applicability of compacts modelled after the interstate compact instrument. The investigation should consider the potential of this approach for defining:

(a) Relations among a state and tribal governments within its boundaries;

(b) Relations among several states and a tribal government whose boundaries encompass parts of these states;

(c) Multifunctional relations among the parties, or

(d) single-purpose relations among the parties.

4. Indian Environmental Programs:

Various Indian tribes have laws, customs and traditions relating to the land, natural resources and the environment. These should be surveyed in a quest for common ground for cooperative state-Indian endeavors in environmental management. Special attention should be given to examples of successful environmental programs initiated by Indian groups, or in which Indians participated. Models for intergovernmental programs should be proposed.

5. Nonfederal Tribes:

A study should be conducted regarding the legal and policy issues surrounding eastern state nonfederal tribal claims.

6. Special Environmental Policy Problems:

Studies sensitive to state-tribal-federal relations should be done to examine the policy and administrative questions associated with:

(a) The implementation of significant deterioration programs conducted under the Clean Air Act of 1972, and

(b) The implementation of statewide planning and management responsibilities pursuant to Section 208 of the Federal Water Pollution Control Act of 1972.

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