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DEVELOPMENT OF A PARADIGM FOR DESIGNING PUBLIC COMMUNICATION PROGRAMS FOR COASTAL RESOURCE MANAGEMENT

DISSERTATION

Presented in Partial Fulfillment of the Requirements for the Degree Doctor of Philosophy in the Graduate School of The Ohio State University

By
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The Ohio State University
1977

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TO EDWARD JACOB MANTY

My dad.

Who grew up with the shores of granite bluffs and wild rice marshes of Lake Superior, its rugged hinterland in the Huron Mountains, and along the mighty Escanaba.

He grew to know the sand-swept dunes, wind-gnarled junipers, and crisp-clear blue waters of Lake Michigan's Grand Traverse. He loved them and respected them. And passed that love and respect on to many others. Including me.

Who found himself a Jeremiah. A prophet and defender of people. People who have a right and a responsibility to help decide the future and fate of the places they live in, love, and call home.

'The power to decide belongs to those who claim it. And all people deserve the right to try to stake their claim.' These were words he stood for.

It's meager. But I hope my work can help ensure that right and pass on the love.
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CHAPTER I
INTRODUCTION: PUBLIC COMMUNICATION IN COASTAL RESOURCE MANAGEMENT

Chapter Overview

This investigation is an examination of public communication programs in the process of managing coastal resources. In this chapter an introduction is offered which establishes the growing concern and emphasis being devoted to programs of public communication in coastal management. It also provides a historical perspective, tracing the contemporary concern for the public role in public policy decision making and information programs.

Five objectives are articulated which indicate the basic purposes of the study. A statement of the author's perspectives concerning several controversial aspects of public communication programs in coastal resource management are also explained. The background of the concern for public communication and coastal resource management is summarized in this chapter. A summary of germane literature and of a survey of public communication needs as perceived by staff members from state coastal management agencies is presented. The procedures which were used in conducting this study are outlined in this chapter as well as an overview of the report.

Introduction

For the last decade, planning and resource development programs have been growing components of the federal budget. Under this umbrella environmental protection, water resources, energy development, and planning programs of various sorts have grown to constitute major federal, state and private expenditures. New organizations have been created to plan, enhance, and monitor the quality of the environment and to foster efficiency in the
provision of this service and achieve a balanced economy as well. Public involvement and other forms of public communication have been an important corollary concern in these programs. The enabling legislation of many of these environmental programs often expressly requires various types of public involvement including access to information and the decision process, all parts of the public communication process. Nonetheless, many deficiencies in the control and management of the environment remain. And there is much dissatisfaction with the extent and effect of public communication efforts under these programs as reported by Ragan et al (1976) and Spencer (1976).

One possible alternative to deal with the problem of managing the environment is through a coordinated national land use and resource development policy. A major step towards such a policy came about through legislation which provided a prototype comprehensive natural resource management program for coastal areas. That legislation is the Federal Coastal Zone Management Act of 1972 (CZMA) (P.L.92-583).

In the past few years, a great variety of land and other resource use control proposals have been introduced in Congress. These have been diversely sponsored by environmental, business, labor, agriculture and consumer groups. These proposals, however, differ markedly in approach and detail. With a bewildering array of choices before them, few citizens can sort out the best options, nor can they understand how they would be affected by various resource management plans under consideration. Also, natural resource management agencies have difficulty in helping citizens understand these problems. These agencies also have difficulty learning what it is that citizens and communities think should be done to manage these resources (Ragan, 1976; Noll, 1971).
This study dealt with the problems of developing public communication programs to help manage coastal resources. It focused specifically on the aspects of public communication which are essential in developing coastal programs, for public communication is a core issue of compliance with requirements of Section 303(d) of the CZMA (P.L. 92-583). This concern for public communication is also central to the objective of assuring and promoting equity in access and awareness of coastal resource management (CRM) programs among citizens.

While public communication is an important factor in developing CRM programs, it must be balanced with other concerns and program objectives. As established in the CZMA, programs for managing coastal resources must balance economic and environmental concerns, and there must be cost-effective administration of the management programs. The overall public communication paradigm developed in this study attempted to take these multiple objectives into account. While focusing on equity and awareness, a structure or framework through which these four objectives can be met was devised.

Objectives

There are several objectives of this study of public communication in coastal resource management. The first objective was to prepare a summary of the major legislative requirements which apply to coastal management programs. These requirements are rooted in both the Coastal Zone Management Act and several other major federal environmental management programs and administrative procedures acts.

The second objective was to analyze and synthesize problems which have been identified from the theoretical and empirical literature and experience as limiting the effectiveness of public communication in coastal management.
The third objective was to compose a paradigm, or set of component procedures, through which public communication programs can be developed for coastal resource management. In addition to satisfying the statutory and regulatory requirements, the proposed public communication paradigm should mitigate the set of problems identified as part of the second objective. Further, this paradigm must also operate within the framework of the four program goals of the CZMA including equity, compliance, efficiency and an economic and environmental balance.

The fourth objective was to offer an example of an application of the public communication paradigm so that its operational characteristics may be demonstrated.

**Perspective**

Public communication is a controversial and problematic issue. It is recognized that there are differences in opinion over just who is included in the public policy decision process and how "the public" should be communicated to and with concerning development of coastal management programs. There is often little agreement concerning how the public interest should be defined, protected, and promoted (Campbell, 1976; Delbecq, 1975). It is the position of this author that following at least the letter of the law and regulations which establish a CRM program, the public must be provided reasonable opportunities to learn about and participate in the program. This author feels that a good faith effort to identify audiences, inform them of the nature and implications of alternative coastal resource management options, and make them aware of the decision process and procedures for developing programs of coastal management are essential to comply with the law.
The author recognizes that there are many people who will not be interested in taking part in or communicating about coastal management programs. But it is the responsibility of the designated management agency to make a good faith effort to use existing knowledge, research information and staff resources to develop a far reaching public communication program. If after making such a good faith effort some people choose not to be involved, the agency can consider itself to be absolved of its responsibilities. But to adhere to the assumptions of a participatory democracy, as outlined by Thomas Jefferson (Westerbaker, 1952), it should be assumed that all segments of the public audience are interested in CRM. Full and complete information should be available, there should be free access to the decision process, and no people should be inevitably surprised by anything that a CRM agency does (VanMeter, 1976). For if they are, the agency has not lived up to its responsibilities to communicate with the coastal public.

One of the major concerns of this study was to identify the factors which have interfered with people participating in agency decision making programs. Although there are a large number of legal and administrative requirements for public communication programs, many assessments and evaluations report that many such requirements have not been very successful (Scott, 1975; Schattschneider, 1952; Swainson, 1976; and Spencer, 1976). It is hoped that the paradigm or procedural model for developing public communication programs proposed in this study can help deal with those interfering factors. To do so, the paradigm must be as realistic as possible. Therefore, it is important that as part of the study, any constraint which has interfered with the development of past or on-going public communication and involvement programs be identified.
Another basic assumption which underlies this study is that people are rational, whether in agencies or private interest groups. That is, they have a set of values and priorities from which they operate. From these bases, they focus attention on the various aspects of their lives which are currently important to them. But it is important to recognize that there is not an ideal "rational" state that is operationally shared by all people. People's conception of what is important to them can best be seen as distinct from an ideal rational state insofar as it is limited by or bounded by the personal activities and events which have shaped their lives (Delbecq, 1975; Filley, 1975).

It is proposed that this bounded-rational or lexicographic phenomenon is one of the more significant factors operating to frustrate the successful involvement of people to learn about and to help guide and direct programs of coastal resources management.

The audiences for the outcome of this study hope to include agencies responsible for delivering and complying with requirements for public communication programs. It is also intended to be useful to citizens, special interest groups concerned with the process of public communication, and people researching public communication. It is a basic hope of this investigation that the study may contribute a definition and an operational paradigm for developing public communication programs. These provide an essential base. From this base, other research information can be organized to shed light and further help map the complex area of effective public communication and resource management.
In 1835, Alexis de Tocqueville said, "... if you do not succeed in connecting the notion of right with that of personal interest, which is the only immutable point in the human heart, what means will you have of governing the world except by fear?"

In implementing this point, the writers of the Federalist Papers and framers of the Constitution attempted to put these two notions together. The "social engine" which they created was built largely on the concepts of private property and individual freedom, within a framework of laws to keep the channels of commerce open.

This system reflected the convictions which formed the base of government. Private ownership, freedom of individual choice, and the profit motive then operate to direct resources to uses where they are most productive, given individual preferences for various goods and services and the income of the population. This conviction plus the fear of losing personal freedom underlies the national assumption that the role of collective action through government should be minimized. This assumption has been offered by Warner (1972) to explain traditional antipathy toward planning and implementing programs of resource management. These basic assumptions underlying the American concept of government also provide a basis for appreciating the problems of implementing land and water use control programs in the nation's coastal areas. These assumptions also have an important effect on the role people play, or do not play, in managing these areas.

To examine the phenomenon of public communication, participatory democratic theory has several assumptions which are important to review if we are to understand its valid implications to public communication (Westerbaker, 1952).
Participatory democracy assumes the educability of the citizen public, the predominance of reason, availability of full information, and free access to decision making. The end product of this is understanding, consensus, harmony, and sound decisions, at least according to the ideology of Thomas Jefferson.

Jefferson's critic-friend James Madison was one of the first to recognize the problems of realizing this theoretical concept. Problems associated with the "principal task of modern legislation" to respond equally to various groups have been encountered many times since Madison first articulated them in his Federalist Papers. This problem in the opinion of this author is central in implementing public communication programs which provide for citizen involvement in decision making and is the basic concern of this study.

Studies of Public Communication

There have been several recent studies of public communication which have relevance to coastal zone management. However, many of these are not focused explicitly on the substantial issues of public communication per se. Many are concerned with program evaluation or review of substantive programs. Others deal only partially with what this study defines to be public communication, while focusing on addressing other policy or communication related issues and problems.

One of the most important contemporary studies of public communication in environmental resource management is a study of public involvement effectiveness in implementing the Federal Water Pollution Control Act (P.L.92-500). It was conducted for the National Commission on Water Quality by Ragan and Associates (1976).
It reported widespread "anger and frustration" with opportunities for public involvement in implementing P.L.92-500. This was reported by citizens, public officials, and technical agency staff alike. This finding has been corroborated by other opinion surveys and empirical studies in addition to that of the National Commission on Water Quality (Hyneman et al, 1968; Verba et al, 1972; Drake et al, 1974; Spencer, 1976). An investigation of public participation programs in water resource projects of the Corps of Engineers has been completed by a study team from the Brookings Institution and Pomona (California) College (Mazmanian, 1974). As a case study examination, Mazmanian examined five communities, including the Cleveland-Akron waste water management study area. The results of this study have served to help validate a model of environmental management that he has proposed. This model contributes an important base for the management of coastal resources that is developed in this study.

Glasser and Hart of the Ohio EPA, Division of Planning, have drafted "Guidelines for Citizen Participation and the Ohio EPA" (1974). These guidelines provide a variety of suggested information needs for effective public participation programs in water and related land resources planning including the need for an overall framework such as is proposed in this study. Building from this base, Glasser, Nehman, and Manty (1975) have assembled a state of the art summary of public involvement in water resources education in the United States for The Institute for Water Research/UNESCO.

In the area of environmental education, Swan and Stapp (1974) have assembled a volume which suggests a variety of approaches, based on practice as well as theory, to reach adults with environmental information. These
approaches provide important insight into structuring effective public
education and information programs which comprise an important element of
the proposed paradigm.

Lee and Kahle (1976) from the Communications Program at the University
of Missouri, have applied a Q-study of public attitudes towards water resources.
This specific methodology represents one of a considerable number of studies
which deal with various aspects of the public communication process, but
which have not been put into a form usable in developing or improving public
involvement programs.

In the area of political participation, Olsen (1970) has proposed a
"Model of Political Participation Stratification". This model is derived
from survey data gathered for the Indianapolis Area Project by the Indiana
Institute of Social Research (Sudman, 1965). Helping to make use of
important research findings such as Olsen's in on-going resource management
programs is one of the prime concerns of this proposed study. In fact, Olsen's
research plays an important role in the development of the communication and
management paradigm proposed here.

One of the early research programs concerning resource management
after the major legislative changes of 1972 was the development of a manage-
ment program manual for a new water resource planning agency. This manual
included a complete operating plan for the newly-created Maryland Environmental
Service by Battelle-Columbus Laboratory (Manty et al, 1972). Falling short
of offering a general paradigm, this report included considerations of public
participation in the design of the management plan of the state agency. The
model proposed in this study hopes to provide this general paradigm.
Rogers and Shoemaker (1972), in *Communication of Innovations* (Chapters 4 and 9), articulate as critical research needs the definition of specific criteria by which public communication and participation programs can be structured and evaluated. In part, development of such criteria is an important objective of this study. For without some basis or criteria by which to measure program success or effectiveness, little can be learned about how to improve public communication programs, or the relative effectiveness of alternative program components.

The research stemming from the concepts of the diffusion of innovation considers important aspects of understanding communication. Stemming from a paradigm borrowed from epidemiology, Rogers and Shoemaker have developed a theoretical model. Based on the analogue of how a disease spreads through a community, the paradigm attempts to explain how innovation spreads through a community. This work serves as an important benchmark for this study.

**Survey of Coastal Zone Management Agencies**

As background for this study, a survey of public communication concerns was administered to all states and territories participating in the Federal CRM program (Stang *et al*, 1975). It was administered jointly by this author and with the Federal Office of Coastal Zone Management. Along with a follow-up workshop, its findings have been published by the federal OCZM. Among its findings, it identified high interest among CRM staff in learning more about the following public participation and education issues.

- Criteria for determining effectiveness.
- Utility of various techniques and methods for meaningful involvement of all groups (e.g. minorities, low income groups, and special interest groups).
Experiences of other state CRM programs regarding degrees of public apathy in program development.

Activities or tools that have worked well, especially feedback mechanisms.

These concerns for aspects of public communication have been reinforced and supported by other surveys and workshops dealing with problems of coastal zone management and public communication. There are three workshops among these which provided specific information concerning problems of public communication and CRM. They were sponsored by the International Joint Commission (Bonner et al., 1975), the Great Lakes Basin Commission (Kotas et al., 1976), and the League of Women Voters along with the Federal Office of Coastal Zone Management (Spencer et al., 1976).

These three workshops identified several key concerns concerning public communication.

- There must be a common language to define components of the public communication process.
- There must be a careful choice of words in describing aspects of the public communication process.
- There must be a clear identification of how citizen input will be used along with other information in the public decision making process.

An attempt has been made to deal with these concerns as part of this study.

Procedure

This study evolved through the following steps and procedures. To help focus this investigation and analysis of public communication, one of the first steps taken was to define the nature of the problem of public
communication in coastal resource management. This was accomplished by reviewing the literature related to coastal resource management, public information, public participation, the public interest and public policy. From this review, knowledgable people who had either participated in or researched public communication programs were identified, and interviews were conducted with many of them. The following organizations were included: U.S. Department of Interior; U.S. Department of Commerce (NOAA-SeaGrant, NOAA-CZM); the Presidents Council for Environmental Quality; The U.S. Water Resources Council; Senate Judiciary Sub-Committee on the Public Interest; U.S. House of Representatives Public Works Committee; the National Commission on Water Quality; the International Joint Commission; and the Great Lakes Basin Commission; the National Wildlife Federation; The Conservation Foundation; the Sierra Club; the National Parks and Conservation Association; Defenders of Wildlife, Common Cause; the League of Women Voters; and staff from the states of Maryland, California, Washington, Ohio, Michigan, Wisconsin, and Illinois.


These included researchers from private research firms, university faculty, environmental and consumer advocate organizations, Congressional and federal agency staffs, and state and regional agency staffs.

Following this, a listing of public communication problems was compiled. This list was then submitted to staff members from all states and territories participating in CRM programs. (See Stang et al., 1976). The preliminary findings of this problem identification phase were presented to CRM interests at a series of workshops dealing with the subject of public information, public participation and public communication in CRM. (See Bibliography, Manty, 1976a; Manty, 1976b; and Manty, 1976c).

After the reaction to these problems were compiled, the resulting problem lists were arranged into several clusters of related concerns. From an analysis of these clusters, three major problem sets emerged. These included problems relating to program implementation, problems relating
or endemic to the regulation and management process, and problems relating to decision making processes or behaviors among people and communities.

An investigation was conducted to describe the major legislative requirements affecting CRM. These requirements were determined through an identification of legislation and associated regulations and guidelines issued by responsible agencies. On the basis of the legal requirements and identified problems an overall paradigm was presented to deal with public communication programs for CRM.

A compilation of frequently used as well as innovative, rarely used techniques of public information and public participation, based on an earlier work of the author and Nehman (1973), were combined into clusters of similar capabilities. A set of procedures based on an environmental problem solving model developed by Stapp (1970) and Glasser (1974) was generated for selecting appropriate techniques to accomplish specific objectives or solve environmental communication problems.

This set of three guides along with the requirements for public information and public participation mandated in statutes and regulations form the basis of this paradigm. Within this frame, procedures to assure as accurate a public policy implementation process as possible, and the systematic selection of public information and participation techniques appropriate for specific communication objectives are combined to form an overall public communication paradigm. To provide further guidance, an example was offered for agency staff responsible for public communication programs. It demonstrated use of the environmental problem solving approach for developing a public information and participation program for one of the suggested implementation procedures.
Overview of the Report

This study was concerned with the process or phenomenon of public communication. It specifically focused on those aspects of public communication which are involved with developing a coastal resource management program as established under the Coastal Zone Management Act of 1972 (P.L.92-583) and related legislative programs.

Chapter I of the study begins with the background of past concerns and studies of public communication in coastal resources management. It defines the purposes, perspective, objectives and intended audience, and a rationale is offered for the study.

The second chapter presents the legislative and regulatory requirements for public communication and coastal resources management. It also characterizes management and regulatory technique capabilities. These requirements stem primarily from the CZMA and its regulations and procedures. Other legislation and policies which affect the implementation and development of CRM programs are also considered. Attempts by states and other programs to deal with similar requirements are also presented.

The third chapter examines problems of public communication. These problems are clustered around three distinct factors identified in the research literature.

The fourth chapter offers a paradigm for developing a supportive and appropriate public communication program for coastal resource management. It includes three separate components: one-way communication; two-way communication; and implementation. It also offers a distinct synergizing process, lexicography or bounded-rationality, as a device to better understand how public communication happens.
The fifth chapter offers an example application of the public communication paradigm to a coastal community communication program.

The sixth chapter offers a summary and conclusions.
CHAPTER II

STATUTORY AND REGULATORY REQUIREMENTS: IMPLICATIONS FOR PUBLIC COMMUNICATION AND COASTAL RESOURCE MANAGEMENT PROGRAMS

Chapter Overview

The legal bases which establish and regulate public communication in coastal resource management efforts serve as an essential element in developing a public communication program. These various bases provide the frame within which any public communication program must operate.

Specific requirements come from two separate sources. The first are those requirements associated with the Act which established the Federal Coastal Zone Management program, P.L. 92-583. The regulations and unique "Threshold Papers" issued by the Office of Coastal Zone Management under authority of the Act provide the basic frame for public communication programs. (See Appendices D and E.)

A second source of requirements affecting the nature and extent of public communication in CRM programs is based on other related legislation. Specific programs include the National Environmental Policy Act, or NEPA, (P.L. 92-190), the Federal Water Pollution Control Act, or FWPCA, (P.L. 92-500), and the Clean Air Act (P.L. 91-604).

Specific regulatory options which affect the distribution of responsibility for developing a CRM program are also considered as they affect the nature of public communication-implementation programs.

A comparative analysis is also offered of the two major types of regulation, incentives and directives, as they impact the public communication process. Examples of innovative regulatory programs affecting public communication in managing natural resources are also presented.
Section 303(d) of P.L. 92-583 is the major source of authority to regulate public communication. The Act declared that it is national policy "to encourage the participation of the public, of Federal, state, and local governments, and of regional agencies in development of coastal zone management programs".

This policy is further developed in Section 306(c)(1) which requires that an approvable management program must have been developed "with the opportunity of full participation by relevant Federal agencies, state agencies, local governments, regional organizations, port authorities, and other interested parties, public and private . . .".

The federal Act requires, as a minimum, at least two public hearings. Section 306(c)(3) requires that the state have "held public hearings in the development of the management program," early in the development of an authorized CRM program. Sometime during the remainder of the management program phase, a second hearing must be held. Section 308 further specifies that such public hearings "be announced at least thirty days prior to the hearing date" and that all pertinent documents, studies, and data be available during the entire 30-day period.

P.L. 92-583 is unique in that it does not require a state CRM agency to be the major resource management force. But if a state chooses to have a CRM program, it is required to ensure that however the responsibility to implement the CRM Plan is distributed among various agencies, the state CRM agency must have the necessary authority to assure compliance of the coordinating agencies with the CRM Plan. Thus it is possible that in addition to the requirements imposed by P.L. 92-583, the requirements
of a great variety of additional state, federal, and local programs may be superimposed. Nonetheless, while the emphasis and direction of public communication programs are left to state and local discretion, federal regulations issued by the Office of Coastal Zone Management pursuant to P.L. 92-583 and found in 15CFR923.41, 15CFR923.31, 32, and 30, and 15CFR920.30, 32 along with the "Threshold Papers" issued by OCZM specify or suggest that a series of requirements must be met in order to carry out Section 303(d) and 306(c). Along with constraints and requirements contained within FWPCA and other legislative programs presented in the next section, the public communication requirements affecting CRM programs are summarized later in this chapter.

Other Major Federal Legislation Affecting Programs of CRM

There are several important federal programs with which CRM programs must comply. Several have been judged by the President's Council for Environmental Quality (CEQ) to be significant in their apparent relationship to programs to plan for and manage coastal areas. Some include specific provisions affecting public communication. These include:

NEPA, the National Environmental Policy Act (P.L. 91-190),
The Clean Air Act (P.L. 91-604),
Federal Water Pollution Control Act (P.L. 92-500)

The following section presents a summary of the implications of these programs for public communication in CRM.

NEPA (The National Environmental Policy Act) P.L. 91-190

The National Environmental Policy Act, or NEPA, is the federal law which requires that an environmental impact statement (EIS) be prepared
for any activity of the federal government which significantly affects the quality of the human environment. There are four major areas where NEPA appears to impact CRM. However, because the CRM program has not yet fully developed, some of the specific relationships have not yet been legally determined by precedent or judicial review. First, there is a requirement for an environmental impact statement on the management program approval (S.306).  

Second, NEPA applies to outer continental shelf (OCS) developments, although this issue is currently under litigation and has not yet been resolved at the federal level. But the Department of the Interior, which is responsible for administering the leasing of the OCS lands and resources, is at a minimum required to complete an EIS for major regional leases.  

Third, NEPA applies to new industrial locations, because they require a "new source" wastewater discharge permit under P.L. 92-500, or they may also require a dredge and fill permit from the U.S. Army Corps of Engineers resulting in the Corps preparing an environmental impact statement.

However, it has not been determined by the Environmental Protection Agency (EPA) who has responsibility to complete the Environmental Impact Statement for the new source permits. Therefore, the Corps is likely to be the prime Federal agency involved in those states where the EPA program has not been delegated. In those states where EPA has not delegated or does not anticipate delegating the new source permit program, EPA still retains responsibility. These Environmental Impact Statement reviews are important for they require integration or consistency of new industrial locations with coastal zone management programs which have been developed. Each review process
affords extensive opportunities for public input and review. These include not only the hearings and public notices of the EIS process as established in S106(e) of P.L. 91-190 but the possibilities of class action injunctions, or "citizen suits" described by Anderson (1975) and DiMento et al (1976).

Fourth, there is an important role of NEPA's Environmental Impact Statement process in public works programs and environmental impact statements prepared for them. These include developments such as highways, sewers and dams. Under the federal consistency provision of §306 of P.L. 92-583, it is mandatory that federal public works programs and projects are consistent with developed coastal zone management plans. If people feel that such compliance is not occurring, then citizens can initiate litigation to secure such compliance under the authority of Section 307 of P.L.92-583.

Clean Air Act P.L.91-604

Section 307 of the P.L.92-583 also requires that activities under the authority of the Clean Air Act should be incorporated into the state coastal management program. The objective of the Clean Air Act, which relies on ambient air quality standards, is to provide for and improve overall air quality. This is done by eliminating or reducing pollution from existing sources, by controlling new stationary sources, and by controlling mobile sources such as automobiles.

Once an air quality plan is developed for stationary, mobile, or indirect sources, these plans must be included in the CRM plan. With this inclusion is the related provisions of P.L.91-604 affecting public communi-
cation. This includes the open public access requirements of the air quality maintenance planning program and its continuing planning process.

The Federal Water Pollution Control Act Amendments (P.L.92-500)

Section 307 of CZMA has an important relationship to water pollution requirements. In contrast to the Clean Air Act, the Water Pollution Control Act P.L.92-500 does not deal with the overall pollution levels in streams. It is oriented toward sources. These include "point sources", such as individual discharges for plants, and "non-point sources", which include such things as runoff and sedimentation that might occur as a result of lack of controls on highway construction.

There are several major planning programs under P.L.92-500. Facilities planning under Section 201 is essentially the requirement to plan the treatment plants and sewers to go along with individual facilities. It does not consider more general issues of where and how growth and development should occur, and therefore is not of great consequence to CRM programs. But under Section 101(e), public involvement provisions of P.L.92-500 are superimposed on CZMA.

In contrast Section 208, or areawide wastewater treatment planning, is a very broad planning program. It is well funded and operates in areas where governors designate the areas to be served by the plan. Until the 208 plans are approved, the 208 planning agency has no approval authority over any of the public works such as the location or size of wastewater treatment facilities or regional interceptor facilities that they were designed to coordinate. This means in effect that the planning agencies have no effective control over the facilities being constructed
until the plan is complete. However, when the plans are completed, in 1977-78, they will offer a very strong mechanism to control growth and development. This control is based on permitting only as much development as will be possible without jeopardizing area water body capabilities to meet water quality standards.

Because of the great similarities in the content of these areawide wastewater treatment and CRM plans, and legal requirements for each to consider the other, there is likely to be much overlap and sharing among them. The implications for possible changes in public communication regulations resulting from this sharing, however, are not great, for EPA and OCZM share very similar requirements for public information and involvement (Fitting, 1974).

The public communication requirements established for P.L.92-500 are the most comprehensive and elaborate of any related legislative programs, and, through the Section 208 planning programs, offer the most important national effort affecting development of CRM plans. Therefore, the requirements for public communication programs in P.L.92-500 have been considered along with those of the P.L.92-583, and are offered in the "Summary of Public Communication Requirements for CRM" in the next section.

Summary of Public Communication Requirements for CRM

Following is a summary of the major public communication requirements affecting CRM programs. The summary reflects primarily the requirements of the Coastal Zone Management Act, but it is also compatible with the public communication requirements of the other three legislative programs which affect development of CRM programs. (The language of the summary
is the author's, but it is taken from guidelines and regulations issued by federal OCZM and EPA.)

Informational materials and access to them. Technical and procedural information must be continuously available to citizens at the earliest opportunity. This requirement includes summarizing or interpreting complex data and making it understandable. The requirement may be met by mailing newsletters and brochures; by briefings, exhibits, meetings; and by setting up depositories. Several depositories should be established throughout the coastal area, conveniently located, open during evenings and weekends, and should have low cost photocopying facilities. The depositories should contain draft as well as final documents and reports of citizen comments and participation. Assistance in locating documents in the depository should be provided. These regulatory guidelines suggest that citizens can make productive and informed input into the decision process only if they are given enough time to study background reports and other relevant data. Therefore, drafts of reports and studies and other important information should be available to citizens as easily as they are to technical staff and elected officials.

"Encouraging" the public to participate. Assistance to public groups for citizen education and training should be promptly provided. The public should be assisted in finding ways to participate effectively. This requires allocating the time of technical staff to meet special needs as well as assigning staff to be responsible for the public communication program. To fulfill this requirement adequately, agency staff must be willing and flexible enough to interrupt their scheduled work and meet public needs promptly.
Public hearings. These regulations caution that hearings should not be relied upon as the major technique for citizen participation and communication. However, public hearings must be provided to give the public a formal opportunity to be heard prior to decision-making. Testimony at the hearing should be evaluated and weighed, along with previous citizen input, before moving to the next planning, decision, or implementation step.

Legally, there must be at least two public hearings. One hearing must consider the total CRM program. A minimum of 30 days public notice of hearing dates and locations must be provided. Locations and times should take into consideration travel hardship, availability of public transportation, and should facilitate attendance of a cross section of interested or affected publics. Notice of the hearings should include the agenda, rules about statements, and give procedures for obtaining information, reports or documents to be discussed at the hearing.

Specifically, at the time of the announcement all agency materials which relate to the hearings including documents, studies, the agenda, and other data must be made available to the public for review and study in the locale where the hearings are to be conducted. Hearings should be held in those geographic areas which would be most affected by the issues under consideration at the hearing. Hearings on the total management program should be held in places within the state where all citizens of the state may have an opportunity to comment. Further, given the significant seasonal fluctuation of the population in many coastal areas, efforts should be made to ensure that hearings are held when those populations most likely to be affected will be present.
Consultation and notification. The regulations and guidelines warn that early exchange of views with affected or interested citizens before decisions are made is critical. Advisory committees, briefings, workshops and issue committees are suggested as examples of the techniques which can accomplish this consultation. The goal is to establish a dialogue using input from citizens throughout the process. Citizens should not be relegated to reacting only to a final plan. They should be integral parts of the decision process which help create the management plan and program.

An updated list of interested or affected persons and organizations should be kept including federal, state, and local governments. And further, the responsible state agency must provide evidence that all "relevant bodies" have been given opportunities for "full participation".

It is left to individual states to determine the method and form of such evidence for "full participation". However, the regulations suggest that a listing of all organizations and their specific interests as well as all efforts made to involve them in the decision process might be appropriate evidence.

Newsletters or bulletins should be mailed regularly to them and the public must receive early notification of key developments in the planning, management, and decision process. Public notice of meetings is likely to reach non-participating citizens only if it appears in a well read section of the newspaper, is inserted in the tax bill or water bill, advertised on public transit, or through radio and television spot announcements.

Enforcement. There must be procedures to ensure that information and evidence from citizens gets proper consideration. This requirement can
be met by keeping records of specific citizen input and the agency response to it. When citizens raise significant points, the agency should describe actions taken to investigate those points. An updated summary of citizen input and agency response should be regularly published and is one way of reinforcing the value and usefulness of open public communication and participation.

It is also suggested that the public should also be encouraged to report violations of wetland protection, dredging, and other water pollution laws. Such public reports should be investigated quickly by the agency. Newsletters or exhibits can educate the public to recognize violation as such and tell how to report them.

**Legal proceedings.** The agency should provide full and open information about legal proceedings so that citizens should understand litigation and its capabilities. Presenting information about current and possible legal action through newsletters, briefings, exhibits or public meetings can help create an understanding of this important process. Meetings and files should also be kept open to all interested groups and individuals. This may best be accomplished by the designated state agency serving as an ombudsman to help citizens understand the role various participative agencies play in carrying out aspects of CRM, and to help citizen efforts to seek agency compliance with the management plan.

**Advisory committees.** Although advisory committees *per se* are not required under the regulatory program, they are indicated as potentially valuable mechanisms under Section 920.32 "Additional Means of Participation". Membership in such organizations may include representatives of appropriate
state agencies and the general public. An effort should be made to include representatives of agencies responsible for other environmental programs being conducted in the coastal area. As well as other major private and public interest groups.

A policy advisory committee's function should be to guide agency staffs throughout the planning and implementation program and to provide a continuing structure for citizen input. A local CRM agency may also create citizen and technical advisory committees in order to focus on specific substantive issues. Close coordination among the committees and with the agency is essential. Agency staff should ideally serve on each committee to assure a two-way flow of information and a good mix of technical and citizen perspectives. All committees should be kept to a workable size. Such a policy advisory committee might serve as a steering committee to coordinate efforts of all subcommittees. State agencies can also establish a policy or technical advisory committee to advise regularly agency staffs during development and implementation of the plan. This committee should consider broad policy matters, including the plan's potential fiscal, economic, and social impacts.

Policy advisory committees should include a majority representation of locally elected officials. Membership should also include representatives of appropriate state agencies, interested organizations, and federal agencies, especially federal land managing agencies where federal lands constitute a significant part of the coastal area. The use of existing advisory committees is highly recommended.
Regulatory Effectiveness in Public Communication Programs

One part of the set of problems of public communication which is endemic to the management or regulatory process is the basic "social machine" which makes the process work. There are many motivations for people and institutions, but two of these which have important implications for public communication programs are incentives and directives.

There are advantages and disadvantages for the implementation component of public communication programs based on a system of incentives and directives. The determination of which is superior depends on the nature of the area that is to be managed and the existing regulatory or management environment. But as will be explained in Chapters III and IV the implementation component is concerned with the "political-administrative communication" or translation of public policy decisions into real programs. This process is significantly affected by the choice of directive or incentive mechanisms.

Incentive Mechanisms

Incentives, or systems which offer positive rewards to encourage certain actions, have the advantage of promoting actions, such as the attainment of a public interest goal that would not otherwise be likely to occur while maintaining choice options to individuals. With positive incentives such as tax credits or subsidies, there is a possibility of greater administrative efficiency, for less enforcement may be necessary. Another further advantage of incentive programs is that they can be decentralized, take advantage of existing staffs, and can be more accessible to people. Incentive programs tend to be politically feasible for their
true costs are not apparent. Many such incentives involve uncollected revenue. They are also relatively stable, both because of the difficulty in changing legislation which established the incentive program, and because of the resistance of status quo beneficiaries.

Incentives have the disadvantages of depending on information about the preferences of regulatees, and they must offer a competitive advantage to redirect those preferences. Because these preferences are variable and change frequently, information must be current and the incentives adjusted accordingly if they are to effective or efficient. Unfortunately, the information cost to keep apprised of current market conditions is very high. In fact, even under the best of circumstances it is difficult to tell whether an incentive is effective (McKie, 1974) for there is always the possibility that the behavior that the incentive encourages would happen anyway. Further if the incentive program is successful, it may encourage excessive production of the desired "good" behavior so that it becomes a "bad" or dysfunctional behavior through saturation. Incentives are also rather inflexible and require considerable time for modification. This lag effect makes them a poor choice for resolving crises. Although it has some positive aspects, decentralization of incentive programs may result in distinctly different programs in various regions, resulting in inequitable programs.

**Directive Mechanisms**

The advantage of directives, such as legislation, executive orders and regulations, is that they are more certain, quickly responsive (and therefore better in crises), require less initial information costs, are easier to implement, and have the potential to better coordinate comprehensive
planning among fragmented planning entities. Directives are also easier to implement, for they are less ambiguous than incentive forms of regulation or management.

Directives have the disadvantages of not allowing choices, are costly to enforce, and can result in quick undesirable reaction offering little "adjustment" time for the regulated area to accommodate the new strategy of the public communication implementation program which utilizes them.

Because of the complexities of actual management and regulatory programs, few programs can be classified as completely directive or incentive. They usually contain elements of both. Nonetheless, the concept of motivation through positive incentives or through the threat of negative directives or sanctions can be helpful as a conceptual scheme for viewing management programs, and to consider their effect on public communication programs.

Examples of Public Communication in Resource Management Programs

In addition to the general comparison of directives and incentives, additional information can be gained about public communication programs by considering specific examples of various resource management programs. These examples serve to illustrate possible components of coastal resource management and their implications for public communication programs.

Experience with Environmental Management

Following are several examples of public communication programs which include issues and concerns of environmental quality.

Water quality. One of the most radically changed programs of resource management, public communication and regulation is the area of water quality. Until 1972 the mechanisms for managing water quality were primarily
directives or standards of water quality which had to be met by dischargers. However, in 1972, the Federal Water Pollution Control Act Amendments instituted an incentive program for municipalities and industries to improve water quality.

Through a program of major construction grants, local municipalities receive money to build wastewater treatment facilities. In order to receive these rewards or grants, however, municipalities must comply with other provisions of the Act for which they have little enthusiasm (Ragan et al., 1976). Included are requirements for public involvement and area wide water quality management plans.

**The Referendum: California's Proposition 20.** The California Coastal Commission oversees the implementation of a coastal resource management program in California. This Commission was established by an unusual regulatory mechanism: the popular referendum of Proposition 20. The popular referendum in California is primarily a directive variation in which citizens take the lead in enacting a piece of legislation through a direct popular election. In establishing the California CRM program, Proposition 20 included a "sunset" provision which requires that not only the coastal commission but the entire California coastal zone management program be completely reviewed after an initial three-year trial. The California program was scheduled to end on December 31, 1976. It is interesting to note that its continuation was an almost foregone conclusion based on what is known about regulatory behavior (Downs, 1967). The Commission has continued to survive so far, and was granted a permanent status by the California state assembly in May of 1977.
The major feature of California's referendum was that it provides a management mechanism to coordinate the planning and development of the state coastal areas. It intended to provide localities with the technical support necessary to develop and implement their own management schemes. In this respect, the California program is similar to the federal coastal zone management program. Because of these similarities it can also serve as an experimental laboratory to consider what may happen under the federal program. Like the federal program, the California CRM program will ultimately depend on local support if it is to survive and be effective.

Experience with Equity

One of the major goals of coastal zone management is equity, or equality of access to the decision process. As James McKie (1974) explains, this concept of "equity presents some notoriously difficult problems . . . ."

There have been attempts to deal with this issue. Some of them are considered in the following section.

NEPA (National Environmental Policy Act). One of the important bases for equity in environmental decisions is through NEPA, the National Environmental Policy Act (P.L. 91-190). This Act provides citizens with legal standing in seeking compliance with its provisions "for any federal action which significantly affects the quality of the human environment".

Much of NEPA's impact has evolved through judicial interpretation rather than legislative explication. Anderson (1973) presents a discussion of criticisms of the judicial role as inappropriate activity for the judicial branch and counter arguments which allege that such a judicial role results from Congressional default in resolving NEPA's controversial sections. Although NEPA does provide a potential entre for citizens to
environmental decisions, it is a potential which is not often realized. (See Sixth Annual Report, CEQ, 1976). There is frequent criticism of the equity-access mandate for citizens in environmental legislation, including NEPA. To improve the utility of citizen entre, Sax and DiMento (1974) suggested that technical and economic assistance be given to citizens. They need assistance to better understand environmental issues and to develop and promote their positions. This is understandable because of the complex engineering, socio-economic, ecological, and legal issues which are involved in environmental decisions. As Sax (1972) argues, providing a legal entre to citizens is meaningless if resources to make use of those entre points are not also included. He proposes that legal and technical services be made available to the public. Although there has been a precedent established in the Alaska pipeline controversy to award costs to class action litigants, Sax argues that this is not adequate.

Maryland CRM Citizen Research Grants. In response to a similar problem of limited citizen resources, the Maryland Coastal Zone Management program offers assistance to citizens to take part in the public communication process. Citizen groups can receive grants to secure technical assistance in developing and evaluating coastal resource management schemes and public communication programs appropriate for such schemes. The problem of this program, however, is that it does not provide sufficient resources to do an adequate job of researching and presenting issues (Bradley, 1975). Also, the recipients of grants are selected by the agency staff who do not have objective criteria for determining which citizen requests will be awarded. This can result in some obvious conflicts of interest and allegations of agency bias.
Ombudsman: Experience of Ohio EPA. An ombudsman office represents one way of dealing with equity which is relatively new in the United States. The office of the ombudsman, or citizen spokesperson, is one avenue through which citizens can have greater equity in access to natural resource decision making.

The experience of Ohio EPA offers an example of how such an office could operate. The office of an ombudsman is provided for in the legislation which established the agency. However, the existence and role of the office is discretionary with the director of the agency. Under a consumer and environmental protection-sensitive administration, the office provided a fairly effective entre for citizens. (Davis, 1973) and it enjoyed a position of influence in policy-making. However, under a less sensitive administration, the office (which, according to the enabling act "may be appointed by the administrator") has been abolished. It would appear therefore that if this office is to foster public communication it must be insulated from political manipulation.

Other Provisions for Equity

There are other possible approaches to achieve greater equity or equality of access in the public communication processes of environmental decision making. Roger Cramton (1972) made a strong case for expanded participation of the public in the decision-making of the administrative process. He maintains that broadened public participation is necessary and desirable in order to provide an expanded set of ideas, rewards, and incentives for regulators.

Cramton (1972) goes on to say that American democracy is marvelously diverse in its pluralism, variety and complexity. He states that it is not
that the system is unresponsive but that it responds to specific inputs and feedback. Rarely do governmental agencies respond to interests that are not represented in their proceedings. In short, regulators are limited by their perspectives which are, in turn, limited by the information that is available to them.

Cramton suggested that when attention is given to the rewards and incentives that are applicable to regulators the need for broad public participation becomes apparent. Broadened public participation in the administrative process will lead to wiser and more informed decisions.

Cramton also suggested that even though many people recognize that increased participation would be a good idea, there are significant problems.

There is a general tendency to be in favor of 'public participation' without worrying about the details. But it is the detail involving such matters as institutional devices and funding that are all-important. The level of discourse on this subject needs to be refined. Achieving broadened public participation is expensive. (Roger Cramton, "The Why, Where and How of Broadened Public Participation in the Administrative Process", *Georgetown Law Journal*, Vol. 60, Feb., 1972, p. 187)

Cramton suggests several alternative schemes to meet the high costs of attorneys' fees, transcript costs, and expert witness expenses. These are all part of the expense of broadened public participation.

**General legal services approach.** Under this approach, legal services would be furnished to members of the general public who want to participate in administrative proceedings. These should be viewed as part of the broader social problem of providing legal services *pro bono* to persons who cannot afford to bear the full cost.
**Contingent-fee approach.** For this type of approach the cost of litigation would be subsidized through new damage remedies or services that permit the aggregation of numerous small claims into a single unit. This shifts policy-making responsibilities to the courts from the administrative agencies.

**Advocacy agency.** Under this scheme, a special advocate agency would be established. Similar to a consumer protection agency or state ombudsman's office, this arrangement would provide for a central staff to protect consumers and promote equity. This is in contrast to each individual agency having its own advocate or ombudsman's office. Through the benefits of a larger staff, this approach may be more efficient and effective. It could be potentially more independent, insulated from the agencies it deals with. It could also promote greater expertise development in specific areas of citizen representation. It could have the problem, however, of becoming its own client—unchecked by the agencies it oversees or the citizenry it serves.

**Alternative Distributions of Responsibility in Implementing Coastal Resource Management**

Section 306(e)(1) of the CZMA requires that to be eligible for a two-thirds federal grant to develop coastal zone management programs, individual states must demonstrate specific capability to implement and enforce land and water use control within the coastal zone. Depending on the nature of this distribution, public communication programs are likely to vary considerably. Section 1 of this program prescribes that the management scheme must provide for any one or a combination of the following techniques for control of land and water uses within the coastal
zone:

(1) State establishment of criteria and standards for local implementation, subject to administrative review and enforcement of compliance;

(2) Direct state land and water use planning and regulation; or

(3) State administrative review for consistency with the management program of all development plans, projects, or land and water use regulations, including exceptions and variances thereto, proposed by any state or local authority or developer, with power to approve or disapprove after public notice and an opportunity for hearings.

These specific requirements provide guidance for developing programs to manage coastal areas, and the implications of these alternatives for public communication are considered in the next section. These alternatives define the distribution of responsibility among federal, state and local governments, but they do not define mechanisms for implementing coastal zone management.

Before considering the variety of mechanisms which may be used to implement water and land use control, or their implications for public communication programs, it is essential to understand the differences associated with each of the alternative distributions of implementation responsibilities provided for in Section 306(e)(1).

The Act (P.L.92-583) calls for the state to define permissible land and water uses which have a direct effect on coastal waters. These coastal waters are defined as those within the territorial jurisdiction of the United States consisting of the lake or ocean itself, its connecting waters, harbors, roadsteads, and estuary such as bays, shallows, and marshes.

The state must select its control method or methods and support them with specific and adequate legislative authority. It must also set forth
the means for control and review in the coastal zone management program. This review process is intended to ensure the integrity of the coastal zone program. It is further intended to assure that state goals for matters of regional or national concern are not adversely affected by local action either intentionally or by their inability to deal with complex land and water use problems.

Section 306(e)(1)(A): Authorize Local Government to Administer the Program Using State-Defined Standards

Under this first alternative, the state would adopt "criteria and standards for local implementation". These are land and water use standards or regulations adopted under the authority of the coastal zone program and applicable to the coastal zone as a whole. As an example, state standards might require minimum public notice requirements for hearings concerning sanitary provisions for any dwelling in the coastal zone. Municipalities would be free to apply additional requirements. Local implementation by regulation of these criteria and standards would be subject to administrative review, approval and enforcement. Only the regulations, not individual cases, would be subject to review. The standard for review would be compliance with the state standards and criteria in the context of the coastal zone program. Review could be performed by the state attorney general as part of the broader review of local regulations which many states require prior to the effective date of local regulations, or review could be performed by the coastal zone agency. Whatever the method of review, the regulations and the provisions for enforcement in the event of failure to comply with the criteria and
standards must be incorporated in the coastal zone program and authorized by appropriate legislation.

These enforcement powers may already exist in generally applicable state laws or local ordinances. Also, documentation must be provided to the federal office of coastal zone management along with a brief explanation of how they would work in relation to the state program. If they do not exist, they must be enacted at the appropriate state or local government level.

This approach also appears to have been successful in Ohio in two related planning areas dealing with land and water use management. Both the Ohio Scenic and Wild Rivers (Moore, 1974) and Flood Plain Management (Middlebrooks et al., 1975) programs operate with a similar arrangement of broad guidelines issued by the state for local units of government to follow. Local units are given time to develop and implement programs under the guidelines. These programs are then reviewed by the state as they are approved for implementation, including specific aspects of their public communication program.

The apparent success of this approach may be attributed to the minimal threat it poses to existing fragmented decision-making entities. Whatever the decision structure in local coastal communities, it will be given broad guidelines with the incentive to develop a locally defined program to minimally satisfy state requirements. If not, the local community faces imposition of a state directive to carry out the program.
Section 306(e)(1)(B): State Prescription of Permissible Uses without Local Government Involvement

Under this provision, the state would plan for land and water uses in the coastal zone and directly. The plan would be administered by regulations issued at the state level. The state could administer the program on the basis of comprehensive legislation, i.e., a state coastal zone management act, or it could administer a generally inclusive permit system.

In managing ecologically sensitive or hazardous sites this alternative offers an approach for efficient technical management of fragile resources (Swainson, 1976). With this alternative it may be possible to reduce the influence of local political or economic elites in making and implementing land use policies by removing such decisions from local decision prerogative and alter the nature of the political environment affecting the implementation process (as explained in Chapter III).

However, this alternative may not be viable, given the importance of local government support in effective management of the program (See Appendix B). Except in situations of local inaction or where unique and vital areas are concerned, it has been reported by Hessel, et al., (1974) as politically expedient that local government provide input to decisions affecting locally permissible land and water uses.

Section 306(e)(1)(C): State Review of Local Programs

The third alternative, provided by Section 306(e)(1)(C), permits local adoption of regulations within the context of the coastal zone program itself without the intermediate step of preparing state criteria
and standards for the entire coastal zone. Some of the guidance which otherwise would be found in criteria and standards may already exist in certain states in laws with statewide application. With this alternative, local governments may proceed with their own public communication programs, as well as land and water use regulations, provided that a mechanism exists for automatic administrative review at the state level.

These regulations would have to be reviewed for their consistency with the coastal zone management program, including provisions for public notice and hearing. The same requirements would apply to approval of specific development plans and projects submitted by either public or private parties. The requirements would also apply to the granting of variances. As with the first alternative, the administrative reviewing authority may rest in any one of several state agencies, although it might vary according to subject matter. This alternative contains an essential element for any effective program of coastal zone management. Regardless of how the program comes into existence, it is essential that there be constant monitoring of local government decisions that may affect public communication programs involved with land and water use (Kneese, 1974).

In most states the power to regulate land and water uses and the public communication programs associated with them, rests at various local government levels, not at the state level. It is not anticipated that many states will attempt to move this authority up to the state level. Most states are likely to choose alternative two, or some combination of the other two alternatives of state control which are authorized by Section 306(e)(1). The first alternative represents a half-way point between
full state control and full delegation to local governments. The third alternative resembles a full delegation to local government with a state review process.

If any program is to be attempted at all it is the opinion of this author that it is likely to be a variation which provides local government a considerable role in the public communication-implementation process that will most likely be successful.  

Table 1 contains summary descriptions of the major schemes for distributing levels of responsibility and authority for carrying out P.L.92-583, including its public communication program among levels of government. Each of these distributions of responsibility have important implications for the specific public decision making process which is in effect. In turn, the specific decision model has considerable bearing on the nature of the public communication program most compatible with it. This will be elaborated upon in Chapters III and IV.
Table 1 - Distributions of Authority and Responsibility Among Alternative Programs of Coastal Resource Management

Alternative I - State Establishment of Criteria and Standards, Local Implementation, Subject to State Review

<table>
<thead>
<tr>
<th>Item</th>
<th>Provisions</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Concept and Approach</td>
<td>State establishment of criteria and standards with period of local interpretation and program design, subject to state review and enforcement.</td>
</tr>
<tr>
<td>Control Structure</td>
<td>Sufficient modification of state constitution and legislation to provide state with necessary authority to oversee state CRM program. Directive standards and compliance schedules established as interim goal.</td>
</tr>
<tr>
<td>Equity</td>
<td>General review and input through public hearing, especially at the local level; access to decision review through NEPA.</td>
</tr>
<tr>
<td>Administration</td>
<td>Broad federal guidelines, framework and operating grant. State promulgation of standards and criteria, with review of local implementation. Local adoption of state standards and criteria with implementation of program subject to state review.</td>
</tr>
<tr>
<td>Relationship to Other Government Programs</td>
<td>Subject to governor's discretion in budget, mandatory agreement with existing air, water and land use programs or plans at all levels.</td>
</tr>
<tr>
<td>Financing</td>
<td>2/3 federal grant with 1/3 state contribution through line item of general fund or state revolving fund paid for by state coastal interests.</td>
</tr>
</tbody>
</table>
Table 1 - Continued.

**Alternative II - Direct State Planning and Regulation**

<table>
<thead>
<tr>
<th>Item</th>
<th>Provisions</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Concept and Approach</td>
<td>State directly develops plans and regulations for land and water use.</td>
</tr>
<tr>
<td>Control Structure</td>
<td>Directive with sufficient modification of state constitution and legislation to ensure enforcement and implementation of the program by the state.</td>
</tr>
<tr>
<td>Equity</td>
<td>General purpose public hearings and access to decision review through NEPA.</td>
</tr>
<tr>
<td>Administration</td>
<td>Federally promulgated guidelines and technical support, state promulgation of regulations sufficient to secure compliance.</td>
</tr>
<tr>
<td>Relationship to Other Government Programs</td>
<td>Compatibility with other federal, state or local management programs affecting water, air and land use.</td>
</tr>
<tr>
<td>Financing</td>
<td>2/3 federal grant with 1/3 state contribution through line item of general fund budget, or state revolving fund paid for by state coastal interests.</td>
</tr>
</tbody>
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### Alternative III - State Review for Consistency, with Ultimate Enforcement Capability

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<td>Control Structure</td>
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<td>Equity</td>
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CHAPTER III
PROBLEMS OF PUBLIC COMMUNICATION IN COASTAL RESOURCE MANAGEMENT

Chapter Overview

There are many problems which affect the development of public communication programs in coastal resource management. This chapter presents an analysis of three sets of problems. The problems are identified from two major sources. There is a growing body of theoretical literature which considers various aspects of public communication, and there is a developing body of empirical or case study information which has relevance to public communication in resource management. A wide range of related problem areas were examined in this analysis to help clarify and define the problems of public communication. Among these related problem areas, planning and administration, public policy, and small group behavior and decision making research were included.

One set of problems is associated with that part of the public communication process involving implementation of public policy decisions, or the translation of public policy decisions into agency programs. The implementation process impacts public communication programs through several distinct elements. Among these are standards and objectives, policy resources, interorganizational communication and enforcement activities. Also included are the characteristics of implementing agencies, economic, social and political conditions, and the disposition of implementors.

A second set of public communication problems can be viewed as endemic to elements of the regulation and management process. Incentive
and directive measures to secure compliance with regulatory and management programs are considered, or in effect, the procedures for enforcing the results of the public communication process. In addition, the problems of selecting mechanisms which can be used to protect the public interest, and enhance equity in defining public policy are considered.

A third set of problems reflects the social and psychological factors which affect public communication. These factors characterize public officials, agency staff, and citizen participants—the three major decision actors in the public decision process. There are limits of perception, interest and concern among these actors in the public communication process which affect the nature and extent of their respective involvement and reaction to public communication experiences. The concept of the public decision-making process and "the public interest" is one important factor which varies considerably among different sets of decision participants and affects the form of the public communication process. These perception differences are clarified through the concept of boundaries of rationality which characterize decision participants.

Problems Associated with Policy Implementation

One of the problem areas of public communication reported by Mazmanian (1974), Ragan et al (1976), and Stang et al (1976) is what happens after public input is received by a natural resource management agency. There is widespread suspicion reported among public decision participants concerning the accuracy or integrity of agency implementation or translation of public decision outcomes into actual programs. Spencer (1976) reported this problem specifically in her evaluation of a coastal zone management program in Wisconsin.
A germane piece of research investigating policy implementation and policy impact was conducted by VanMeter and Van Horn (1975). As a result of their research, VanMeter and Van Horn formulated a useful analytical tool. They disaggregate the analysis of program implementation or development into several components that help clarify the process of carrying out a management scheme.

... the implementation phase does not commence until the goals and objectives have been established (or identified) by prior policy decisions; it takes place only after legislation has been passed and funds committed (or after a judicial ruling and accompanying decree). As Pressman and Wildavsky (1973) argue, "After all, the world is full of policy proposals that are aborted. You can't finish what you haven't started. Lack of implementation should not refer to failure to get going, but to inability to follow through." (VanMeter and Van Horn, 1975, p. 464)

Based on this statement, the study of implementation per se examines those factors which contribute to realization or non-realization of policy objectives. Also policy implementation can be viewed as that part of the public communication process which includes the political-administrative translation of public policy decisions into agency programs. (However, it is recognized that "what it takes to get going" is still an important consideration in effective definition of a public policy as well as in determining the overall impact of the implemented policy.)

VanMeter and Van Horn go on to distinguish between policy impact and policy implementation. The study of policy impact is concerned with the consequences of a policy. It deals with the question: "what happened?" Policy implementation considers one of the forces that determines policy impact. Policy implementation deals with the question: "Why did it happen this way?" and focuses on the process of managing, regulating and implementing rather than the effects.
VanMeter and Van Horn believe that some services could be implemented and delivered effectively without having any substantial impact on the problem it was designed or intended to relieve. Hence, they make the disclaimer that "successful program performance (implementation) may be a necessary, but not sufficient, condition for the attainment of positive ultimate outcomes."

Implications for Developing a Successful Public Communication Program to Implement Management in Coastal Areas

VanMeter and Van Horn's concept of policy implementation as distinct from policy impact offers a framework for more precisely evaluating alternative programs of public communication in coastal management. To better understand the nature of implementation or translation of public policy decisions, legitimized through the public decision process into agency programs, VanMeter and Van Horn propose a six-element model of the policy implementation process. This model serves as a base, (which will be elaborated upon in Chapter IV) clarifying an important problem area of public communication programs for coastal resource management. (Figure 1).

Based on VanMeter and Van Horn's policy implementation model, a procedure for implementing a coastal resource management program is proposed as one of three major components of a public communication paradigm. The numbers in parentheses in the following section refer to those elements of the implementation procedure proposed in Chapter IV which accomplish or accommodate points raised by aspects of the VanMeter Van Horn model.

Policy Standards and Objectives

Policy standards and objectives are key factors as "performance indicators" in determining policy effectiveness. These standards and
A MODEL OF THE POLICY IMPLEMENTATION PROCESS

Figure 1 (VanMeter and Van Horn, 1975, p. 463)
objectives, as specific indicators of overall goals of the policy, determine the extent to which those standards and objectives are met and programs therefore successful.

Standards and objectives may be consciously manipulated so they remain ambiguous and contradictory to help ensure vague acceptance by people of different perspectives (2). Nonetheless, the study of implementation requires that these goals and objectives be identified. For as Pressman and Wildavsky (1973) expressed it, "... implementation cannot succeed or fail without a goal against which to judge it".

This implementation feature can be seen in public communication programs of coastal resource management, for the CZM Act and its regulations do not clearly delineate public communication objectives or offer standards by which to determine compliance for "encouraging the public to participate" in the development of a CZM program.

**Policy Resources**

Policy resources include all the mechanisms that an agency can muster to encourage the acceptance of its program. In addition to funds, policy resources include other incentives based on the political and policy capabilities of implementing entities. This may include specific requirements or incentive regulations.

In CRM implementation, this may take the form of threats by the federal office of Coastal Zone Management to reject state requests for funds, or it may be coercive involving threats to audit the state coastal zone management agency. In fact, some of these more subtle policy resources may be most effective in securing compliance with standards and objectives. (VanMeter, 1975) This is particularly true for the federal office of CZM
to secure compliance of state and local programs with federal regulations.

The implementation of a program of coastal zone management may be helped greatly at the local level through a strong and clearly defined land use plan (5). Such a locally determined plan is likely to include greater local support (and policy resources) than a CRM developed land use plan.

**Interorganizational Communication and Enforcement**

To be implemented, a program's objectives and standards must be understood by the people responsible for carrying out the CRM program. This model of the implementation process specifies several distinct concerns: the *clarity* of the standards and objectives; the *accuracy* of their communications to implementors; and the *consistency* or uniformity with which they are communicated by various sources of information.

To encourage compliance with federal standards and objectives, or to implement enforcement, several possible approaches could be taken. First, technical advice and assistance can be provided by the federal agency responsible for overseeing coastal resource management offering interpretations of federal guidelines. A good example of such a problem and an agency attempt to deal with it is the Office of CZM's preliminary survey of state information needs (Stang et al, 1976), and the resultant "Threshold Papers" which offered detailed explanations of official regulations. An agency can also provide specific advisory personnel to deal with the technical concerns of subordinates such as through OCZM's regional coordinators, each responsible for maintaining contact with four to six states. This provides an opportunity for the federal program to communicate to the several levels of state and local organizations.
that may be part of the implementation process. An advocate-ombudsman similarly could enhance communication among citizens (4).

**Characteristics of the Implementing Agencies**

The factors which characterize the implementing agency can also play a major role as problems in the effective implementation of a program. The specific bureaucratic structures responsible for developing and carrying out coastal zone management programs should be considered when implementing a public communication scheme.

There is a considerable body of literature which examines the characteristics of bureaucratic structure (McCormick, 1976; VanMeter, 1975). Some of the important characteristics affecting agency performance include:

- The competency and size of an agency staff.
- The amount of hierarchical control over agency decisions (2).
- The political support and resources of the agency (2, 3, 6).
- The degree of open communication within and outside the organization (4, 6).
- The special degree or extent of formal and informal communication linkages with relevant policy-making and enforcing bodies (1, 4, 6).

**Economic, Social and Political Conditions**

The "environmental variables" of implementation may have a profound effect on the performance of the implementing agency. The following problem conditions regarding the economic, social and political environment are identified as affecting the agency which implements public policies (VanMeter, 1975).

- The economic resources of the implementing agency must be sufficient to support successful implementation.
o Prevailing economic and social conditions which may affect the implementation of the policy in question must be understood.

o The nature of public opinion and its saliency to the policy issue must be known.

o The position of elites concerning the policy being implemented must be known.

o The partisan character of the implementing agency and any partisan position on the policy should be known.

o The extent private interest groups are mobilized (or are mobilizable) to support or oppose the policy should be understood.

These conditions are addressed by several mechanisms of the proposed public communication implementation model proposed as part of the public communication paradigm in Chapter IV. In determining incentives, prevailing economic conditions are regularly monitored. The advocate-ombudsman and locally defined land use configurations provide important public opinion information.

Disposition of Implementors

All of the components of the policy implementation model are affected by the perception of the individuals who operate within the implementing organization. VanMeter and Van Horn suggest three elements that affect the ability and willingness of agency personnel to implement public policy: their cognition or understanding of the policy; the direction or position of their response to it (positive, negative or neutral); and the intensity of their response help to determine the extent of problems within the implementation process proposed in Chapter IV.
VanMeter and Van Horn proposed that these six factors are important as they affect or determine the problems of the policy implementation process which translates public policy decisions into the reality of agency programs. The necessity of taking these six factors into account when developing a CRM program is recognized, and they form the rationale for the implementation component of the public communication paradigm proposed in Chapter IV.

Problems Associated with Managing and Regulating the Coastal Environment

Another set of problems of public communication in CRM are endemic to management and regulation processes. The theoretical bases for a government role in management and regulation of property and land use is based on a historic tradition founded on English law (See Appendix A). From this base, management and regulation of water, land, and other coastal resource use control has evolved. One of the earliest of these, at the federal level was the Standard Zoning Enabling Act of 1926 and the Standard Planning Enabling Act of 1928. These two acts established a precedent for a federal concern for protection of land and related resources.

After a dormancy of thirty years, a widespread concern for the environment began anew in the middle 1960's and has helped create an awareness of the need for environmental management (Carson, 1966). But this is set in a cultural context which is resistive to any infringement of personal or property rights. (See "Historical Perspective" in Chapter I.) Further, agencies which are responsible for managing natural resources had developed institutional approaches for protecting the long-held notion of the sanctity of property rights (Bower, 1972; Noll, 1974). The end result of this new public concern and old agency perspective is conflict and problems.
In addition to a concern for the problems of managing the substance of coastal resources, there is a related but distinct problem of the processes of managing those resources. The characteristics, including the sets of goals for these two related concerns are sufficiently distinct to merit separate consideration. There are goals which are unique to the substance of the coastal zone and goals which are unique to the process of management programs.

The first goal set includes the substantive environmental, economic and political attributes of coastal areas. The second goal set includes the procedural factors, the institutional, administrative and bureaucratic attributes of coastal areas. It is the position of this author that the distinctions between these two goal sets has an important bearing on the nature of the implementation component of public communication programs.

Problems with Substance Goals: Achieving the Balance of Environmental Protection and Economic Development

The best statement of goals for the substance of coastal resource management programs are contained in the CZMA itself. The goal statement included in the Act largely encompasses the goal sets of related federal, state and local programs to protect the environment, promote economic development, and balance the two. (See Chapter II for a discussion of related legislative programs.)

Section 303 of the CZMA presents the following goals in the "Declaration of Policy":

The Congress finds and declares that it is the national policy (a) to preserve, protect, develop, and where
possible, to restore or enhance, the resources of the Nation's coastal zone for this and succeeding generations; (b) to encourage and assist the states to exercise effectively their responsibilities in the coastal zone through the development and implementation of management programs to achieve wise use of the land and water resources of the coastal zone giving full consideration to ecological, cultural, historic, and esthetic values as well as to needs for economic development; (c) for all Federal agencies engaged in programs effecting the coastal zone to cooperate and participate with state and local governments and regional agencies in effectuating the purposes of this title; and (d) to encourage the participation of the public, of federal, state, and local governments and of regional agencies in the development of coastal zone management programs. With respect to implementation of such management programs, it is the national policy to encourage cooperation among the various state and regional agencies including establishment of interstate and regional agreements, cooperative procedures, and joint action, particularly regarding environmental problems.

Within this veritable encyclopedia of goals there is much potential conflict, for many competing goals are established with little provision or indication of how to prioritize or trade-off among these goals. Within each resource management agency, there are likely to be differences in priorities (Gamson, 1965). These differences, and their procedures for resolving them constitute serious problems, with considerable affect on the implementation aspects of a CRM program (Spencer, 1976).

Problems with Process Goals:
Achieving the Balance of Equity,
Legality and Efficiency

In almost all organizations or bureaucracies there is a set of intrinsic goals for self-preservation (Weber, 1935). These goals are shared by nearly every organization, regardless of its substantive concern. It is posited that these goals also operate in programs of coastal zone management. Included in this goal structure are considera-
tions of equity, compliance or legality, and efficiency as established in the CZMA.

Although these broad goals are shared by most organizations, there is often little similarity among specific goals of each organization. For example, one management entity may have the specific equity-goal of equal access to the decision process for both support and opposition groups, but another management entity may have a different definition of its equity-goal. The second agency may want to provide easy access for its supporters but discourage participation by the opposition.

However, Weber (1946) and Downs (1967) maintain that most agencies share specific bureaucratic goals. This can include categories such as legality, or compliance with existing federal, state, or local law, and political feasibility, or compatibility of the entity's activities with existing powers. Efficiency in accomplishing stated objectives and the demonstrable cost efficiency of its administration are two additional goals shared by most agencies (McKie, 1973).

Progressiveness, or the agency's effect on innovation or change, as it in turn affects the scope of the entity's management responsibility is another goal shared by most regulatory entities (Noll, 1974). In summary, there are a series of bureaucratic goals shared by nearly all resource management agencies. However, though they share broad goals, each agency's unique environment determines specific and often conflicting working goals. These working goals, in turn, affect the nature of the implementation of coastal resource management programs.
The Problem of Goal Conflict Resolution: 
Equity and Implementation of CRM

In implementing water and land use control in coastal areas, there are two major problems or categories of conflict. These conflicts are within and between the substance and process goal categories. 10

One of the important process conflicts is access to the decision process. Egalitarian, or fiducial, interests through federal legislation have established explicit requirements that there be widespread public participation in virtually all environmental programs. These goals, however, are often in conflict with other agency interests. There are some individuals within agencies who have as their goal the dictatorial control of programs. This control is often easier to achieve with limited equity, including fewer people involved, limits to entry, and less information available to the general public.

Another basic conflict in implementing goals of CRM surrounds the goal of environmental quality. There are many possible definitions or conceptions of a "quality" environment. Among some environmental or citizen groups such as the Sierra Club or League of Women Voters there is a rigorous preservationist set of goals or definitions of environmental quality. Industrial and recreation home developers profess a shared concern for the environment. However, they have a different set of specific goals. Typically, they have a less stringent or less pristine preservationist definition of environmental quality (Campbell, et al, 1976).

Current practices for reducing or resolving conflicts in these two major areas are litigation and administrative process. Litigation seeks
compliance with existing directives of standards and schedules. The administrative process acts to establish standards and compliance schedules.

Directive mechanisms are useful in resolving conflicts of equity or equal access to the process of decision-making in CRM. Legislation and directive regulation is one procedure for resolving conflicts of resource use through explicit definition or rules.

Economic incentives (tax incentives, subsidies, and user fees) also are relatively effective procedures for resolving conflicts. In some instances, various economic incentive mechanisms have been used to resolve conflicts over resource allocation. However, there are many difficulties in determining market values for the primary and secondary effects of land and water use control alternatives. Because of this limitation resulting from imperfect information, incentives are not particularly viable mechanisms for implementing these public policies. But incentive may operate negatively, such as threats to cut off funds if certain goals of equity are not met in agency operations.
Problems Associated with Decision Making and "the Public Interest"

One of the underlying assumptions of democratic government is that ideally, or theoretically, people are able to be educated and learn, are reasonable, that complete information is available, and there is free and equitable access to decision-making.

However, there is some evidence that there are problems with realizing this expectation or assumption (Ragan, 1976; Spencer, 1976). The following section considers the nature of how people approach making decisions, including their decision of what constitutes "the public interest", and how the public interest and decision processes are often problems in public communication programs. 11

Problems of Decision Theory

One important problem of public communication in coastal resource management is rooted in the assumptions of how decisions affecting the public policy decision process are made. Depending upon the nature of such assumptions, and their respective compatibility with other decision theories, the underlying decision theory and the procedures to operationalize it can result in serious problems. There are two major schools of decision theory—utility maximization and descriptive-incremental. A background of these two theories is important in coming to understand the nature of the decision theory problem.

Maximization of expected utility. One of the objectives of decision theory is to provide a rationale for making wise decisions under conditions of risk and uncertainty. Conditions of risk and uncertainty are appropriate problem descriptions of situations in which many decisions
regarding public communication programs are concerned. Public communication is often seen to be risky, particularly those aspects of public communication which involve direct contact with the public by an agency (Coombs, Dawes and Iversky, 1970). Another objective of decision theory is that it is normative, prescribing the course of action that will conform to the decision maker's goals, expectations and values (Raiffa, 1957; Dillon, 1971).

A major advance in decision theory came in 1947 when Neumann and Morgenstern (1947) developed a formal justification for the expected utility criterion. They showed that if an individual's preferences satisfied certain basic rules of rationale behavior then those decisions could be described as the maximization of expected utility. Savage (1954) later generalized the theory to allow the expected maximization (or \( P(E_i) \)) values to represent subjective or personal probabilities.

Maximization of expected utility appears to be a helpful guideline for making sense out of many types of behavior, for it is deduced from principles that decisions would be reached which presumably would be accepted by any rational person. One such principle is transitivity. It is usually defined in terms of outcomes, but it can be extended to describe actions or probabilities as well. Utility maximization theory indicates that if a decision maker prefers choice A to choice B and choice B to choice C, it would be irrational for that person to prefer choice C to choice A.

A second guideline of rationality has been referred to as the "extended sure-thing principle". It indicates that if any choice is
the same for two risky actions, then the value of that choice should be disregarded in choosing between the two choices.

These two principles, combined with several others result in a rather powerful conclusion: wise decision makers choose those acts which have the greatest expected utility.

Applied decision theory assumes that rational decision makers wish to select actions which are consistent with their basic preferences. Given this assumption, expected utility can be calculated for each alternative. Each alternative is listed, and the subjective values or choices are compared and their relative likelihoods are calculated.

This is not necessarily a conscious set of events, for when people are faced with having to make choices among alternatives, they often rely on internally developed operational procedures (Kiesler, 1969). They have developed a set of priorities which reflect their current concerns and interests, the utility of which they operate to maximize in both deciding to participate in and promote alternatives which enhance their perceived interests.

**Descriptive decision theory.** Although maximization theory grew out of primarily normative concerns, much of the research concerning it has centered around the question of whether the theory could also describe other aspects of decision making.

It has been speculated that maximization theory can help in understanding the processes of goal formulation as well as the processes people use to reach their decisions (Mitnick, 1974). Herbert Simon, a leading critic of utility maximization theory as a descriptive theory
has observed:

The classical theory is a theory of a man choosing among fixed and known alternatives, to each of which is attached known consequences. But when perception and cognition intervene, between the decision-maker and his objective environment, this model no longer proves adequate. We need a description of the choice process that recognizes that alternatives are not given, but must be sought; and a description that takes into account the arduous task of determining what consequences will follow on each alternative (Simon, 1959, p. 117).

Although he never labelled it as such, Simon introduced the theory "bounded-rationality", as an alternative to the maximization hypothesis. Simon hypothesized that the cognitive limits of the decision maker force construction of a simplified model of the world to deal with it. The basic element of bounded rationality is the notion of "satisficing". Through satisficing, an organism strives to attain some satisfactory, though not necessarily maximal level of achievement. Simon conjectured that "... however adaptive the behavior of organisms in learning and choice situations, this adaptiveness falls far short of the ideal of 'maximizing' postulated in economic theory. Evidently, organisms adapt well enough to 'satisfice'; they do not, in general, optimize." (Simon, 1956).

Lindblom and incrementalism. In related developments, Charles Lindblom (1964) came to similar conclusions based on his analysis of governmental policy making. Lindblom argued that administrators avoid the difficult task of taking basic factors into consideration when they make decisions. They deal with the difficult tasks of weighing the relative strengths and weaknesses of alternatives comprehensively. This is done by relying on what he calls "the method of successive limited
comparisons". This method operates by simplifying decisions and comparing only those policy alternatives that differ in relatively small amounts from current policies. Because of this approach, it is not necessary to ask fundamental questions about alternatives and consequences. It is only necessary to study those aspects of proposed alternatives and consequences which differ only a little from the status quo. Lindblom refers to this procedure of conservative decision making as "muddling through". He also acknowledges that its use may cause good new policies to be overlooked and innovative policies to never be sought or accepted.

Lindblomian policy makers are aware of their inability to avoid error in predicting consequences of policy alternatives. They therefore attempt to proceed through a series of small changes. These changes are intended to remedy negative situations, and are rarely used to attain articulated goals.

His decision is only one step, one that if successful can quickly be followed by another . . . . he is in effect able to test his previous predictions as he moves on to each further step. Lastly, he often can remedy a past error fairly quickly--more quickly than if policy improved through distinct steps widely spaced in time (Lindblom, 1964, p. 154).

Comparison of Utility and Incremental Theories

From the descriptions of the two theories presented, it would appear that utility theory is primarily normative and bounded-rationality is primarily descriptive. However, this distinction is somewhat simplistic. Utility theory has some descriptive capability in explaining how decisions are actually made. Similarly, the notion of bounded-rationality, as used here, is proposed to be normative as well as descriptive.
Utility theory is based on probabilities, rewards, and the expectation of rewards. The problem with comparing the relative value of one consequence with another is made possible by translating or transposing both into a common utility scale.

The bounded-rationality, or lexicographic theory, assumes that decision makers do not think in terms of probabilities. They avoid the necessity of facing uncertainty directly. Similarly, they avoid the problems of evaluating utilities and comparing non-commensurate units. The goal of the decision maker is assumed to be the achievement of a satisfactory and efficient decision, not a maximum outcome. Because such decision makers are constrained by limitations of perception and intelligence, bounded-rational decision makers are forced to proceed by trial and error. By empirical evidence, they modify plans and decision alternatives that do not yield satisfactory outcomes, and the various actors in the decision process are likely to undergo unique experiences. Coupled with their distinct perceptions, the result is likely to be sets of priorities, plans, and decision alternatives which are different for each set of decision actors, and perhaps even unique to each individual decision maker.

Problems of Models of Collective Decision Making

In addition to differences of theoretical assumptions in decision making, there are several distinct conceptions of collective decision making, and just as with decision theory, there are problems of public communication rooted in these differences. Banfield, et al, (1956) created a frame for viewing the range of these models, and Mitnick (1976) expanded
this model further according to how they deal with "the public interest", which is addressed later in this study. These various models and conceptions of collective decision making vary according to the number of decision makers involved and the degree of closure or ambiguity and consensus of their collective decisions.

One of the more straightforward linear models of the environmental problem-solving and decision process has been developed by William Stapp (1975). Built on the Dewey rational process model, Stapp indicates that specific information would be required during various stages of the collective decision process. The operation of the model would, therefore, be quite sensitive to the input of information from a communication program.

Another concept of the collective decision process which focuses on a descriptive approach or frame is offered in the models of Lindblom, Pressman and Wildavsky (1973). The "disjointed-incremental-fragmented-pluralistic" (DIFP) decision process which they posit operates to satisfy (Simon, 1956) or minimally satisfy the closure and rationality needs of the members of the collectivity. It is disjointed and fragmented in that there are many competing interests, with limited resources, and there is no clean-cut procedure through which alternatives are developed, evaluated, and chosen.

It is pluralistic because there are many distinct and unique power networks which may choose to become involved in the decision process—when and if they see it as in their interest or responsibility. There is also considerable overlap in functions among various agencies. For
example, there may be several distinct institutional entities involved in the decision process. The state power plant siting commission, public utilities commission, coastal management commission, and environmental protection commission may all be involved. At the local level there may be a county, township, or village zoning board. The Army Corps of Engineers, Coast Guard and Nuclear Regulatory Commission may be involved in issuing licenses. Then the National Environmental Policy Act and water and air quality legislation may provide local citizens legal standing and therefore access to the decision process. Much of the determination of who is involved depends upon who is aware of avenues of access and who is motivated by threat, incentive, or normative "duty" to pursue those avenues.

It is incremental, likely to advance slowly in low energy and low-risk steps, unless of course the proposed action is viewed as a crisis by some of the people involved.

**Pulling It Together: Lexicographic Ordering**

Kuenrreuther (1974) provided a simple conception of this disjointed-incremental-fragmented-pluralistic model: lexicographic or bounded-rationality. People (or agencies or other collectivities) operate to reach the first decision that makes comfortable sense and which satisfies their need to reduce or structure ambiguity. They do not seek perfect information; they only seek enough information to reach a satisfactory level of understanding to make a decision in comfort. 13

In the case of an angry community opposed to implementation of a CRM program, many people and groups would only go far enough to learn how
to stop the project, or at least to arm themselves with sufficient information to argue against the program. They likely would disregard information designed to expand their awareness of its benefits or otherwise mitigate their fears.

This is not to say that they could not be helped to more objectively understand and view a CRM program, but it would take much work. In fact, Kiesler's (1969) attitude research in dissonance reduction indicates that if information reaches them that they disagree with, they may likely react negatively and become even more opposed to the project. (Measuring this sort of reaction, however, is limited to carefully controlled experimental settings and is not practical in this problem setting) (Kiesler, 1969).  

All of these problem solving and decision theorists described in the preceding section are helpful in understanding how the public communication and environmental management processes operate. They may even be necessary components of such an understanding, but they are not sufficient. Bounded-rationality appears to be the glue which helps to make sense out of the problems of decision making. It also helps to understand how different decision actors have distinct perceptions reflecting the boundaries of their rationality concerning public decision making.

Olsen's (1974) three sets of public decision process constructs (Figure 2) reflect the differences in perceived decision reality which operates among the three major groups of decision makers in solving environmental problems, developing plans or management programs. Each
I. Traditional Political Model in Which Politicians are in Control of Decision Making while Concerned Citizens have Limited Involvement

Figure 2. Models of the Public Decision Making Process (After Olsen, 1974, p. 12)
II. Technical Expertocracy Model Where Technical Experts Control Decision Making While Concerned Citizens Have Limited Involvement

Figure 2. - Continued.

Figure 2. - Continued.
set of decision makers, elected officials, technical staff, and citizens have a unique perspective of how public decision making works. And with these differences unrecognized, there are likely to be many problems which result from unmet expectations. These various decision making groups operate to protect their perception of the public interest, but they see their decision making roles and the decision making roles of their two cohort decision groups uniquely and differently.

According to Olsen's findings and model, each group perceives itself to be the major decision making authority. Each has a perception of a decision process which recognizes the value and need for cooperation and various levels of shared decision responsibility.

**Technical planners, engineers and administrators** often feel that as "experts" trained to determine and protect "the public interest", they should be lead decision-makers. They rely on elected officials for legitimization and acceptance of their technical recommendations and upon citizens to provide input to use in considering problems. This conception is represented in Olsen's "Technical Expertocracy Model II" of Figure 2.

**Political officials** see themselves often as elected or appointed to be lead decision-makers in defining and protecting "the public interest". They seek input from technical staff as well as feedback and input from the public. This conception of the public decision making process is represented in the "Traditional Political Model I" of Figure 2.

**Citizens** often see themselves as decision-makers. They are, after all, what "the public interest" is all about. And they know their own
needs and interests best. They seek to communicate their feelings and opinions to the officials they elect. They seek the advice of the technical agency staff they pay to serve them in understanding issues, problems, and solutions. This conception of public decision making is reflected in Olsen's "Participatory Democracy Model III" of Figure 2. But, there is no shared perception of how this decision responsibility and authority should be distributed, and there may not be widespread recognition of these differences among decision actors.16

To understand how the paradigm proposed in Chapter IV operates, it is important to establish the paradigm within a frame of reference concerning decision models. Or, this frame can be seen as a supra-component of the paradigm itself.

Of all the variations of decision theory, whether incremental-satisficing or utility-maximizing, and the many variations of conceptions of "the public interest" and collective decision processes, there is one set of conceptions in the opinion of this author which are most compatible with the requirements established in Chapter II and this set seems to flow naturally to address and deal with the problems of public communication in coastal resources management outlined in this chapter. Olsen's participatory-democracy model of the public decision making process seems to be both most compatible with the statutory and regulatory requirements of CRM. The participatory-democracy model also is most congruent with the spirit of the CZMA and related legislative programs, as well as the historic traditions of American government.
Summary of Problems

There are many problems of public communication in coastal resources management, and there is a developing literature which explores the nature and extent of these problems, both theoretically and empirically. This chapter has presented a summary review of this literature. It has also clustered these problems into three distinct problem categories. Problems of implementation or the translation of public policy decisions into actual agency programs, problems endemic to the process of regulation and management of coastal and other natural resources, and finally, problems of decision making and the public interest.

If any public communication program is to succeed, it must be capable of dealing with and minimizing these problems. The public communication paradigm presented in the next chapter attempts to address these problems.
CHAPTER IV

A PARADIGM FOR DESIGNING PUBLIC COMMUNICATION PROGRAMS
FOR COASTAL RESOURCE MANAGEMENT

Chapter Overview

In assembling an overall public communication paradigm or structural model to help develop a coastal resources management program, several components are involved.

Before considering the actual paradigm, an overall perspective is offered which takes into account the four basic objectives established by the CZMA. These include the following major goals or objectives for implementing a land and water use control: a balance of environmental protection and economic development; equity in access and citizen awareness of the management and planning process; compliance with the CZMA and its attendant provisions and related legislative programs; and the efficient administration of the program. The realization of these objectives is the ultimate purpose of a public communication program for coastal resource management.

Implementation, or the translation of public policy decisions into actual agency programs as articulated and made legitimate through the public policy process, is the first of three components of the public communication paradigm. A typological model for conceptualizing one-way information dissemination and two-way interaction, or involvement forms the second component of the proposed public communication paradigm. The third component is a methodical approach for selecting appropriate techniques to accomplish specific communication program objectives.
It is the proposition of this author that by considering these three separate components, a comprehensive public communication program can be developed.

Another important factor in this study, as introduced briefly in Chapter III, is the concept of bounded-rationality or lexicography. It is proposed that this concept helps to better understand the observed behaviors and problems encountered in public communication programs. For the purposes of this study, the "participatory-democracy" model of the public decision making process outlined in Chapter III is used. It is the judgment of the author that this model has rational boundaries which appear to be most compatible with the intent of the CZMA.

**Component I: A Procedure for Implementation**

The following section presents the first component of the proposed public communication paradigm. It is intended to mitigate or minimize the problem of implementation as outlined in Chapter III and to secure faithful translation of public policy decisions into agency programs. The proposed implementation procedure is also intended to comply with the statutory and regulatory requirements outlined in Chapter II. An evaluation of this proposed paradigm component's ability to meet the Policy Implementation Model presented in Chapter III was presented in the discussion of that chapter (pages 51-56).

**Establish Federal, State and Local Advisory Commissions and Task Forces**

To help define the goals, policies, procedures and evaluation of land and water use control, it is recommended that a series of short-run citizen
advisory groups or task forces be established. It is also recommended that overall advisory commissions be established at federal, state and local government levels. Such advisory commissions would be more likely to take into account the factors which affect the alleged life cycle of agencies (Downs, 1974).

It is also suggested that some of these groups be essentially a "one-task force" with a single clearly defined task. Other groups would provide continuous service over both a longer time and greater range of interests. By phasing these commissions out of existence, or changing them regularly, the likelihood of their being captured by special interests is reduced. Furthermore, by changing the composition of the commission frequently, it can better serve as an information dissemination device through its members.

State level. It is at the state level where most operational policy guidance is needed. There are special needs to help local governments deal with complex or controversial issues. An example is the need for local governments to address issues of greater-than-local concern. This need can be best met with state-level guidance. Therefore, it is suggested that the state coastal commission or a special "one-task" force has this as a clear responsibility. Such a task force should prescribe procedures for making decisions of more than local significance. The task force should also develop criteria for identifying when decisions are of greater than local significance. As with the local level advisory body, it is beneficial to define the composition of the state commission to reflect the socio-economic composition of the state and to help assure that there is no gross misrepresentation of interests. The terms of the
state commissioners should be sufficiently long and staggered to insulate it from political pressures imposed by the governor.

Local level. A local level commission can be especially valuable in implementing a coastal zone management program. For local settings, numerous task forces and variable membership can help disseminate information. They can also gather information from more and different interests than would be possible with fewer commissioners or task forces.

Another critically important feature of the short-lived or variable commission is that it can be more objective and less concerned with long-term political reaction of its constituency. Although it is recognized that this may result in the advisory group being less responsible, such a short-lived organization can also enable the group to be more objectively critical and innovative in dealing with controversial issues. For example, a special "one-task force" could be valuable in resolving such controversial issues as determining permissible uses in specific land areas.

Though it changes regularly, the composition of these task forces or policy bodies could blend social and technical expertise with political experience. With such a range, the commissions could include sufficient resources to anticipate local resistance to change and political acceptability. Because of their close relationship to local information networks, commissioners may be able to overcome some of this resistance.

Based on this scheme's requirement that objectives and standards be explicit, it would be beneficial to have the composition of these commissions clearly defined. Their rules and procedures, composition, decision rationale and objectives should be clearly enumerated. It is also suggested that
performance contracts be drawn up. These contracts would provide an explicit statement of committee responsibilities and it would also commit the decision agency to specifically define its decision process and where in it the committee would fit. (This specification can be critical when legally forcing agency compliance with public decisions.) It is further suggested that the concept of constituent representation be used in establishing the overall coastal advisory commission and, when feasible, the special task forces as well. This would result in groups which would reflect the approximate socio-culture composition of the community.

Specify Objectives and Procedures

One of the keys for success in implementing any regulatory scheme is to specify as completely as possible how the program is intended to happen. The procedures for budget preparation and acceptance, the extent of judicial review and citizen access through class action litigation should be clearly understood by all levels involved in program implementation. It is recommended that the budget formulation, review and allocation also be clearly defined. This is especially important for potentially controversial items as the office of ombudsman. Such an office, for example, should be provided with as much insulation from budgetary duress as possible.

The intent of this mechanism is to provide a specific set of substantive standards and procedures so that the public as well as agency staff can easily understand what the agency should be involved with and to readily see when the agency falls short or violates its responsibilities. Every effort should be made to ensure that these requirements are as unambiguous as possible so that people in agencies, elected offices, and communities can understand them.
To ensure the most effective mechanisms are used to implement local CRM programs, as many mechanisms as possible should be suggested to agencies implementing programs. To present this information to state and local CRM agencies, threshold papers and regulations from OCZM should explain and provide authority to use various implementation mechanisms. It is suggested that the array of incentive schemes, rarely used in land and water use control, should be carefully examined for their utility in regulating coastal resource uses. (See discussion of "Examples of Public Communication in Resource Management" in Chapter II.)

In addition to threshold papers and formal regulations, other devices should be used to make agencies aware of their options and strategies to carry out the CRM program. For example, workshops or manuals of how to disseminate information about various management strategies could be provided to state and local CRM implementors.

Mechanisms to enhance the implementation of a CRM program which should be explained as possible options include the following:

**Tax incentives.** Resource management could be achieved through conservation easements or green belt zoning with reduced tax rates. This would also include such programs of land use management as Montana's land use tax base program.

**Subsidies.** These should be considered as a quick and efficient incentive to implement a program of land use control. This approach could be used, for example, to underwrite some of the cost of a package sewage treatment plant provided for residents who develop in upland clusters
rather than scattered littoral sites. The source of these subsidies or the tax incentive would be either state government or the local implementation structure. Both of these entities could be assisted with "pass-through" monies from the federal OCZM. This federal assistance is important to soften political opposition to the relatively high visibility of legislated payments to special interests.

Use tax, effluent charges, user fee and performance standards are all variations of the same mechanism of imposing a cost on the user. This cost should equal the cost born by society through its loss of utility resulting from the private non-conforming use. This represents one of the more potentially valuable approaches to deal with the problems of resource use regulation. However, major education efforts must be developed amidst the localities which implement the program, for this alternative is probably least understood but may well offer the greatest possibility for success.

One of the major constraints of this approach is determining the value of utility loss to society. This requires a baseline "desired land use" configuration, which in turn requires a clearly defined and community legitimized land use plan for the coast.

Further, variances must be limited to certain areas. There should also be a limited range of "tolerable" but not desired alternative land and water uses. Critical, fragile, environmentally sensitive, and other areas of special concern would have to be identified and excluded from such variance programs.

A user charge system offers the capability of being flexible. Such a system can accommodate technological change more quickly than many others.
In fact, research, development, and change may be encouraged through the market's profit incentive (Swainson, 1975). While this system is flexible, it may also be gradual, slowly achieving compliance, which can serve as an important factor in softening backlash from forced behavioral changes.

**Directives with "coercion".** Such devices, including politically subtle threats to audit the records of the recipient state or local entities are a more realistic option than many available to the state and federal programs. Particularly when the overseeing entity depends on the existence of their subordinate organizations for their continued existence. Because of this dependence, it is well understood by subordinates that most threats of program support withdrawal are not serious. They are aware that if the subordinate organizations do not function, neither do their superiors. Threat of such an audit, while not threatening existence of an agency can call embarrassing attention to "alleged irregularities" and the staff responsible for them. Such irregularities are common in programs which operate under degrees of ambiguity characteristic of CRM.

**Establish Office of Advocate-Ombudsman**

Assuring greater equity or equality of access to the decision process is one of the key ingredients of the proposed management-regulatory scheme. One of the major program elements to assure equity would be a clearly empowered office to represent citizen views and interests.

It is assumed that most major interests present in the coast, such as industry and developers, rarely have problems of overtly or covertly
participating in coastal resource decisions. But there are not comparable opportunities for citizen access to coastal decisions.

To mitigate this deficiency, the office of advocate-ombudsman is recommended, and it should be strong, that is, of equal strength to other competing interests. It should be well-funded and be independent of the executive or agency head. To have such independence, it is recommended that the advocate-ombudsman be afforded a status and power approximating that of the director of the agency. It is recommended that this office be located within the major implementing agency such as the state office of CRM. With this arrangement the office can develop the necessary expertise to be a regular part of decisions which affect the public interest in the coast. To enhance the political independence of this office, the advocate-ombudsman should have a term which exceeds that of the appointing governor.

Provide for Local Determination of Preferred Rational Land Use Configuration

A special effort of education must be mounted so that local residents affected by the coastal zone management program understand the various technical issues involved in determining a preferred land use plan. In order to implement this education program, a special analysis or needs assessment will be necessary for each coastal region. Based on this assessment, information programs can be targeted to specific groups within the coastal region.

A necessary first step in local determination of preferred land uses is to provide the public with sufficient information to choose among alternative land use control process mechanisms (institutions) and
substance concerns (biological and social well-being). Then opportunities
must be developed for citizens to become part of the coastal zone policy-
decision process. This does not mean having a general discussion-public
hearing. Nor does it mean doing a single survey questionnaire. If these
devices are used, they must be part of a broad and open program to reach
out and provide participation forums which can be dealt with by a range
of people.

To help citizens acquire the objective information they need for
their program, "pass-through" grants should be provided to localities.
Local citizen groups do not have the resources of industry or other
special interests. The range of coastal zone issues are often technical
and complicated. If people are to overcome these information barriers,
funds must be made available to local citizen groups so they can acquire
information from independent sources. In addition, the requirements for
receiving these funds must be made explicit so that they can be processed
openly. The grant applications should follow clearly established procedures
to determine recipients.

Develop Staff Understanding and
Commitment to the Program

It is important that there be a clear and shared understanding of
what the program is all about among all participants in coastal zone
management. This understanding and commitment must exist at the local
glass-roots level, as well as at the intra- and inter-agency levels. To
accomplish the latter two objectives, it is proposed that special programs
be instituted to create understanding and commitment to the program among
agency staff.
There must be an initiation program to acquaint the staff with program elements. Further, if it is desired that the staff be committed to the program, such commitment would be enhanced if they are able to help shape policy within the degrees of latitude offered under the Act.

To foster inter-agency coordination, similarly clear definitions of intent, authority, and responsibility must be generated and circulated to other relevant agencies and their staff. It is useful if these can be legitimized through the various review processes of the Office of Management and Budget as well as the NEPA circulation requirements of the Council on Environmental Quality.

**Develop a Community-Directed Learning Program**

This program would provide for development of a learning program to enable local citizens an opportunity to develop a knowledge base and understanding for the issues and concerns of the coastal community concerning management of the coastal zone.

Malcolm Knowles (1970) offers an important set of principles for developing adult education programs. Knowles' concept of *androgogy*, the art and science of helping people learn, is crucial to the success of any educational experience, especially experiences which depend on motivated and aware citizens. Androgogy is based on the following principles or "conditions of self-directed learning":

1. Learners must feel the need to learn;
2. The learning environment should be characterized by a comfortable physical surrounding, mutual respect and trust;
3. Learners must see the goals of learning as their goals;
(4) Learners must accept the responsibility for planning their learning experiences and thereby develop a sense of commitment to these goals;

(5) Learners should participate actively in the learning process;

(6) The learning process should be related to and use the experiences of the learner;

(7) Learners should have a sense of progress toward their goals.

It is proposed that these principles be taken into account when a learning program is developed to consider problems of coastal zone management. The results of such community-directed learning experiences are likely to be very useful to the agencies responsible for implementing a CRM program. This utility is attributable to both the technical substance and issues which are likely to be identified, and the motivation of people to take part in the process which deals with their concerns.

The Goals Served by Component I:
The Proposed Implementation Procedure

The summary presented in Table 2 presents a description of the proposed implementation procedure for Component I and is designed to meet the objectives of a coastal resource management program.

Why This Proposed Component I Procedure Is Likely to Work

Any change in existing organizations or procedures is bound to be met with resistance. However, this proposed procedure includes several features to reduce the resistance to change.

In regulation, according to Noll (1971), the global public interest is normally composed of the employees and owners of regulated entities
<table>
<thead>
<tr>
<th>Mechanism</th>
<th>Balance</th>
<th>Goals</th>
<th>Equity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Coastal Commissions and Task Forces</td>
<td>Range of interests including development, environmental and economic-less responsible to entrenched interests-special task forces must be balanced in overall perspective.</td>
<td>Greater distribution of membership and access to decisioning - increased dissemination of information through constituent representatives.</td>
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<tr>
<td>2. Specify Objectives and Procedures</td>
<td>Establish procedures for making decisions and identifying goals - establish criteria for making trade-offs - define rules for determining budget and staff requirements.</td>
<td>Provide clear understanding of how the regulatory mechanism is to operate - reduce influence of special or entrenched interests.</td>
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<tr>
<td>3. Incentives to Control Land and Water Use</td>
<td>Enhance likelihood of environmental protection being given more equal consideration.</td>
<td>Private users will pay to use common pool resources, Mechanisms for legitimizing variance from desired land or water use may initially favor wealthy.</td>
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<tr>
<td>4. Advocate-Ombudsman</td>
<td>Help assure a more accurate balance of interests through a greater number of views.</td>
<td>Greatly improve opportunities for citizen access to land use decisions.</td>
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<tr>
<td>5. Locally Determine Preferred Land Configuration with Pass-Through Grants</td>
<td>Explicit consideration of environmentally critical and development zones. Resources to research local issues improves balance.</td>
<td>Greater likelihood of equity through local determination of preferred land and water use when assisted by research grant.</td>
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<td>6. Staff Understanding and Commitment to the Program</td>
<td>Staff more likely to balance issue through greater awareness and commitment to it as a goal.</td>
<td>May appear to reduce input of outside sources, but may create staff goal to use such inputs more effectively.</td>
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<td>7. Develop a Community-Direct ed Learning Program</td>
<td>Ensure a more comprehensive set of issues and concerns -more accurately reflect the interests of the community.</td>
<td>Enhance opportunities for public definition of agency and program concern and focus.</td>
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<td>Goals</td>
<td>Efficiency</td>
<td>Compliance</td>
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<td>May be less efficient in the short run, but likely to be accepted and implemented. Distinct levels of advisory commissions may make their results more precise and speedy.</td>
<td>Greater awareness of other programs likely.</td>
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<td>Initially may take considerable time to define procedures and criteria - in long term will be more efficient to follow unambiguous procedures.</td>
<td>Initially may require greater effort to identify specific compliance requirements with other programs.</td>
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<td>Costly and complicated economic analysis necessary to establish and monitor incentive program - once established are enforced efficiently.</td>
<td>Complies with CZMA.</td>
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<td>Initially less efficient by adding another link in the chain of decision making - overall may reduce opposition, litigation and expedite implementation.</td>
<td>Complies with CZMA, and should comply with Freedom of Information Act.</td>
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<tr>
<td>May take considerable time to develop a locally determined preferred land use configuration but would provide a sound base for efficient land use decision making.</td>
<td>Complies with CZMA, and should also comply with local and state land use or critical areas programs.</td>
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<td>May appear inefficient initially but will pay off in long run through greater understanding of their responsibilities.</td>
<td>Must comply with latitude restrictions of agency operation in implementing CZMA.</td>
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<tr>
<td>Initially appears less efficient but likely to evolve into an effective program.</td>
<td>Likely to expand range of concerns of CZM programs. Compatible with CZMA.</td>
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and the purchasers of the services these entities provide. This phenomenon results from an intrinsic incapability of the process of regulation. Some of the more critical of these intrinsic incapacities include the following:

**Lack of indicators or criteria to evaluate the success of the regulatory agency's efforts.** Often the measure of the regulatory agency's self-worth is the same as the success indicators of the entities they regulate. To mitigate this problem, specific objectives and criteria are included in the regulatory scheme advanced here (1) (The numbers in parentheses refer to components of the proposed Component I procedure.) In addition, explicit local determination of preferred resource uses (5), and the staff's understanding (6) of the nature of the regulatory mechanisms are included with (7) community defined objectives and criteria.

**Difficulty of mobilization results in a bias favoring those interests who are informed and organized.** Special organized interests can much more easily and cost-effectively have their biased interests made known to the regulators than unorganized interests. This includes the general public who are not organized and do not have lobbies to present their interests.

To mitigate the bias of current vested interests, the office of the advocate-ombudsman (4) will help balance the bias towards the greater public interest. The variable and one-task forces (1) will also curtail entrenched commission perspectives coming to share special interest biases, as would (7) community-determined learning programs.
Dependence on trial and legalistic procedures. Such a dependence on legalism can result in several perverse results. Those interest most threatening as potential litigants are often granted special benefits by the regulators to appease them. Also, if it is apparent to a presiding judge that special interests have been granted "a bit more than they deserve", a special interest may be hesitant to conduct an appeal fearing loss of that special benefit.

A similar problem is that even if the regulatory entity wants to be fair, they often must depend on information which can be supplied only by those special interests they regulate, and regulatory agencies are compromised. To mitigate this incapability, procedures to implement the program are clearly identified and are designed simply to be understood by most people (2). The basic nature of the incentive system (3) is further designed to reduce the reliance on legalistic procedures. Pass-through grants to help determine local preferred resource uses (5) will reduce the dependence on data generated by the regulating agency.

Through behavioral reinforcement, biased agencies can come to believe that they are acting in the public interest. This erroneous agency perception results simply because institutions that reverse decisions of agencies are infrequently and ineffectually used by the public. Therefore, they are usually only checked by the regulatees. Consequently their definition of the public interest shifts to reflect the "conditioning" biases of the regulatees. The advocate-ombudsman (4), more popularly understood procedures (2), and greater variation in the perspective of the commissioners (1) can help mitigate this incapability.
Consistency of Proposed Program in Coastal Zone Management

The philosophy of coastal zone management is to offer a loose structure for states and localities to build their specific programs. The CZMA and its regulations and agency staff leave much discretion to the states. Therefore, almost anything goes. The program requirements as proposed are intended to satisfy the broad requirements of Sections 305 and 306 of P.L.92-583.

In addition, the "Threshold Papers", in lieu of more formal regulations, have been considered. Both reflect the "low key" approach of coastal zone management and have been incorporated into the proposed model.
Component II:
Conceptualizing Public Information and Involvement Programs

There is a growing number of techniques or procedures which have been used to attempt transfer or exchange of information between the public and resource management agencies. It has been found, however, that techniques which are selected for use often are inappropriate. This improper selection is either due to the characteristics of the people involved, the communication or management objectives to be achieved in the decision, or the nature of the problems or issues being dealt with (Males, 1976; Glasser et al., 1974).

Following is a typological model for characterizing public information and involvement techniques. It is intended to mitigate the problems outlined in Chapter III, particularly as it defines the aspect of "the public interest" by identifying the affected "public" audience. It is also intended to comply with the statutory and regulatory provisions outlined in Chapter II.

The model presented in Figure 3 "Capabilities of Coastal Resources Communication Techniques", is a modification of a model originally developed by the author and presented in a series of workshops (Manty, 1973, 1974). It attempts to present in summary form the varying capabilities of various public communication techniques to accomplish or facilitate one- and two-way communication and to accomplish specific program objectives. It is essentially a summary of the more detailed information presented in Table 3.

The matrix presents an evaluation, compiled by the author, and contributed to by a series of participants in small group workshops (as explained in the "Procedure" section of Chapter I, including Notable, Glasser, Nehman, Sinclair, Crook, Stang, and contributions from Kammernd).

It presents a representative series of 23 techniques for informing and involving the public. These various techniques represent the range from both
the common public hearings to the not-so-common delphi exercises and ombudsman. There are six clusters of these techniques which offer a general description of their various capabilities.

Their relative capability to accomplish specific communication objectives are also evaluated and presented.16

One-Way Communication

One-way information is an important component of public communication. One-way information includes those activities or concerns which involve information transfer. This component is further delineated to include three sub-categories.

(a) **One-way information flow - dissemination** is the first of these. It includes that process by which information is broadcast or "trickles-down" through a community from an information source. An example of one-way information dissemination is a brochure published by a CRM agency to provide basic information about the intent and nature of the CZM Act. This category is usually used to describe the communication of agencies to the community.

(b) **One-way information flow-reception** is also included as a separate category in this delineation. It includes those techniques through which communities and citizens provide information to agencies. This may be in the form of statements by individual citizens presented at public hearings, or it may be input information through a survey of citizen opinions or concerns actively solicited by a CRM agency.

(c) **Public relations information** is a third variety of one-way information flow. This includes those procedures or techniques through
### Characteristics of Public Communication Techniques for Informing and Involving the Public

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<tr>
<th>Characteristics (1)</th>
<th>Public Communication Objectives (2)</th>
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<tbody>
<tr>
<td></td>
<td>Inform/Educate</td>
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<tr>
<td>One-Way Flow Dissemination</td>
<td>Degree of Two-Way Communication</td>
</tr>
<tr>
<td>Group A - Large Group Meetings</td>
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<tr>
<td>2 1 2 0</td>
<td>1 - Public Hearings</td>
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<td>Group B - Small Group Meetings</td>
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<tr>
<td>1 2 3 3</td>
<td>3 - Presentations to Community Groups</td>
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<td>1 3 2 3</td>
<td>4 - Site Visits</td>
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<tr>
<td>1 3 3 3</td>
<td>5 - Advisory Body</td>
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<td>1 3 3 3</td>
<td>6 - Task Force</td>
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<td>1 1 2 3</td>
<td>7 - Role Playing Exercises</td>
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<td>1 1 2 3</td>
<td>8 - Values Clarification Exercises</td>
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<td>1 2 2 3</td>
<td>9 - Workshops</td>
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<td>1 3 3 3</td>
<td>10 - Delphi Exercises</td>
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<tr>
<td>Group C - Organizational Approaches</td>
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<tr>
<td>2 2 2 2</td>
<td>11 - Regional and/or Local Offices</td>
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<tr>
<td>1 3 1 3</td>
<td>12 - Citizen Representation on Policy Boards</td>
</tr>
<tr>
<td>2 3 3 3</td>
<td>13 - Ombudsman and Community Advocate</td>
</tr>
<tr>
<td>3 1 3 2</td>
<td>14 - Public Interest Center</td>
</tr>
</tbody>
</table>

(continued)

**FIGURE 3. CAPABILITIES OF PUBLIC COMMUNICATION TECHNIQUES**
<table>
<thead>
<tr>
<th>Characteristics(1)</th>
<th>Public Communication Objectives(2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>One-Way Flow Dissemination One-Way Flow Reception One-Way Flow Public Relations Degree of Two-Way Communication</td>
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<td>Techniques for Informing and Involving the Public</td>
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<tr>
<td>Group D - Media</td>
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<td>Group E - Community Interaction</td>
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<td>2</td>
<td>2</td>
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<td>Group F - Legal Mechanisms</td>
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FIGURE 3 - Continued.
Footnotes for Figure 3

(1) These evaluations are based on a simple set of numbers - 1, 2, and 3 - respectively, representing low, satisfactory, and high degrees as noted below:

Key: "One-Way Flow-Dissemination"

1 = few people contacted
3 = a vast audience contacted

"One-Way Flow-Reception"

1 = very little reception
3 = significant reception

"One-Way Flow-Public Relations"

1 = responds to few selective messages
3 = responds to many selective messages

"Degree of Two-Way Communication"

1 = very little
3 = high degree

(2) These characterizations are based on a simple model of the public decision process presented by Bishop (1972), and similar to models presented by Warner (1973) and Frye (1977).
which selected information is targeted toward specific groups. It is often intended to provide awareness and to encourage specific reactions or behaviors. It is distinct from one-way public information in that it has the intentional objective of communicating limited information.

**Two-Way Communication**

Two-way communication is a second element of the public communication process. It includes those activities which involve interaction and exchange or processing of information. A number of techniques are available through which two-way public communication can occur. The usefulness or appropriateness of these techniques varies considerably depending on the size of the communicating body, the size and diversity of the body being communicated to, and the length or complexity of the message. It also varies with the specific objectives within the management process.

For a technique to function as a public involvement tool, it must allow for citizens to become involved in decision making.

**Component III: An Environmental Problem Solving Process for Selecting the Appropriate Public Communication Technique**

Figure 3 presents a representative list of techniques for public participation and communication, and along with Table 3, offers a characterization of their respective capabilities.

In order to make best use of the variety of public communication techniques, there must be a systematic procedure for selecting appropriate techniques to accomplish specific objectives. Coming to understand the characteristics of these various techniques as presented in Table 3, is an important prerequisite to appropriate technique selection.
To help select appropriate techniques, Stapp and Glasser (1974) have developed and applied the following five-step environmental problem solving model. It is proposed that this model offers a useful tool to help select appropriate public information and involvement techniques in designing a public communication program. It is therefore proposed as a component of the overall CRM public communication paradigm. This model includes the following elements:

- Phase I: Define the Problem
- Phase II: Identify Alternative Solutions
- Phase III: Design a Plan of Action
- Phase IV: Implement the Action Plan
- Phase V: Evaluate the Action Plan

The Stapp/Glasser model is based on several basic principles. People who are going to be involved in solving or otherwise dealing with environmental problems must develop a knowledge of the problems of the environment, including sociocultural and biophysical characteristics of those problems. Further, people interested in solving environmental problems must be aware of the process of the real world which operates to deal with these problems. And then, people interested in dealing with environmental problems must be motivated to work for the resolution of these problems.

The following Table 3 presents a descriptive analysis of the twenty-two relatively common public communication techniques presented in Figure 3. It is a modification of a table originally prepared for a paper presented by the author in Paris (Manty, Glasser and Nehman, 1975).
### TABLE 3. SUMMARY ANALYSIS OF PUBLIC COMMUNICATION TECHNIQUES  
(Manty et al, 1975)

<table>
<thead>
<tr>
<th>TECHNIQUE</th>
<th>DESCRIPTION</th>
<th>ADVANTAGES</th>
<th>DISADVANTAGES</th>
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<tbody>
<tr>
<td><strong>Large Group Meetings</strong></td>
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<tr>
<td>1. Public Hearing Definition</td>
<td>o Formal public proceeding usually required by statute</td>
<td>Provides an opportunity for the public to ask questions and voice opinions. It is a traditional technique, familiar to many citizens.</td>
<td>Does not usually allow for two-way communication or continuity of interactions.</td>
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<td></td>
<td>o Purposes: To certify proposed plans and discuss other related issues</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Public Meeting</td>
<td>o Definition: Informal public proceeding</td>
<td>Same as above.</td>
<td>Same as above.</td>
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<tr>
<td></td>
<td>o Purposes: To discuss issues.</td>
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<tr>
<td><strong>Small Group Meetings</strong></td>
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<tr>
<td>3. Presentations to Community Groups</td>
<td>o Definition: Lecture and discussion with specialists.</td>
<td>Opportunity for informing the public and exchanging information.</td>
<td>Is not a decision-making meeting. Lack of good two-way communications may lead to citizen apathy.</td>
</tr>
<tr>
<td></td>
<td>o Purposes: To identify community concerns and to inform citizens of the plans, issues, pollution control techniques, water quality agencies, etc.</td>
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<tr>
<td>TECHNIQUE</td>
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<tr>
<td>Small Group Meetings</td>
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</table>
4. Site Visits           | - Definition: Field trip to sites of existing or potential impacts        | Provides opportunity to more clearly understand the many dimensions of a problem | Time consuming and expensive, especially where sites are distant or inaccessible. |
<p>|                       | - Purposes: To sensitize planners and citizens to project impacts.           |                                                                          |                                                                             |
| 5. Advisory Body      | - Definition: Formally appointed representative citizen group               | Provides opportunity for continuous two-way communications and with a representative body reduces the need for community meetings. Assist in gaining support for a plan if they are fully involved in planning. | Role of body often mistakenly seen by the public as a decision making body and by agencies as a threat. Agencies are often reluctant to cooperate and use the body for superficial activities. |
|                       | - Purposes: To sensitize planners and citizens to project impacts.           |                                                                          |                                                                             |
| 6. Citizens Task Force| - Definition: Formally appointed citizens knowledgeable about a specific problem. | Provides in-depth information on issues. Often can cut across agency jurisdictional boundaries to seek solutions to problems. | Task force has no power to implement findings. It is usually disbanded after its work is completed, thus limiting potential action on the problem. |
|                       | - Purposes: To study lay and professional concerns on a particular problem and make recommendations for action. |                                                                          |                                                                             |</p>
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<th>TECHNIQUE</th>
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<td>Small Group Meetings</td>
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<tr>
<td>7. Role Playing</td>
<td>o Definition: An educational and decision making technique where real world problems are simulated by individuals who act the part (play the roles) of decision makers or citizens.</td>
<td>Provides an opportunity for citizens to experience decision-making problems and become sensitive to the complexities of economic, social, and environmental decision making.</td>
<td>Requires skilled group leader to be most effective.</td>
</tr>
<tr>
<td></td>
<td>o Purpose: To sensitize citizens and decision makers to the economic, political, social, and environmental aspects of resource decision making.</td>
<td></td>
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<tr>
<td>8. Values Clarification</td>
<td>o Definition: Carefully designed activities for people to examine conflicts between their behaviors (lifestyles) and their stated beliefs (values). (For example, the conflict between weak support of pollution control projects valuing clean water.)</td>
<td>Provides an opportunity for the public and agency persons to re-examine the basis for their opinions and decisions on water resource issues and to potentially change their behaviors in that regard.</td>
<td>Requires careful preparation and well trained leaders to be effective.</td>
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<tr>
<td>Exercises</td>
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<tr>
<td><strong>Small Group Meetings</strong>  (Continued)</td>
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<tr>
<td>9. Workshops</td>
<td><strong>Purpose:</strong> To clarify people's values and align their behaviors to these values.</td>
<td>Provides an opportunity for two-way communication and a good learning experience for both the public and government representatives.</td>
<td>Same as above.</td>
</tr>
<tr>
<td></td>
<td><strong>Definition:</strong> Working sessions in which interested affected public and government representatives discuss specific issues.</td>
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<td></td>
<td><strong>Purpose:</strong> To identify and to recommend solutions to problems.</td>
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<tr>
<td>10. Delphi Exercises</td>
<td><strong>Definition:</strong> An educational and decision making tool in which citizens and decision makers can choose alternatives via pairwise comparisons.</td>
<td>Facilitates the process of a large amount of information in a systematic manner. Immediate feedback and ranking by Delphi is a low cost method of assimilating expert opinions.</td>
<td>Requires skilled group leader and participants who are committed to the objective of reaching a consensus.</td>
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<tr>
<td></td>
<td><strong>Purpose:</strong> To reach consensus on the solutions to problems by jointly considering the opinions of a diverse group of expert witnesses.</td>
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### TABLE 3 - Continued

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<th>DESCRIPTION</th>
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<tr>
<td><strong>Institutional Arrangements</strong></td>
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<tr>
<td>11. Regional and Local Offices</td>
<td>Definition: Public agency offices located close to projected areas to administer programs.</td>
<td>Opportunity for agency personnel to become more sensitive to local issues. Increase services at the local level.</td>
<td>May be vitally expensive to house and some loss of central control may be experienced.</td>
</tr>
<tr>
<td></td>
<td>• Purpose: To provide better contact between agency and local citizenry.</td>
<td></td>
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<tr>
<td>12. Citizen Representation on Policy Bodies</td>
<td>Definition: Lay citizen participation in the decision making process.</td>
<td>Permits citizens to participate in decision making; encourages citizens to being committed to support project implementation.</td>
<td>Appointed representatives may not, in fact, represent their constituency. To be effective, representative must be forceful and articulate.</td>
</tr>
<tr>
<td></td>
<td>• Purpose: To provide community interest groups with greater involvement in decision making.</td>
<td></td>
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<tr>
<td>13. Ombudsman and Community Interest Advocate</td>
<td>Definition: An agency appointee to serve as a liaison with the community.</td>
<td>Provides a mechanism for two-way communication between public and agency. Cuts through bureaucratic roadblocks.</td>
<td>Agency can abuse this mechanism by not giving the ombudsman access to vital information or by not considering citizen concerns.</td>
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### TABLE 3 - Continued.

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<tbody>
<tr>
<td><strong>Institutional Arrangements</strong></td>
<td>o <strong>Purpose:</strong> To investigate and resolve community complaints and make policy recommendations to decision makers.</td>
<td></td>
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<tr>
<td>(Continued)</td>
<td></td>
<td>Provide a new institutional arrangement devoted to assisting the citizen in improving two-way communication with government.</td>
<td>Agency can abuse this mechanism by not giving the ombudsman access to vital information or by not considering citizen concerns. May easily be ignored by government which may see the Center as a threat to their authority or merely as a public relations office.</td>
</tr>
<tr>
<td>14. <strong>Public Interest Center</strong></td>
<td>o <strong>Definition:</strong> An office which disseminates information and provides speakers for community meetings</td>
<td></td>
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<td></td>
<td>o <strong>Purpose:</strong> To serve the community as a source of information on environmental issues, citizen rights, and technical information written so the general public can understand it.</td>
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<tr>
<td>Media</td>
<td></td>
<td>Can reach a large number of people at a low cost with little feedback.</td>
<td>One-way communication to the agency. Simplify Brevity may omit key complex information for information from being transmitted.</td>
</tr>
<tr>
<td>15. <strong>Information Pamphlets, Brochures, and Summary Reports</strong></td>
<td>o <strong>Definition:</strong> Brief written materials on environmental issues.</td>
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<td>TECHNIQUE</td>
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<tr>
<td>Media (Continued)</td>
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<tr>
<td>16. Slides and Film Presentations</td>
<td>o Definition: Brief pictoral presentation showing water quality issues and solutions. Can be inexpensive to film distribution and develop. When used with providing projectors showing water quality issues and opinion can be expensive. Leaders can be an effective change tool.</td>
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<td></td>
<td>o Purpose: To create awareness of water quality problems, and methods of dealing with them (e.g., land use practices).</td>
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<tr>
<td>17. Tape Recorded Information Network</td>
<td>o Definition: Tape cassettes sent to citizen groups with discussion topics. Citizen responses are recorded and returned. Allows information to be distributed to a wide and requires time to audience. Promotes two-prepare. Citizen way communication.</td>
<td>Technique is expensive</td>
<td></td>
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<tr>
<td></td>
<td>o Purpose: To inform citizens and obtain their opinions on issues quickly.</td>
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<td>TECHNIQUE</td>
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<td><strong>Media</strong> (Continued)</td>
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<tr>
<td>18. Radio and Talk Show</td>
<td>o Definition: Program which provides experts a forum to respond to telephoned questions from citizens.  o Purpose: To provide a forum where many citizens can listen to a question and answer session with leaders or experts.</td>
<td>Citizens can have direct two-way communication with decision makers and a wide audience can be reached.</td>
<td>Agency administrators may be unwilling to commit time. They may also not like the public scrutiny.</td>
</tr>
<tr>
<td>19. Press Release, Special Feature Articles and News Letters</td>
<td>o Definition: Easily understood articles which reach a wide audience.  o Purpose: To inform people of issues rapidly. To announce meeting dates, changes in technology and changes in the law.</td>
<td>Provides a forum for local issues and continuous communication.</td>
<td>Editorial subjectivity can distort issues and destroy creditability. Maintaining updated mailing lists may be expensive.</td>
</tr>
<tr>
<td>TECHNIQUE</td>
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<tr>
<td>Community Interaction</td>
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<tr>
<td>20. Response to Public Inquiries</td>
<td>o Definition: Official response through letter, telephone, or other.</td>
<td>Can provide honest and precise responses to concerns of citizens.</td>
<td>Requires open and knowledgeable persons in agencies to respond competently.</td>
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<tr>
<td></td>
<td>o Purpose: To maintain good communications with the public and to respond to questions.</td>
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<td>21. Formal Attitude Survey</td>
<td>o Definition: A systematic assessment of a representative sample of a community.</td>
<td>Provides an objective view of popular values and preferences that representative of the community.</td>
<td>Is expensive and requires experts to conduct accurately. Questions must be carefully worded so as to be interpreted correctly by respondents and analysts.</td>
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<tr>
<td></td>
<td>o Purpose: To determine the values and positions of the public on specific issues.</td>
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<td>Legal Mechanisms</td>
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<tr>
<td>22. Citizen Suits</td>
<td>o Definition: Opportunities in the law for citizens to sue agencies and individuals for not enforcing water-related laws.</td>
<td>Provides direct line of citizen access to the policy process, insures equitable discharge of agency responsibility as</td>
<td>Is often expensive. Few citizens have the skills to use this technique sometimes effectively. Is used to block agency actions, stopping them from fulfilling</td>
</tr>
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<tr>
<td><strong>Legal Mechanisms</strong> (Continued)</td>
<td>o Purpose: To insure that the laws are enforced, that consideration is given to the impacts of projects, and that public information is available.</td>
<td>defined by the judicial system. The threat responsibilities of suit also acts as a restraint on agency action and is not expensive.</td>
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CHAPTER V

PARADIGM APPLICATION IN IMPLEMENTING A PUBLIC COMMUNICATION PROGRAM:

AN EXAMPLE

To develop and carry out a public communication program for coastal resource management, several steps must be taken by the responsible agency, as presented in the paradigm of Chapter IV. First, an overall strategy to develop and carry out the program must be considered, including implementation procedures. This is necessary to assure that there is an understanding and a broad perspective of how and why elements of public communication are necessary. Such a perspective can also help by encouraging consideration of the rational boundaries of the various actors involved in the decision process of the program.

A systematic approach must then be taken to solve the problem of developing a public coastal communication program. Based on individual communication objectives the array of public communication techniques must be considered, evaluated, and the most appropriate technique selected to accomplish particular communication and ultimately management objectives. This is best done by using a systematic problem solving procedure to select the most appropriate techniques to accomplish specific objectives.

Further, if public communication program effort for managing coastal resources is to be comprehensive, it must encourage as wide an audience as possible. Such a program should also encourage citizen initiatives to develop a community knowledge base concerning the problems of coastal zone management. To offer a specific example of a public communication strategy, a public communication program is presented for developing one important
element of a CRM public communication-implementation program: a community-directed learning program for coastal resource management concerns. It is intended that this example would be most helpful to an agency responsible for carrying out a CRM program, but it should also be helpful to any other group or individual interested in the public communication process and CRM.

After an overall implementation strategy is developed, a public information and involvement program must be established to help achieve that strategy.

An awareness of the specific decision making processes as outlined in Table 1 and Figure 2 which are in effect should determine the nature of the public communication strategy and program that a coastal resource management organization will develop. In addition to making use of information in Chapter III, this section utilizes a variety of the techniques presented in Chapter IV, Figure 3 and Table 3, which may be incorporated into such a program. Based on the collective experience of the author and various workshop participants as outlined in the "Procedure" section of Chapter I, these techniques have been evaluated according to their communication capabilities and their ability to deal with a variety of resource education communication and participation objectives.

The communication techniques described in Chapter IV are intended to be used together to help meet the specific communication, information, and participation needs of people. The approach suggested for developing a coastal resources communication program for one element of a CRM implementation strategy is based on the five-step environmental problem solving process as described in the previous chapter. It is developed for use in structuring a community-directed learning program sponsored by a public
agency. However, it is useful in developing a program at the community, the state or the national level (Glasser, 1974). The approach taken to develop such a program is as follows:

Phase I : Define the Problem
Phase II : Identify Alternative Solutions
Phase III : Design a Plan of Action
Phase IV : Implement the Action Plan
Phase V : Evaluate the Action Plan

The following example illustrates how the systematic problem solving process could be used to develop a public communication strategy. This strategy is targeted at building an information and involvement program for the community-directed learning element of Component I of the proposed public communication paradigm. This approach should also be used for the other elements of Component I, as well as Component II (Manty et al, 1975).

In developing a communication strategy, the following issues or questions should be considered for each specific component and element of the paradigm proposed in Chapter IV.

1) What is the nature of the problem(s) to be addressed?
2) What public communication techniques could be used?
3) What are the questions to be asked of participants or communicators?

These questions should be reiterated for each phase of the systematic problem solving process as will be illustrated in the following example.

Phase I: Define the Problem

In this problem solving process, one-way information-reception is an important component. Information must be collected to prepare a precise
definition of the problem. Such information should include new developments in environmental policy and definitions of the water quality, land use, socio-economic and other coastal problems. In addition, the community's experience with public participation and any other public communication activity must be determined. The community's problem solving experience, agency and citizen attitudes toward water or other coastal resource quality, and attitudes toward public education and information on coastal resource issues should also be identified. Sources of information to help obtain such information include existing reports, brochures, pamphlets, newspaper or other media accounts.

Suggested Techniques

The techniques which are selected for Phase I should emphasize the development of public awareness and should help collect information on the overall problem. From the cluster of similar groups of techniques presented in Figure 3, the following specific techniques are recommended.

(1) **Group A - Large Group Meetings** should be used to identify citizen concern in a program and to introduce the concept to the community.

(2) **Group B - Small Group Meetings** are helpful for identifying issues. They are usually conducted with an advisory committee. Small group meetings may also be used to make operational decisions.

Questions to Ask

(1) Have all relevant persons or interest groups/organizations been contacted and advised of program developments?
(2) Have relevant publications, books and articles been researched?

(3) What gaps exist in the information?

(4) What additional information will be helpful?

(5) Is there enough information to develop an action plan?

(6) Have all the social, political, economic, and environmental components related to coastal resources communication program development been identified and resource people for each encouraged to participate in the plan development?

(7) Given the information, what conditions are needed to develop a communication program; i.e., public awareness, public action, institutional awareness, institutional changes or financing for the program?

(8) Can the problem be restated to change from a negative to a positive focus; e.g., "educating people about the problems of dirty water" to "educating people about cleaning the water"?

(9) Is the problem too complex to be handled easily? One way to state the problem is "What should be the nature of a coastal resources communication program?" Another way is to address a series of more specific questions such as:

"How can we educate the mass publics?

What learning curriculum can be developed for the youth?

How should teacher training programs be organized?

How can attitudes of decision-makers toward citizen participation be assessed and changed?"

(10) What are the goals for educating people about the problems of the coastal environment?
(11) What actions are needed to achieve the goals; i.e., what are specific objectives?

(12) What are the resources available to serve as both a knowledge and resource base?

**Phase II: Identify Alternative Solutions**

One serious problem in coastal resource planning is that the alternatives are often too narrowly defined (Mitnick, 1976). Opening up the decision making process often allows for broader alternatives to be considered (Lewin et al., 1939). Therefore techniques allowing free exchange of ideas are most important during the phase, so two-way interaction is essential during this time.

**Suggested Techniques**

Group B - **Small Group Meetings** will be helpful in identifying alternatives and making decisions with an advisory body.

**Questions to Ask**

(1) Have both traditional and non-traditional alternatives been considered?

(2) Have other institutions been examined which have successful public communication programs, including industry?

(3) Has the economic, social, political, and environmental feasibility of each alternative been considered?

(4) Has a combination of several alternatives been considered?

(5) What are the basic assumptions about which alternatives to choose?
(6) Are these assumptions valid? For example, a common assumption is that citizen awareness of environmental problems alone will significantly affect their resolution. Research has shown, however, that this is not the case. Awareness itself will not involve people in problem resolution. Participation must be achieved before significant involvement in problem resolution occurs (Bem, 1967).

Phase III: Design an Action Plan

Developing an action plan requires a coordination of all the participants, organizations, agencies, and local government. During this phase both two-way interaction and one-way public relations information programs are important.

Suggested Techniques

Group B - Small Group Meetings to develop the plan.

Group C - Organizational Approaches to accommodate institutions, and to respond to citizen needs and complaints.

Group D - Media to keep the public informed of the steps being taken to develop a plan and the interim decisions being made.

Group E - Community Interaction to be available for individual citizens' opinions and to determine community attitudes toward the water resource education program.

Group F - Legal Mechanisms to assist in implementing the action plan.

Questions to Ask

(1) What can be done about the problem of education within existing resource constraints?

(2) Which actions need to be taken first?
(3) What actions can be taken first?
(4) Who are "friends"? How will they be able to help?
(5) Who will be the "losers" and the "winners" if the action plan is successful? How will the "losers" be compensated?
(6) Is the time right politically to implement the action plan?
(7) What criteria will be used to judge success (i.e., changes in attitudes or behaviors, numbers of people involved, or pamphlets distributed)?
(8) What happens if the plan does not work:
(9) If the action plan is to educate the public on the coastal environment, are the government institutions prepared for citizens who will take action on their own behalf?
(10) Are there provisions in the action plan for constantly re-evaluating its direction and effect?
(11) Is the action plan flexible enough to be changed with new information?
(12) If all the needs cannot be met immediately, does the action plan consider the addition of new programs with time?

Phase IV: Implement the Action Plan

One-way public relations information is important during this phase as is two-way communication to ensure prompt feedback to program coordinators.

Suggested Techniques

Group A - Large Group Meetings to generally inform citizens of what the program offers them and to receive their comments on any changes that may be needed.
Group B - Small Group Meetings to make presentations to community organizations and workshops and to discuss the program and encourage citizen groups to multiply efforts by educating themselves.

Group C - Organizational Approaches to employ the techniques selected for improving agency's responsiveness to public needs.

Group D - Media to keep the community informed of the progress in the implementation schedule and the program itself.

Phase V: Evaluate the Action Plan

One-way information-reception and two-way interaction are important in this phase to help provide the CRM program with accurate information concerning its ability to reach its objectives.

Suggested Techniques

Group E - Community Interaction to get feedback through attitude surveys and public inquiry on changes in citizen knowledge, attitude, and behaviors.

Group D and E - Attitude Surveys and responses to public inquiries can provide information on changes in citizen knowledge, attitude, and behaviors.

Questions to Ask

(1) Has each step in the process been examined to identify effective and ineffective decisions?

(2) Have mechanisms been developed for evaluating effects on the public?

(3) What will be done now to improve the program in the future?
The preceding chapter offered an example of how the paradigm operates. It utilized Component III, a systematic environmental problem solving model to select appropriate public communication techniques from the typological model of Component II, for one of the seven elements of Component I. Following this general example for the other elements and components of the public communication paradigm, an overall communication strategy could be developed. Such a strategy, based on the three questions and five phases of the systematic problem solving model, is likely to result in an effective public communication program.
CHAPTER VI

SUMMARY

This study has reported the results of an investigation of public communication in coastal area management programs. As a result a paradigm, or set of procedural models, has been developed to design and carry out a public communication program for coastal management under P.L. 92-583.

The study began by examining the reasons for concern about public communication. Several legislative programs have been enacted to help manage the environment. Most of these programs have included specific requirements which affect public communication. Despite these requirements and the considerable energy and resources that have gone into meeting public communication requirements, many of the programs appear to be ineffective.

Within the frame of Olsen's participatory-democracy decision model, the concept of bounded-rationality or lexicography was presented as one way to understand how people operate to make decisions affecting CRM, particularly the problem of government to respond equally to all individuals and groups. This concern is reflected in the goal of equity established by the CZMA.

A summary of the four framework goals established by the singularly most important legislative program affecting coastal resource management, P.L.92-583, was offered. These four goals include equity in access to information and decision making concerning coastal resource management programs, problems and options, a rational balance of economic and environmental concerns, cost-effective administration, and compliance with pertinent statutes and regulations.

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Chapter II reported a review of legislative and regulatory requirements with implications for public communication in CRM. Specific requirements affecting public information, involvement, and implementation contained within the CZMA and several other major legislative programs were summarized. These include provisions affecting informational materials and access to them, "encouraging" the public to participate, public hearings, consultational notification, enforcement, legal proceedings, and advisory committees.

A summary and analysis of the implications of alternative distributions of responsibility for implementing public communication programs was also prepared as established in Section 306(e)(1) of P.L.92-583. The important conclusion of this analysis was that the greater the freedom, resources, and latitude offered local governments to develop a CRM program, the more effective the program is likely to be.

An analysis was offered of directive and incentive regulatory mechanisms as they affect implementation aspects of public communication programs. A selected review of resource use control programs, with implications for the implementation component of public communication was also offered. The conclusion of this analysis was that a system of positive incentives rather than often negative directives are more likely to be effective in developing a viable CRM program.

Chapter III reported an analysis of problems associated with public communication programs. Through a review of theoretical and case study literature, three major problems were identified. The first of these was policy implementation, or political-administrative translation of public policy decisions into agency programs. Several problem elements are included within policy implementation. Among these are standards and
objectives, policy resources, interorganizational communication and enforcement activities. Also included are the characteristics of implementating agencies, economic, social and political conditions, and the disposition of implementors. By recognizing and mitigating these problem elements, a better implementation procedure can be developed. The second set of problems of public communication included the various problems endemic to natural resource management and regulation. Differences between substance and process goals, the balancing of competing goals within these categories, and how the public interest could be served in this process were among the problems considered. It was determined that although it would be difficult, most of these problems could be ameliorated through a carefully designed public communication program.

The third problem considered the public communication implications of different conceptions of collective decision making and decision theories, including a comparison of utility maximization and descriptive incremental theories. The concept of bounded rationality was offered as the policy decision theory which was consistent with the "disjointed-incremental-fragmented-pluralistic" process empirically identified.

Chapter IV proposed an overall public communication paradigm for coastal resource management programs which attempted to take into account the problems summarized in Chapter III. Three component models were proposed as part of the paradigm. A model of the implementation, or political and administrative communication process, was presented as the first component. A second component presented a model of one-way and two-way public information and involvement and a characterization of public information and involvement techniques. A third component offered a
systematic environmental problem-solving process to select appropriate
information and involvement techniques to accomplish specific communication
objectives.

This paradigm was designed to better understand and deal with
problems of public communication. Public communication was defined to
include three components: one-way information flow, two-way information
flow or interaction, and the implementation or translation of public
policy decisions into agency programs. Only by dealing with all three
of these components through the proposed paradigm can effective public
communication programs be designed and carried out for coastal resource
management.

Directions for Future Research: Investigating
Bounded-Rationality in Field Settings

The concepts of bounded rationality have been observed to operate
in experimental laboratory settings. Some of the results have important
parallels with findings from case studies and observations of public
communication experiences in resource management. However, much of the
empirical and case study investigations have not focused on cognitive
processes. Such investigations therefore are of limited value in
describing the phenomena of bounded rationality operating among decision
makers in coastal resource management.

Although it was not feasible as part of this effort, it is the
position of this author that it would be useful to look for examples
of bounded rationality in detailed community decision-making case studies.
This could be done through an investigation of personality, cultural or
institutional influences upon behavior and attitudes in natural resources
decision making. To undertake such an investigation of bounded rationality in field settings, several suggestions are offered.

The law of small numbers. White et al (1974) pose the empirical question of whether individuals overgeneralize on the basis of small samples of evidence. It is important to know if people make distinctions between short and long periods of observation when evaluating information or making decisions. Similarly it would be useful to know if people accept conclusions without questioning the amount of data upon which those conclusions are based.

Judgments of causality and correlation. In examining empirical or case study evidence, it would be helpful to determine whether people attribute a bad outcome to a bad decision and a good outcome to a good decision. If an agency conducts a public meeting, has developed an effective one-way information-dissemination program, but the public opposes the proposals put forward by the sponsoring agency, is that regarded as a failure of the public communication program? How people interpret evidence, especially when it supports or refutes a preconceived hypothesis is also an important element of judgments which should be observed. Illusions, or "perceived correlations" have been observed to play a significant role in certain "objective" observations. That is, people appear to perceive relationships that they expect to see in data, even when those relations may not be present. It is important to determine if these phenomena are operational in the perceptions and judgments which define the rational boundaries of people involved with public communication.
Although it has not been possible to do a validation of this paradigm given the constraints of time and resources, such a "real world" evaluative effort is an important next step. It would be informative to review the implementation and public communication features of a natural resources management program for EPA, NOAA-OCZM, or a similar resource management agency with public communication responsibilities.

One of the important aspects which merits additional consideration is the issue of equity and public interest. There have been considerable recent efforts to define a public interest typology (Mitnick, 1976; Noll, 1974) and to develop an awareness that certain public communication techniques are more appropriate than others to achieve that public interest equitably. It is hoped that this study has helped provide some direction in understanding and selecting such techniques. But much more needs to be done. A thorough and comprehensive empirical analysis is necessary to provide evidence to judge the conception.

Another area which needs additional investigation is the equivocal goal of environmental quality. A key issue in this controversy is what constitutes an environmentally "rational" use of land and water resources. This issue was only touched on in the text of this report and in Appendix A.

Once new and better procedures are determined, putting them into effect involves another significant area of additional research. Lindblom (1967) and Wildavsky (1973) suggest that incremental or gradual change is more likely to engender a positive response than drastic change. Kaufman (1974) elaborates on this concept. He suggests that the imple-
mentation process will be influenced by the amount of organizational change that is required. That is, the less organizational change involved, the less resistance and the greater the likelihood of program implementation. There appear to be several significant implications for implementing public communication programs from these propositions. To achieve change most effectively and efficiently, the best strategy appears to be the involvement of affected people including agency staff as well as the community in determining goals, at a slow but deliberate pace. There is a further need to provide an active role for affected or interested people in a continuous planning, decision making, and implementation process.

This gradual change seems especially important given the limitations of the CZMA, for it is a coordinative act. It encourages the plethora of fragmented entities operating within states and regions to develop cooperative and compatible management schemes for their coasts. But the CZMA does not require participation of any state or region.

Several conclusions can be drawn from this research effort. People in agencies should be aware of their rational boundaries regarding public communication programs. Their positions or assumptions of the nature of the public communication process, ranging from public decision making to public relations should at least be known to themselves. Further, the agencies should make their expectations known to the community.

Public participants should also learn to identify their rational boundaries, or expectations regarding the public communication process. They should have this awareness of themselves, other public participants,
as well as the other sets of public decision actors. They should also learn how they are different, and ultimately what they can do to resolve those differences.

To promote the most understandable public communication programs, with the fewest surprises for everyone, performance contracts should be developed for specific public communication activities such as advisory commissions and task forces. These performance contracts should explicitly list the objectives as well as the distribution of responsibility and authority among participants and agencies.

Much needs to be learned about the process of public communication in public decision making, and what is known should be shared by those who have decision making responsibility. A reasonable beginning point is with in-service training for agency staff. Other likely candidates for such learning programs would be members of public advisory committees, and other key publics through a community-directed learning program.

Not everybody is interested in communications regarding coastal resource management. But agencies responsible for CRM should assume that all members of the coastal management community are potentially interested, and should do everything possible to reach as diverse a cross section of the coastal community as they are able. No member of the coastal public should be inevitably "surprised" by any action taken by a CRM agency.

Techniques for public information and interaction have varying capabilities. A systematic approach should be taken to develop a message strategy to match the communication objective and the audience segment with the appropriate techniques. To reach a wider cross-section of the
coastal community, it is necessary to develop multiple message strategies to reach distinct segments of the coastal audience.

Community-directed learning and communication programs should be encouraged and supported by responsible CRM agencies. To ensure that as wide a range of alternatives as possible are considered in coastal resource management programs, learning resources must be made available to coastal communities. These resources include agency staff, funding to hire independent technical advice, and assistance in focusing on specific CRM learning problems.
FOOTNOTES

1 This section is based on an interview with a staff member of the President's Council for Environmental Quality who asked to remain anonymous. The interview took place on August 22, 1975 in the New Executive Office Building, Washington, D.C.

2 There is a similar EIS provision for the marine sanctuaries program. However, these are usually administered separately from coastal zone management programs and are not considered part of the Coastal Zone Management Program here per se.

3 There are some potential conflicts of air quality plans with CRM programs concerning stationary sources. Ambient standards tend to disperse the location of new stationary sources such as major power plants. If the objective is to maintain ambient air quality, it is better to spread around the pollution and to incorporate this likelihood in developing a CRM plan. However, there are two factors which are in conflict with this policy regarding developments in coastal areas.

(1) The source performance standards apply to all new factories and plants, regardless of where they are located.

(2) There are so-called "significant deterioration regulations", through which a governor designates areas of a state where he/she is willing to permit the air to be degraded somewhat, or not at all. Essentially this means that there will be a tendency to locate new industries in areas that already have air pollution problems rather than in pristine areas, dependent upon how the governor designated areas within the state.

These factors must also be taken into account when developing a CRM plan. But once CRM plans have been adopted, all federal activities must be consistent with the provisions of those plans, and citizens can force consistent compliance through judicial injunction.

Mobile Sources. In addition to efforts to improve automobile emissions, there are two other aspects of controlling mobile sources which have implications for CRM.

The first is the development of transportation control plans in metropolitan areas, many of which are in coastal areas. Although many of these plans are still in early development stages, the general effort throughout the transportation control plan is to reduce vehicle miles traveled and to reduce congestion, and this has implications for CRM. Reducing vehicle miles means that mass transit, car pools, parking taxes, and related efforts to get people to rely upon their automobiles less are encouraged. Consequently, there is a reduced reliance on the use of private automobiles.
However, the other element in the transportation control plan works against this, it operates to reduce congestion. By reducing congestion, traffic is diverted around cities. On-street parking is banned for example as one mechanism to effect this. To the extent congestion is reduced, people are encouraged to use their automobiles to get on the freeways which are now less congested.

**Indirect Sources Control.** Through the control of indirect sources of air pollution, an attempt is being made to control mobile sources by controlling the location of major parking facilities and major facilities that attract parking lots, such as stadiums and shopping centers. The details for such controls, however, are still being worked out by EPA. Together all of these efforts to control air pollution are supposed to be combined in something called an air quality maintenance plan. And that air quality maintenance plan attempts, on a regional basis, to provide a ten-year plan to control and maintain ambient air quality. It comes into effect once air quality is of sufficient quality through the use of all these various control mechanisms. According to officials at the Council for Environmental Quality, "...stationary sources regulations seem to be somewhat flexible from the point of view of planning and locating stationary sources. So we don't really have any serious problems. From the point of view of mobile sources, much has to be done before they can be considered by CZM".

4There is much pessimism over likely results from attempts at zoning. This pessimism characterizes both incentive and directive mechanisms of zoning. William Whyte (1970) is an established critic who questions the effectiveness of differential tax assessments as an incentive to achieve desired land use configurations. Relying on experiences with Washington, D.C.'s Wedges and Corridors Plan, Whyte explains how agricultural lands which have been planned to be maintained in agricultural land uses have been acquired by developers. These developers maintain farming status as a ruse to ensure that their lands will not be pressed by citizens interested in acquiring protected open space areas. These ruse-farms, in fact, receive tax breaks if they are voluntarily maintained as part of an open space or green space program. When it is determined that the market is ripe, the developer-farmers will sub-divide their farms and reap the benefits of increased demands for their lands, and historical benefits of the tax shelter incentives. Overall, zoning effectively protects private property rights but does little to protect the public interest.

Other efforts have been suggested to have land appreciated as a resource rather than as a commodity. The prospect of imposing a capital gains tax on real estate is one of these mechanisms suggested by Hagman (1975). This program is based on the European concept of a "betterment levy"—which assesses a tax on unearned increments of value such as inflation or development potential as capital gains. Because of the pressures this would impose on developers to pay for what essentially now is a community grant to develop, it is not likely to be feasible. In fact, it has never been attempted in the United States.
An innovative scheme that seems to fall within the basic framework of the three control techniques outlined in Sec. 306 (e), (1) P.L. 92-583 is proposed by the ALI in their Model Land Development Code. Although it is difficult to evaluate the draft code, it appears to reflect a unique philosophy about decision making and regulation that differs in some respects from traditional concepts of "master planning". Traditional 'master planning' assumes that locational decisions are made in a comprehensive fashion and then implemented through zoning and related directive control techniques. The theme of the Model Code moves away from this orientation and toward one of enlightened evaluation of development proposals as they are generated within the private market. While the framework for evaluation is still envisioned as comprehensive and the result of a systematic planning process, the relationship between planning and decision-making is of a much different nature. Although it cannot be said that the ALI code promotes the use of economic incentives for land use control enforcement, the 'factors for consideration' do contain the essence of economic incentives to seek compliance with regulations and plans.

1. State land planning agency establishes policies and standards for local decision-making in the "big cases" which involve significant decisions of statewide or regional interest.

2. Project developers apply first to a municipal land regulation agency for approval, with the state planning agency as a party to the proceedings and with the process governed by state-set criteria.

3. If a party to the proceedings is unhappy with the result at the local level, appeals can be made (by either developer or state planning agency) to a state land adjudicating board. At this point, there are two crucial questions: what are the "big cases", and how is the balancing of state vs. local considerations to be carried out.

4. The "big cases" are to be determined through application of statutory criteria with respect to the location, type, and magnitude of the project. The three suggested categories are as follows:

   o Districts of critical state concern (e.g. those with historical or natural significance, or those which interact with major public facilities.)

   o Developments of state or regional benefit (e.g. power plants and other facilities that meet other than local requirements.)

   o Large-scale developments (e.g. residential complexes) with statutorily prescribed limits on size.

5. With regard to the balancing of benefits and detriments, the Model Code sets forth ten factors for consideration by the agency in making tradeoffs. These factors deal with, among others, the
effects of the proposed location on the environment, other persons and property, the municipal cost structure, housing opportunities, the provision of municipal services, and public transportation and other governmentally-aided facilities.

The ALI Model Code does not actively promote the concept of incentives as regulatory tools to implement land use control. However, it does enumerate the trade-off factors involved in balancing benefits and detriments in making land use decisions. In so doing, it establishes a precedent for taking into account economic and political factors in the "master planning" process. Combining legalistic conformance with directive criteria and standards, and voluntary conformance with economic and political incentives, the ALI Model Code represents one approach to increase the potential ability of P.L. 92-583 to control water and land use.

The experiences of managing coastal resources can perhaps be better understood in the context of theories of regulation. These theories may help make clear the intent of attempts at managing coastal resources. They also provide a rationale or base for the proposed management scheme.

In considering any type of theory, it should be pointed out that in reality it is difficult, if not impossible, to isolate instances where one theory of regulation or management operates exclusively. In the real world, these theories usually operate simultaneously.

The category of private interest theory includes three component theories. Elements of all three private interest theories appear to operate in programs of CRM and all of these involve dimensions of public policy. Therefore, by definition, all include considerations of public equity in the policy process. This issue of equality of decision-access to segments of the public affected by the management of common pool and private resources is one of the central elements of CRM.

Consumer protection theory can be seen as the root of many of the specific coastal resource management efforts. Particularly when there are efforts that have discrete goals such as the protection of unique or fragile resources including wetlands, marshes, beaches or historic sites. These finite goals are intended to protect the interests of the individuals or consumers of the community so that they may enjoy the resources of the community.

Industry protection theory can also be seen operating in programs to protect and enhance the resources of coastal areas. The "208" water quality planning program of the Water Pollution Control Act (P.L. 92-500) supports this concept. By having as one of the goals of 208 the long-term availability of quality water, commerce and industry may flourish. This will occur both through the availability of this resource for industrial needs and also for needs of residential development and attractiveness to potential employees and customers.

Regional development and transportation planning studies undertaken in coastal communities also share goals with industries located in the area. Studies undertaken to determine the physical capabilities of land, as well as the socio-economic suitability of land related resources to
support certain developments are compatible with the goals of industrial interests. These interests may actually or potentially be located within the coast.

Such investigations and plans often include feasibility studies that indicate the capability of locating certain activities within a region. They often include analyses of the economic viability of proposed activities. In addition to providing an indicator of market viability for a new activity, there is often implicit a concern to discourage industrial or commercial development that may threaten the current position of existing activities within the coast. Such efforts support the existence of the industry protection theory in some regulatory activities within coastal areas.

Bureaucratic behavior theory can also be seen to operate in coastal regulatory programs. Indeed, bureaucratic analysts from Max Weber to Anthony Downs (1967) have maintained that there are certain intrinsic self-protection and enhancement goals associated with any institutional entity. Therefore by definition one finds that nearly all regulatory institutions are oriented to maintain and enhance their own positions.

Within coastal areas one finds a plethora of such organizations. These include the chambers of commerce, industrial development boards and commissions, regional, local and area-wide planning and economic development entities, environmental protection programs for air, water, natural areas and historic areas—with very little coordination among them. These independent agencies with self-sustaining goals support the viability of the bureaucratic behavior theory.

Although a detailed exploration of the public interest is included later in this paper, there is a broad theory of the public interest which is presented briefly here.

Social goals theory, at work in coastal resource management regulation, also is supported with evidence found within the coastal zone. That is, there are broad ranging goals intended to protect "the public interest" which are found to be supported by and through various regulatory attempts. The concern for providing a sound environment for future generations; promoting full employment and an adequate individual and national income are social goals which are included as part of several coastal regulatory schemes. Similarly, there is a concern for equity and a commitment to provide opportunities for all people to understand and participate in programs to develop and enhance coastal resources. This concern for the social goal of public participation is an explicit mandate of major environmental legislation enacted during the 1969-73 era. This includes the area of air, water, transportation, community development and coastal zone management. Such broad social goals can be seen to provide an orientation for many of the various regulatory schemes.

In contrast to the consumer protection-private interest theory, which accounts for specific goals of consumers as private interests, the social goals theory accounts for general or non-specific goals such as the broad support for generic consumer protection. The "sales appeal" associated with such altruistic but non-committal social goals may account for their widespread use in programs of coastal zone management or any common pool resource program which deals with public health, safety, and welfare.
The major components of this program model include the required elements as well as the specific goals of the program. Coastal zone management program requirements are fairly straightforward. Both the plans of 305 and the implementation of 306 must:

1) Identify boundaries of the coastal zone
2) Define land and water permissible uses
3) Inventory and designate areas of special concern
4) Identify means the state will use to control land and water use
5) Provide guidelines for priority uses of land and water in the coastal zone
6) Develop an organizational structure to implement the program.

In addition to these required elements, when developing a program model it is important to define its goals and objectives. These not only provide direction but they also can be made criteria for evaluating the effectiveness of the program. Based on Sharkansky and Davis (1973), the four goals of the program are:

1) Equity in access to the coastal zone management program (effects)
2) Balance between environmental and economic concerns
3) Efficiency in delivery of services
4) Compliance with the legislation

In addition to being an endemic component of bureaucracies, as explained in the text, a major purpose of participatory planning is to identify more clearly the public interests which will be affected by planned activities, and to provide an opportunity for those interests to be expanded and considered by elements of the affected public, agency technical planners, and political decision makers. In the sequence of events from articulation of the public interest to plan implementation, agency technical planners assume an aggregative role. Ideally they should integrate the demands and preferences expressed by various elements of the public, with their own technical expertise and judgments. From this process technical planners then produce a set of recommendations which can provide elected decision makers with a more complete information base on which to act. At least this is how many planners perceive the environmental management decision process to operate. But it may not happen as smoothly as all that.

Different groups of people may have an entirely different perception of the proper role for the three major set of actors in making policy decisions. The public, elected decision makers, and the technical agency staff personnel are all major decision actors. But there is considerable evidence that they view themselves differently (Spencer, 1976).

There are other reasons to have public information and participation programs in addition to satisfying or sacrificing legal requirements. One objective for planning agencies to undertake extensive public communication activities is to generate greater public understanding and support for eventually recommended plans.

Public involvement in the actual formulation of such plans is also an important means by which these plans can be made more publicly acceptable. That is, such plans can more adequately reflect the needs and preferences of those being planned for. Also, through public communication, potential
opponents of the eventual plan are provided with means through which to exert influence. They can have their concerns addressed and dealt with through their participation in the planning process. The end result of which is their acquiescence to the planning product, and a product which has been in part shaped by its potential adversaries.

Anthony Downs, in Inside Bureaucracy (Boston: Little, Brown and Co., 1967, p. 103) suggests that agencies or bureaus can be thought of as organisms. He goes on to indicate that regardless of the origin or geneses, institutions have three commonalities:
- The bureau is initially dominated by advocates or zealots.
- The bureau normally goes through an early phase of rapid growth.
- The bureau must immediately begin seeking sources of external support in order to survive.

Downs further maintains that there will be a critical drive for autonomy within institutions. This critical drive will determine whether or not the institution will survive in the long run.

As a general rule, few bureaus ever achieve such perfect autonomy that they are immune to threats to survival. However, bureaus can attain some degree of security, and this security can come from a large enough size to render useful services and sufficient age to have established routinized relationships with important clients. These minimal size and age levels are defined by Downs as the bureau's "initial survival threshold". He postulates that a bureau arrives at this threshold after a period of rapid growth in both its size and its relative social significance.

Downs maintains that there are definite and identifiable effects of age upon bureaus. Like people, he maintains, bureaus change in predictable ways. Bureaus learn to perform given tasks better with experience. They, therefore, can be more efficient, and generate additional productive capacity just by growing older. This new capacity can be used to produce more of the same services, to create new functions, or "capture" existing ones from other bureaus. As bureaus grow older they tend to develop more formalized rule systems, covering more of the possible situations they are likely to encounter. These rules are alleged to have three main effects.

1) They markedly improve the performance of the bureau regarding situations previously encountered, making the behavior of each of its parts more stable and predictable to its other parts.

2) They tend to divert the attention of officials from achieving the social functions of the bureau to conform to its rules. There is a "goal displacement" to meeting the rules and not the initial goals.

3) As a bureau grows older, its officials shift emphasis from carrying out the bureau's social functions, to insuring its survival and growth as an autonomous institution.

These effects of age upon a bureau lead to Downs' Law of Increasing Conservatism: All organizations tend to become more conservative as they get older, unless they experience periods of very rapid growth or internal turnover. Therefore the regulatory scheme that is developed to implement CRM will likely share this intrinsic characteristic, though every effort should be made to guard against it.
In an attempt to mitigate this intrinsic problem, Katz (1974) offers the following suggestions. He suggests that a limited lifetime for agencies and the burden for justifying their renewal could eliminate commission and special interest entrenchment. This entrenchment he argues, can continue long after the need for the agency has expired.

Insuring that commissions are not used to effect anticompetitive actions would insure that the public interest is represented and would prevent commissions from bogging down in matters that Congress never intended them to adjudicate. Finally, regular full and open disclosure of staff activities would be not only enlightening to the commissioners themselves in some cases, but also a means of insuring that the public (consumer) interest had the same opportunity for representation to the staff as the special interest. If the foregoing measures are pursued, it is possible that the regulatory agency will again speak for the public interest (Katz, 1974, p. 216).

10. Complexities of Viewing Goal Structures and Conflict Resolution

The preceding section has attempted to examine the problems of conflicting goals of implementing a water and land use control program in coastal areas. The discussion, however, has been oversimplified. In fact, the nature of the overall goals of controlling land and water use must be viewed in the context of the complex and ambiguous notion of where and how goals originate and how goal conflicts are resolved. To better understand this process two broad genre of goals can be considered: explicit and implicit goals.

Explicit goals typically are rule governed. That is, through legislation or regulations, the equivalent of directives result as defined or prescribed goals. This type of goal is fairly straightforward.

Implicit goals in contrast are extremely difficult to identify. For example, the normative goal of democracy has as its end the free and equal access to participation in decisions which affect citizens. This conflicts with the implicit dictatorial goal of the power elite to maintain or enhance the status quo. In that there is considerable difference among the goals with respect to their explicitness, it is difficult to describe how goal conflicts among these different genre of goals are resolved. The process of goal conflict resolution is not clearly established, and rarely can it be observed in operation.

Occasionally, however, goal conflicts and their resolution are observable. They may occur through litigation. They may occur through legislation. They may even appear in the form of elections and result in apparent changes in the state of affairs. But it is impossible to say with validity that these observable phenomena are the real mechanisms for resolving conflicts. Litigation may be the product of compromise or collusion. Legislative agenda are politically manipulable. Elections may be clouded so that certain issues dominate the public policy channels, and other viable issues never appear.
However, by making the decision and conflict resolution processes as open and explicit a decision as possible, the grossness of these problems can be reduced. Legal access has been provided for citizens in NEPA and other environmental legislation, including the CZMA. Through these entre points to a defined decision process, there are mechanisms for the rational resolution of conflicts of environmental management goals. These same provisions also provide entre points for citizens to identify and rectify conflicts of interest among involved decision makers.

Edward Banfield in Politics, Planning and the Public Interest (New York: Columbia Univ. Press, 1955) suggests that the nature of the institutional arrangement or public access to decision making in large part conditions the outcome of public policy.

Since the nature of the choice mechanism employed determines in part the content of the public interest, the question of which conception of the structure of the public interest is appropriate, in particular circumstances or in general, is suitably discussed in terms of which mechanism of choice is preferable — whether, for example, representatives should have long terms or short, large constituencies or small, or whether the market or another mechanism should be employed. (Banfield, 1959, p. 87).

This observation seems to share a common ground with Darryl Bem (1967), the political psychologist. In his theory of self-persuasion Bem maintains that there are dimensions of behavioral conditioning that can affect decisions. This can occur through policy setting mechanisms which have ascriptions of varying degrees of validity or legitimacy. Banfield, in a more quiet argument maintains a similar position: the nature of the decision mechanism can condition the nature of the decision or policy outcome.

Banfield specifically addresses the issue of the public interest — which is a central element in analyzing equity in implementing programs of coastal zone management. He maintains that the public interest is served by a decision if it serves the ends of the whole public rather than the ends of some sector of the public.

Within this general framework, a variety of conceptions are held of the logical structure of the public interest. These varying conceptions can significantly influence the kinds of political and planning decisions made. The differences among the views of the nature of the public interest seem to depend on what is meant by the "ends of the whole public". Banfield distinguishes five different conceptions of these ends. These differences are included in the conceptions: Unitary and Individualistic. Unitary Conceptions

(1) Organismic. According to this conception, the plurality is an entity which has corporate ends. These ends may be different from those entertained by any of the individuals who are part of the public.

(2) Communalistic. According to this concept, the ends of the plurality "as a whole" are ends which individual members share universally.
These ends are in a sense "common". According to the communalistic conception, ends which many people share are more valuable than others simply because they are shared.

**Individualistic Conceptions**

According to individualistic conceptions, the ends of the plurality are not a single system. The relevant ends are those of individuals whether shared or unshared.

This definition is built from the definition of Jeremy Benthan, who wrote:

> The interest of the community is one of the most general expressions that can occur in phraseology of morals: no wonder that the meaning of it is often lost. When it has meaning, it is this. The community is a fictitious body, composed of the individual persons who are considered as constituting as it were its members. The interest of the community then is - what? The sum of the interests of the various members who compose it. (Principles of Morals and Legislation, Clarendon Press, Oxford, 1876)

The ends of the plurality "as a whole" are simply the aggregate of the ends of the individuals, and the decision which is in the public interest is the decision which is consistent with as large a part of the "whole" as possible. Banfield distinguishes three sub-types within this conception.

(3) Utilitarian. This conception is distinguished by the ends of the individual, selected and ordered by that individual and are taken to define the public interest as being the greatest happiness of the greatest number of those who comprise the public. If there are common ends, there is no reason to attach special value to them. The important ends are whatever ends the individual happens to get the greatest utility from, be they idiosyncratic or widely shared.

(4) Quasi-Utilitarian. With this conception, the utility of the individual is the relevant quantity. However, there is not equality in all persons' utilities. That is, along with utility a second standard is introduced. The ends of the "whole" are whatever ends the individuals who comprise it may happen to have uppermost. But some individuals have more weight than others.

(5) Qualified Individualistic. According to this conception, the ends of the "whole" are the aggregate of select ends that are deemed appropriate. The "appropriate" ends are selected by individuals, excluding from consideration altogether certain classes of ends. Various principles may be used to determine these excluded classes of ends. The most familiar pattern of acceptable ends in our society, according to Banfield, are altruistic ends such as community-rather than self-oriented ends.

Thus Banfield makes a case that different conceptions of the public interest, as seen by various decision makers, may obscure or obstruct a definition of what constitutes the public interest. Moreover, he maintains, that even with agreement on a single conception of the public interest, there may be controversy as to its specific content.
Banfield also argues that a somewhat different decision making mechanism is implicit in each of these conceptions. A unitary conception implies a cooperative choice process. Any individualistic conception implies a mechanism through which competing ends are compromised.

This results in the conclusion that the nature of the decision mechanism, or in this case, the nature of the institutional arrangement for implementing land and water use control, can have a major effect on the equity, or equality of access to decision making it provides to citizens.

12 Decisions under uncertainty are often represented by a payoff matrix. Such a matrix can provide a useful way to characterize decisions, and to look at the incentives there are for decision makers. In such a matrix, the rows correspond to alternative acts that the decision maker can select. The columns correspond to possible states of nature. In the cells of the payoff matrix are a set of consequences. These consequences depend on the joint-simultaneous occurrence of a decision and a state of nature.

Since it is impossible to make decisions that will turn out best in every instance, decision theorists view choice alternatives as gambles. People try to choose according to the best bet. In 1738 Bernoulli (Kunreuther, 1974) defined the notion of a best bet. He called it that which maximized the expected utility of the decision. That is, it maximizes the quantity:

$$EU(A) = \sum_{i=1}^{n} P(E_i)U(X_i)$$

where $EU(A)$ represents the expected utility of a course of action which has consequences $X_1, X_2, \ldots, X$ depending on events $E_1, E_2, \ldots, E_n$, $P(E_i)$ represents the probability of the $i$th outcome of that action, and $U(X_i)$ represents the subjective value or utility of that outcome.

13 Cyert and March (1963) in examining the behavioral theory of the firm, proposed that bounded rationality operates in business organizations. They argued that to understand decision making in the firm, it must be recognized that there are multiple goals and the development of these goals, the manner in which the firm acts to achieve them, and the procedures the firm uses to reduce uncertainty must be understood. Cyert and March describe how uncertainty is avoided by following fixed decision rules (standard operating procedures) whenever possible. They also accomplish this by reacting to short-run feedback rather than trying to forecast the future. Firms avoid uncertainties of depending on other people by negotiating arrangements with suppliers, competition, and customers. A firm searches for new alternatives only when forced to do so by a failure to satisfy one of its goals. As a result, crises are often necessary to stimulate collective action. They claim this short-run behavior is adaptive, given the complexity of environments, and the decision makers' cognitive limitations.
Other experimental variations of consistency theory (Festinger et al., 1969), may shed further light on how individuals in a collectivity may react to messages. But extrapolating their individual responses to collective or group behavior is specious at best. Similarly, the work of the political behavioralist Bem (1967) in self-persuasion may help understand how individuals react to message strategies. But unless the behavioral conditioning of specific network subgroups is identical—and there is assumed to be no interaction effects among the group—there is no validity to Bem's anticipated responses to the message strategy.

One of the problems in dealing with the public interest is how to define it. James McKie (1974) suggests that equity is one of the keys to understanding the public interest. He defines it in the context of being one of the ends of regulation. To better understand how the public interest is defined, it has been suggested that the nature of the specific conception of it, as viewed by the implementing agency, be identified. Then, with the awareness of the typological concept of the public interest which is in effect, it would make sense to develop an appropriate communication and participation program to involve the public. This, however, smacks loudly of manipulation of the public.

One of the "notorious difficulties" of dealing with equity is to legitimize the agency's definition of the public interest. It is recommended that this can best be done by providing the public with information regarding the substantive issues, the procedural options available to define their 'public interest', and select a mechanism through which they can participate meaningfully to decide what is their 'public interest'. Following this process, a legitimized definition of the public interest can be made. This definition can then provide the basis to develop programs of equitable information dissemination and public access to coastal decisions.

Another related model that could be considered in developing an understanding of how to develop a coastal zone management program is Olsen's model of political stratification in participation. Based on empirical evidence, this model describes the distribution of participation in local decision making (Olsen, 1970). (See discussion in Chapter 1.) The important implications from this study involve who participates in traditional local community decision making. According to Olsen's study, 3-17% of the community are the main participants in local decisions.

There are two important implications from this study. First, it may well be that the five groups Olsen identified each have unique perspectives, or boundaries of rationality. And each have made rational decisions to be or not to be involved with local decisions which involve strategies for managing coastal resources.

And second, it is also likely that there is insufficient attention paid to the unique communication characteristics of groups other than traditional participants. These people presumably are the consumers of traditional information, participation, and communication techniques and approaches. Unless some special effort is made to reach the traditional
non-participants, the sixty percent of the community that typically does not become involved and the existing level and distribution of participation is, by default, endorsed and supported, and all of the problems which characterize the "trickle down" theory of the communication of innovations are likely to occur.

Most of the research is rooted in the work of Rogers and Shoemaker, The Communication of Innovation (1971). The model they have developed has several unique components.

- It uses as a base Berlo's (1967) basic communication model but adds the important dimension of time and effects.
  \[
  \text{innovation} \rightarrow \text{channels} \rightarrow \text{time} \rightarrow \text{social system} \rightarrow \text{effects}
  \]
- It adds a dimension of social structure to communication by identifying networks of communication which encompass or include the majority of the community members.
- It hypothesizes that there is differential potential for communication between heterophilous and homophilous individuals (that is, people sharing many characteristics and those not sharing such characteristics) with a greater likelihood for communication between similar people.
- There are mass and personal channels and media for communication.
- It presumes that innovative ideas flow through stages from awareness knowledge to decision and acceptance.
  \[
  \text{knowledge} \rightarrow \text{persuasion} \rightarrow \text{decision} \rightarrow \text{confirmation}
  \]
- Through its construct of five adoptive categories it stratifies networks through temporal communication characteristics.

Evaluation

The work done in examining the diffusion of innovation has made an important contribution to our understanding of how people in communities communicate and how ideas flow from awareness to acceptance (or rejection). The conceptual model of information diffusion has not been embraced by all behavioral/communication researchers but it has provided a frame for structuring research in community communications—even if it only serves as a bad example.

There are several important strengths of this research:

- It offers an elegant linear communication model. One useful in an heuristic sense.
- It is relatively comprehensive in contrast to more limited linear communication models (Bales, 1969; Berlo, 1967; etc.). For it considers the flow of communication within a more holistic community—not just among opinion elite.
- It can be egalitarian—by providing information on how to reach people through the communication networks in which they exist.
- It can be applied in many different cultures—for it is not culture bound (in fact, much of diffusion research is cross-cultural).
There are some basic problems with the operation of diffusion theory and research. Practical constraints or application is one important set of problems, theoretical problems, including faulty logic or ambiguous or challengable assumptions is another.

Practical Constraints
- Diffusion research as operationalized through communication networks is expensive. It also requires a complex and detailed methodology.
- Survey instruments must be designed to identify opinion leaders and local problems.
- Networks must be delineated to include all folks within a community, therefore representative sampling programs must be developed.
- Support for such innovative, unfamiliar research is hard to find for policy analysis or issue analysis because of its potential potential threats.

Theoretical Constraints
- Some of the most serious problems or limitations of diffusion research are theoretical. That is, the questions that it does not ask can likely be the most critical. Another serious set of constraints involve the mis-use of the research. Although it is not fair to charge the theory of diffusion with this responsibility it must be pointed out as an important problem and constraint.

Normative Assumptions. The hierarchical nature of innovative diffusion in early and late adopters and laggards is not only descriptive. It has come to be presumed as normative. That is, diffusion researchers have found that there is a stratification in message exposure and adoption. In fact, this phenomenon has come to be seen as OK—even desirable. This desirableness reflects the interests of some of diffusion research's chief clients: rural agricultural extension or AID personnel. They have as an objective the adoption of "improved" agricultural practices, etc., and it is much easier to design message strategies for one such homophilous constituency and let it "trickle down" to others than design a strategy to reach the entire network.

However, as Roling (1976) points out as empirical evidence, the characteristics highly correlated in early adoption is financial security. That is, those folks who can afford to take risks, take risks with innovations. Implicitly the way they get and stay rich is to keep ahead of the folks below them in the "trickle-down" of innovation adoption.

Designing message strategies based on the model of information diffusion exacerbates these social and economic distances, and a likely outcome is that the rich get richer, the poor get poorer, and the agency bureaucrats get promotions.

Another critical problem in the diffusion model is that it assumes people are passive receivers of information. That is, by delineating networks—and designing messages to reach people in those networks—message A will bump into person B—communication is assumed to take place—and innovation will be diffused. This appears to be too simple an explanation.

An important competing theory would presume people are active communicators. That is, they do not do a: \( S \rightarrow r \) but a: \( S \rightarrow o \rightarrow r \).

People can be seen as consumers of information—and people may be active seekers of information. The "o" reflects their various consumer needs and interpretative baggage. Although they may find certain
"networks" more easily accessible (because of proximity or social distances).

This might well be the most significant constraint in network and diffusion analysis. It does not really deal with the question of how people go about seeking or acquiring information.

Inability to deal with non-verbal communication. Further limiting the utility of diffusion research is that at least until now it can only deal with verbal message dissemination. Communication is much more comprehensive and includes all of the characteristics of human contact. It further varies considerably in high contextual and low contextual cultures. One of the obvious implications not observed is the whole set of personological and cultural "baggage" which affects how people communicate nonverbally. This is especially critical in hierarchically stratified groups.
The United States has enjoyed an abundance of land during the last 200 years. Now, as the Bicentennial of the U. S. is approaching, we are beginning to recognize that land is no longer a free resource. As with all other resources, as its availability declines we are finding it necessary to utilize the resource more efficiently than in the past. We are also finding that the present systems for deciding how land will be used has resulted in abuses which have, in some cases scarred the resources permanently. The nation, as a whole, is embarking upon a process to rectify our prodigality and improve the way in which we use our land; we are seeking a more rational use of land resources.

If the land in the United States were divided up equally among all persons, each of us would have 11 acres. This appears to be more than adequate to satisfy the needs of any person. However, new government initiatives in the control and regulation of land use indicate that the way in which we are utilizing our land resources may not be consistent with our Federal, state, or local objectives. This is suggesting that our existing land resources are inadequate. Given these two conflicting pieces of information of abundant land and the necessity to control its use, where does the problem arise? What can be done about it?

The problem in land use arises because every person no longer has access to land in the United States nor can that land which is available be used in whatever way individuals desire. Furthermore, some land is simply unsuitable or unusable for some purposes. Examples of misuses are found where housing and industry is located on flood plains, construction takes place in earthquake and mudslide zones, and incompatible land uses are adjacent or comingled such as where schools and airports are close together or heavy industry is adjacent to residential areas.

The fact that land is either inaccessible within reasonable cost, unsuited to certain uses, or is used in ways which are incompatible with community preferences, suggests that land is being used incorrectly or inappropriately. As a result, government initiatives are being made to improve the way in which land is used. To achieve a more rational use of land.
resources requires the development of policies and procedures that will improve the methods by which land uses are allocated. Important researchable questions arise in developing these policies and procedures. How is a more appropriate use of land resources defined? How are the physical factors to be taken into account? What social and community factors are involved? What are the economic factors? How can a community encourage development of a land use pattern that has been identified as a preferred pattern?

Choice of a preferred pattern does not insure that this pattern will immediately be adopted and that land in the future will be developed accordingly. Instead, as in the past, various economic, social, and political forces will cause the land to be developed in ways that are inconsistent with the preferred pattern. Thus, it is necessary to act to insure that the preferred pattern is ultimately achieved. If properly designed, the method for allocating land will be flexible enough to adapt to changing community or national tastes for alternative use patterns. Research is necessary both in the areas of what the appropriate pattern of land use should be and how that preferred pattern might be achieved.

Identification of a preferred pattern of land use provides a standard against which alternative patterns may be compared and it provides an explicit statement of the objectives to be achieved in a more rational use of the land. The criteria for determining the preferred use for a given area may be divided into three categories:

- Physical criteria
- Community criteria
- Economic criteria

These categories are not definitive, but are used to illustrate a method for assessing the preferred use pattern.

Competing land uses may arise within a given category, where, for example, physical criteria may indicate that land is highly suited for both agricultural and residential uses. In addition, however, competing uses may arise among categories where according to social criteria, the preferred use of land near a residential area might be for recreation and the preferred use according to economic criteria might be for commercial development.
Physical Criteria

The physical characteristics of land are important in developing criteria to establish a preferred pattern. Many types of activities are constrained by physical land characteristics. For example, certain types of substrata are not desirable for the construction of large buildings. Thus, the preferred pattern of land use would be to avoid construction of large buildings on substrata which fail to provide adequate support. As another example, agricultural activities cannot be supported on land without rainfall or a supply of irrigation water and required nutrients in the soil. Thus, agricultural activities would be preferred in areas where adequate rainfall occurs and the soil has the required nutrient levels. Although in some cases such as the Columbia River Basin Project, both water and nutrients are supplied to the land.

Establishing appropriate physical criteria is complicated significantly by the fact that, for a price, many physical constraints can be circumvented by engineering and design. A large building may have special pilings driven deep into bedrock or may be constructed to "float" on the unsupporting substrata.

The physical suitability of land for different uses can be described by many factors. Physical factors of primary importance that have been applied in identifying appropriate land for particular uses include:

- Topography
- Soils
- Drainage
- Depth in bedrock
- Geologic hazard
- Flooding hazard.

Suitability ratings developed based on these factors are designed to relate only to the physical characteristics of the land. The existing development and use patterns are considered in the community and economic categories.
The physical land use suitability measures must be associated with different categories of land use. These categories may be developed in extensive detail where necessary, but a simplified listing might be:

- Residential
- Industrial/commercial
- Agricultural
- Recreational/open space.

For each physical characteristic of the land, the land use categories are evaluated for suitability. An example of a classification schema for suitability is:

- Excellent — land conditions do not present any significant limitations for this use
- Satisfactory — land conditions do not present any serious limitations for this use and any limitations can be readily overcome
- Marginal — land conditions present serious limitations for this use and the limitations would be difficult or costly to correct
- Unsatisfactory — land conditions present such severe limitations for this use that use would be undesirable.

Table 1 summarizes some examples of suitability ratings for land characteristics for the selected use categories. The matrix illustrated in Table 1 is very generalized and would require modification and extension to be applicable to a real land use allocation problem. The framework is indicative of how land use suitability might be determined. In actual application it would have to be modified to fit the special characteristics of the region in which it would be employed. The entries in Table 1 are only meant to be illustrative. Similar entries are not carried out for Tables 2 and 3.

Once the ratings for a given area have been developed, a series of overlays may be prepared with each overlay describing a physical characteristic. These overlays might be prepared in various ways ranging from visual colored plastic, to computer printouts, to numerical indices of land use suitability. From these overlays a suitability map for different land uses may be prepared.
### TABLE 4  EXAMPLES OF PHYSICAL CRITERIA TO EVALUATE SUITABILITY

<table>
<thead>
<tr>
<th>Rating (a)</th>
<th>Slope (percent)</th>
<th>Soil Class (b)</th>
<th>Drainage (c)</th>
<th>Depth to Bedrock (feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential</td>
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<tr>
<td>E</td>
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<td>1</td>
<td>e</td>
<td>8+</td>
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<td>S</td>
<td>5-10</td>
<td>2</td>
<td>g</td>
<td>5-8</td>
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<tr>
<td>M</td>
<td>10-20</td>
<td>3</td>
<td>f</td>
<td>2-5</td>
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<tr>
<td>U</td>
<td>20+</td>
<td>4</td>
<td>p to vp</td>
<td>0-2</td>
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<tr>
<td>Industrial/Commercial</td>
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<td>E</td>
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<td>3-8</td>
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<td>f</td>
<td>0-3</td>
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<tr>
<td>U</td>
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<td>Agricultural</td>
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<td>U</td>
<td>20+</td>
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<td>p to vp</td>
<td>0-2</td>
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<tr>
<td>Recreation/Open Space</td>
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</tbody>
</table>

(a)  E = Excellent  
     S = Satisfactory  
     M = Marginal  
     U = Unsatisfactory  

(b)  1 = gravels and sands  
     2 = Silty and clayey gravels and sands, inorganic silts and clays  
     3 = Inorganic silts and clays of high plasticity organic silts and clays  
     4 = highly organic  

(c)  e = excellent  
     g = good  
     f = fair  
     p = poor  
     vp = very poor  

(d)  Determined from detailed soil mapping for the specific area in question.
Inclusion of community and economic criteria on an overlay map is necessary to determine a rational land use pattern, but complicates matters considerably. Not only are there competing land uses within a given category (e.g. physical, social, or economic) but competition for land areas is also very strong between categories. For example, flood plain land is highly suitable for recreation purposes and may, for some criteria (e.g. slope be highly suited for residential development.)

**Community Criteria**

Criteria which describe requirements for certain land uses based on community characteristics and preferences are another essential element in the definition of rational patterns of land use. The identification of these requirements, however, is quite difficult. For example, there are no widely accepted rules for proximity to cultural activities or for the most appropriate mix of residential and open space land areas. If there were any rules they would likely be highly variable among communities. It is essential, therefore, to determine the relevant community characteristics and preferences which effect or are affected by community land use patterns so they may be considered in determining the rational use of land resources.

Although it may be difficult and costly, the identification of these community characteristics is important. These characteristics reflect social, psychological, and physiological norms. The extent to which these norms or accepted values are not violated is at least an approximate measure of whether or not a given land use configuration is preferred. Community or land use preferences are not readily identified or quantified, and as a result converting them to explicit criteria for land use suitability analysis is in need of much further research. Adding to the difficulty of establishing community criteria for preferred land use patterns, few inviolable community uses can be identified for land.

The identification of community norms for land use is less difficult in certain areas such as community health. As an example, there are national standards to protect communities from activities which would adversely affect the psychological or physiological health of area residents. The Federal Power Commission as an example, limits certain land uses such as residential development within interstate natural gas pipeline rights of way.
Although most governmental and industrial activity can be designed to minimize adverse health effects from emissions and other characteristics, those activities for which even the best practicable technology fails to prevent adverse effects should be located where dangerous exposure from these operations is minimized.

In addition to health and safety constraints, there are some other community considerations that help define the rational use of land resources for which there is apparent consensus. Residents of a well-established neighborhood with strongly defined architectural and ethnic characteristics would probably oppose major changes in population composition, or construction of significantly different architectural style or scale. Similarly, open space and recreation areas in reasonable proximity to major residential areas is another community preference for which there is fair consensus in defining preferred land use patterns. Institutionalizing this consensus, the Department of the Interior's Bureau of Outdoor Recreation has established standards for planning urban recreation land at 10 acres per 1,000 people. These specific consensus areas for land requirements, however, are exceptions, most are not recognized or agreed upon. There has been, however, some investigation in these and related areas which help provide some insight into the human resource requirements of land.

Although the impact of land use patterns upon the human environment is a relatively new concern, sociologists and other community analysts have long been concerned with the effects of urbanization and industrialization on the social fabric of communities (cf., Reissman, 1964, Short, 1971; Warren, 1972). One land use related problem that has generated a substantial amount of research is the influence of population size and density on patterns of social participation and community attachment (Fisher, 1972; Hauser, 1965; Morris, 1968). Most of this body of information indicates that community attachment is dependent on population size, density, and length of residence. Similar studies (Thomas, 1967; Park and Burgess, 1921, 1925) indicates that communities are complex systems of friendship, kinship, and associational networks into which new generations and new residents are assimilated while the community passes
through its own life-cycle. The "assimilative capacity" of the community to accept new members, however, is limited. A rapid influx of new residents, or a massive exodus of residents will result in major social impact or alienation. All of these events could well be associated with major changes in land use patterns, and violations of rational land use.

Recent research at Battelle examined the interrelationship of land use pattern, both real and perceived community well-being, and the effect of siting hazardous waste treatment and disposal operations. A major portion of this study examined the effect of such a treatment operation on adjacent communities and land use patterns.*

The findings of this investigation reinforced the observation that complex social systems do not readily lend themselves to broad generalizations when attempting to prescribe land use patterns. The demographic characteristics of age, sex, income, mobility, and family life-cycle composition are important variables in determining preferred land use patterns, but the many possible permutations within these characteristics and the unique land requirements for each set of permutations complicate the process of identifying the most rational land use patterns. For example, if one assumes a population with predominantly retired household heads, limited mobility, and low income, there is a premium placed upon use of adjacent land that can best meet the social and economic needs of that population. In this case, nearby shopping areas, recreation areas, cultural facilities, and access to public transportation would probably be preferred.

Other community criteria should include such factors as the mix of employment or industry and income levels within communities, the mix of permanent and visitor oriented population and related land uses, the mix of recreational opportunities provided by the public sector, and the incidence and distribution of costs for provision of public services provided by a policy or project. An example where a concern for social effects was expressly

considered, is a recent policy adopted by the California Coastal Commission:

Uses of land in the coastal zone that can benefit many people should have preference over uses that benefit a few. Or more precisely, when a piece of land is not proposed for public acquisition and is thus almost certain to be developed, should it be used for housing—of benefit primarily to the residents of the housing—or should encouragement be given to vacation or similarly temporary uses, such as resorts, hotels, rental units, and recreational vehicle parks that will allow many more people to enjoy the amenities of the coastal zone land areas. (1)

For many of the dimensions of the human environment, it is not possible to define standard or normative levels of acceptance. For these areas, the criteria for the determination of the preferred pattern of land use must be established by local citizens. Local public policy institutions and citizens must be involved in defining their land use priorities and objectives. This will enable them to provide meaningful inputs into decisions regarding the trade-offs between land use elements such as aesthetics and community economic development as represented in recreation and industrial land use development alternatives.

Establishing a set of community objectives and priorities which fully reflect all opinion and desires is a time consuming and costly process. Complete and understandable information must be available to the community and all persons must have access to the policy and decision mechanisms which define an area's land use objectives and priorities. In most cases, the benefits of obtaining all inputs in the decision process exceed the cost of making an incorrect decision on the communities' behalf. In some cases, however, they do not. It is clear that land use patterns as they are developed, have major significance and effects upon the cohesion and structure of communities. Although a consideration of social impacts of land use changes has inherent limitations for singularly resolving social issues. However, these factors can, on a project by project basis, incrementally change land use patterns,

TABLE 5. EXAMPLES OF COMMUNITY CRITERIA TO EVALUATE SUITABILITY

<table>
<thead>
<tr>
<th>Classification</th>
<th>Rating</th>
<th>Proximity to Medical Services (time)</th>
<th>Availability of Safety Services (time)</th>
<th>Proximity to Educational Facilities (time)</th>
<th>Population Age Mix (age distribution)</th>
<th>Proximity to Historical or Unique Natural Areas etc.</th>
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<tbody>
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<td>Residential</td>
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(a) See Table 1.
and reduce the more extreme cases of inequitable distribution of costs and benefits among social groups within a community. In this regard, a consideration of community factors and requirements in land use, similar to an environmental impact assessment, should consider cumulative impact and not be reviewed on an incremental basis.

Some examples of community suitability criteria are presented in Table 2. Filling the empty cells in the matrix would require research to establish widely acceptable rules in some cases, and in other cases, the rules would be established by survey of community values and priorities. For example, one demographic characteristic to consider might be age mix. The proper mix, however, could not be established without knowing specific community objectives. For instance, if the community is close knit, characterized by frequent interactions and long tenure, the maintenance of extended family relationships could be an important community objective. The objective would be enhanced or characterized by a wide age distribution. This wide age mixture could, in turn, be enhanced by choosing a land use pattern that could meet the variety of recreation, economic, and service requirements of a heterogeneous population.

Economic Criteria

The objectives in defining economic criteria for establishing a preferred land use pattern are to identify an arrangement that will facilitate economic interactions among various elements of the subject community. Considerations of reduced transportation costs of input materials and products are important. Thus, proximity to transportation routes and facilities is one economic criteria. Some types of commercial activities are best sited near transportation systems (e.g., gasoline stations, car rental agencies, and motels). The availability of inputs for production, including both a skilled labor pool and the requisite natural resources are other criteria that would suggest a preferred arrangement for economic activities.
In addition to developing a spatial arrangement for optimum economic activity for a region it is also important to consider arrangements that permit the necessary freedom and flexibility to increase long term viability of the economy. Arrangements and plans for future needs should be considered in arranging transportation systems, commercial centers, and sites for industrial activities. Just because a site has significant economic advantages (i.e. low cost land as proximity to transportation facilities) does not preclude other factors from coming into play to reduce the overall desirability of using the land in the most economically rational way. In many cases environmental considerations may equal or outweigh economic considerations. (1)

In addition to cost and efficiency related criteria for a preferred pattern of land use, economic criteria that relate to fostering a preferred pattern of the spatial distribution of commercial activities, public facilities and private services may be developed to discourage large enclaves of residents with similar (high or low) incomes if this were judged desirable. Using this criteria, the degree of suitability of lands for high or low income housing could be established.

Another suitability criteria could be developed based on proximity to adequate public utility infrastructure such as water, sewer, gas, and power. Land that is near these services would receive high suitability ratings for uses requiring access to these services. For example, the cost of new homes would be lower if the homes were built in an area that did not require extension of any utility lines. Industrial demands for water, gas, electricity, or waste disposal would be utilized to establish criteria for evaluating land, and the associated infrastructure, for suitability to industrial uses.

The Price Mechanism in Land Use Allocation

There is an inherent problem in defining various criteria for evaluating land use patterns that stems from the lack of comparability among

the criteria. Someone must judge whether or not physical, community, or economic criteria would be more important, and once ranked, a decision must be made regarding what degree of importance should be attached to each category. Solutions to avoid this problem involve collapsing all the various measures or criteria into common units of value. For the economist this unit is dollars, while for the energy planner it may be kilowatt hours, and for the social welfare specialist it may be utiles. All units of measure proffered as candidates for use in the measurement of effects of various activities have disadvantages in use that stem from the difficulties in connecting all benefits and costs commensurate units.

Historically, we have relied in some measure on the price mechanism to allocate land to its "highest and best" use. It has been shown that there are some uses for land (e.g., biological productivity, recreational uses) that the price mechanism does not account for appropriately. The result is that in some instances an inadequate amount of land is maintained for uses that do not have high or easily calculated monetary value. Because of this, in many cities strong zoning ordinances are utilized to encourage development in certain patterns and discourage other patterns of development. Similarly, the Federal and State governments purchase large tracts of land and designate them for use as parks, wildlife refuges, forests, primitive areas, scenic rivers, etc. This suggests that certain patterns of development and certain uses of lands occur that are not measured by the traditional price mechanism. The indication that the price mechanism may be inadequate to allocate all land is suggested by those who hold the view that recreation areas or open space in an urban setting are "extremely valuable", that our National or State Parks are "priceless", or that primitive areas should "never" be developed.

In its most fundamental formulation, the value of land is equal to the present value of the discounted stream of returns and costs of that land in a particular use. This may be written:
While this formulation is a simple and straightforward formula, the returns and costs embodied in the calculation of present values are subject to varying interpretations. The major reason for the varying interpretation arises because individuals, communities, or the nation as a whole perceive the returns and the costs from different perspectives. Returns to the individual investor are probably only the income generating potential of the land (e.g., agricultural productivity); whereas returns to the nation may be in the form of the maintenance of an ecologically unique area. Another complicating factor is that a given parcel of land may have different value as it is applied to different uses. For example, agricultural land that is far from an urban center may have relatively high value in agricultural uses and relatively low value for commercial uses. This is simply because it is not near enough to a concentration of people to make a commercial venture economically viable. The reason that returns and costs are subject to controversy is because not all of them are quantifiable and as a result they cannot be entered into the calculation of the present dollar value of a parcel of land.

Returns and costs may be divided into three broad categories or levels of quantification. Some returns and costs are directly quantifiable in monetary values; others are quantifiable only in units such as fisherman days gained or lost; the remaining returns and costs are not quantifiable. (See Table 3) An example of the latter would be the use of certain marsh land areas for spawning or propagation of species.
Table 1 indicates how returns and costs are classified according to the level of quantification. One aspect of developing a better method for estimating the value of land would require that research effort be devoted to obtaining information that will permit transferring some of the returns and costs to "higher levels" of quantification.

Calculation of the present value of land to include as much of the costs and returns as possible will probably not result in a definitive monetary value for a particular parcel of land. There may always remain certain costs and returns from the use of the land, in a particular way, that simply cannot be converted into a monetary value. Because of this, any calculation of the monetary value of land will be subject to certain degrees of confidence. For example, if there are substantial or significant non-quantifiable costs and returns that cannot be factored into the calculation, the estimate of the monetary value of the land would not be expected to be as "good" as a case where there were few or no nonquantifiable costs or returns.

Using this approach the economic value of land may be calculated for various types of (where types may be defined by geophysical characteristics and proximity to population concentrations) and for various alternative uses. Thus, an appropriate pattern of land use would be defined according to economic criteria in that the preferred use category for each type of land would be the use that yields the greatest present value.

<table>
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<tr>
<th>Quantifiable</th>
<th>Quasi-Quantifiable</th>
<th>Nonquantifiable</th>
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<td>Returns</td>
<td>Dollars</td>
<td>Units</td>
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<tr>
<td>Costs</td>
<td>Dollars</td>
<td>Units</td>
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Table 4 provides an example of a framework for evaluating economic suitability. The empty cells in the matrix would be filled through research on the relevant land area and an examination of how the economic criteria relate to each of the uses. For example, research would indicate that distances would be associated with ratings (excellent, satisfactory, etc.) for access to public utilities (e.g., a distance of 0 to 500 feet rates excellent for residential use). The range of appropriate distances would be established for each use. The income compatibility measure might be based on distances between areas devoted to high and low income housing.

Achieving the Preferred Pattern

Although identification of the preferred pattern of land use is critical to the rational use of land resources, it does not guarantee that land will actually be used in the preferred manner. The appropriate allocation mechanisms must also be determined. Land is presently allocated by various mechanisms ranging from zoning to market pricing. The present concern over land use planning and regulation attests to the inadequacy of the existing mechanisms.

The two polar approaches to allocating land are to regulate (zoning) and to allow the price mechanism to allocate. These methods of achieving a certain land use pattern have both advantages and disadvantages depending upon the context in which they are employed. Evidence suggest that if zoning is adopted as a land use control mechanism, in the long run, an inappropriate allocation may occur because the agency which established the zoning is subject to political and private influence. This influence may or may not be consistent with local community desires or long range regional planning objectives. There is equally strong evidence to suggest that when the price mechanism is relied upon exclusively to allocate land in alternative uses, misallocation may occur. Examples of this would be certain strip commercial development and some multiple unit housing near freeways. Both courses of action, laissez-faire, and highly regulatory seem inadequate when viewed broadly. The answer would appear to be an improved mix of regulatory and price allocation mechanisms to achieve a more rational allocation. How is an appropriate policy for allocating land in accordance with a preferred pattern established? Before addressing that question consider the regulatory and pricing approaches in greater detail.
<table>
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<tr>
<th>Rating (a)</th>
<th>Proximity to Labor Supply</th>
<th>Proximity to Transportation Systems</th>
<th>Access to Public Utilities</th>
<th>Income Compatibility</th>
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<td>Industrial/Commercial</td>
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<td>Agricultural</td>
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(a) See Table 1.
To the extent that a regulatory policy enacted either through an agency or by legal statute can identify all possible alternative uses to which land may be put and to the extent that this approach attaches an appropriate value to uses in various ways, the regulatory approach is adequate. It is argued, however, that to regulate land use requires virtually perfect knowledge of all alternative possible uses to which the land might be put combined with information on the consensus of public and private wishes and desires. This is obviously costly, expensive, and probably impossible.

If the pricing mechanism is relied upon to allocate all land in all uses it must be assumed that physical constraints on land use are widely known and that the social and psychological requirements for alternative land use patterns are incorporated into the pricing mechanism. This requires that all potential beneficiaries of land in all alternative uses can be identified and that these beneficiaries can demonstrate through the price mechanism their desires regarding how the land should be used.

To choose between the regulatory and the pure price approach requires that a commitment be made either to the philosophy that it is valid to permit a system to operate in an individual's self interest or that the individual's self interest does not fully reflect his complete physical, social, and psychological requirements. If self interest does not reflect all individual requirements another person or agency must interpret them to insure that they are taken into account.

Fortunately, the land use allocation mechanisms as they exist today are neither fully regulatory nor fully price mechanisms. Land is allocated by both of these mechanisms in virtually all cases. At some stage in the allocation process one mechanism may dominate another, but ultimately there is very little land that is finally allocated only by one mechanism or another. But, the most appropriate mixture of regulation and price allocation is an important subject for research.

The adequacy of an allocation mechanism is based on how well it fulfills the short and long term desires of the community in which it operates. Thus, one critical input in the process of choosing and implementing an
appropriate allocation mechanism is to identify the objectives of the community. The alternative mechanisms may be judged according to how well they serve those objectives. Examples of policy instruments for effecting land use patterns are:

- Building codes and permits
- Tax rates
- Assessment ratios
- Purchase and management of land
- Zoning
- Expenditures on infrastructure (especially extension of utilities and transportation systems).

These instruments or combinations of them may be evaluated based on how well they achieve:

- Equitable treatment of property owners
- Effectiveness in achieving the desired land use pattern
- Achievement of long-term community growth objectives
- Minimum administrative costs
- Flexibility to adjust to changes in community objectives
- Consistency with existing policies and procedures for land use control (ease of implementation)
- Direct incorporation of community desires and opinion in the land use decision process
- Inclusion of professionally defined technical constraints
- etc.

The process does not end here, however; the instruments must be implemented. Implementation may require the creation of new agencies or offices and the abolition of others. It may require referenda and legislative action. The implementation phase often requires careful planning and close attention. And once a new land use planning control mechanism is implemented it is necessary to be prepared to adjust the mix of policy instruments over time as may be required.
Requirements for Further Research in Land Use

The present level of understanding of the elements within an area that effect or are affected by changes in land use is developing rapidly, but still needs considerable additional investigation. Much of the research activity has been generated in the related areas of objective land use considerations. These include primarily physical effects involving substrate water and soil, land values and development control, and physiological health effects of exposure to specific land use activities such as manufacturing or transportation. Some of the greater research needs, however, are in the applied social and behavioral sciences. Relationships between certain land use mixes or changes in present land use distribution and real or perceived life quality are largely unknown phenomena.

Aesthetic considerations, life style defined life-space requirements, as well as concerns to preserve historical sites or unique natural areas are culturally-subjective land use determinants. From a community perspective, at least, these considerations are probably the critical variables in determining rational land use mixes within any given area.

One area of related research critically in need of development is the identification of unique land use mix requirements for subregions and populations. Several specific tools must be developed if these more rational mixes are to be identified and achieved on a regional and subregional level. First, the implications of each of a variety of land use mix options must be communicated to representative cross sections of the community. The impact of the options on characteristics such as air and water quality, tax base and employment, population density and mobility must be identified. Researchers at Battelle-Columbus have pioneered efforts in this area and have developed specific methodologies for identifying and presenting graphically the findings of environmental impact assessments. The Environmental Evaluation System (EES), (1) developed for the Bureau of Reclamation by a Battelle team headed by

Dr. Norbert Dee has served as the benchmark for further developments in this area.

Second, the impact or effect of alternative land use development must be communicated to as many members of the community as possible. For this to happen, the communication patterns and information channels unique to distinct groups or subpublics within the community must be identified, and a variety of information programs must then be designed to reach each major group within the community. This information must be in a form that is understandable, but still communicates the important and often complicated issues involved in land use decisions. Although there has been considerable research in communication and education, there are still many unanswered questions of how to effectively convey complicated technical information to a variety of subpublics. Basic research conducted by Battelle's Center for Improved Education and Communications Research Center are helping to provide further insight into community education.

In the related area of small group interaction and communication, Dr. John Warfield has been exploring communication processes in a Battelle Institute sponsored research program.\(^1\) This study has focused on the design of transient organizations, and has explored topics such as the conscious choice of methods for acquiring ideas.

Third, provisions must be made to encourage, obtain, and incorporate the opinions and priorities of the constituent community members into an overall public land use policy. The processes of effective synthesis and public participation are also at an incomplete level of understanding. Work done by Dr. Norbert Dee et al., at Battelle have explored possible programs in consensus building in environmental and land use planning and resulted in the development of the Arizona Trade Off Model.\(^2\) A similar study to develop a land use planning methodology for two counties in rural South Carolina focused on community input and interaction in developing and implementing the planning program.\(^3\) Work done by Professor Kate Warner at the

\(^1\) "Design of Transient Organizations", Academy for Contemporary Problems, 1974 (In Process).


University of Michigan (1) for the National Water Commission has established essential background for understanding effective public participation in planning water and related land use. Research sponsored by Battelle's Urban and Regional Development Program (2) has identified and characterized the variety of public participation techniques that could be used in environmental management planning. The capabilities of these public participation techniques were then evaluated considering their ability to meet specific resource planning objectives, as well as their one and two-way communication capabilities.

Even with important research activities on-going in these areas, it is clear that only a beginning has been made. Much more needs to be understood about the effect land use patterns and mixes have on the physical environment, communities, and economic interactions, and how the policies affecting those uses should be developed rationally.

(1) "A State of the Arts Study of Public Participation in the Water Resources Planning Process", Environmental Simulation Laboratory, School of Natural Resources, University of Michigan, Ann Arbor, Michigan, 1971.

"Wet Property." The problem of ownership in the coastal region has a long history of development. Whether public or private rights are in effect depends mainly on ownership. The concepts of ownership have their origin in English common law (if we can overlook the French Napoleonic code which influences law in Louisiana). For the purposes of this analysis, property can be divided into wet and dry.

Sovereign authority over land in England was vested in the King, historically, *Jus Privatum*—proprietary interest or private title extended to the sea and lands beneath the sea after the Norman Conquest in England. The original source of title to land was a grant from the King and land grants proliferated in the period preceding the Magna Carta.
However, private ownership began to interfere with the conduct of the nation's commerce in navigable waters. To deal with this problem, the Jus Publicum concept developed to protect certain public rights, even if proprietary title had been granted to an individual land owner. Thus evolved the public trust concept in tidelands and navigable waters.

This same pattern of royal grants to individuals was pervasive in the 13 original colonies. They inherited both proprietary and trust interests held by the crown when the Union was formed, subject to rights granted to the U.S. government.

The Supreme Court has verified original state ownership and trust in tidelands and submerged lands within state boundaries with implied control over the waters. However this is subject to preemptive federal authority in certain areas such as navigation. Overall disposition and use of these shorelands is governed primarily by state laws.

Public ownership applied originally to at least "wet" areas, but left open was the larger question of what public rights exist through ownership and what rights are protected by the public trust doctrine.

1. Where public ownership exists in "wet areas" the public has broad rights of use (e.g., recreation, fishing, swimming, boating, etc., in navigable waters, subject to control by the state).
Private land owners adjacent to navigable water courses have certain riparian rights which allow them to make a reasonable use of the water associated with their shorelands. These rights, however, must be exercised in a manner compatible with the rights of other riparian owners and the public.

Both public and private rights are subject to constraints in connection with the supreme national interest in navigability called "navigation servitude." These stem from the commerce clause of the U.S. Constitution which also provides the basis for federal water pollution control programs.

2. Private rights through ownership in "wet" areas were created by land grants or colonial ordinances or other means of disposition by the state. However, these are subject to rights held in trust.

The extent of public rights protected under the trust doctrine is largely a matter of state law. It originates in the English Common Law which recognized public rights to fish, navigate, and otherwise conduct commerce, but not to swim for recreation. (Some states, however, have expanded the scope of the trust doctrine to include recreation. This seems to follow the trend of interpreting the doctrine in light of contemporary notions of the public interest in the shore. The result is that future applications of the trust doctrine are somewhat uncertain.)
"Dry Areas." Problems of coastal zone management are also critically important in non-shore or submerged land and water areas. In fact, the dry areas have some of the more severe and controversial problems.

Grants of title to private parties is almost the exclusive form of property ownership in these areas. Under such schemes, private property rights are not subject to the trust doctrine. Public interest is asserted through exercise of governmental powers of regulation, acquisition, etc.

Some other common law doctrines have, in certain instances, been applied by the courts in a few states to limit the extent of private rights in order to preserve public access. Some of the various common laws which have preserved public access include the following:

a. Prescription—public easement or right of particular types of uses can be created through continuous, open and adverse use. These conditions are usually specified by statute.

b. Customary rights—this is customary uses dating to "time immemorial," thereby creating a public right.

c. Dedication—devotion of property to public use, with the owner intending to dedicate and the public accepting the land for that use.

3. Public trust: the public trust theory is applied to municipal beaches, and requires that they be made avail-
able to the general public. This precludes the use of exclusionary devices such as exorbitant parking fees and other forms of discrimination against non-residents.

In summary, various governmental entities have available to them several mechanisms through which to control the use of water and land in coastal areas. These authorities have developed after a long time, stemming from English Common Law. Following is a summary of these various capabilities.¹

The Power to Spend for the General Welfare. The federal government and the states and municipalities (when authorized by the state) have the constitutional authority to spent money for almost any public purpose. The federal government has 13 national parks along the coast, 9 national, 28 historic areas, and 91 sites in the wildlife refuge systems. States have similar programs and many more land areas set aside along the coast.

. Eminent Domain. The power to condemn land for a public purpose is another of the capabilities that governments have the capability to undertake. This does not need to be used by the public at large but it is essential that owners be compensated for their properties.

. Easements. Under this scheme, interests in property is considered an aggregation of individual rights that can be divided up among

¹Ducsik.
owners. A governmental entity may purchase only certain of these rights. These rights can be positive, such as a right to a particular use, or negative, including the right to prohibit particular uses.

The Power to Regulate and the Rights of Private Property.
The concept of police power, in general, is the ability of society through state government to interfere with property rights in favor of the public interest. This power is inherent in the concept of government. (In fact, the word "police" comes from the Greek word for citizen—"politeia—to be a citizen and engage in political activity.) Police power is used to promote the health, safety and general welfare of society. It can take many forms, including zoning, subdivision laws, building codes, etc.

There is nothing specifically in the Constitution about the police power. Therefore, it is reserved to the states, as was made explicit by the Tenth Amendment. It is basically an invention of the courts, although some argue that it can be derived from the Fourteenth Amendment. The courts have determined both the scope and the extent of its valid exercise.

The definition of "the general welfare" is expanding as courts continue to accept legislative interpretations of the

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1 This is explained in the following section.
legitimate exercise of police power by the states. Some of these include health and safety, peace and quiet, controlling density, stabilizing property values, aesthetics, cultural or historical values, scenery, architectural beauty, etc., including the preservation of open spaces and protection of natural areas such as flood plains and wetlands for conservation and recreation.

Taking

One of the more controversial regulatory areas is the undefined extent of regulation infringing on private property rights. Land use controls are constrained by the Fourteenth Amendment which guarantees "due process," and the Fifth Amendment "taking clause. 14th amendment - "nor shall any state deprive any person of life, liberty, or property without due process of law; nor deny any person equal protection under the law." Fairness precludes arbitrary, unreasonable, capricious government activity and means must be substantially related to ends.

5th Amendment - "nor shall private property be taken for public use without just compensation." This strongly worded amendment pivots about the interpretation of the word "taking." This concept has undergone major reinterpretation.

Deterioration of the Environment

Another of the major developments in the problem of managing coastal areas is that the quality of the environmental
management has deteriorated. The environmental movement of the late 60s and early 70s has resulted in a much greater public awareness of the deteriorating nature of the environment. This section will not attempt to summarize just how the quality of the environment is deteriorating. But it will refer to several reports, including the Sixth Annual (Jan. 1976) Report of the President's Council for Environmental Quality. This report states that of all the nation's resources are in a state of deteriorating quality, but that there is an increasing number of federal and other programs combating this deterioration.

Changes in the Distribution of Power and Authority among Federal, State and Local Governments and Citizens

There have been some major changes in the distribution of power and authority within the various environmental protection programs. These programs began by following the strong central control pattern of the many social welfare programs of the recent quarter-century of the new deal, new frontier and great societies. It is interesting to note that nearly all of the new federal environmental protection legislation include provisions for decentralized local control. This is also the case in coastal resource management control.
The Nixonian policy of new federalism, continuing this trend, provided through revenue sharing, large block grants to state and local units of government to spend. This trend is specifically reflected in NEPA which offers citizens, through class action, standing in court to sue polluters. It does not require that they demonstrate individual adverse effects by proposed action of industry or government.

However, because of the time necessary for the courts to define the legal extent of these legislative programs, it is too soon to appreciate the real extent of these changes. In passing, it should be noted that in this instance the courts, through the determination of common law, act as an important mechanism for regulation.
APPENDIX C

Public Law 92-583
92nd Congress, S. 3507
October 27, 1972

An Act

To establish a national policy and develop a national program for the management, beneficial use, protection, and development of the land and water resources of the Nation's coastal zones, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the Act entitled "An Act to provide for a comprehensive, long-range, and coordinated national program in marine science, to establish a National Council on Marine Resources and Engineering Development, and a Commission on Marine Science, Engineering and Resources, and for other purposes", approved June 17, 1966 (80 Stat. 203), as amended (33 U.S.C. 1101-1124), is further amended by adding at the end thereof the following new title:

TITLE III—MANAGEMENT OF THE COASTAL ZONE

SHORT TITLE

Sec. 301. This title may be cited as the "Coastal Zone Management Act of 1972".

CONGRESSIONAL FINDINGS

Sec. 302. The Congress finds that—
(a) There is a national interest in the effective management, beneficial use, protection, and development of the coastal zone;
(b) The coastal zone is rich in a variety of natural, commercial, recreational, industrial, and esthetic resources of immediate and potential value to the present and future well-being of the Nation;
(c) The increasing and competing demands upon the lands and waters of our coastal zone occasioned by population growth and economic development, including requirements for industry, commerce, residential development, recreation, extraction of mineral resources and fossil fuels, transportation and navigation, waste disposal, and harvesting of fish, shellfish, and other living marine resources, have resulted in the loss of living marine resources, wildlife, nutrient-rich areas, permanent and adverse changes to ecological systems, decreasing open space for public use, and shoreline erosion;
(d) The coastal zone, and the fish, shellfish, other living marine resources, and wildlife therein, are ecologically fragile and consequently extremely vulnerable to destruction by man's alterations;
(e) Important ecological, cultural, historic, and esthetic values in the coastal zone which are essential to the well-being of all citizens are being irretrievably damaged or lost;
(f) Special natural and scenic characteristics are being damaged by ill-planned development that threatens these values;
(g) In light of competing demands and the urgent need to protect and to give high priority to natural systems in the coastal zone, present state and local institutional arrangements for planning and regulating land and water uses in such areas are inadequate; and
(h) The key to more effective protection and use of the land and water resources of the coastal zone is to encourage the states to exercise their full authority over the lands and waters in the coastal zone by assisting the states, in cooperation with Federal and local governments and other vitally affected interests, in developing land and water use programs for the coastal zone, including unified policies, criteria, standards, methods, and processes for dealing with land and water use decisions of more than local significance.
DECLARATION OF POLICY

Sec. 303. The Congress finds and declares that it is the national policy (a) to preserve, protect, develop, and where possible, to restore or enhance, the resources of the Nation's coastal zone for this and succeeding generations, (b) to encourage and assist the states to exercise effectively their responsibilities in the coastal zone through the development and implementation of management programs to achieve wise use of the land and water resources of the coastal zone giving full consideration to ecological, cultural, historic, and aesthetic values as well as to needs for economic development, (c) for all Federal agencies engaged in programs affecting the coastal zone to cooperate and participate with state and local governments and regional agencies in effectuating the purposes of this title, and (d) to encourage the participation of the public, of Federal, state, and local governments and of regional agencies in the development of coastal zone management programs. With respect to implementation of such management programs, it is the national policy to encourage cooperation among the various state and regional agencies including establishment of inter-state and regional agreements, cooperative procedures, and joint action particularly regarding environmental problems.

DEFINITIONS

Sec. 304. For the purposes of this title—
(a) "Coastal zone" means the coastal waters (including the lands therein and thereunder) and the adjacent shorelands (including the waters therein and thereunder), strongly influenced by each other and in proximity to the shorelines of the several coastal states, and includes transitional and intertidal areas, salt marshes, wetlands, and beaches. The zone extends, in Great Lakes waters, to the international boundary between the United States and Canada and, in other areas, seaward to the outer limit of the United States territorial sea. The zone extends inland from the shorelines only to the extent necessary to control shorelands, the uses of which have a direct and significant impact on the coastal waters. Excluded from the coastal zone are lands the use of which is by law subject solely to the discretion of or which is held in trust by the Federal Government, its officers or agents.
(b) "Coastal waters" means (1) in the Great Lakes area, the waters within the territorial jurisdiction of the United States consisting of the Great Lakes, their connecting waters, harbors, roadsteads, and estuary-type areas such as bays, shallows, and marshes and (2) in other areas, those waters, adjacent to the shorelines, which contain a measurable quantity or percentage of sea water, including, but not limited to, sounds, bays, lagoons, bayous, ponds, and estuaries.
(c) "Coastal state" means a state of the United States in, or bordering on, the Atlantic, Pacific, or Arctic Ocean, the Gulf of Mexico, Long Island Sound, or one or more of the Great Lakes. For the purposes of this title, the term also includes Puerto Rico, the Virgin Islands, Guam, and American Samoa.
(d) "Estuary" means that part of a river or stream or other body of water having unimpaired connection with the open sea, where the sea water is measurably diluted with fresh water derived from land drainage. The term includes estuary-type areas of the Great Lakes.
(e) "Estuarine sanctuary" means a research area which may include any part or all of an estuary, adjoining transitional areas, and adjacent uplands, constituting to the extent feasible a natural unit.
aside to provide scientists and students the opportunity to examine
over a period of time the ecological relationships within the area.
(f) "Secretary" means the Secretary of Commerce.
(g) "Management program" includes, but is not limited to, a com-
prehensive statement in words, maps, illustrations, or other media of
communication, prepared and adopted by the state in accordance with
the provisions of this title, setting forth objectives, policies, and stand-
ards to guide public and private uses of lands and waters in the coastal
zone.
(h) "Water use" means activities which are conducted in or on the
water; but does not mean or include the establishment of any water
quality standard or criteria or the regulation of the discharge or runoff
of water pollutants except the standards, criteria, or regulations which
are incorporated in any program as required by the provisions of
section 307(f).
(i) "Land use" means activities which are conducted in or on the
shorelands within the coastal zone, subject to the requirements out-
lined in section 307(g).

MANAGEMENT PROGRAM DEVELOPMENT GRANTS

Sec. 305. (a) The Secretary is authorized to make annual grants to
any coastal state for the purpose of assisting in the development of a
management program for the land and water resources of its coastal
zone.
(b) Such management program shall include:
(1) an identification of the boundaries of the coastal zone sub-
ject to the management program;
(2) a definition of what shall constitute permissible land and
water uses within the coastal zone which have a direct and signifi-
cant impact on the coastal waters;
(3) an inventory and designation of areas of particular con-
cern within the coastal zone;
(4) an identification of the means by which the state proposes
to exert control over the land and water uses referred to in para-
graph (2) of this subsection, including a listing of relevant con-
stitutional provisions, legislative enactments, regulations, and
judicial decisions;
(5) broad guidelines on priority of uses in particular areas,
including specifically those uses of lowest priority;
(6) a description of the organizational structure proposed to
implement the management program, including the responsibili-
ties and interrelationships of local, areawide, state, regional, and
interstate agencies in the management process.
(c) The grants shall not exceed 66⅔ per cent of the costs of the pro-
gram in any one year and no state shall be eligible to receive more
than three annual grants pursuant to this section. Federal funds
received from other sources shall not be used to match such grants. In
order to qualify for grants under this section, the state must reasonably
demonstrate to the satisfaction of the Secretary that such grants will
be used to develop a management program consistent with the require-
ments set forth in section 306 of this title. After making the initial
grant to a coastal state, no subsequent grant shall be made under this
section unless the Secretary finds that the state is satisfactorily devel-
oping such management program.
(d) Upon completion of the development of the state's management
program, the state shall submit such program to the Secretary for
review and approval pursuant to the provisions of section 306 of this title, or such other action as he deems necessary. On final approval of such program by the Secretary, the state's eligibility for further grants under this section shall terminate, and the state shall be eligible for grants under section 306 of this title.

(e) Grants under this section shall be allocated to the states based on rules and regulations promulgated by the Secretary: Provided, however, That no management program development grant under this section shall be made in excess of 10 per centum nor less than 1 per centum of the total amount appropriated to carry out the purposes of this section.

(f) Grants or portions thereof not obligated by a state during the fiscal year for which they were first authorized to be obligated by the state, or during the fiscal year immediately following, shall revert to the Secretary, and shall be added by him to the funds available for grants under this section.

(g) With the approval of the Secretary, the state may allocate to a local government, to an areawide agency designated under section 204 of the Demonstration Cities and Metropolitan Development Act of 1966, to a regional agency, or to an interstate agency, a portion of the grant under this section, for the purpose of carrying out the provisions of this section.

(h) The authority to make grants under this section shall expire on June 30, 1977.

ADMINISTRATIVE GRANTS

Sec. 306. (a) The Secretary is authorized to make annual grants to any coastal state for not more than 66% per centum of the costs of administering the state's management program, if he approves such program in accordance with subsection (c) hereof. Federal funds received from other sources shall not be used to pay the state's share of costs.

(b) Such grants shall be allocated to the states with approved programs based on rules and regulations promulgated by the Secretary which shall take into account the extent and nature of the shoreline and area covered by the plan, population of the area, and other relevant factors: Provided, however, That no annual administrative grant under this section shall be made in excess of 10 per centum nor less than 1 per centum of the total amount appropriated to carry out the purposes of this section.

(c) Prior to granting approval of a management program submitted by a coastal state, the Secretary shall find that:

(1) The state has developed and adopted a management program for its coastal zone in accordance with rules and regulations promulgated by the Secretary, after notice, and with the opportunity of full participation by relevant Federal agencies, state agencies, local governments, regional organizations, port authorities, and other interested parties, public and private, which is adequate to carry out the purposes of this title and is consistent with the policy declared in section 303 of this title.

(2) The state has:

(A) coordinated its program with local, areawide, and interstate plans applicable to areas within the coastal zone existing on January 1 of the year in which the state's management program is submitted to the Secretary, which plans have been developed by a local government, an areawide agency designated pursuant to regulations established under section 204 of the Demonstration
Cities and Metropolitan Development Act of 1966, a regional agency, or an interstate agency; and

(B) established an effective mechanism for continuing consultation and coordination between the management agency designated pursuant to paragraph (5) of this subsection and with local governments, interstate agencies, regional agencies, and areawide agencies within the coastal zone to assure the full participation of such local governments and agencies in carrying out the purposes of this title.

(3) The state has held public hearings in the development of the management program.

(4) The management program and any changes thereto have been reviewed and approved by the Governor.

(5) The Governor of the state has designated a single agency to receive and administer the grants for implementing the management program required under paragraph (1) of this subsection.

(6) The state is organized to implement the management program required under paragraph (1) of this subsection.

(7) The state has the authorities necessary to implement the program, including the authority required under subsection (d) of this section.

(8) The management program provides for adequate consideration of the national interest involved in the siting of facilities necessary to meet requirements which are other than local in nature.

(9) The management program makes provision for the procedures whereby specific areas may be designated for the purpose of preserving or restoring them for their conservation, recreational, ecological, or aesthetic values.

(d) Prior to granting approval of the management program, the Secretary shall find that the state, acting through its chosen agency or agencies, including local governments, areawide agencies designated under section 204 of the Demonstration Cities and Metropolitan Development Act of 1966, regional agencies, or interstate agencies, has authority for the management of the coastal zone in accordance with the management program. Such authority shall include power—

(1) to administer land and water use regulations, control development in order to ensure compliance with the management program, and to resolve conflicts among competing uses; and

(2) to acquire fee simple and less than fee simple interests in lands, waters, and other property through condemnation or other means when necessary to achieve conformance with the management program.

(e) Prior to granting approval, the Secretary shall also find that the program provides:

(1) for any one or a combination of the following general techniques for control of land and water uses within the coastal zone:

(A) State establishment of criteria and standards for local implementation, subject to administrative review and enforcement of compliance;

(B) Direct state land and water use planning and regulation:

(C) State administrative review for consistency with the management program of all development plans, projects, or land and water use regulations, including exceptions and variances thereto, proposed by any state or local authority or private developer, with power to approve or disapprove after public notice and an opportunity for hearings.
(2) for a method of assuring that local land and water use regulations within the coastal zone do not unreasonably restrict or exclude land and water uses of regional benefit.

(f) With the approval of the Secretary, a state may allocate to a local government, an areawide agency designated under section 204 of the Demonstration Cities and Metropolitan Development Act of 1966, a regional agency, or an interstate agency, a portion of the grant under this section for the purpose of carrying out the provisions of this section: Provided, That such allocation shall not relieve the state of the responsibility for ensuring that any funds so allocated are applied in furtherance of such state's approved management program.

(g) The state shall be authorized to amend the management program. The modification shall be in accordance with the procedures required under subsection (c) of this section. Any amendment or modification of the program must be approved by the Secretary before additional administrative grants are made to the state under the program as amended.

(h) At the discretion of the state and with the approval of the Secretary, a management program may be developed and adopted in segments so that immediate attention may be devoted to those areas within the coastal zone which most urgently need management programs: Provided, That the state adequately provides for the ultimate coordination of the various segments of the management program into a single unified program and that the unified program will be completed as soon as is reasonably practicable.

INTERAGENCY COORDINATION AND COOPERATION

Sec. 307. (a) In carrying out his functions and responsibilities under this title, the Secretary shall consult with, cooperate with, and, to the maximum extent practicable, coordinate his activities with other interested Federal agencies.

(b) The Secretary shall not approve the management program submitted by a state pursuant to section 306 unless the views of Federal agencies principally affected by such program have been adequately considered. In case of serious disagreement between any Federal agency and the state in the development of the program the Secretary, in cooperation with the Executive Office of the President, shall seek to mediate the differences.

(c)(1) Each Federal agency conducting or supporting activities directly affecting the coastal zone shall conduct or support those activities in a manner which is, to the maximum extent practicable, consistent with approved state management programs.

(2) Any Federal agency which shall undertake any development project in the coastal zone of a state shall insure that the project is, to the maximum extent practicable, consistent with approved state management programs.

(3) After final approval by the Secretary of a state's management program, any applicant for a required Federal license or permit to conduct an activity affecting land or water uses in the coastal zone of that state shall provide in the application to the licensing or permitting agency a certification that the proposed activity complies with the state's approved program and that such activity will be conducted in a manner consistent with the program. At the same time, the applicant shall furnish to the state or its designated agency a copy of the certification, with all necessary information and data. Each coastal state shall establish procedures for public notice in the case of all such
certifications and, to the extent it deems appropriate, procedures for public hearings in connection therewith. At the earliest practicable time, the state or its designated agency shall notify the Federal agency concerned that the state concurs with or objects to the applicant's certification. If the state or its designated agency fails to furnish the required notification within six months after receipt of its copy of the applicant's certification, the state's concurrence with the certification shall be conclusively presumed. No license or permit shall be granted by the Federal agency until the state or its designated agency has concurred with the applicant's certification or until, by the state's failure to act, the concurrence is conclusively presumed, unless the Secretary, on his own initiative or upon appeal by the applicant, finds, after providing a reasonable opportunity for detailed comments from the Federal agency involved and from the state, that the activity is consistent with the objectives of this title or is otherwise necessary in the interest of national security.

(d) State and local governments submitting applications for Federal assistance under other Federal programs affecting the coastal zone shall indicate the views of the appropriate state or local agency as to the relationship of such activities to the approved management program for the coastal zone. Such applications shall be submitted and coordinated in accordance with the provisions of title IV of the Intergovernmental Coordination Act of 1968 (82 Stat. 1098). Federal agencies shall not approve proposed projects that are inconsistent with a coastal state's management program, except upon a finding by the Secretary that such project is consistent with the purposes of this title or necessary in the interest of national security.

(e) Nothing in this title shall be construed—

(1) to diminish either Federal or state jurisdiction, responsibility, or rights in the field of planning, development, or control of water resources, submerged lands, or navigable waters; nor to displace, supersede, limit, or modify any interstate compact or the jurisdiction or responsibility of any legally established joint or common agency of two or more states or of two or more states and the Federal Government; nor to limit the authority of Congress to authorize and fund projects;

(2) as superseding, modifying, or repealing existing laws applicable to the various Federal agencies; nor to affect the jurisdiction, powers, or prerogatives of the International Joint Commission, United States and Canada, the Permanent Engineering Board, and the United States operating entity or entities established pursuant to the Columbia River Basin Treaty, signed at Washington, January 17, 1961, or the International Boundary and Water Commission, United States and Mexico.

(f) Notwithstanding any other provision of this title, nothing in this title shall in any way affect any requirement (1) established by the Federal Water Pollution Control Act, as amended, or the Clean Air Act, as amended, or (2) established by the Federal Government or by any state or local government pursuant to such Acts. Such requirements shall be incorporated in any program developed pursuant to this title and shall be the water pollution control and air pollution control requirements applicable to such program.

(g) When any state's coastal zone management program, submitted for approval or proposed for modification pursuant to section 306 of this title, includes requirements as to shorelands which also would be subject to any Federally supported national land use program which may be hereafter enacted, the Secretary, prior to approving such pro-
gram, shall obtain the concurrence of the Secretary of the Interior, or such other Federal official as may be designated to administer the national land use program, with respect to that portion of the coastal zone management program affecting such inland areas.

PUBLIC HEARINGS

Sec. 308. All public hearings required under this title must be announced at least thirty days prior to the hearing date. At the time of the announcement, all agency materials pertinent to the hearings, including documents, studies, and other data, must be made available to the public for review and study. As similar materials are subsequently developed, they shall be made available to the public as they become available to the agency.

REVIEW OF PERFORMANCE

Sec. 309. (a) The Secretary shall conduct a continuing review of the management programs of the coastal states and of the performance of each state.

(b) The Secretary shall have the authority to terminate any financial assistance extended under section 306 and to withdraw any unexpended portion of such assistance if (1) he determines that the state is failing to adhere to and is not justified in deviating from the program approved by the Secretary; and (2) the state has been given notice of the proposed termination and withdrawal and given an opportunity to present evidence of adherence or justification for altering its program.

RECORDS

Sec. 310. (a) Each recipient of a grant under this title shall keep such records as the Secretary shall prescribe, including records which fully disclose the amount and disposition of the funds received under the grant, the total cost of the project or undertaking supplied by other sources, and such other records as will facilitate an effective audit.

(b) The Secretary and the Comptroller General of the United States, or any of their duly authorized representatives, shall have access for the purpose of audit and examination to any books, documents, papers, and records of the recipient of the grant that are pertinent to the determination that funds granted are used in accordance with this title.

ADVISORY COMMITTEE

Sec. 311. (a) The Secretary is authorized and directed to establish a Coastal Zone Management Advisory Committee to advise, consult with, and make recommendations to the Secretary on matters of policy concerning the coastal zone. Such committee shall be composed of not more than fifteen persons designated by the Secretary and shall perform such functions and operate in such a manner as the Secretary may direct. The Secretary shall ensure that the committee membership as a group possesses a broad range of experience and knowledge relating to problems involving management, use, conservation, protection, and development of coastal zone resources.

(b) Members of the committee who are not regular full-time employees of the United States, while serving on the business of the committee, including traveltime, may receive compensation at rates not exceeding $100 per diem; and while so serving away from their
homes or regular places of business may be allowed travel expenses, including per diem in lieu of subsistence, as authorized by section 5703 of title 5, United States Code, for individuals in the Government service employed intermittently.

ESTUARINE SANCTUARIES

Sec. 312. The Secretary, in accordance with rules and regulations promulgated by him, is authorized to make available to a coastal state grants of up to 50 per centum of the costs of acquisition, development, and operation of estuarine sanctuaries for the purpose of creating natural field laboratories to gather data and make studies of the natural and human processes occurring within the estuaries of the coastal zone. The Federal share of the cost for each such sanctuary shall not exceed $2,000,000. No Federal funds received pursuant to section 305 or section 306 shall be used for the purpose of this section.

ANNUAL REPORT

Sec. 313. (a) The Secretary shall prepare and submit to the President for transmittal to the Congress not later than November 1 of each year a report on the administration of this title for the preceding fiscal year. The report shall include but not be restricted to (1) an identification of the state programs approved pursuant to this title during the preceding Federal fiscal year and a description of those programs; (2) a listing of the states participating in the provisions of this title and a description of the status of each state's programs and its accomplishments during the preceding Federal fiscal year; (3) an itemization of the allocation of funds to the various coastal states and a breakdown of the major projects and areas on which these funds were expended; (4) an identification of any state programs which have been reviewed and disapproved or with respect to which grants have been terminated under this title, and a statement of the reasons for such action; (5) a listing of all activities and projects which, pursuant to the provisions of subsection (c) or subsection (d) of section 307, are not consistent with an applicable approved state management program; (6) a summary of the regulations issued by the Secretary or in effect during the preceding Federal fiscal year; (7) a summary of a coordinated national strategy and program for the Nation's coastal zone including identification and discussion of Federal, regional, state, and local responsibilities and functions therein; (8) a summary of outstanding problems arising in the administration of this title in order of priority; and (9) such other information as may be appropriate.

(b) The report required by subsection (a) shall contain such recommendations for additional legislation as the Secretary deems necessary to achieve the objectives of this title and enhance its effective operation.

RULES AND REGULATIONS

Sec. 314. The Secretary shall develop and promulgate, pursuant to section 553 of title 5, United States Code, after notice and opportunity for full participation by relevant Federal agencies, state agencies, local governments, regional organizations, port authorities, and other interested parties, both public and private, such rules and regulations as may be necessary to carry out the provisions of this title.
AUTHORIZATION OF APPROPRIATIONS

Sec. 315. (a) There are authorized to be appropriated—

(1) the sum of $9,000,000 for the fiscal year ending June 30, 1973, and for each of the fiscal years 1974 through 1977 for grants under section 305, to remain available until expended;

(2) such sums, not to exceed $30,000,000, for the fiscal year ending June 30, 1974, and for each of the fiscal years 1975 through 1977, as may be necessary, for grants under section 306 to remain available until expended; and

(3) such sums, not to exceed $6,000,000 for the fiscal year ending June 30, 1974, as may be necessary, for grants under section 312, to remain available until expended.

(b) There are also authorized to be appropriated such sums, not to exceed $3,000,000, for fiscal year 1973 and for each of the four succeeding fiscal years, as may be necessary for administrative expenses incident to the administration of this title.

Approved October 27, 1972.

LEGISLATIVE HISTORY:

HOUSE REPORTS: No. 92-1049 accompanying H.R. 14146 (Comm. on Merchant Marine and Fisheries) and No. 92-1544 (Comm. of Conference).

SENATE REPORT No. 92-753 (Comm. on Commerce).

CONGRESSIONAL RECORD, Vol. 118 (1972):

Apr. 25, considered and passed Senate.
Aug. 2, considered and passed House, amended, in lieu of H.R. 14146.
Oct. 12, House and Senate agreed to conference report.

WEEKLY COMPILATION OF PRESIDENTIAL DOCUMENTS, Vol. 8, No. 44:

Oct. 28, Presidential statement.
Subpart D—Public Participation

§ 920.30 General.

Public participation is an essential element of development and administration of a coastal management program. Through citizen involvement in the development of a management program, public needs and aspirations can be reflected in decisions for the coastal zone, and public support for the management program can be generated. Participating States, therefore, should seek to obtain extensive public participation in the development and administration of a coastal management program.

§ 920.31 Public hearings.

(a) Requirement. In order to meet the requirements of subsection 306(c)(3) and section 311 of the Act with respect to public hearings, States shall:

(1) Hold at least two public hearings, at least one of which will be on the total coastal management program;

(2) Provide a minimum of 30 days public notice of hearing dates and locations; and

(3) Make available, at the time of public notice, all agency materials pertinent to the hearings.

(b) Comment. Statutory Citation, Subsection 306(c)(3):

Prior to granting approval of a management program submitted by a coastal state, the Secretary shall find that the State has held public hearings in the development of the management program.

(c) Comment. Statutory Citation, Section 311:

All public hearings required under this title must be announced at least thirty days prior to the hearing date. At the time of the announcement, all agency materials pertinent to the hearings, including documents, studies, and other data, must be made available to the public for review and study. As similar materials are subsequently developed, they shall be made available to the public as they become available to the agency.

(1) Notification of public hearings should provide the public the longest period of notice practical, but in no event should notice be less than the 30 day statutory minimum. Announcement of the hearings should be through media designed to inform the public—not merely to provide “technical notice.” Therefore, in addition to any publication of local notice as required by State law, reasonably informative news releases should be made available to the news media in the affected communities.

(2) At the time of the announcement, all agency materials pertinent to the hearings, including documents, studies, the agenda for the hearings, and other data, must be made available to the public for review and study in the locale where the hearings are to be conducted.

(4) Hearings should be held in those geographic areas which would be most affected by the issues under consideration at the hearing (e.g., establishment of priority uses for a given geographic area). Hearings on the total management program should be held in places within the State where all citizens of the State may have an opportunity to comment.

(5) In many cases, the population of the coastal zone fluctuates significantly with the seasons of the year. Efforts should be made to insure that hearings are held when those populations most likely to be affected are present.

(6) A verbatim transcript of the hearings need not be prepared but a comprehensive summary should be made available to the public within 45 days after the conclusion of the hearings. A copy of these summaries shall accompany the management program when it is submitted to the Associate Administrator for approval.

§ 920.32 Additional means of public participation.

(a) Formal public hearings may not provide an adequate opportunity for information exchange. To insure that the public is heard during the development of the program, efforts should be made to encourage discussion in various forums and to take other steps to insure that the public can participate in the process in a meaningful manner. The following are suggested to accommodate increased public participation:

(1) Establish arrangements for exchanging information, data, and reports among State and local government agencies, citizen groups, special interest groups, and the public at large; all agencies, at the time of the announcement of a hearing, make the public at large available to the public as they become available to the agency.

(2) Provide opportunity for participation by relevant Federal agencies, State agencies, local government agencies, private parties, and other interested parties, both public and private;

(3) Develop mechanisms in addition to public hearings, to allow citizens and the public at large to effectively participate in the coastal zone program. The following are examples that might be used:

(i) Citizen involvement in the development of goals and objectives;

(ii) Establishment of a Citizen Advisory Committee; and

(iii) Establishment of processes to review component elements of the management program by selected citizen groups and the general public.

(3) Hearings on the total management program do not have to be held on the date submitted to the Associate Administrator for section 305 approval. However, such hearings must cover the substance and content of the proposed management program in such a manner that the general public, and particularly affected parties, have a reasonable opportunity to understand the impacts of the management program.
Subpart D—Coordination

§ 923.30 General.

One of the most critical aspects of the development of State coastal zone management programs will be the ability of the States to deal fully with the network of public, quasi-public and private bodies which can assist in the development process and which may be significantly impacted by the implementation of the program. Each State will have to develop its own methods for accommodating, as appropriate, the varying, often conflicting interests of local governments, water and air pollution control agencies, regional agencies, other State agencies and bodies, Interstate organizations, commissions and compacts, the Federal government and interested private bodies. It is the intent of these requirements for coordination with governmental and private bodies to assure that the States in developing their management programs are aware of the full array of interests represented by such organizations, that opportunity for participation was provided, and that adequate consultation and cooperation with such bodies has taken place and will continue in the future.

§ 923.31 Full participation by relevant bodies in the adoption of management programs.

(a) Requirement. In order to fulfill the requirement contained in section 306(c) (1), the management program must show evidence that:

1. The management program has been formally adopted in accordance with State law or, in its absence, administrative regulations;

2. The State has notified and provided an opportunity for full participation in the development of its management program to all public and private agencies and organizations which are liable to be affected by, or may have a direct interest in, the management program. The submission of the management program shall be accompanied by a list identifying the agencies and organizations referred to in paragraph (a) (2) of this section, the nature of their interest, and the opportunities afforded such agencies and organizations to participate in the development of the management program. These organizations should include those identified pursuant to §923.32, which have developed local, area wide or interstate plans applicable to an area within the coastal zone of the State as of January 1 of the year in which the management program is submitted for approval; and

3. The management program will carry out the policies enumerated in section 303 of the Act.

(b) Comment. Statutory citation: Section 306(c) (1);

Prior to granting approval of a management program submitted by a State, the Secretary shall find that * * * (1) the State has developed and adopted a management program for its coastal zone in accordance with rules and regulations promulgated by the Secretary, after notice, and with the opportunity of full participation by relevant Federal agencies, State agencies, local governments, regional organizations, port authorities, and other interested parties, public and private, which is adequate to carry out the purposes of this title and is consistent with the policy declared in section 303 of this title.

This requirement embodies the actual approval by the Secretary of Commerce of a State's coastal zone management program pursuant to all of the terms of the Act, plus associated administrative rules and regulations. As the operative section, it subsumes all of the requirements included in this part, which shall be considered the "rules and regulations promulgated by the Secretary" mentioned in section 306(c) (1). The citation, however, also includes some specific additional requirements, for which guidance and performance criteria are necessary. These additional requirements include:

(1) Adoption of the management program by the State. The management program must demonstrate that it represents the official policy and objectives of the State. In general, this will require documentation in the management program that the State management entity has formally adopted the management program in accordance with either the rules and procedures established by statute, or in the absence of such law, administrative regulations.

(2) Opportunity for full participation by relevant Federal agencies, State agencies, local governments, regional organizations, port authorities, and other interested parties, public and private. A major thrust of the Act is its concern for full participation and cooperation in the development and implementation of management programs by all interested and affected agencies, organizations and individuals. This is specifically included in the statement of national policy in section 303(c). The State must provide evidence that the listed agencies and parties were, in fact, provided with an opportunity for full participation. It will be left to the States to determine the method and form of such evidence, but it should contain at a minimum:

(i) A listing, as comprehensive as possible, of all Federal and State agencies, local governments, regional organizations, port authorities and public and private organizations which are likely to be affected by, or have a direct interest in, the development and implementation of a management program (including those identified in §923.32), and

(ii) A listing of the specific interests of such organizations in the development of the management program, as well as an identification of the efforts made to involve such bodies in the development process.
(a) "Opportunity for full participation" is interpreted as requiring participation at all appropriate stages of management program development. The assistance which can be provided by these public and private organizations can often be significant, and therefore contact with them should be viewed not only as a requirement for approval, but as an opportunity for tapping available sources of information for program development. Early and continuing contact with these agencies and organizations is both desirable and necessary. In many cases it may be difficult or impossible to identify all interested parties early in the development of the State's program. However, the public hearing requirement of § 923.41 should afford an opportunity to participate in interested persons and organizations whose interest was not initially noted.

(2) Consistency with the policy declared in section 303 of the Act. In order to facilitate this review, the State's management program must indicate specifically how the program will carry out the policies enumerated in section 303.

§ 923.32 Consultation and coordination with other planning.

(a) Requirement. In order to fulfill the requirements contained in section 306(c)(2), the management program must include:

(1) An identification of those entities mentioned which have plans in effect on January 1 of the year submitted.

(2) A listing of the specific contacts made with all such entities in order to coordinate the management program with their plans.

(3) An identification of the conflicts with those plans which have not been resolved through coordination, and continuing actions contemplated to attempt to resolve them, and

(4) Indication that a regular consultative mechanism has been established and is active, to undertake coordination between the single State agency designated pursuant to § 923.22, and the entities in paragraph (B) of Section 306(c) (2).

(b) Comment. Statutory citation: Section 306(c) (2):

"Prior to granting approval of a management program submitted by a coastal State, the Secretary shall find * * * that the State has:

(A) Coordinated its program with local, area, and interstate plans applicable to areas within the coastal zone existing on January 1 of the year in which the State's management program is submitted to the Secretary, which plans have been developed by a local government, an area wide agency designated pursuant to regulations established under section 204 of the Demonstration Cities and Metropolitan Development Act of 1966, a regional agency, or an interstate agency; and

(B) Established an effective mechanism for continuing consultation and coordination between the management agency designated pursuant to paragraph (A) of this subsection and with local governments, interstate agencies, regional agencies and area wide agencies within the coastal zone to assure the full participation of such local governments and agencies in carrying out the purposes of this title."

Relevant background information on this requirement appears in 15 CFR 920.45(f), and is incorporated by reference herein. While the State will exercise its authority over land and water uses of State wide significance in the coastal zone by one or more of the techniques set forth in § 923.28, the State management program must be coordinated with existing plans applicable to portions of the coastal zone. It should be noted that this section does not demand compliance of the State program with local plans, but the process envisioned should enable a State not only to avoid conflicts and ambiguities among plans and proposals, but to draw upon the planning capabilities of a wide variety of governments and agencies. Coordination implies a high degree of cooperation and consultation among agencies, as well as a mutual willingness on the part of the participants to accommodate their activities to the needs of the others in order to carry out the public interest. Perceptions of the public good will differ and it is recognized that not all real or potential conflicts can be resolved by this process. Nevertheless, it is a necessary step. Effective cooperation and consultation must continue as the management program is put into operation so that local governments, interstate, regional and area wide agencies can continue to participate in the carrying out of the management program. The "plans" referred to in (A) shall be considered those which have been officially adopted by the entity which developed them, or which are commonly recognized by the entity as a guide for action. The list of relevant agencies required under § 923.31 will be of use in meeting this requirement. It will enable the State to identify those entities mentioned in (A) which have such plans and to provide evidence that consultation with them has taken place. The process envisioned should not only enable a State to avoid conflicts between its program and other plans applying within its coastal zone, but to draw upon the planning capabilities of a wide variety of local governments and other agencies. In developing and implementing those portions of the program dealing with power transmission lines, pipelines, interstate transportation facilities and other facilities which will significantly impact on neighboring States of a region, particular attention should be paid to the requirements of this section.
APPENDIX E

THRESHOLD PAPERS FOR
CZM PROGRAM
DEVELOPMENT

by
Office of Coastal Zone Management
National Oceanographic & Atmospheric Administration

May, 1976
Threshold Paper #4: Public and Governmental Involvement

1. Requirements of the Act

Section 303(d) declares that it is national policy

"to encourage the participation of the public, of Federal, state and local governments, and of regional agencies in the development of coastal zone management programs."

This policy is further elaborated in Section 306(c)(1) which requires that an approvable management program must have been developed

"with the opportunity of full participation by relevant Federal agencies, state agencies, local governments, regional organizations, port authorities, and other interested parties, public and private..."

With respect to Federal agencies in particular, Section 307(b) requires that

"the Secretary shall not approve the management program submitted by a state pursuant to Section 506 unless the views of Federal agencies principally affected by such a program have been adequately considered..."

Section 302(c) expresses Congressional concern over environmental degradation resulting from the increased demands of various land and water uses, and lists them to include:

"industry, commerce, residential development, recreation, extraction of mineral resources and fossil fuels, transportation and navigation, waste disposal, and harvesting of fish, shellfish and other living marine resources."

These uses are called out particularly because they may well be influenced by implementation of state management programs. Hence, it is clear that Congress intended that management programs address such use. Interests related to these uses should be given the opportunity to participate in the development of management programs.

Section 306(c)(2) calls for coordination of the developing management program with

"local, areawide, and interstate plans applicable to areas within the coastal zone existing on January 1 of the year" in which the program is submitted.

It also mandates the establishment

"of an effective mechanism for continuing consultation and coordination" between the state and local governments and interstate and regional bodies.
Section 306(c)(3) requires that the state have

"held public hearings in the development of the management program"

Section 308 further specifies that such public hearings

"be announced at least thirty days prior to the hearing date" and that all pertinent documents, studies and data be available during that entire 30 day period.

2. Requirements of the Regulations

The 306 approval regulations interpret the statements of policy:

"It is the intent of these requirements for coordination with government and private bodies to assure that the state, in developing its management program, is aware of the full array of interests represented by such organizations, that opportunity for participation was provided, and that adequate consultation and cooperation with such bodies has taken place and will continue in the future." (Section 923.30)

Furthermore, the state must indicate that it

"has notified and provided an opportunity for full participation in the development of its management program to all public and private agencies and organizations which are liable to be affected by, or may have a direct interest in the management program."

Approval criteria related to this section require a listing of plans in effect in the year submitted, a listing of specific contacts made with agencies having such plans, an identification of unresolved conflicts, and indication of a continuing consultative mechanism. (Section 923.32)

The administrative regulations reiterate the statutory requirements, indicating that public hearings be

"held in places and at times convenient to the affected population, that all citizens of the states have an opportunity to comment...and that a report on each hearing be prepared and made available to the public within 45 days. (Section 923.41)

3. Purpose of Threshold

The purpose of this threshold is to insure, that the development of the state management program is accompanied by consideration of the varying and possibly conflicting views of groups and
organizations interested in the subject matter of the state program.

Section 923.30 of the regulations indicates that NOAA is concerned with

"the ability of the states to deal fully with the network of public, quasi-public and private bodies which can assist in the development process and which may be significantly impacted by the implementation of the program."

This means that a management program must be more than merely the embodiment of state level policy decisions. Its preparation must have considered input from groups, including local governments, likely to be affected by the program. In addition, the public at large must be made aware of the program's existence so that they too may comment on it.

4. Threshold Statement

a. "Opportunity for full participation".

The Act requires the "opportunity for full participation" by various public and private organizations and individuals. However, simply assuring that an opportunity exists for participation will not suffice unless coupled with adequate information, easily obtainable by the public (including special interest groups, local governments and regional agencies), making the opportunity and method for such participation known. A state must thus demonstrate that some form of public information device has been employed with respect to the management program.

Such information about the program should be made available to the public in terms which would:

(1) be readily understood by an average citizen of the state,
(2) permit the citizen to understand:
   (a) the benefits of the program
   (b) how he might be affected by the program
   (c) how he may participate in program development
(3) explain at least the seven basic elements addressed by these threshold papers (although not necessarily in that same format).

b. Interested and affected groups.

The state should make particular efforts to encourage interested and affected groups or individuals to make their views and recommendations known to the CZM agency. Interested and affected groups or
individuals are those which are:

(1) clearly identified with the coastal issues and problems listed by the state in Section 305 program development applications, or

(2) likely to be affected significantly by implementation of the program; at a minimum, these should include relevant groups representing "industry, commerce, residential development, recreation, extraction of mineral resources and fossil fuels, transportation and navigation, waste disposal, and harvesting of fish, shellfish and other living marine resources" in the coastal zone (Section 302(c)).

Note that it is not necessary that the state provide to each interested or affected group an indication of precisely how that group might be affected by the program. Sufficient information, however, should be provided to enable such groups to make their own determinations.

c. "Full Participation".

"Full participation" implies that the public, special interest groups and local, state, regional, and interstate agencies shall be made aware of, and have this opportunity to assist in the preparation of the program at each time when decisions affecting those groups are being made. Such "participa-tion" cannot be put off until all of the major decisions of the program have been made. However, this would not apply to those portions of a state's program which have been adopted in state law (or pursuant to Federal law) prior to, or outside of the framework of CZM program development.

d. Feedback.

The management program should demonstrate the means by which specific comments raised about the program through public participation are dealt with and brought to the attention of the policy making level of the agency responsible for program development. This need not imply a formal mechanism for consideration of all public views, although this could be helpful; rather, it means that issues and questions identified during public participation efforts outlined above shall be brought to the attention of technical and policy staff of a level sufficiently high to affect the program development in the area of concern.

e. Planning Coordination.

Special effort should be made to assure understanding of the developing program by local governments, other state agencies, regional and interstate planning bodies and port authorities. At a minimum, each regional planning agency and port authority covering areas in the state's coastal zone should be individually contacted.
In addition, local governments and interstate bodies should be contacted individually if they have officially adopted plans applicable to coastal areas as of January 1 of the year the program is submitted and if the state's program might potentially conflict with those local plans. The state's management program must also establish (or utilize existing) mechanisms under which continuing coordination and consultation with these agencies and governments can take place during program implementation.

f. Public Hearings.

The Act requires that the state must have held public hearings in the development of the management program. Because "hearings" is plural, it is clear that Congress intended more than one hearing be held. Hearings, however, may be of several types, and the Act does not specify the type. They may range from informal meetings where participation and involvement in program development are actively sought, to formal hearings with hearing examiners, verbatim testimony records and adherence to administrative procedures regulations.

Such hearings, however, must conform to certain standards: at least 30 days prior notice must have been given with all data, information and material associated with the hearing available to the public during the time from notification to the hearing. A report on the results of the hearing should be prepared and made available to the public within 45 days.

At least one of the required hearings must be held on the entire program. The hearings must have been held prior to final adoption and submission of the management program to the Secretary of Commerce. Such final submission may occur, however, after an OCM determination of threshold acceptability of the state's program.

5. Acceptable Approaches.

a. Opportunity for Full Participation

Public information may take many forms. None is prescribed, but consideration should be given to: brochures made available in places of public congregation (libraries, government buildings, stores, transit facilities, etc.); radio, TV and personal presentations; press announcements; public meetings or hearings; exhibits; telephone "hot lines" or rumor centers; films and slide shows; legislative debates, and so forth. The number used and intensity of such public information devices will, of course, vary from state to state depending upon the degree of interest in coastal matters, but a program which contained none or only a few of these or similar devices would be deemed deficient.
b. Interested and Affected Groups

Efforts to encourage participation by interested and affected groups may include: personal appearances before organizational meetings; submission of articles or notes for inclusion in organization publications; written requests for organization representatives to comment upon, testify or make recommendations on program elements, as well as to identify problems and provide organizational information and data; inclusion of organizations on advisory councils or technical assistance boards; invitations to organization representatives to appear on public, radio or TV panels or "talk shows" and so forth. Again, a program containing none or few of these or similar efforts will be deemed deficient.

In the case of regional and state agencies, and local governments, consideration should also be given to participation opened up through the "pass-through" of CZM funds to these bodies, as well as through the A-95 process of review and comment on Section 305 and, possibly, other grant applications.

c. Full Participation

"Full participation" does not necessarily mean that the public must be consulted on every step or work element in program development, but it does mean that public inputs must be accepted at any point. The state should analyze its program development work program to identify those points at which information is generated that would assist in better public awareness and understanding of the program and at which public commentary would assist in program development.

d. Feedback

While a formal procedure of review for public input as outlined above is not required, such a mechanism would clearly satisfy this point. At the very minimum, specific comments which reflect general coastal issues and problems should be discussed at regularly scheduled staff meetings with appropriate CZM agency personnel present with definite assignments of responsibility for follow-up.

e. Planning Coordination

Coordination directly with individual local governments having officially adopted plans should occur if and where the state's program is site specific, as in the designation of areas of particular concern. It may not be necessary on an individual basis if performance standards, for example, were applied statewide to uses within the scope of the program. Use of the A-95 procedure would provide at least a minimum basis for fulfilling the requirements for continuing coordination and consultation, provided local governments, regional agencies and port authorities are made a part of it.
f. Public Hearings

More details on an approach to hearings are suggested by the 305 regulations. The notice for the hearing should be published in media designed to inform the public. Access to all relevant documents should be provided, and the meetings should be scheduled at a time and place so that the population most likely to be affected can be present. In addition, where the hearings themselves may not provide adequate opportunity for information exchange, efforts should be made to encourage discussion of the subject matter of the hearings in other forums. These might include citizen involvement in the development of goals and objectives, citizen appointment to a Citizen Advisory Committee or the establishment of processes to review component elements of the management program by selected citizens groups and the general public.


Since the ultimate goal of this program is to adopt a unified plan for the protection and use of coastal resources, it is important that public and private interests have some input into the state's management program. Without it, the program would remain merely a limited expression of the interest of one level of government and could potentially ignore the important concerns of interested groups whose cooperation may later prove essential to the effectiveness of any program.

The notion of a wide range of participation and cooperation is intimately tied to other threshold requirements as well. According to threshold #4, the states are required to give adequate consideration to the views of Federal agencies, and these agencies in turn may later be required to act in a way consistent with the state's approved program "to the maximum extent practicable." Under thresholds #6 and #7, the state must demonstrate the existence of an organizational structure and legal authorities sufficient to implement the program. When these thresholds need to be satisfied by administrative restructuring, input from those agencies whose responsibilities will be affected would surely aid the states in bringing about a smoother transition. At those times when new legislation is required, it will be very important to make certain that the voting public and the interest groups are aware of how the coastal zone management program will relate to them.

7. Documentation.

Management programs submitted for approval must document public information efforts, specialized contacts with particular interest groups and interactions with local, state and regional agencies. Not every individual effort shall be specified with copies of
originals, but the program should contain summaries of public information activities undertaken, copies of form letters soliciting input, summaries of responses to public participation initiatives and indication of meetings held with various interest groups, regional and local bodies.

The states must supply a list identifying the nature of the interests likely to be affected by or, with a direct interest in, the management program as well as the opportunities afforded affected agencies and organizations to participate in the development of the management program. In addition, the management program must include a listing of local, areawide and interstate plans in effect in the year submitted, a listing of contacts made with agencies with such plans, an identification of unresolved conflicts and an indication of the processes available for continuing consultation.
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