PUBLIC PARTICIPATION IN WATER RESOURCES PLANNING

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FOREWORD

Greatly increased emphasis on public participation and involvement in the planning process is now a fact of the Corps planner's life. Citizens' interest in resource planning and their determination to have a piece of the action in decisions that affect them is well demonstrated by current experience of all planning agencies. The reasons for this are many, but in the water resources field, perhaps foremost is the awakened public concern for ecological and environmental problems and the allocation of the nation's natural resources. At the same time various planning agencies, including the Corps of Engineers, have been seeking to develop methods and procedures for planning with the public. This report focuses on the role of the planner in communicating and interacting with the publics. It seeks to describe the institutional and behavioral aspects of planning as a process of social change, and with this as a framework to discuss methods and approaches for developing public participation in planning studies.

The general objective of a public participation program as part of a planning study is to provide an organized set of activities which serve to establish functional communication between the planner and the many "publics" so as to most efficiently transmit information which is pertinent to the particular stage of the planning process and which will elicit feedback from the publics on perceptions of needs and preferences for plans. "Publics" is used in the plural to emphasize that there will likely be several different public groups and interests to be served in

the plans. To communicate with the publics will require a well planned program for identifying concerned local interests, for discovering and understanding perceptions of needs, and for opening of avenues for direct planner-public communication. In other words, public participation should become an integral part of the planning study for giving information and getting feedback for decision making. This implies a significant commitment of manpower, time and resources which, in the future, will need to be considered and programmed into the water resources planning efforts.

To accomplish these tasks, this report is intended to serve both as a guide and a source of ideas for developing public participation program plans. The first four chapters are largely adapted from a report prepared by the author for the Bureau of Public Roads and the California Division of Highways entitled "Socio-Economic and Community Factors in Planning Urban Freeways," published as Report EEP-33, Project on Engineering Economic Planning, Stanford University. Even though this study was aimed at freeway planning, the many parallels with water resources or other public works planning were so striking that the Corps of Engineers' Institute for Water Resources determined that it would be valuable to translate it into the context of water resources planning. The work is of a research and exploratory nature, and of course the conclusions, opinions, and other statements are those of the author and not necessarily those of the Corps of Engineers. It is intended to encourage and stimulate new approaches to working with the publics in planning. Thus, some of the concepts and ideas expressed herein may be found in conflict with existing practice. In such cases appropriate approval should be obtained before implementation.

Planning is a dynamic process, and it should be emphasized at the outset that there are no pat answers or simple formulas for getting participation and input from concerned citizens and interest groups in the planning process. A good deal of innovation on the part of the planner is needed in developing lines of communication with the publics at different stages of the planning process.

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CHAPTER I

WATER RESOURCES, THE PUBLIC, AND THE PLANNER

General Scope of the Report

Water resources development has a wide range of impacts on the various users, on the surrounding communities, and on the region and nation as a whole. Consequently, numerous interest groups become involved in decisions on water projects. Decision makers at the state and federal levels must weigh monetary and non-monetary consequences as seen by their agency and, in addition, must consider the interests and demands of other public bodies, organizations, and individuals, before reaching decisions. A similar weighing must be applied by decision makers at the local level before they approve or object to proposed plans. As a result, decisions are difficult, time consuming, and involve many value judgments.

Likewise, project planning is complicated, involving numerous decisions over time regarding location, design, environmental quality, financing and public policy. The change in public attitudes toward resources and the environment, greater public interest and involvement in planning studies, and the increasing number of controversies over water development projects indicate that resource planning is at a new stage where it is appropriate to adopt planning policies and procedures which

encourage maximum feasible public participation. The purpose of this report is to aid the water resources planner in organizing participative planning by:

1. Relating water resources planning to concepts of planned social change in order to provide the planner with a framework for developing broad public participation in the planning process (Chapter III).

2. Examining approaches to water resources planning and decision making, in the context of planned change, as a guide to the kinds of public involvement which may develop planning studies (Chapter IV).

3. Exploring specific methods which can be used by planners in organizing public participation in planning studies (Chapter V).

The report describes possible approaches to participative planning and identifies those which might improve and expedite the planning process. The aim is to enhance the engineers' ability to communicate with the public in developing water and related land resource plans.

Current Problems Facing the Water Resources Planner

As water development projects have received more and more publicity, communities and groups are objecting to what they consider as undesirable effects from them. Consequently, it is becoming difficult to gain acceptance of many proposed plans. For example, opposition is rising against construction projects as the answer to every water problem. Responsive changes in the Corps' policy are toward considering non-structural solutions as well as much wider ranges of alternative plans.

Going hand in hand with the increased concern for environmental, social, and aesthetic values is the Water Resources Council's Special

Task Force which has outlined four accounts for evaluation of water and related land resource projects. These include (1) national income, (2) regional development, (3) environmental enhancement, and (4) well-being of people. The preliminary findings of test teams attempting to apply these criteria for evaluation show that the array of alternatives, and hence the input from local groups, is likely to be more extensive because of broader objectives for evaluation.

Finally, conflicts are greatly extending planning times. Such conflicts, often coupled with considerable lag time between the completion of plans and the prospects for implementation, may eventually result in wasted effort and resources. The planning times and budgets of future planning studies need to reflect the reality of greater public involvement, information, and participation in the planning.

More public participation, of course, does not insure that future controversy in resources planning will be avoided. On the contrary, it may serve to stimulate controversy in planning studies. However, by bringing all issues into focus early in the planning process, there is greater opportunity to resolve them in the development of plans before decision makers are entrenched into positions of opposition from which they cannot retreat.

Why Public Participation in Planning?[1/]

Water resources planning can be considered a process of working within the limits of feasibility as illustrated by the diagram of Figure 1-1. In any individual situation one or more of the areas of

1/ Ideas for this discussion contributed by Burnham H. Dodge, Dir/CAP, IWR.

feasibility could be wider with the possible outer limits indicated by the dotted arrow extensions.

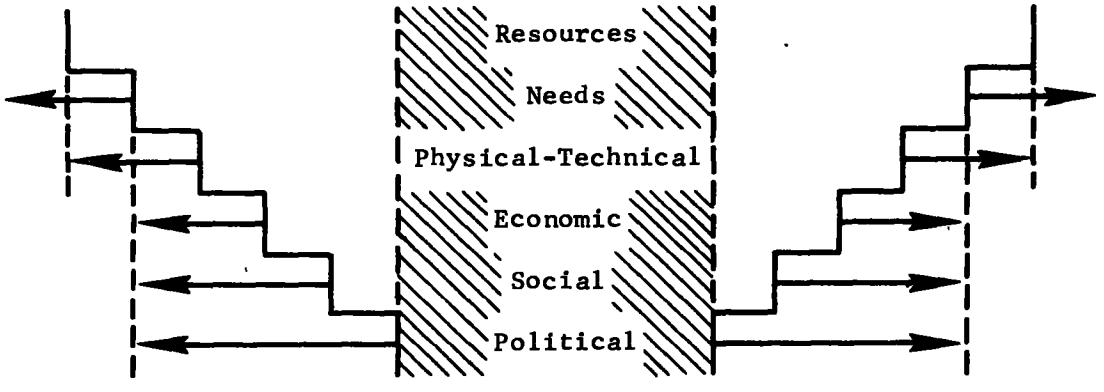


Figure 1-1: Limits of Feasibility in Resources Planning

The usual approach to water resources planning is to progressively narrow the feasible alternatives in the planning process in a descending order as indicated in the Figure. However, the vertical lines of the feasible limits indicate that much of the earlier stages of planning may be of only marginal concern in relation to the end product that can be implemented. And, indeed, much time and resources may be spent in developing plans that are outside the limits of feasibility in one area or another.

The planning effort is generally considered complete when economic feasibility is determined. The limits of social, environmental, and political feasibility, while not entirely ignored, are largely left to others to be determined after the plan is complete. More often than not these missing ingredients are the ultimate cause of planning failures.

With broadening public interest in water resources, planners must recognize that social and political feasibility are as essential a part of the planning process as engineering and economics. Hence, the planner should refine the limits of social and political feasibility throughout the entire planning process. The purpose of public involvement in planning is to accomplish this end by constant communication with individuals and organizations who in the end are the determining influences. Relating this to the diagram, if the planner begins to bracket a range of political feasibility early in the study, then more of the planning efforts can be confined to the cross hatched area of the diagram indicating the extent of plans more likely to be feasible and acceptable, and the planning process will more likely lead to a productive outcome.

An important point, however, is that social and political feasibilities do not have fixed predetermined limits. They depend to a significant extent upon clear understanding of the possibilities and the significance of choices. Thus, adequate interchange of information can serve both to establish the feasibility limits and as a guide to avoiding marginal effort. The key to realistic appraisal of social and political feasibility is to maintain constant communication with a broad spectrum of those who will finally determine these limits.

CHAPTER II

CONTEXT OF ENGINEERING PLANNING

Resources Planning and Public Works

Planning of public works, including public policy and resource allocation, is difficult and complex. Water resources development involves a number of engineering-planning decisions which usually transcend many physical, political, and social boundaries. Decisions about resource allocations in such projects are, as a result, made in a context of conflicts among diverse interests. In applying the knowledge and skill of his profession to develop creative solutions in the face of these problems, the engineer and planner should ask: Why do this at all? Why do it this way? and, Why do it now? (Grant and Ireson, 1964, p. 3).

Some of the difficulties in answering these questions stem from the nature of public works themselves. A completed public work, constructed and in place, represents a definite change which is difficult to reverse. It is often literally set down in concrete. Given its permanence, it is critical to determine whether or not this kind of change should be made at all. If it is made, should such a change be made now and in this particular way, or would such an action preclude future opportunities about which adequate knowledge of needs and conditions are now lacking?

A rule suggested by Linsley (1968, p. 3) should be given consideration in planning all water resource projects:

> "In situations involving important social and aesthetic values where no agreement can be reached among conflicting interests, a project should be avoided or deferred unless it is clearly essential and there is no reasonable alternative. This rule does not mean the opportunity to build is lost, but that the further opportunity to learn is kept open."

Public works also tend to have a self-fulfilling nature. Planners ought to be well aware of this fact since they have discovered that if projects are built they will become part of the fabric of an area. The products from construction of a new dam cause changes in the structure, population, and economy of the region, which are responsible, at least in part, for creating the needs and demands to be satisfied by the project purposes. Since projects generate a certain amount of self-fulfillment, it is important to ask: What would realistically be expected to happen if the project were not built? Here, too, we must recognize that "doing nothing" is a dynamic and not a status quo condition.

Many major decisions in public works are such that they cannot be made by the mathematical or empirical methods of analysis generally used by engineers. Rather, decisions often hinge on matters of public policy and resource allocations made through the interaction of many diverse interest groups. Bruck, Manheim, and Shuldiner (1967) describe the decisions arising in this setting as "ill-defined" because they include such evolving aspects as possible changes in objectives. the acquisition of new information about the system, changes in the system components, and new information about the environment. In contrast, with well-defined problems there is a clearly defined objective and a systematic way to

decide when a proposed solution is acceptable. Some of the further characteristics of public works which emphasize the need for public participation in planning are as follows:

Distribution of Costs and Benefits.

The costs and benefits of public works are generally distributed among many different interest groups. Construction of a dam or flood control works brings about changes in land use, dislocation of people and property, and alterations in living patterns, all of which serve to redistribute economic and social resources. In evaluating the impact of public works, one can no longer just assess the benefits "to whomsoever they accrue," but in addition, it must be determined who receives the benefits and who incurs the costs. Grant and Ireson (1964, p. 458) recognize this problem and what is needed for its solution:

> "There are frequent conflicts between various interests in the utilization of natural resources. Thus, stream flow may be controlled in the interests of navigation, power, irrigation or flood control, and each of these interests requires a different form of regulation. The interests of land transportation conflict with the interests of navigation in any project for the construction of a bridge over navigable waters. There is a definite need for the development of standards of social utility that will enable some coordinating agency to make intelligent decisions between the demands of the various interests involved in any such situation."

To develop "standards of social utility" requires the development of an acceptable concept of social efficiency. Our best mechanisms for determining social welfare, as Lee (1964, pp. 28-42) points out, rely on democratic processes for determining the values to be achieved even though the public may not be fully aware of the benefits foregone. The ideal decision criteria would be some quantitative measure that

accruately reflects all the costs and benefits and their incidence. Experience so far suggests that such a measure will be difficult to achieve. Even so, efforts should continue to be devoted to the development of quantitative tools and techniques of analysis. However, with the present state of the art, and the problem of diverse interests and viewpoints, many of these methods may lead to an overaggregation of project consequences, and thus an over simplification of the problem. Lee (1968) suggests that we need to expand the information for decision making and find tractable means of looking at it, rather than collapsing what can be quantified into a single measure and ignoring the rest. For example, the benefit-cost study should be used in conjunction with other analyses, for comparing the tradeoffs in costs or benefits with the achievement of other objectives.

Complexity of Issues and Organization.

The scale of the problem in public works planning is generally large. For example, the changes wrought by a given project touch many of the social, economic, and aesthetic aspects of community life. As a result, there is a wide range of issues that must be dealt with and solved or compromised to gain acceptance of plans. There is rarely a single decision maker in public works planning, and decisions are made difficult because of the number of interactions among potential decision makers. Clearly, as the number of affected parties increases, the probability of conflicts of interest and the difficulty in resolving conflicts to achieve a final solution increase. The planner's success depends on his recognition of which interest groups can influence the plans and decisions, and how and by whom the final decision is made.

Under our system of government, planning is a mix of administrative decisions made by planners and engineers within the responsible agencies, and political decisions made by elected officials. Given this environment, this report attempts to deal with such working problems as how to keep the interest of elected officials, advisory groups, and functional administrators over a period of years, how to translate technical data into public policy issues and keep testing them politically, and how to make community relations a really meaningful activity.

Multiplicity of Objectives.

The large number of interest groups in public works planning generally produces a multiplicity of objectives. These objectives are often in conflict or are mutually exclusive. Thus, the idea of optimizing a given set of objectives becomes much more difficult, if not impossible to achieve. It follows that an approach of multiple-objective planning should be used by planners to avoid the problems created by constructing studies on narrow sets of objectives. This allows planning to proceed not on the basis of a single set, but with several workable combinations and alternative sets of objectives.

Planning experience (Frankland and Hill, 1965) has shown that it is often difficult for groups to identify or express their objectives at the inception of a study. This can be an advantage to the planners, rather than a disadvantage, because it offers the planner an opportunity to approach the problem without undue constraints. Alternative plans translate sets of objectives into physical or functional form. This crystallizes the meaning and importance of the objectives to different

interest groups. Testing in this way produces sets of objectives that are workable, and acceptable plans can be derived.

Planning and Systems Analysis

The terms planning and systems analysis have become common in the engineer's vocabulary. Actually, they are closely associated in terms of their importance and relationship. The concepts linking the two are: (1) the ideas of change, and (2) that there are alternative ways of accomplishing things.

The purpose of systems analysis is to structure a problem and provide a rational basis on which to develop and evaluate plans. It recognizes that each problem is composed of several different specialized substructures and functions. The complete system is to be optimized according to a set of objectives; maximum compatibility of the system's parts is sought. This process is divided into six general steps:

1. Formulate the problem and state the goals and objectives for the system.
2. Develop policies and alternative plans.
3. Evaluate objectives and reformulate as necessary.
4. Estimate the impact on the system of various alternative plans.
5. Evaluate the effect of alternative plans on the operation of the system in terms of the stated objectives.
6. Implement the preferred plan.

In practice, "systems analysis" encompasses a broad range of approaches to solving complex problems. These methods may range from the highly mathematical and quantitative techniques used in operations

research or statistical decision theory to very subjective and qualitative ones.[2/] The method of approach and scheme of logic used in developing plans should be highly influenced by the nature of the problem, the data available, and the groups involved in the decision. Within this context, systems analysis has taken on a spectrum of meaning. Placed in the hierarchy of management or government decision-making levels, systems analysis applies both at the program level where alternative policies are identified and at lower levels in the form of benefit-cost analysis, operations research algorithms, or other mathematical techniques generally associated with systems evaluation. In general, systems analysis is any tight, logical argument which is persuasive in clearly demonstrating the system's function.

In terms of water resources the concepts of systems analysis suggest that planning and analysis must be carried out considering the water in the context of the nation and region and in appraising its social, economic, and aesthetic effects on all aspects of the environment.

Under this form of systems approach, the primary concern in planning becomes the controllability and relative efficiency of different variables in producing given changes. In this regard, an understanding of water in terms of a system model can provide information to planners and decision makers in three important ways (Gouldner, 1961, p. 90):

1. A system model may be able to forewarn the planners of the possibility that a change in one part of the system may yield unforeseen and undesirable consequences in another part of the system.

2/ Some references discussing the concepts and techniques of systems analysis are: Hare (1967), and Chestnut (1965).

2. System models indicate that changes may be secured in one element, not only by a frontal attack upon it but also by a circumspect and indirect manipulation of more distantly removed variables. These, because of system interdependence, may ultimately produce the desired changes in the target variables.

3. Systems analysis directs attention to the multiple possibilities of intervention with respect to a single problem.

To place the planner within the scope of the full problem, the "water planning system" is actually comprised of two interconnected subsystems. These are:

1. The planning and decision system, including the decision makers and their interaction through the planning process.

2. The environment including the interfaces between water, people and their needs, and ecology.

In this interconnection, there is a circular relationship. The perceived impact on the community of proposed projects influences the attitudes and interaction among the decision makers. This in turn determines the decisions on water resource allocation and future community change.

Your Role as a Planner

Greater public awareness of proposed public works is making the life of the planner much more complicated. He has been forced from the comfort of decisions based on arithmetic calculations to a consideration of his decision making role vis-a-vis other interest groups and decision makers. The planner cannot isolate himself from the public. Even though he may fear that controversy will develop, he should realize that it is not necessarily bad. While the planner claims neutrality, he ought to recognize that he is often biased as the natural result of his own professional viewpoint, his agency's mission, or an "ego" involvement with the particular plans he is proposing.

Every planner, as he approaches his role in the planning process, should consider three central issues (Bolan, 1967, p. 233):

1. Is there a disparity between the planners' notion of rationality and the social or political process by which policies are actually chosen?

2. If such disparities exist, what adaptations must be made in the method, strategy, or content of the planning process in order to yield more rational public policies or decisions within the democratic framework?

3. How does the planner deal more effectively with goals and values, and with the divergent interests of various social groups?

To insure that these issues are squarely met, the planner must have concepts and approaches to planning that will allow development and consideration of a full range of alternatives and associated goals, and an attitude conducive to consideration of competing viewpoints and interests.

In examining the kind of planning done by the engineer, Linsley (1968, p. 4) states: "We can no longer be complacent about the adequacy of our present planning procedures...." Willeke (1968) notes the importance of communication as the fundamental basis of the planning process and the need to develop worthwhile communication tools.

In conclusion, the goal of the planner should be the preservation of flexibility. This requires devising plans that achieve objectives without foreclosing future opportunities. By its very nature, the planning of public works implies social change. Therefore, public

works planning requires some insight into the process of social change. In following this approach, the premise is that greater social efficiency can be achieved through an effective and open planning process and an understanding of resources planning as a process of social change.

CHAPTER III

PLANNING AS A PROCESS OF SOCIAL CHANGE

Water Resources Development and the Process of Change

The relationship between a public work and social change is one of both cause and effect. In the past, water development was considered to represent the effect of social and economic change rather than its cause. Viewed in this light, the water supply, flood control and navigation projects can validly be considered the effect of such social forces as an expanding population, and the need for water for municipal, industrial, trade, and recreation, and changes in economic conditions which attract people to different areas. Accepting water development as an effect of these forces, planning has been concerned basically with existing or anticipated needs.

The other view is that water development is an instrument of social policy since it can serve to stimulate economic and social change. Community response to this stimulus will of course depend on the capacity, ability, and desire to change which exists in the areas to be served and on the planned use of the water resources. This places a significant responsibility on communities and state agencies to determine those changes deemed desirable in the community and those that are not, and

the possibilities, if any, for stimulating or preventing them through the location and design or deference of water resources projects.

A Descriptive Model of Planning

Just as with the physical problems of engineering, if engineers are to successfully plan public works involving social change, they need models which describe this process. Such models should define the functions of the planning process, and the range of choices open to planners in deciding the means by which to approach planning problems. This includes the types of decisions which are made, the process by which planned change occurs, and the relationships of the participants in the planning process. With such understanding, the planner can operate more effectively in his role as an agent of change. He can focus not just on the end product of planning, but on how to structure the planning process in order to produce a product which achieves a more widely accepted solution to the wants and needs of society.

Engineering of Planned Change

The basic purpose of engineering planning is controlling and guiding the changes made in man's environment to serve his needs and best interests. A typology adapted from Bennis (1961, p. 154) lends insight into the kinds of change processes which might occur within our political and economic structure. This is described in Table 3-1.

The approach to water resource development may be either planned or technocratic change since it entails intentional goal setting which may or may not be mutual. In the past our approach has been primarily

technocratic. However, if "planning" in its broadest sense is to be a reality, intentional mutual goal setting through public participation is required.

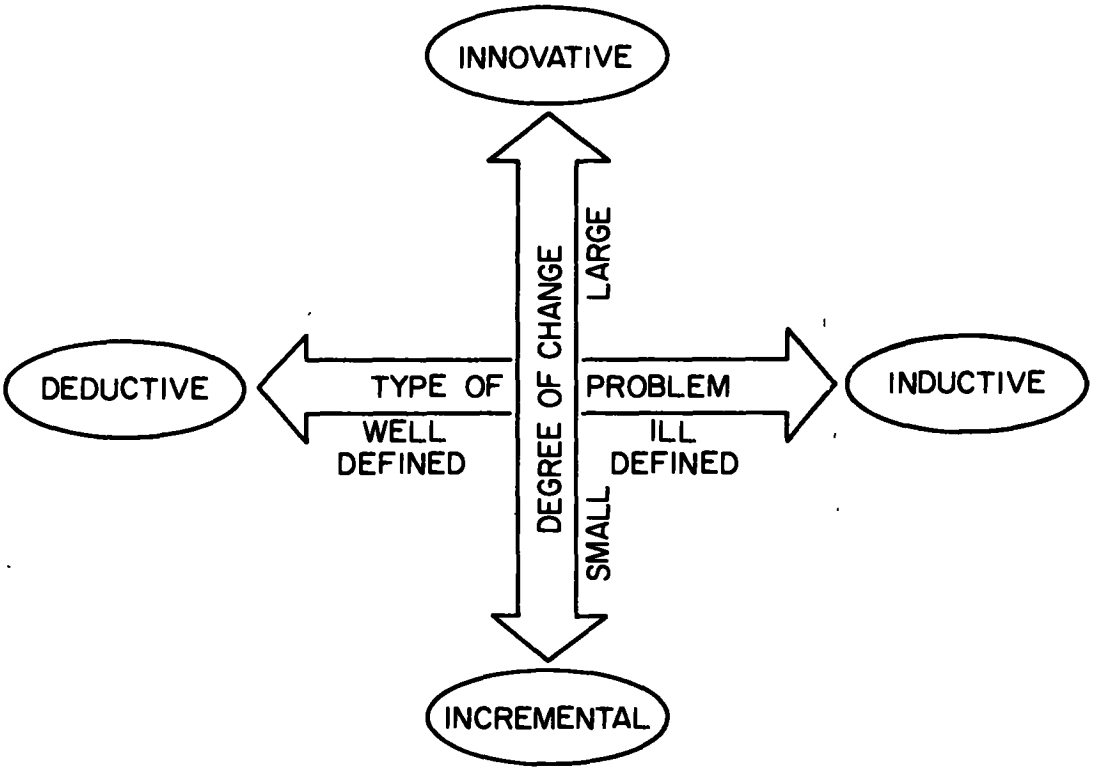
Table 3-1: Typology of Change Processes

Planner-Community Relationship	Approach to Goal Setting	
	Intentional by planner and community	Non-intentional by planner, or community, or both sides
Mutual Goal Setting	Planned Change	Interactional Change
Non-Mutual Goal Setting (or goals set by one side)	Technocratic Change[a]	Change Without Goals

[a]The technologist sets the goals whether or not there is participation of the other side.

In discussing water planning, as one area of engineering planning, some consideration must be given to the nature of and approaches to planned change. Figure 3-1 depicts the dimensions of planning problems and relates them to the range of approaches to planning. At one end of the spectrum, planning is deductive with a definite course of action for achieving desired goals. Design is completed before any steps are taken toward its realization. Deductive planning suggests the ability to plan comprehensively, using rational methods of analysis that employ quantitative techniques and decision rules. It seeks to evaluate the short and long run effects of the alternatives and weigh the benefits against the costs to determine an optimal decision. This planning

approach works well in the setting of a well-defined planning problem. At the other end of the spectrum, inductive planning applies more to the ill-defined problem, and attempts mainly to resolve conflicts of interest. The solution is usually synthesized as the result of interaction between political or other forces.



Fiture 3-1: Approaches to Planned Change

In another dimension, planning may be either innovative or incremental. In incremental planning, an optimal distribution of resources

among systems is sought through small changes from the status quo, while the innovative mode leaps into a new state of affairs through large transformations of the existing situation.[3/]

Public works affect many different social and political bodies and bring large changes to the physical, social and economic structure of society. In this kind of setting, comprehensive planning, although often held to be ideal, is very difficult to achieve in practice since both tools and data are lacking. But the development of such tools is an important long term objective. Even if tools were available, however, this approach does little about overcoming the tensions between the political system and the requirements of comprehensive planning (Bolan, 1967, p. 234). In other words, a comprehensive analysis may develop excellent plans and solutions that are completely unacceptable to the affected parties, and therefore politically infeasible in terms of being implemented.

These considerations lead to the conclusion that an inductive and innovative approach is more appropriate for many aspects of public works planning. Such approaches depend on understanding planning as an on-going process where the accomplishment of planning tasks depends on the participants and their communication with one another as well as on the ability to design and evaluate the physical plans. Planning and decision making are part of a process of social change involving a number of issues and interest groups. Planning cannot proceed only on the

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3/ For a detailed discussion of the incremental approach see Braybrooke and Lindbloom (1963). Other aspects of planning approaches are discussed by Bruck, et al. (1967), Friedmann (1966), and Petersen (1966).

basis of future predicted events, but must recognize the possibility of stimulating desirable social change (or preventing undesirable change) as part of alternative solutions, in conjunction with the other legitimate objectives in maintaining the community environment.

Planned Change as an Adaptive Process

A realistic model of planning must recognize that it is an adaptive process, i.e., sequential in time and capable of moving in many different directions. As Petersen (1966, p. 136) points out:

1. Planning concerns a process and not a state; it pertains not to some idealized future, but to the mode of moving from the present.

2. A plan for the physical or social environment has utility only as a step in a means-end continuum that casually relates the physical workmanship to the socio-economic and political.

An adaptive planning process must include the interaction among decision makers. Hence, to round out the model based on planning as an adaptive social process, it is necessary to (a) define the decision makers and the institutional arrangements in which they operate, (b) find the sets of decisions available to each of the decision makers at various times in the process, and (c) estimate the direction which the system may go from each of the sequential decision points.

Components of the Planning Process

The description of planning presented here is based on the concept that planning is a process of social change. There are basically three component parts of the planning process:

1. The Hierarchical Structure of Decisions. The hierarchical decision structure stratifies the types of decision by levels of content from those of broad policy down to detailed design.

2. The Sequential Structure of Planning Activities. The sequential planning structure charts the planning activities and decisions through the planning period.

3. The Institutional Structure--The Planning Participants. The institutional structure identifies the interest groups and decision makers interacting at any point in the process.

To visualize the interaction of these three components, the planning process can be represented as the three-dimensional planning space in Figure 3-2. The structural relations are intended to show only that

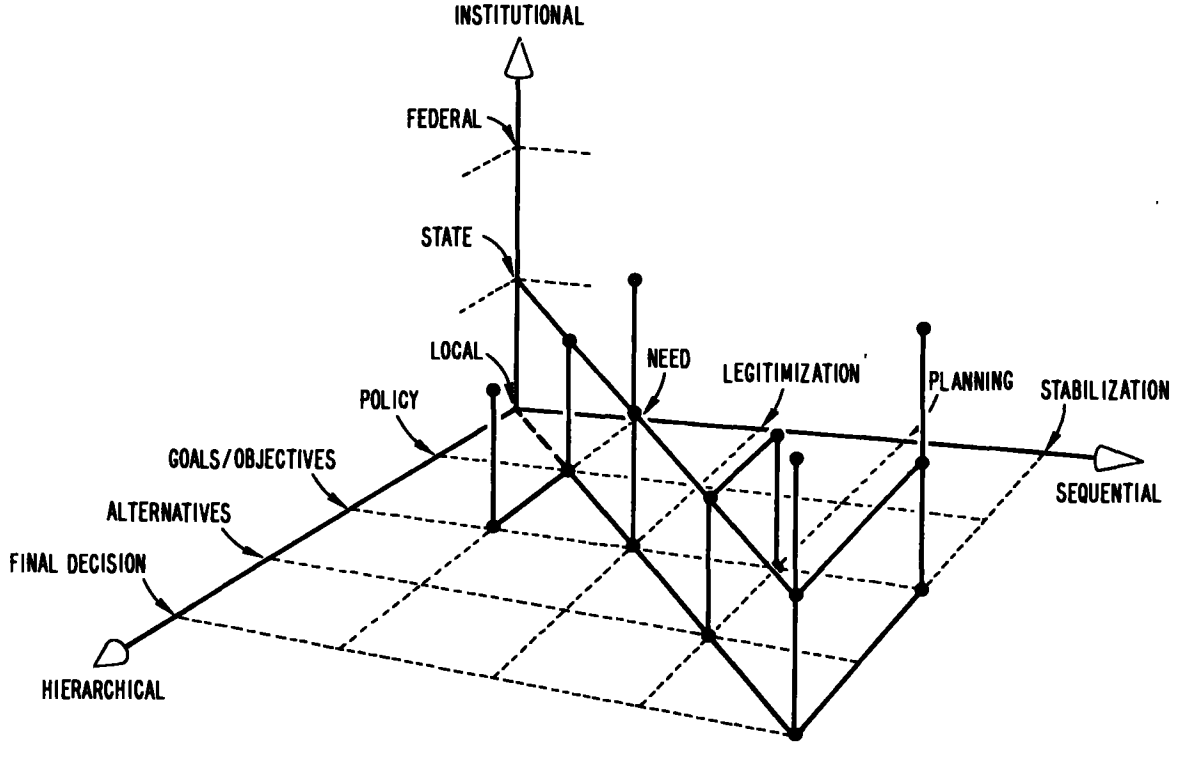


Figure 3-2: A Three-Dimensional Planning Space

planning is a dynamic process over time, passing (and perhaps recycling) through a number of sequential phases, involving many hierarchically related decisions, made through the institutional interaction of the various groups and individuals.

Any state of the planning process can be located as a point in the planning space representing the appropriate combination of the three components. The planner strives to achieve a balance between the decision makers consistent with the point in the time sequence and current level of decision making.

The Hierarchical Structure of Decisions. Sets of decisions can be stratified in a hierarchy according to the level of refinement or detail which the decision represents. The concept is the same as for a set of elements. The set can be decomposed into various sized subsets down to each individual element. When a decision is made specifying an element, then one also knows the subset and the set to which it belongs. When a subset is identified, one knows the set to which it belongs, and also the elements which comprise that subset. A general hierarchical structure for water resource planning and decision making is shown in Figure 3-3. The diagram suggests the hierarchical decomposition of the system to study particular problems and needs followed by an aggregation of decisions into integrated planning alternatives. This process can be recycled to provide for review and modification.

The hierarchical decision structure, as a component of the planning process, serves to specify the level of decision making and allows examination of the kinds of decisions and their implications and content as they relate to the decision makers and the sequence of planning activities.

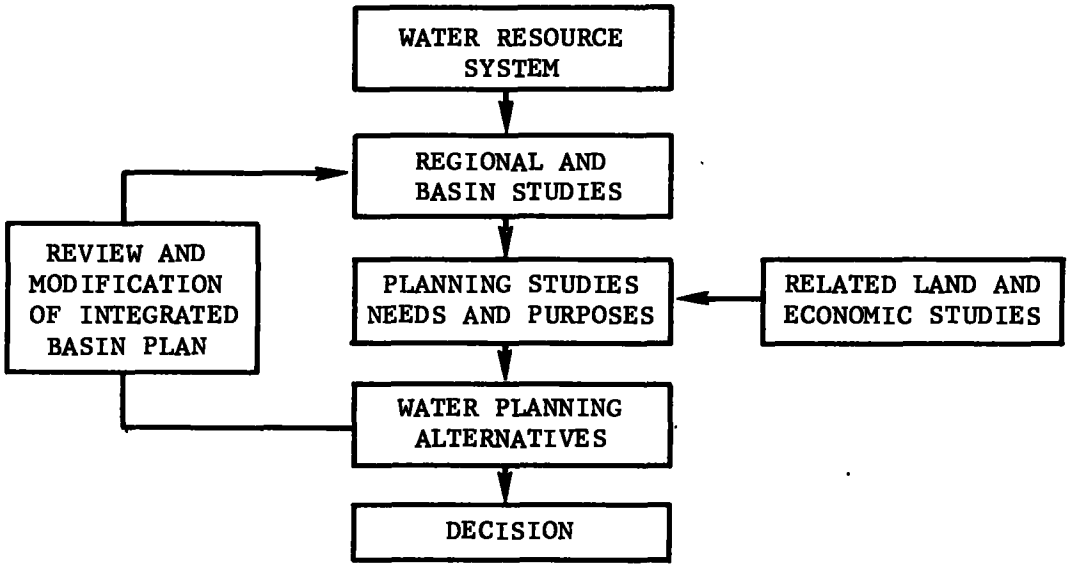


Figure 3-3: The Hierarchical Structure of Decisions

The Sequential Structure of Planning Activities. The sequence of planning activities describes the time component of the planning process. These activities can be related to the development of a change process over time. As a framework for analyzing the sequence of activities, the change process is divided into the following phases (Lippitt, et al., 1958, pp. 129-143):

1. Development of the need for change.
2. Establishing the change relationship.
3. Working toward change.
    a. Diagnosis of the system.
    b. Specifying goals and intentions.
    c. Develop actual change plans (alternatives).

4. Stabilization of change.

5. Achieving a terminal relationship.

Listing the order of these phases of change does not necessarily suggest that change will progress in an orderly sequential way through each of these stages. However, it can be hypothesized that unless certain levels of communication and agreement are achieved in each phase before moving well into the next, irresolvable conflicts could arise and break down the process.

The Institutional Structure--The Planning Participants. Public works planning requires interactions among a number of different decision makers, each with different goals and objectives. Information flow through communication processes forms the basis for interaction among interest groups and decision makers. The communication-information system serves to link the participants through the sequence of activities in the planning process, and also provides the mechanism through which they may influence the decisions within the hierarchical levels of decision.

Analysis of the Planning Process

The three components of the planning model, (1) the hierarchy of decision, (2) the sequence of activities, and (3) the planning participants, provide the framework for a descriptive analysis of planning. The purpose is to furnish a background for identifying the critical points in planning procedures, and for formulating alternative planning approaches. As reference for the discussion which follows, the diagram in Figure 3-4 shows the correspondence of planning activities for two

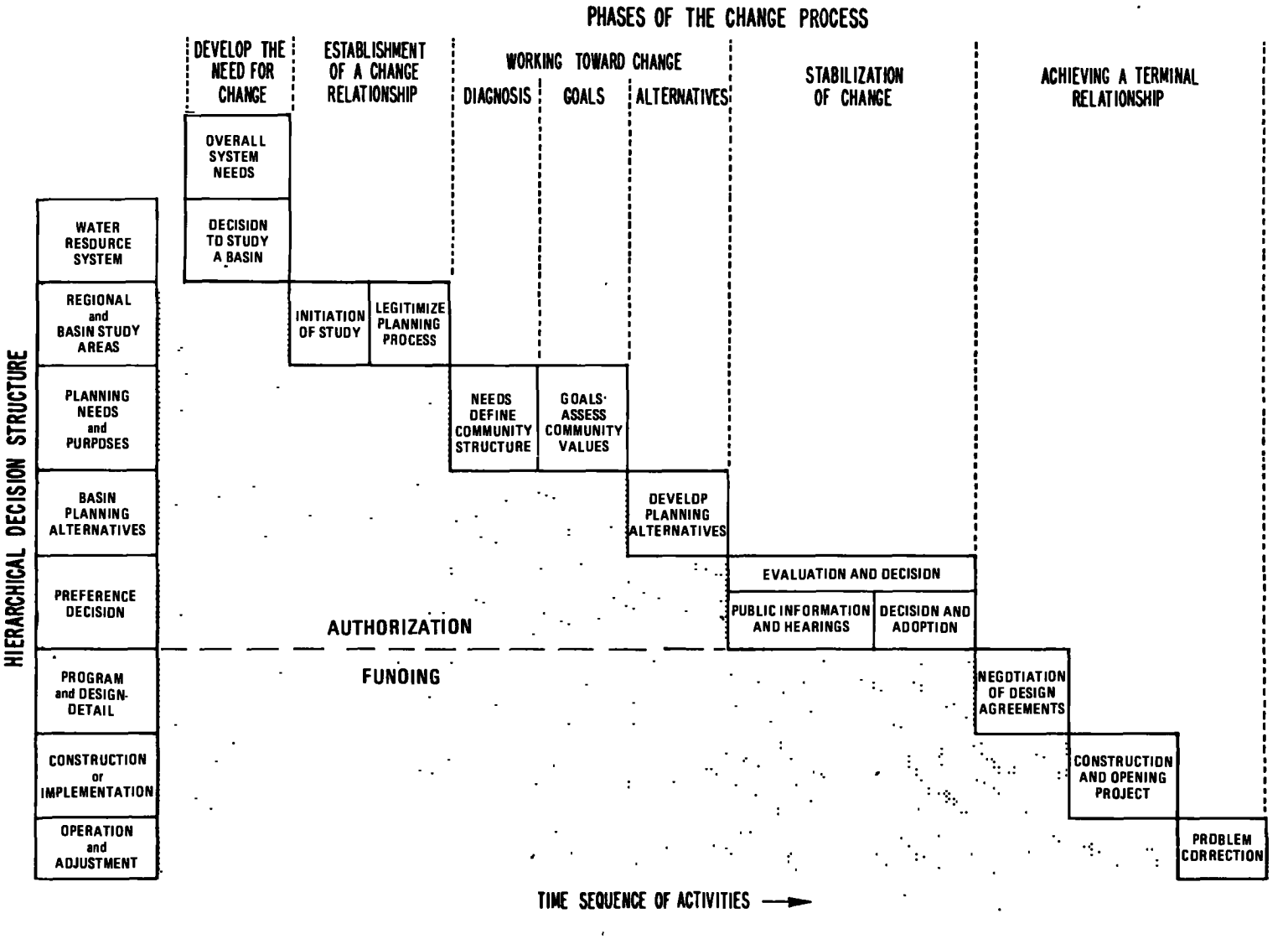


Figure 3-4: Hierarchical and Sequential Structure of Planning Activities

dimensions of the planning model, the level of decision and the time sequence of planning activities.

It is helpful to classify the participants in the change process into two interacting parties, the change agent and the client system (Lippitt, et al., 1958). In this relationship the change agent is seeking change or helping it occur, and the client system consists of those being helped. In the context of water resources planning, the responsible planning agency practically always emerges in the role of change agent. However, in the community structure it is possible for different interests to assume the roles of both change agent as an active promoter of resource development, and the client system as one who is affected by the change. In other instances, the community groups may act solely in the role of client system. One of the important tasks for the planner is to identify the interest groups in the community and the roles which they may assume in the planning process.

Development of the Need for Change

A process of planned change typically begins with problem awareness. This is translated into a need and desire to change. In the relationship between the planner and the community, problem awareness should revolve around water resource problems and needs as part of overall community planning. In the hierarchical decision structure, this planning phase is concerned with the needs of the system. The recurring decision in developing the need for change is whether to commence or to defer studies on particular river basin systems. The development of need may come from:

1. The Agency Planner. The planner, acting as change agent, finds certain difficulties in the basin system such as flooding, pollution, water shortages, or significant changes in land use or recreation patterns, and offers help or takes steps to stimulate the community to an awareness of the problem.

2. The Community. The community becomes aware of difficulties and seeks help. Local desires should be a significant factor in the decision to undertake planning studies. These are usually expressed in the form of resolutions from city and county government bodies, or requests of state legislators, ultimately leading to Congressional resolutions.

3. A Third Party. An industry considering location in the community or a consulting engineer working on a problem may suggest the need for water resources studies.

Many problems in planning may be due to the failure of the planner and the community to agree on the need for a study. For example, if the planner attempts to convince the community of the need, the community must assess the validity of the diagnosis and the urgency of the proposed studies. If the community suggests the need, then the planner must assess the extent of the community's desire for the study. In cases where the agency proceeds with a study unilaterally, as when operating solely on the basis of a Congressional directive and a rigid program of planning and construction, then the community is likely to be unresponsive. If both agree on the need, then a viable change relationship can be established; otherwise, there could be conflict from the outset.

In developing the need for change, an important consideration, then, is the means by which decisions are made to undertake particular planning studies. Agreement between the planner and the community upon the existence of a problem which demands a study of feasible solutions is extremely important.

Establishment of a Change Relationship

A workable change relationship between change agent and client system is essential to the success of the planning process. Yet, in water resources planning, establishing the proper working relationship between the agency and affected interests in the community is often neglected.

Establishing a successful change relationship requires a "legitimization" of the planning process. This entails a full understanding between the agency and the communities as to the exact procedure of the study, the institutional arrangements and responsibilities, and the possible ultimate outcomes. All parties need to recognize that the purpose and intent of the study is to develop a comprehensive plan and that a decision will be made. The studies should always include non-structural and "status-quo" alternatives as possible decision outcomes. The activities and timing in the study, and decisions to be made should be outlined from the time of commencing studies through to its final submission to the Congress.

Other important factors in establishing change relationship include:

1. Client System's Perception of Change Agent. The community's perceptions of the agency with respect to estimates of its ability to give help, its inferred motives, and its attributed friendliness or unfriendliness are important to the change relationship. Government agencies have a particularly difficult task altering their images as large impersonal organizations into something that can be dealt with by a community. As Lippitt, et al. (1958, p. 134) note:

> "Often the client system seems to be seeking assurance that the potential change agent is different enough from the client system to be a real expert and yet enough like it to be thoroughly understandable and approachable . . . (and) will identify himself with the client system's problems and sympathize with the system's needs and values, but who will at the same time be neutral enough to take a genuinely objective and different view of the system's predicament."

In the minds of community interests, the agency should qualify as the expert in water resource development and demonstrate that it is sensitive to the effects on the community of any action that might be taken. The agency planners must accept the necessity and responsibility of convincing the community that it is prepared to understand and work with the community's needs and values.

2. The Client System's Role. If a successful change relationship is to develop, the community must be aware of its responsibilities to the change agent (Lippitt, et al., 1958, pp. 134-135).

> ". . . the client system must . . . (understand) about the kind and degree of effort which must be put forth in the collaboration with the potential change agent. The client must not only understand the arrangement but he must at least tentatively agree to it."

This emphasizes the importance of legitimizing planning so that all parties are agreed and committed to the change process.

Establishing the proper change relationship and legitimizing the planning process are partly organizational and procedural questions. As Lippitt, et al. (1958, pp. 135-136) state:

> "Usually one subpart is more ready to change than others. Hence, this subpart must attempt to engage the sympathy of the other subparts toward the projected plan of establishing a working relationship with an outside source of help . . . . The success or failure of almost any change project depends heavily upon the quality and the workability of the relationship between the change agent and the client system . . . ."

In the organizational and institutional structure, the main concern is the kind of working relationship that should be sought between the change agents and clients. This is a question of what might be termed "planning strategy." To approach this question, a number of possible planning strategies are diagrammed and discussed in Chapter IV.

Working Toward Change

The phase of working toward change in water resources planning covers the full range of tasks involved in arriving at alternative sets of physical plans, non-structural alternatives, or maintaining the status-quo. This involves decisions at levels in the hierarchical structure which produce integrated sub-basin studies and finally a set of alternatives. These decisions evolve through three subphases of working toward change.

Diagnosis of the System. The essential purpose of the system diagnosis is to provide the planners with information on which to base decisions about broad alternative approaches. Consideration should be given to how and from whom information is obtained:

1. Defensive Reaction of Vested Interests. Often change relationships may be impaired as information is gathered, unless defensive reactions can be anticipated and avoided (Lippitt, et al., 1958, p. 137).

> "This is the point at which vested interests--either particular pressure blocs within social units or particular segments of the individual personality--are likely to become aware of the threat which is posed by change, and their defensive reactions may smash the whole mechanism of collaboration between the system and the agent.

2. Hostility of the Client System. Because of past experiences with planning studies, preconceived ideas about the agency and its objectives, or fears about alteration of the status quo, the community may develop hostilities toward the planner. Such hostility may exist even though the community ostensibly continues to cooperate. For these reasons, it is important not to propose solutions at this stage. Instead, the development of social and economic data can promote cooperation between the planners and the community, and can provide valuable information on the community's structure and needs.

Setting Community Goals. This subphase deals with transforming diagnostic insights into definite sets of community goals and relating them to the potential changes that can be induced by various projects and alternative plans. The hierarchical levels of decision involved in relating goals and potential change may be expressed in physical terms by specifying the problem areas which are of greatest interest to the community. Success or failure in defining community goals depends on the kinds of mechanism in the community to undertake this process, and the relationship between the community and the planner.

Development of Alternatives for Change. Lippitt, et al., view development of alternatives for change as a transformation of intentions into actual change efforts. In the planning process the objective of this phase is to develop a set of alternatives. These alternatives must be understood to represent the ultimate physical realization of the change process. If any one of them is to be implemented, at this time it must have the sympathetic acceptance of the various subparts of the community and of affected parties.

Because water resources planning studies often span a considerable period of time, maintaining continuity in planning falls to the agency since people and office holders move on. It follows that the type and quality of community participation during this phase depends to a large extent on the policies agreed upon in establishing the change relationship, and on the type of planning strategy which is adopted.

Stabilization of Change

Lippitt, et al., in looking at change in the behavioral sense, note that unless attributes are fixed by becoming institutionalized, they may retrogress to their previous state. In public works planning in general, and water planning in particular, the process of change becomes stabilized through the period of public evaluation of alternatives. Choosing among alternatives requires, in part, direct public confrontation of the planners, and local government officials, interest and pressure groups, and the general public. Stabilization requires a period of adjustment to the decision by the affected parties and may

not be complete until after the programs, plans, and/or projects have been implemented.

Achieving a Terminal Relationship

Achieving a terminal relationship does not imply that after the implementation of plans the need for any further planning is terminated. Adjustments and changes are induced by programs and projects after they are operational. The need for an active relationship between the client and change agent must extend beyond project completion in order to correct, where possible, any undesirable short and long term effects of the project which were not foreseen. Items that should be considered for a successful terminal planning relationship are:

1. The unforeseen problems caused by a completed physical facility or a program plan.
2. Immediate short term effects of placing the completed project into operation.
3. Implementation of long range future plans in connection with a facility or program.
4. Maintenance of working relationship for undertaking new planning studies and/or projects in the future.
5. Evaluation of community consequences of programs or projects in order to provide a data base for projecting effects of projects yet to be planned and built.

These items encompass the important kinds of decisions and adjustment in the operation of the facility.

Conclusions

In this descriptive analysis of planning, a number of conditions based on theoretical and case studies of planned change have been

identified which are necessary if planning is to proceed efficiently and effectively. These include:

1. That the planners, state agencies and community groups should have an awareness of the problems which may require change and agree to the need for a study.

2. That establishing workable change relationships depends on "legitimizing" the planning process, i.e., getting agreement on the way in which the study will be organized and conducted.

3. That an important element of working toward change is the exchange of information. This begins with a diagnosis of the basin and its communities through socio-economic studies. Otherwise the process can be disrupted by a misunderstanding of the agency and its motives, or of the community's responsibility for participation.

4. That stabilizing change and achieving a terminal relation depends on an acceptance of the final decision, and a continuation of the planning relation after the facility is operational.

The importance of these conditions, particularly with respect to local community attitudes toward the planning procedures, have been demonstrated through research on the planning process.[4/]

4/ See Bishop (1969).

CHAPTER IV

INSTITUTIONAL STRUCTURES FOR PUBLIC PARTICIPATION IN PLANNING

Planning Strategies: The Approaches to Planning

The key to establishing a workable change relationship is the planning strategy adopted by the planner or planners. Planning strategy, in the context of this report, is the method of approach to those concerned about or affected by a proposed plan. These include governmental agencies, public officials, and private groups and individuals. "Strategy" is a procedure, established in advance, which determines how, when, and to what depth various parties will participate in the planning, evaluation, and decisions. It is not, in any way, an attempt to deceive or to bypass or circumvent legitimate interests. Seven feasible planning strategies have been adapted from studies and experiences in planning (Bolan, 1967, and others).

1. Strategy of Information (Figure 4-1): In using a strategy of information, the planner controls and conducts the study and only contacts state agencies and community groups to present findings or gather information or data. At some point in the process he presents alternatives and information by which to evaluate them to the community elected officials and citizens. Generally, widespread publicity is given by the planner when his studies are near completion and a decision is imminent.

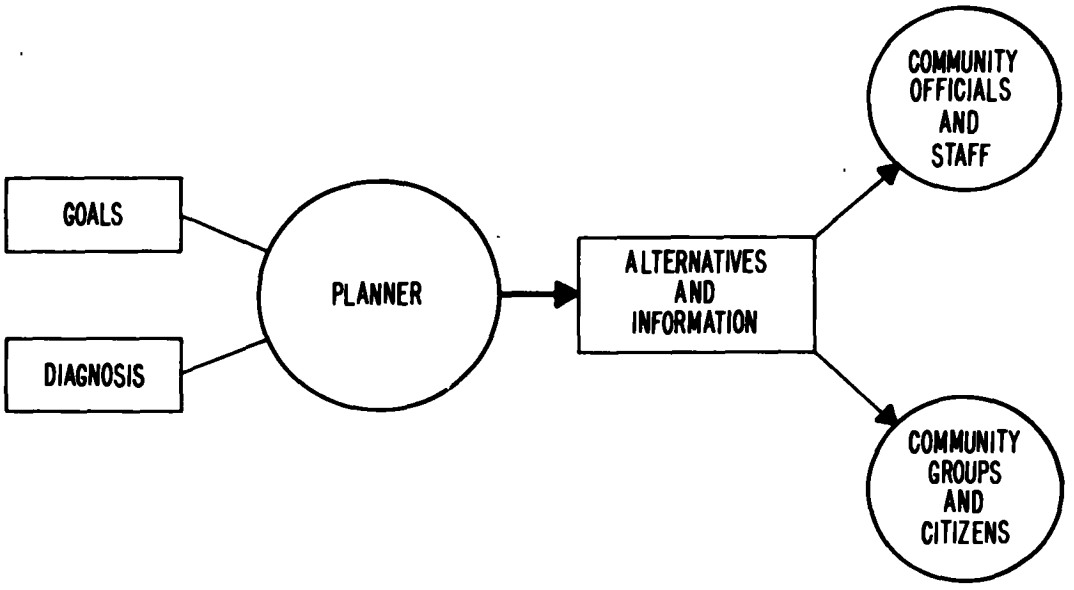


Figure 4-1: Strategy of Information

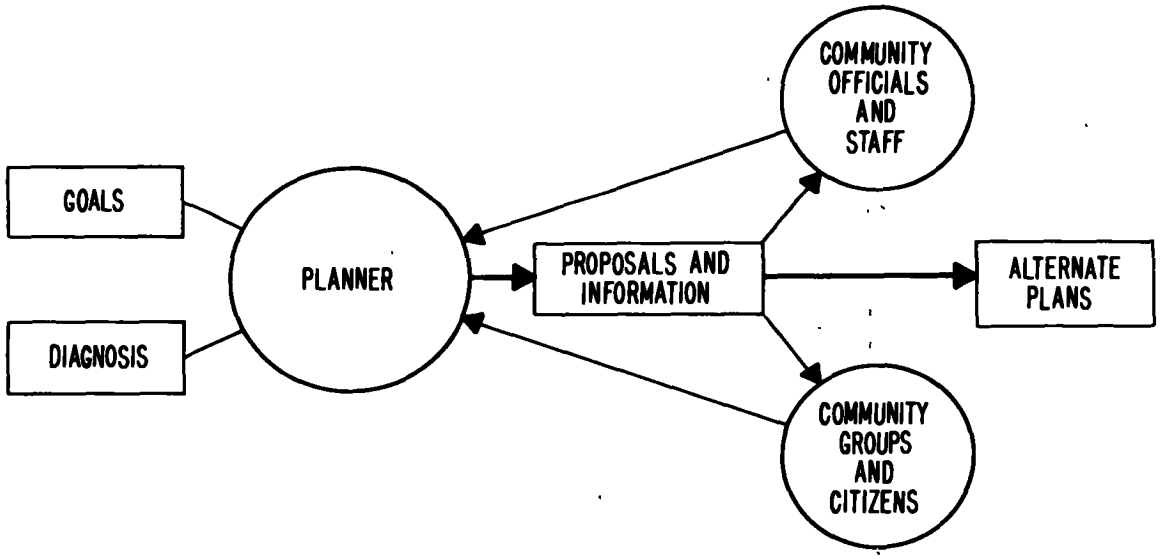


Figure 4-2: Information with Feedback

2. Information with Feedback (Figure 4-2): A modification of the strategy of information is to exchange data and information with community groups through a feedback loop. The planner controls the studies. He develops alternatives and makes planning decisions. Alternatives are presented to community officials and staff and other public groups during the studies. Comment and feedback are obtained. Proposed plans may or may not be adjusted based on these inputs.

Open communication and exchange of information through a feedback loop throughout the process, rather than only at the time when alternatives are well-defined, ought to result in a wider range of alternatives and increase the likelihood of converging on a more acceptable and comprehensive solution. While the time required to generate alternatives may be extended, this approach may avoid considerable controversy and objection during the stabilization phase when evaluations and decisions are made.

3. The Coordinator (Figure 4-3): Acting as a coordinator, the planner seeks out the important elements of the state and of local communities, assesses their objectives, tests alternatives as they are developed, and receives feedback. Interaction among different community interests is not encouraged. A possible way to implement this approach is for the agency to establish a field office in the local areas where officials or citizens could come with questions, suggestions, and information.

4. The Coordinator-Catalyst (Figure 4-4): As a coordinator and catalyst, the planner would promote participation in the planning studies. The affected parties confront and interact with one another.

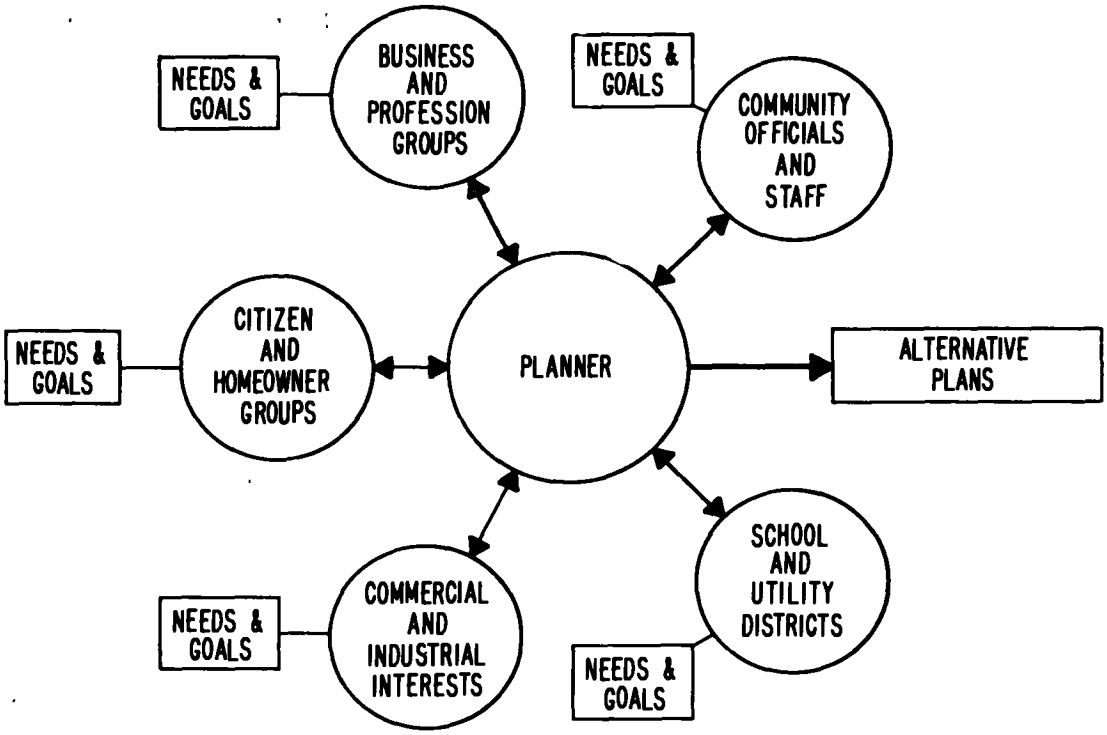


Figure 4-3: The Coordinator

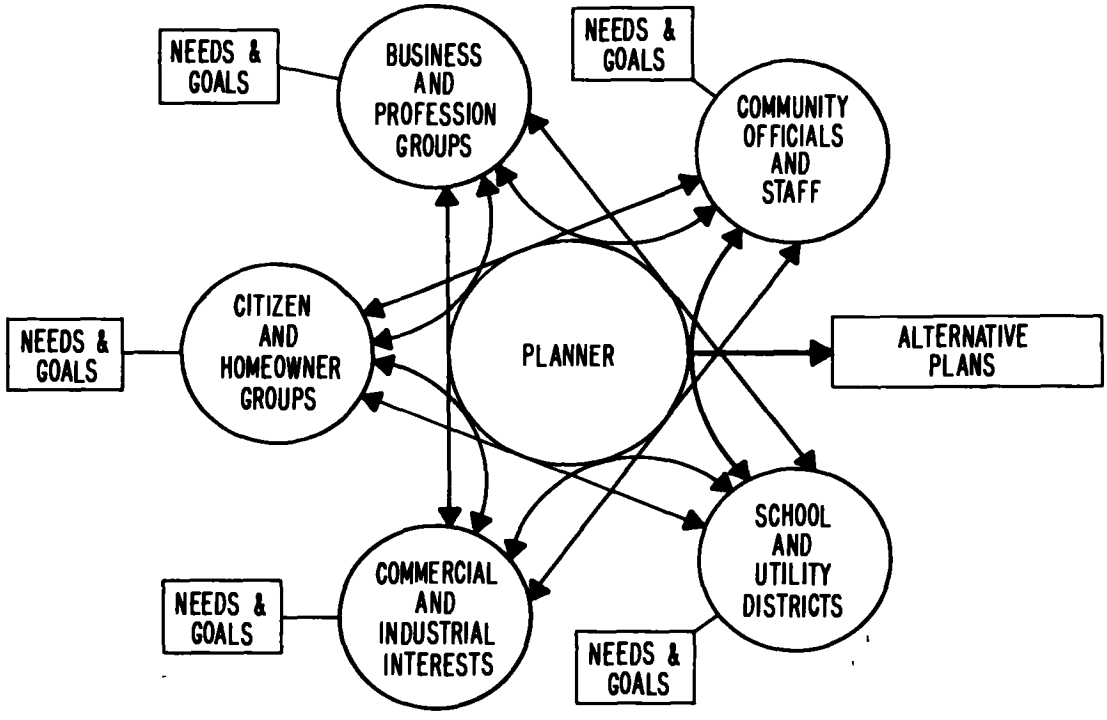


Figure 4-4: The Coordinator-Catalyst

Under this strategy, the planners supply methodological and technical skills and serve as the mechanism for synthesizing objectives, coordinating interests, and working out compromises in areas of conflict. The vehicle for such a planning approach might be a workshop group composed of representatives of the community such as elected officials, city planning and engineering staff members, business, commercial, and industrial interests, school districts and homeowner groups. The agency provides the engineering services and technical expertise. This approach should generate interaction between planners, decision makers, and affected parties so that viewpoints, values, and suggestions of all are considered.

5. Community Advocacy Planning--The Ombudsman (Figure 4-5): As an advocate, the ombudsman, a specially appointed expert, works directly with the planners on behalf of community groups. The affected parties would supply him with data and information and inform him of their desires and preferences. He would represent these views in working with the planner to develop alternatives.

6. Arbitrative Planning--A Hearing Officer (Figure 4-6): This strategy places an independent hearing officer between the planner and client groups to act as an arbitrator. He would come to the community at important stages during the planning period, for example, at initiation of studies, and when study alternatives are being developed. In each instance, the agency would present its current proposals. Groups from the state and the communities would offer criticism, suggestions, or other alternatives. The hearing officer would evaluate the testimony, attempt to arbitrate settlements on points where conflicts of interest

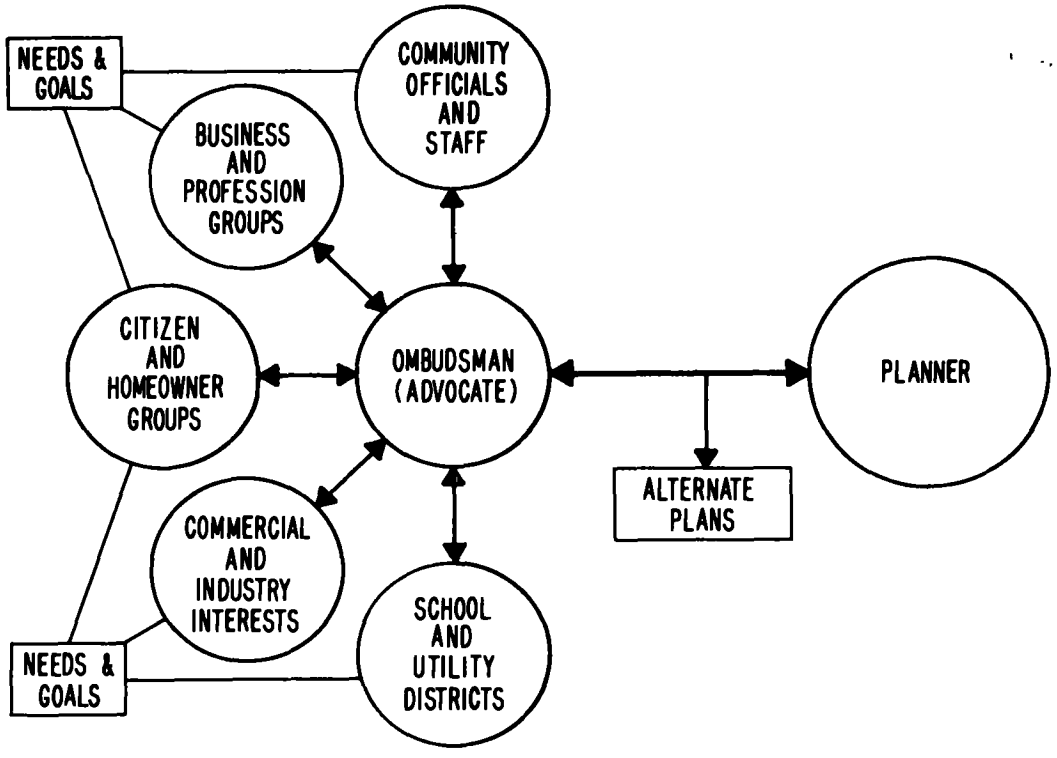


Figure 4-5: Community Advocacy Planning

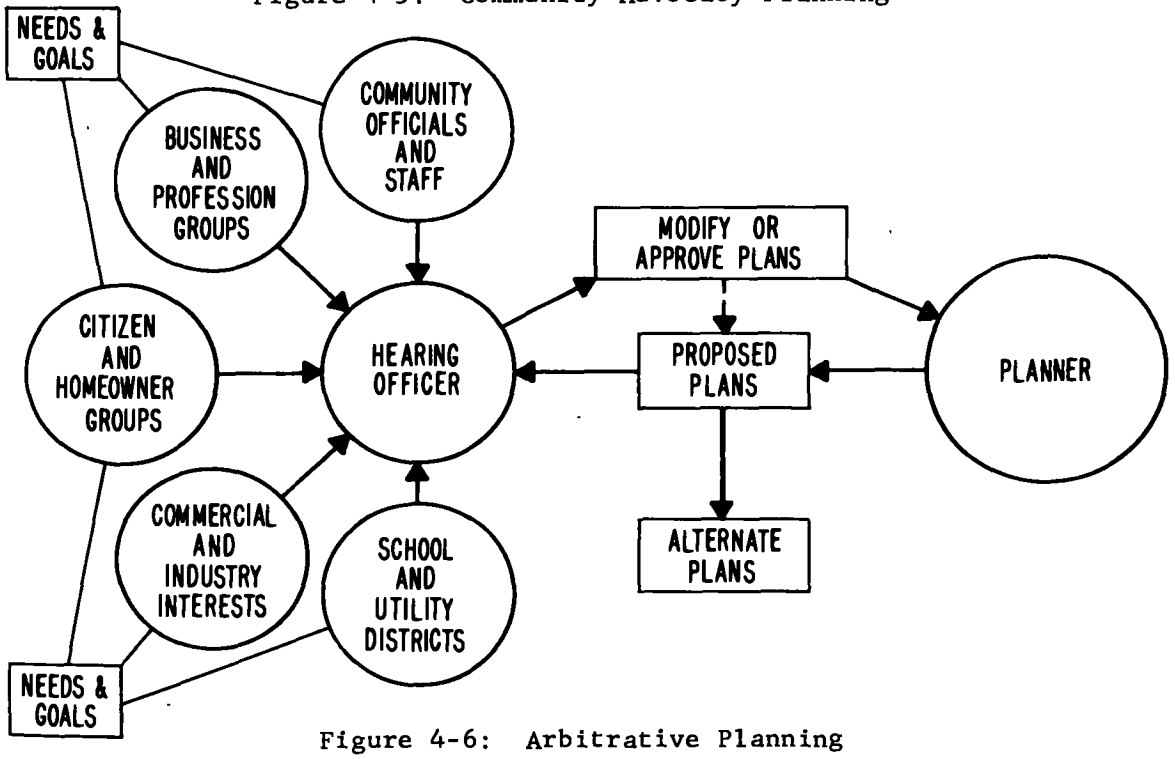


Figure 4-6: Arbitrative Planning

exist, and recommend appropriate changes in the studies. Possibly he would make the final choice among alternatives.

7. Plural Planning (Figure 4-7): The strategy of plural planning suggests that each interest has its own set of planners. Each would be responsible for developing its own alternatives. Studies would also be

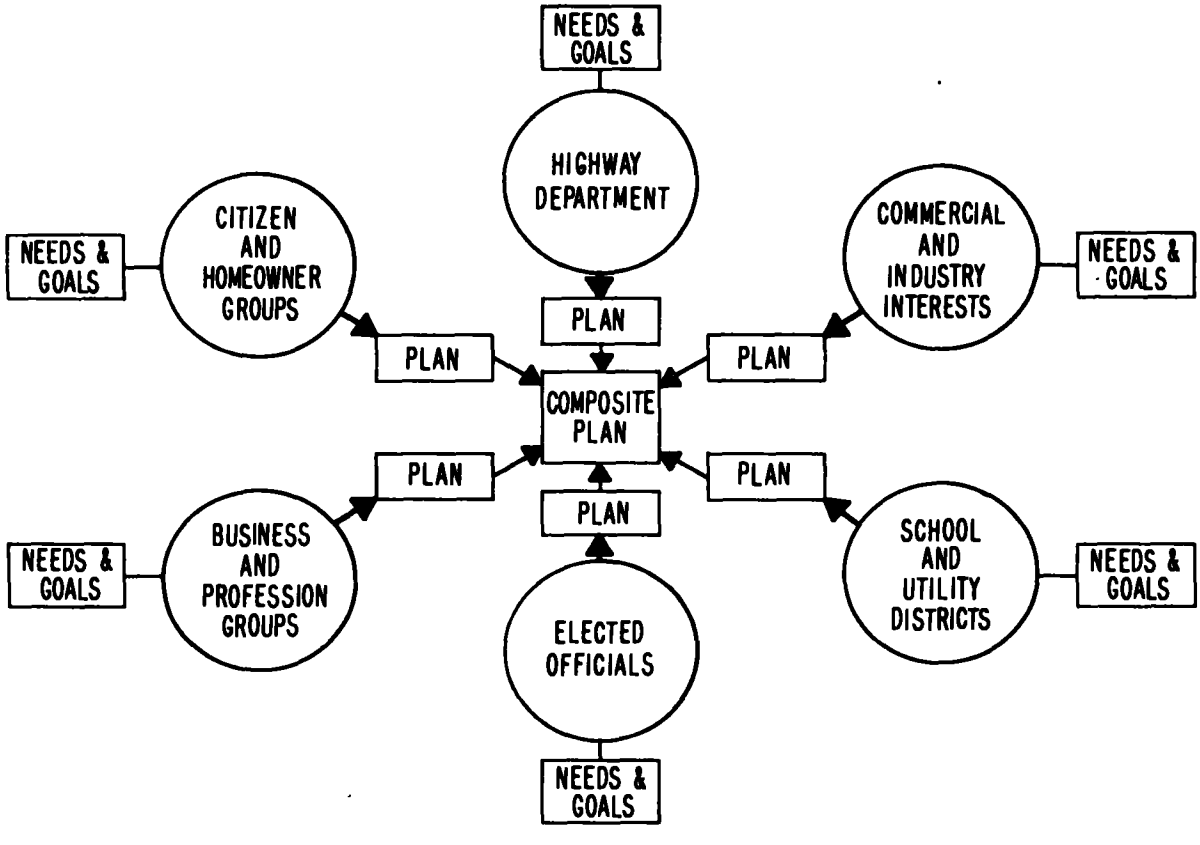


Figure 4-7: Plural Planning

prepared by the water development agency. This would produce a range of plans representing the positions of all groups. Either similar

schemes would be consolidated into a set of alternatives from which a final plan would be selected, or a final plan would be developed through the political decision process.

The major difficulty with the use of this strategy is that water resource agencies are usually the only organizations with both the expertise and resources to conduct river basin planning studies. Hence, the real strength of the plural planning approach is not in each special interest trying to develop its own set of basin plans. Rather it is that each community can develop well-defined plans for its own particular area of responsibility. Currently, city and county governments, school districts, utility districts, and private interests are separately developing programs and plans for their future needs. Within planning at the community level, water resources projects can be analyzed and a community consensus possibly reached. If plural planning, community by community, takes place without regard for a comprehensive water plan, and then water projects are superimposed upon that plan, the integrity of plans may be disrupted and conflicts result. On the other hand, fragmented individual planning by a number of interests, proceeding without regard to others' intentions, is even worse; it may present the water agencies with a whole group of plans that are not compatible.

Broader planning participation along the lines of plural planning could become more feasible if economic methods for the use of a common computer data bank with time sharing methods of testing the effect of various modifications are developed and implemented. This could be available to communities and might be a very powerful tool. Also, more

consideration should be given to financial assistance to water related aspects of community plans.

It appears, then, that if numerous agencies or jurisdictions are planning independently, water agencies should be actively engaged in participating with ongoing planning in various sectors of the community. In this way, planning for future water use has a chance for acceptance without bitter opposition.

Means for Recommending a Final Plan

In the planning process, many decisions are made at various times by the planners or by the participants. To achieve a stabilization of change, a set of feasible alternatives must be evaluated and eventually a final plan recommended. For this decision to receive broad public support, it must be made by a public body that has been accepted as the responsible spokesman for making such a recommendation.

Methods for Allocating Decision Authority

The three general groups which have a natural interest and some claim to the right of making recommendations are the planners, elected officials, and citizens of the community. Combinations of these interests may be constructed as special commissions representing the public interest. It is possible to rest the responsibility of recommendations with any one of these groups exclusively, with some combination of interests and representation from the groups, or with some specially appointed body which is outside any of the local interests and represents the broad public interests.

Figure 4-8 presents a range of legitimate means of developing recommendations. The following describes how participation in recommendations is distributed among the three major decision groups in each case:

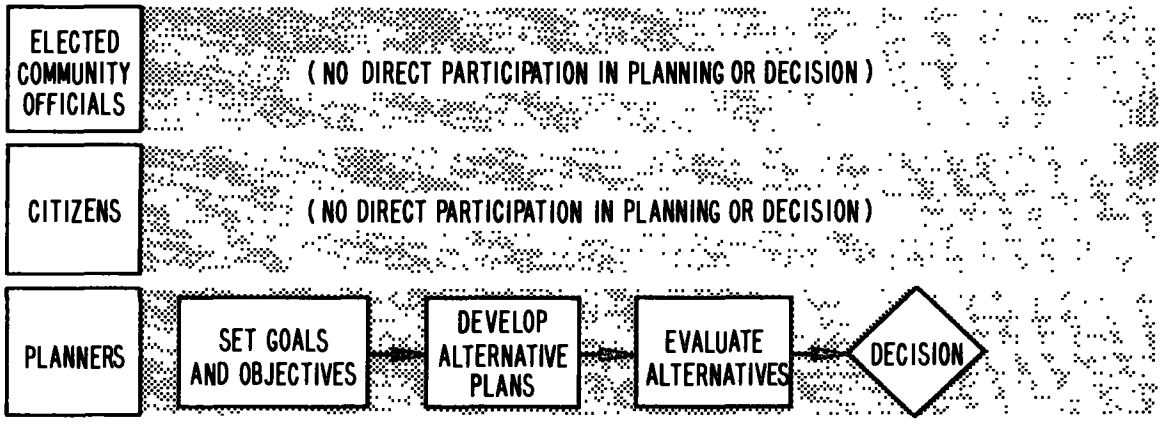
1. Planners recommend (Figure 4-8a): This method would establish a trained staff of professional engineers and planners. They would be solely responsible for the recommendations with no participation from citizens or elected officials.

2. Planners recommend, advised by citizens (Figure 4-8b): Under this method, the planners would be responsible for the final recommendation, but they would work closely with an officially designated citizen group and receive their preferences before making the final recommendation.

3. Elected officials recommend (Figure 4-8c): The planners would present proposals directly to elected leaders, who would have power to consider the plans and make the final recommendations.

4. Elected officials recommend after public hearings (Figure 4-8d): The planners would present their proposals and findings at public hearings where all interested citizens and public officials could make their views known and register their support or objections. The elected community officials would then be responsible for evaluating the plans and the results of the hearings and making the final recommendation.

5. Citizen review board (Figure 4-8e): One of several methods of putting the decision in the hands of the citizen is to have a review board of citizens selected at large in the community. The board would be responsible for reviewing proposals and recommending the final plan from among the alternatives.



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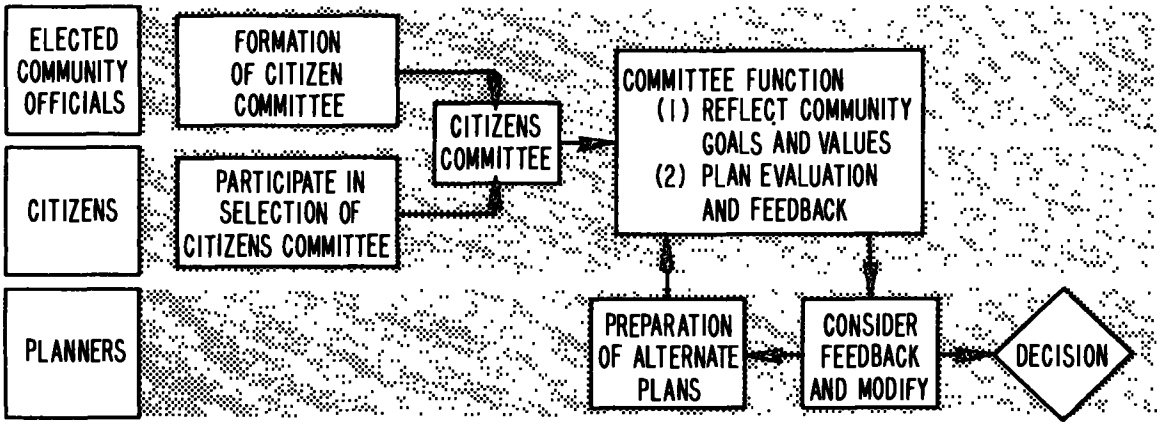

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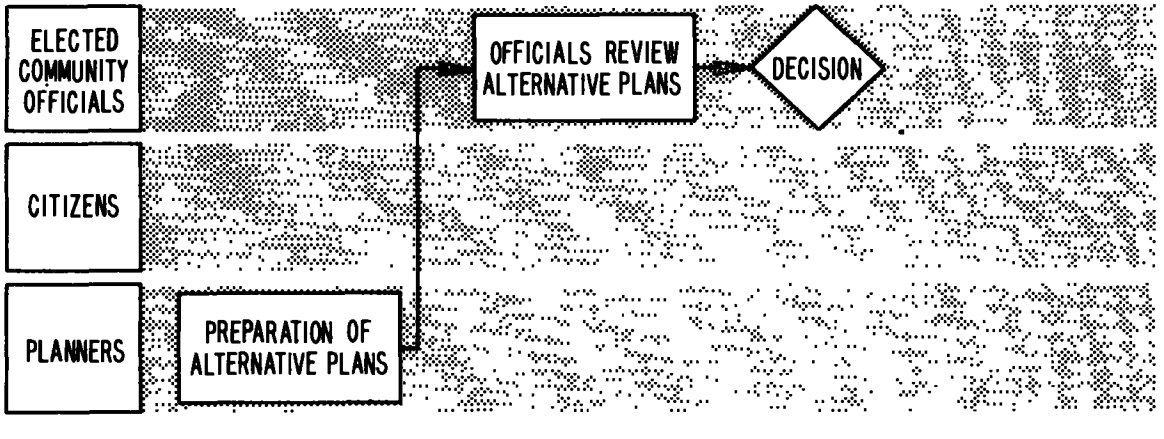

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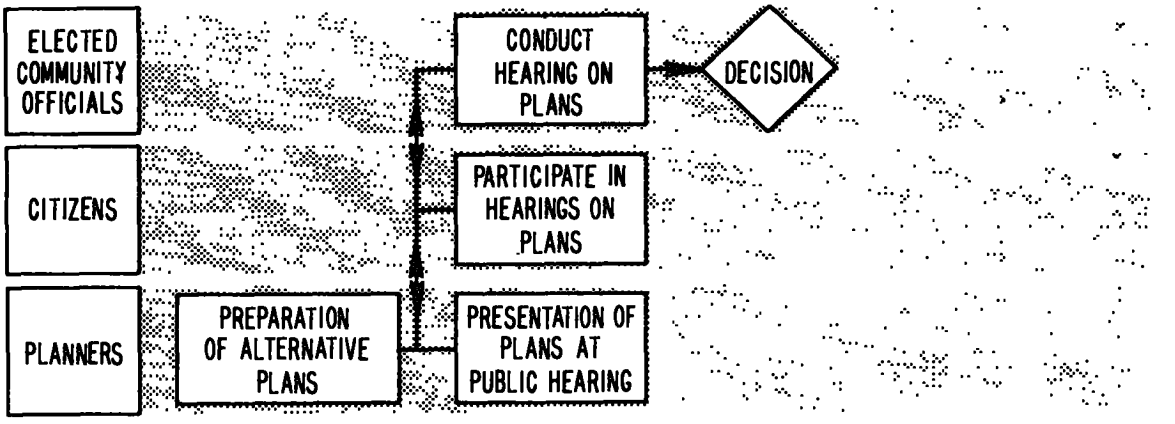
Figure 4-8: Final Decision Methods



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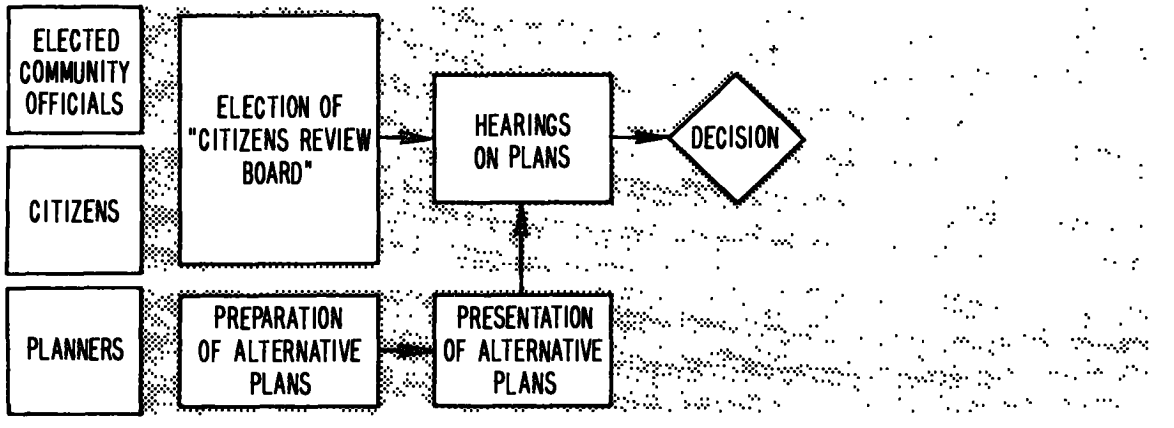

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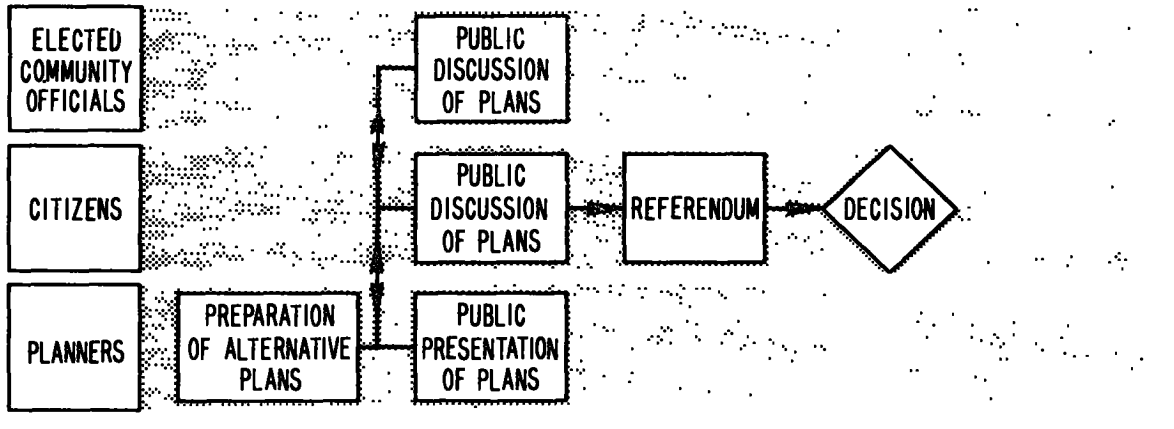
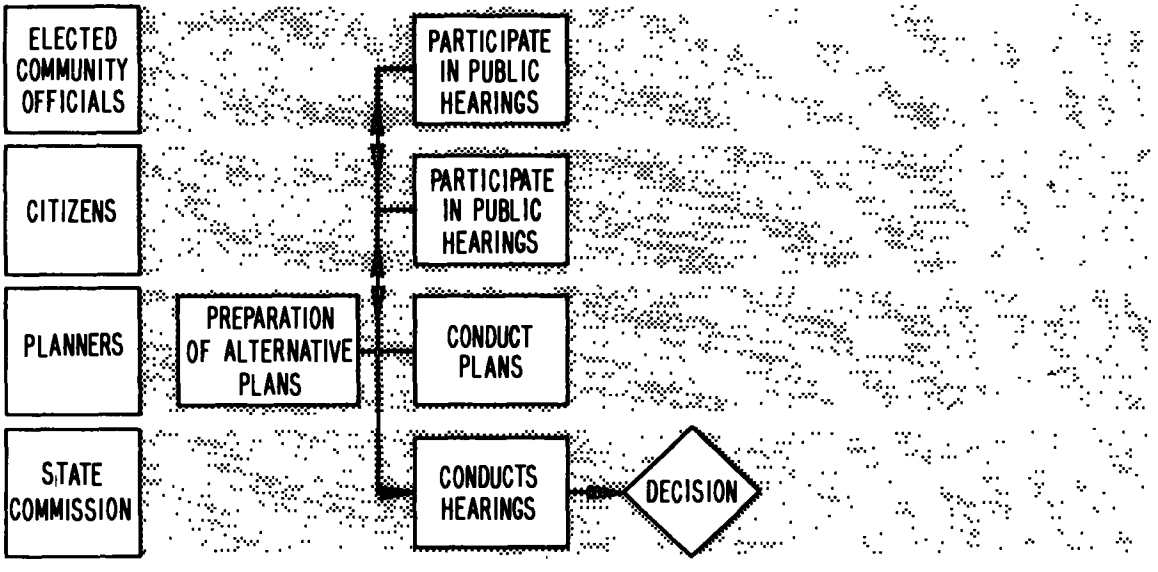


(f)

Figure 4-8: Final Decision Methods



(g)

Figure 4-8: Final Decision Methods

6. Referendum (Figure 4-8f): A more extreme approach would be to derive a collective recommendation of all the citizens in the community by placing the proposals on the ballot. A majority or larger vote would decide which plan would be recommended.

7. State commission (Figure 4-8g): A modification of the review board and public hearing approach is a state board composed of citizens appointed at large from the entire state. Its viewpoint would be that of the state as a whole rather than the particular local communities. Formal public hearings are a standard and legally required part of the decision procedure. The commission either reviews hearings conducted by an appointed hearing official, or, on request or upon its own volition, conducts a public hearing itself before making a recommendation.

Discussion of Decision Methods

Figure 4-8 provides insight into the operation of several forms of institutional arrangement for evaluating plans and making final recommendations. The mechanism for review and recommendation should be discussed and agreed upon along with the planning strategy when establishing the change relationship. This approach provides a means for testing alternatives during the planning period and a transition from the institutional responsibility for working toward change to that for stabilizing change by a final decision.

Among the models, one (a) leaves the recommendation to the discretion of the planners with no input from the community. In a similar approach (c), the community elected officials act as sole reviewers on the plans. Two of the models (b) and (e) limit community participation to a selected board of citizens. In the former, the board acts in an advisory capacity to the planners who recommend the preferred plan. In the latter, the board itself recommends the plan. None of these approaches concentrates on the dissemination of information to the general community nor elicits its participation. On the other hand, they do not exclude a citizen who demands to present his case, nor do they free any decision maker from pressure from any community group.

Three of the proposed methods (d), (f) and (g) seek general community participation through public hearings and public disucssion before final recommendations are made. Elected officials recommend in the first case, the entire community through referendum in the second, and the commission in the third.

Synthesis of a Planning Strategy

The institutional arrangements for planning and decision making presented in this chapter fit within the planning model as abstractions for establishing relationships between planners and community groups during the phases of the change process. Given the approaches to planning strategy outlined in this chapter, the establishment of institutional arrangements for working toward change can be a creative one. Depending on the various types of interest groups involved, a single strategy or a composite strategy may serve for the entire process, or different strategies may be combined and used at different points in the time sequence of the process. Sometimes different strategies may be directed toward different segments of the community. Planners should be conscious of the opportunity to overcome problems of communication and controversy by varying the planning strategy according to the special needs of particular groups and the time sequence of the planning process. In the following chapter, applications of the planning and decision methods are discussed in the context of the Corps of Engineers' water planning procedures.

CHAPTER V

ORGANIZING PUBLIC PARTICIPATION IN PLANNING STUDIES

Introduction

A primary consideration underlying the efforts to achieve effective public participation in water resources development is the recognition that those affected by planning should have the opportunity to influence and shape those plans. The operational realization of this is accomplished by involving the public in planning through communications processes, including information, evaluation, feedback, and decision making. In this vein, previous chapters described planning as a process of social change and formulated a range of institutional methods by which the public may either be informed of or participate in planning decisions.

This chapter sets forth a number of objectives and a framework for organizing public participation in planning studies, and describes in detail the application and use of specific methods and techniques. The material in this chapter is intended to serve as a guide and a source of ideas for Corps' planners in seeking procedures and relationships which provide the most effective two-way communications with respect to the needs, desires, and expectations of the people, and in providing

data and information on development possibilities, opportunities and requirements for decision making at all levels.

Public Participation Program Objectives

As a basis for development and organization of public involvement in planning, a set of specific program objectives is required. These objectives are set out as follows:

1. To present information which will assist the public in defining their water resources needs, and to provide them a structured opportunity to influence and shape the formulation of planning alternatives and express their preferences in choosing a course of action.

A flow of information from the planner to the public throughout the study is essential if there is to be an opportunity for constructive participation. In addition participants must feel assured that their contributions and activities are meaningful. A well planned and structured program of public participation will help to insure this.

2. To provide the Corps' planners with definite channels through which to obtain information on public goals and priorities, and preferences regarding planning alternatives and project possibilities.

Generally, the public's values and preferences for various alternatives can only be expressed in response to fairly specific proposals. Various methods for public involvement should provide channels for this flow of information from public to planner.

3. To coordinate Corps planning with related land and water resource planning of other federal, state, and local agencies.

Water resources planning may serve as an effective focus for coordinating and organizing other related land, water, and community plans. An integration of concurrent planning requires multi-agency coordination. Public involvement plus coordination with related

planning agencies provides an improved means for balancing and evaluating the programs of various agencies.

4. To legitimize the Corps' role in the planning study and build public confidence and trust in the Corps' planning process and procedures and in the individuals doing the planning.

To a degree, the satisfaction of the public with any planning decision depends on the public's satisfaction with the role and performance of the planning agency. Hence, a prime objective of any public involvement in planning should be the development of public trust in the Corps and its planning process. This implies a sensitivity to local needs and suggests that a particular planner should be designated as a focal point for local contacts on every study.

5. To resolve conflicts and produce plans which more closely satisfy the needs and preferences of the various communities and groups within the public interest.

Interaction of various public groups and citizens through participation in the planning process serves as an important means to resolve conflicts, achieve compromise, and create a broader consensus as to the planned course of action to be followed. The result should be plans which better satisfy the needs and preferences of a broader base of public interests.

6. To develop support for authorization and implementation of the components of the preferred plan by the appropriate local, state, and/or federal agencies.

Participation in the planning and decision making process creates a commitment to the objectives and plans that result. Conversely, individuals and groups resist decisions which are imposed upon them. There is more likely to be support for a decision and assistance in carrying it out if citizens, community groups, and other agencies share

in the planning and decision making process. Working through the problems and participating in decisions are the dynamic factors which coalesce support for plan authorization and implementation.

Review of Public Participation Procedures[5/]

The increasing complexity of water resources planning has brought the realization that many of the issues of water resources development must be resolved by reference to the interests and actions of people as individuals and as members of groups and communities. Citizens are demanding a more active role in the planning and decision process, and the Corps of Engineers has been seeking methods and approaches to achieve greater public participation as an integral part of discharging its responsibilities for water resources planning.

While new procedures and approaches for public participation are being attempted, so far these have been on a limited basis (Havlick, 1970) and (IWR Report 70-6). Hence, as a point of reference and departure for discussion of some expanded concepts of public participation, a brief description of the Corps' present planning procedures and a summary of the present guidelines and regulations is given in the following paragraphs.

Public views on projects proposed by the Corps during the planning stages are obtained largely through public hearings. At the beginning of nearly every study made by the Corps, a public hearing is held. Additional public hearings may be held by the District or Division

5/ The discussion in this section was adapted from two papers analyzing the Corps of Engineers' planning procedures, Hanchy (1970) and Schlaht (1970).

Engineer as the need arises during the investigation and at the completion of the study prior to submission of the planning report to higher authority for review. Public hearings may also be held by the Board of Engineers for Rivers and Harbors in Washington, D. C., in connection with their review of the report.

The primary purposes of the public hearings are to inform interested parties concerning proposals for water resource improvements and to give them an opportunity to express their views. In addition, the hearings may be used to obtain factual information of value in formulating the plan and to implement inter-agency coordination.

Notices of public hearings are distributed directly to all parties known to be interested in the proposal and to the press. Public hearings generally are held somewhere within the area under investigation, and are usually presided over by the District Engineer. The hearing begins with an introductory statement on the purpose of the hearing and a presentation on the problem under consideration. The presiding officer then calls for statements from interested parties beginning with Congressional representatives and followed by representatives of the Federal Government; the representatives of state, county and local governments; industries and utilities; organized local interests; and finally individuals. A complete record of the hearing is made including names of those in attendance, and copies are sent to the Washington offices along with the planning report.

At the completion of a study, the public has a second opportunity to makes its views known. This is during the review of the plan by the Board of Engineers for Rivers and Harbors. However, these views must

be in writing and must not duplicate those previously presented at the public hearings. The information should bear directly on findings in the report. There is usually a time limitation of thirty days for the public to furnish those additional views.[6/]

The basic guidelines for water resources planning as pertains to coordination with the public are provided in EM 1120-2-101 and ER 360 and 1165 series, as indicated in Table 5-1 below.

Table 5-1: A Selective List of Directives on Public Coordination

Publication Number	ENG	Title	Publication Date
EM 1120-2-101	CW-PD	Survey Inv. & Reports - Gen. Procedures	12 Oct 64
Para 1-22, g.	Coord. & local coop.		
Para 1-56, a.	Extent of Coord. w/other Fed. Agencies		
Para 1-84, a-4.	Local Coop.		
Para 1, 126, a-e.	Submission & Distr. of Reports		
Sect IX.	Public Hearings		
ER 360-2-15	CW-RL	State Pamphlets	23 Nov 65
ER 360-2-10	CW-A	Information Pamphlets	24 Aug 67
ER 360-1-10	CW-TL	Clearance & Public Dissemination of Manuscripts	1 May 68
ER 360-1-8	CW-TL	Notification, Members of Congress & State Governors	20 Dec 65
ER 1165-2-15	CW-R	Federal-Local Conferences	20 Apr 67
ER 1120-2-112	CW-PI	Coord. of Survey Reports w/Metro Planning Agencies	11 Apr 69

The most specific reference to coordination with local groups is given in EM 1120-2-101, Section IX, Public Hearings, paragraph 1-137,

6/ U. S. Army Corps of Engineers, EM 1120-2-101, Survey Investigation and Reports, General Procedures, 12 October 1964.

subparagraph b, entitled, "Participation in locally organized meetings." It reads as follows:

> "The utmost caution and discretion is necessary in participating in meetings initiated by local interests on matters concerned with the work of the Corps of Engineers. Participation in meetings from which the press or any interested segment of the public is excluded, except for reasons of security, is not condoned. Privacy can be obtained by parties who wish it by their arranging to present their statements in the offices of the Corps of Engineers. Good judgment on the part of the officers and civilian members of the Corps of Engineers is essential. Reporting officers, when invited to meetings on civil works matters resulting from local initiative should ascertain whether local interests have informed their Congressional representatives, and should provide to the latter, if they desire, brief status reports of the Corps' activities in the subject matter of the meeting."

It should be noted that the above paragraph is about the only specific directive for planners on coordination with local groups.

ER 1165-2-15, Water Resources Policies and Authorities, deals with federal-local conferences. It relates to establishing the responsibility for furnishing information on federal-local conferences which have taken place or may take place to the Office of the Chief of Engineers. It is applicable to all Divisions and Districts having Civil Works responsibility. The regulation requires that Division offices forward to OCE news of any conference in which Division or District personnel are asked to participate which meets <u>all</u> of the following criteria:

1. Called by a local government or local group;

2. Purpose to explain Corps' activities which are of benefit to localities; and

3. Other federal agencies will participate.

ER 1120-2-112, Coordination of Survey Reports with Metropolitan Planning Agencies, provides guidelines for coordination of survey reports in metropolitan areas, pursuant to the requirements of Section 204 of the Demonstration Cities and Metropolitan Development of 1966 (Public Law 89-754) and Bureau of the Budget Circular No. A-82 (revised), 10 January 1969. The ER generally requires that flood protection survey reports for any metropolitan area be coordinated with designated area-wide agencies and include their comments in the reports.

ER 360-1-8, Notification of Members of Congress and State Governors, establishes procedure for informing Congressional Members and State Governors of important Corps of Engineers' activities. It relates to the types of information to be reported, the timing of notification, the channels for notification, and the responsibilities of respective Corps elements. In general the regulation requires that District and Division offices:

1. Ascertain type of information desired by Congressional members and State Governors.

2. Maintain a list of Members of Congress and State Governors who have expressed an interest in specific Corps of Engineers activities.

3. Advise OCE of any changes in the above.

4. Furnish information to Congressional Members and Governors.

5. Coordinate as necessary with using agencies to avoid conflict and duplication of information furnished.

The remaining Engineer Regulations which pertain in some manner or form to coordination with the public deal generally with procedures for dissemination of written material.

In summary, the Corps of Engineers' formal approach to public involvement is through a public hearing, which is basically an information process rather than a communication process. The public hearing has been criticized by Godschalk and Mills (1966) as an ineffective means for public participation:

> "The public hearing procedure has in many instances failed to develop meaningful public participation in the planning of water resource development by those most directly affected by the proposed projects. This process is often characterized by public apathy, ignorance, or resistance regarding important substantive issues such as determining who should benefit, how costs should be allocated, and where and what types of projects should be undertaken."

The very nature of the hearing itself lends to its inadequacy. Arnstein (1969) is of the opinion that this type of meeting can often "be turned into a vehicle for one way communication by the simple device of providing superficial information, discouraging questions, or giving irrelevant answers." Another factor which contributes to the defeat of the hearing's purpose has been its degree of formality. Often this has done much to discourage, restrict, or eliminate participation by or discussion among those in attendance. Lastly, the hearing does not provide a means for participants to judge what effect their testimony has on the issue. Consequently, a negative attitude and a feeling of mistrust develops. "Inviting citizens' opinion . . . can be a legitimate step toward their full participation. But if consulting them is not combined with other modes of participation . . . it offers no assurance that citizen concerns and ideas will be taken into account." (Arnstein, 1969).

This conclusion emphasizes the point that public participation must include a wide variety of methods and techniques which are used at

appropriate times in the planning process to accomplish a particular function. A great deal of ingenuity on the part of the planner should be encouraged in utilizing or innovating appropriate approaches depending on the public interests involved, the particular time in the planning process, and the objective to be accomplished.

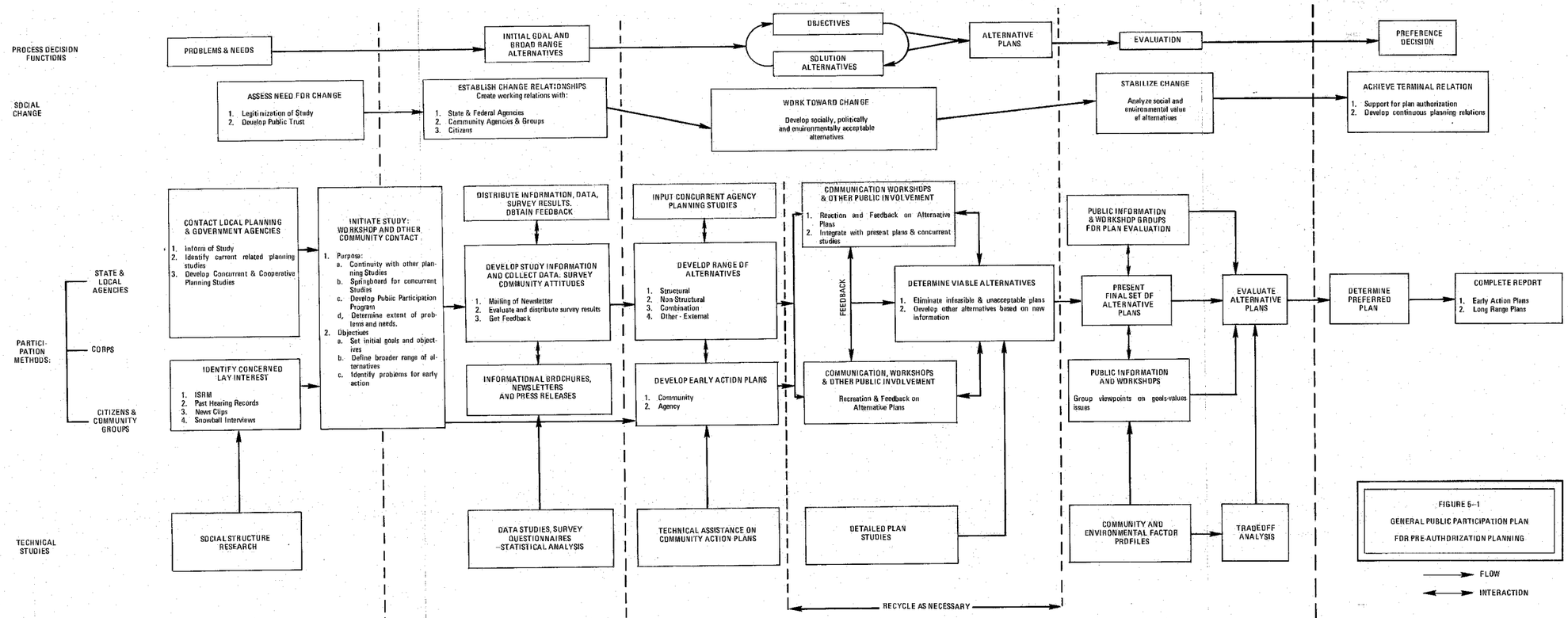
Organizing a Public Participation Program

A general concept framework for organizing a public participation program for the preauthorization planning phase of a study is shown in the diagram of Figure 5-1. The diagram correlates several types of information relating the planning and social change process goals to the particular methods and techniques for public participation. However, the general structure of the flow chart is not intended to be rigid, but rather to indicate the general relationship of elements in the program and provide organizational ideas. The methods and techniques, discussed in detail in this section, should be employed by the planner at any point in the process where they would most usefully serve to accomplish the desired objective.

Community Interests and Study Legitimization

A legitimization of the study and identifying participation patterns for planning with state and local governmental jurisdictions and with citizens are essential conditions necessary for constructive public participation in planning.

Coordination with Governmental Agencies. One of the first tasks in the study should be the coordination with various federal, state, and local agencies who have interests in water and land resources development.


PROCESS DECISION FUNCTIONS
SOCIAL CHANGE
PARTICIPATION METHODS:
STATE & LOCAL AGENCIES
CORPS
CITIZENS & COMMUNITY GROUPS
TECHNICAL STUDIES
PROBLEMS & NEEDS
INITIAL GOAL AND BROAD RANGE ALTERNATIVES
OBJECTIVES
SOLUTION ALTERNATIVES
ALTERNATIVE PLANS
EVALUATION
PREFERENCE DECISION
ASSESS NEED FOR CHANGE
1. Legitimization of Study
2. Develop Public Trust
ESTABLISH CHANGE RELATIONSHIPS
Create working relations with:
1. State & Federal Agencies
2. Community Agencies & Groups
3. Citizens
WORK TOWARD CHANGE
Develop socially, politically and environmentally acceptable alternatives
STABILIZE CHANGE
Analyze social and environmental value of alternatives
ACHIEVE TERMINAL RELATION
1. Support for plan authorization
2. Develop continuous planning relations
CONTACT LOCAL PLANNING & GOVERNMENT AGENCIES
1. Inform of Study
2. Identify current related planning studies
3. Develop Concurrent & Cooperative Planning Studies
IDENTIFY CONCERNED LAY INTEREST
1. ISRM
2. Past Hearing Records
3. News Clips
4. Snowball Interviews
INITIATE STUDY: WORKSHOP AND OTHER COMMUNITY CONTACT
1. Purpose:
a. Continuity with other planning Studies
b. Springboard for concurrent Studies
c. Develop Public Participation Program
d. Determine extent of problems and needs.
2. Objectives
a. Set initial goals and objectives
b. Define broader range of alternatives
c. Identify problems for early action
DISTRIBUTE INFORMATION, DATA, SURVEY RESULTS. OBTAIN FEEDBACK
DEVELOP STUDY INFORMATION AND COLLECT DATA. SURVEY COMMUNITY ATTITUDES
1. Mailing of Newsletter
2. Evaluate and distribute survey results
3. Get Feedback
INFORMATIONAL BROCHURES, NEWSLETTERS AND PRESS RELEASES
DATA STUDIES, SURVEY QUESTIONNAIRES –STATISTICAL ANALYSIS
SOCIAL STRUCTURE RESEARCH
INPUT CONCURRENT AGENCY PLANNING STUDIES
DEVELOP RANGE OF ALTERNATIVES
1. Structural
2. Non-Structural
3. Combination
4. Other - External
DEVELOP EARLY ACTION PLANS
1. Community
2. Agency
TECHNICAL ASSISTANCE ON COMMUNITY ACTION PLANS
COMMUNICATION WORKSHOPS & OTHER PUBLIC INVOLVEMENT
1. Reaction and Feedback on Alternative Plans
2. Integrate with present plans & concurrent studies
FEEDBACK
DETERMINE VIABLE ALTERNATIVES
1. Eliminate infeasible & unacceptable plans
2. Develop other alternatives based on new information
COMMUNICATION, WORKSHOPS & OTHER PUBLIC INVOLVEMENT
Recreation & Feedback on Alternative Plans
DETAILED PLAN STUDIES
RECYCLE AS NECESSARY
PUBLIC INFORMATION & WORKSHOP GROUPS FOR PLAN EVALUATION
PRESENT FINAL SET OF ALTERNATIVE PLANS
PUBLIC INFORMATION AND WORKSHOPS
Group viewpoints on goals-values issues
COMMUNITY AND ENVIRONMENTAL FACTOR PROFILES
EVALUATE ALTERNATIVE PLANS
TRADEOFF ANALYSIS
DETERMINE PREFERRED PLAN
COMPLETE REPORT
1. Early Action Plans
2. Long Range Plans
FIGURE 5--1
GENERAL PUBLIC PARTICIPATION PLAN
FOR PRE-AUTHORIZATION PLANNING
FLOW
INTERACTION

The purpose of this is to develop coordination with other related ongoing planning efforts, and to "legitimize" the planning process by creating a workable relationship between the Corps and other participants in the planning study. Legitimization seeks positive involvement in the study on the part of federal and state agencies, and local groups and citizens through establishing a participative planning procedure. This includes:

1. Identifying participants and establishing means for communication.

2. Determining a planning strategy; i.e., the procedure for the study and the organization and involvement of all participants.

3. Establishing the general boundaries and problems for the study.

4. Developing some initial sets of goals and objectives for the study.

The type of relationships that are necessary for working with state and local government agencies may range from simple coordination to exchanges of data and information to close cooperation and integration of certain facets of the plan. These functions may be accomplished formally through inter-agency coordinating committees or other predetermined institutional arrangements, or informally through ad hoc meetings arranged with various groups and interests. The use of both approaches is generally desirable. The type of coordination required of course will depend on the program of the agency, its authority and its own particular mission and area of responsibility relative to water resources planning. Relations with community groups and local citizens will be both indirect as through information in the news media, and direct

as in the case where representatives of the Corps meet and discuss plans, proposals and projects with community groups, clubs, organizations, and individual citizens. The first step toward communicating with individual citizens and groups is the compilation of a list of water resources planning interests and individuals in the area of the study.

Identification of the Publics. The individuals and groups identified as concerned interests will vary widely from study to study, but the following should generally appear on the list:

1. Agency Officials: state and federal planning agencies in land and water resources, agriculture, fish and game, recreation, urban development and transportation.

2. Concerned Local Interests: local governments, planning commissions, extension services, conservation organizations, sportsmans clubs, civic clubs, the League of Women Voters, and local opinion leaders as determined through social structure research.

3. State and Local News Media.

Simplified procedures to aid the planner in this task are given in the following brief summary:7/

> "In dealing with the social and political aspects of water resources planning one may need to know the general shape of the political landscape, especially in a fast-breaking situation where detailed investigation is impossible. In such cases there is insufficient time and resources to set up a systems analysis of the socio-political situations, and the sophisticated planner should be able to resort to approximations which can be fairly accurate. While these 'look messy' they can be very useful if properly applied.

7/ This material is quoted from an article by Paul Ray in Water Resources Planners' Bulletin, 1:3 (11-13), June 1970, published by the U. S. Army Corps of Engineers, Washington, D. C.

"1. Be prepared to discount your own shop's conventional wisdom on the community in order to explore the social and political configurations of a community with an open mind. 'Avoiding built-in bias is a problem.'

"2. Use Corps' employees who spend several years in a community to find who 'the people who count' are and to find out which other individuals on the scene can fill in a newcomer. However, be 'prepared to discount his information according to the possibility of selective recall to improve his own self-image and the possibility that he was in a position such that he could get only a one-sided view of the community.'

"3. A historical pattern of decisions or conflicts about water problems in the area can be obtained through a clipping file on the history of community decisions or politics. 'The reason this is important is that the dynamics of community conflicts and issues in the past set the stage for current conflicts and issues--and often condition the way current problems will be handled.'

"4. In any community analysis a good street map is indispensable, and will be well-paired with a street directory (of the type that R. L. Polk & Co. puts out). . . . The names of 'people who count' are often given in bold face type since street directories are used by marketing firms and fund solicitors.'

"5. The quick and dirty way of finding who are the key political figures and pressure groups, is to ask the following people (if you can get their confidence): the school superintendent; an older political reporter specializing in local politics, or the editor of the newspaper in smaller towns; the professional head of the Community Chest, United Fund, or equivalent organization; (in middle-sized cities) the head of the metropolitan development group looking for industry and/or the professional who works as a director for the Chamber of Commerce; and (in more rural areas) the Agricultural Extension Agent. All the above people are more accessible than the true power structure, but must know the power structure in order to do their jobs. Hence they are useful. Naturally such people as the mayor, city manager, key bankers, leading industrialists, and old established lawyers, could also give lists of the critical decision makers, but one is less likely to get an answer unless he has an 'in' with one of these.

"6. Other influentials can be found in lists of 'boards of directors; and top officers of the local banks, of locally run manufacturing firms, and of large retail stores. The Chamber of Commerce or Industrial Development group invariably

list the firm names in a publication designed to bring new business, and this usually gives top officers and size of firm. Rand McNally's Banker's Register gives bank names, and Moody's Banks will give board of directors. Poor's Register of Directors and Executives can be used to tell which of these names are on other directorships. Men with overlaps are part of the power structure, and since banks tend to accumulate the leading business and financial talent in town, this is a fairly reliable way of getting top names. Moody's Industrials is another source.

"7. Many communities have a discrepancy between political and economic leadership, and even a tendency to many splinter groups concerned with particular issues. Such cases can be identified by talks with knowledgeable newspapermen, with local Democrat and with Republican party workers. One consequence of such organization of political life is that only segmental interest groups are deeply involved in decisions, and most 'community leaders' act as a veto group. Hence, in gathering information in points 1-5, keep this possibility open, and conduct logical consistency checks to see if a coherent power structure operates on your issues."

If time and resources permit, a more systematic technique, the issue specific reputational method (ISRM), for assessment of community structure can be used. The ISRM presented in IWR Report 70-2 (May 1970, pp. 88-95) uses a panel of knowledgeable community residents who can identify community interests and influentials in a given issue area, e.g., water resource development. The report contains formats and questionnaires for using the ISRM procedure. The "Verstehen" method discussed in Appendix C of IWR Report 70-6 (Dec 1970) was used in the Susquehanna study and is somewhat similar. Newspapers and other sources are used to identify community "water influentials." These people are interviewed to identify more influentials through a snowball technique.

Once key people and organizations in the study area have been identified, there should be a systematic program of contacting them to outline the study, describe the public participation program, and

solicit suggestions and cooperation. The development of an initial base of support is essential to the success of a program of participative planning.

Establish Change Relationships

Attitude of the Corps. Establishing workable change relationships depends on the Corps' approach to local planning interests as well as obtaining the cooperation of federal and state agencies. The attitude of the planners should be one of "What can we do in this study to assist you in your local planning problems? How can we coordinate with other local planning efforts and projects?" This is in contrast to an attitude of "We are here to solve your problems and prepare plans and studies for you."

The essential ingredients for creating this kind of rapport with state and local agencies are the following:

1. Policy on Coordination and Study Recommendations. A policy for coordination and cooperation should be established between the Corps and all affected state and local agencies. This working agreement should clarify in particular the initial scope of objectives in multiple objective planning which are mutually acceptable for the study (these may be modified as the study proceeds), planning input to be made by other agencies, and the scope and recommendations of the completed plan. To insure a broad cooperative base for the study, allowance should be made for including all of the following types of recommendations:

a. Recommendations for solutions or projects which the Corps can undertake, and clear statement that no recommendations will be made

if there are no such solutions within the Corps' authority which are economically and socially feasible.

b. Recommendations for solutions or projects which appear to be feasible and can be undertaken by other agencies under their particular authority.

c. Recommendations for solutions and projects for which there appears to be no existing authority for implementation, with the recommendation that the Corps or an appropriate agency be given authority to undertake such solutions.

2. Concurrent and Cooperative Planning. In a study area at any one time there may be several other state and local planning agencies preparing plans that relate to planning for land and water resources. Under such circumstances, it is extremely important for the Corps to encourage related concurrent and cooperative planning.

a. Concurrent planning includes studies by other agencies which will effect or be affected by water development plans although they are not directly a water development function. Examples of this type include community master plans, transportation plans or urban redevelopment. On many points of these plans it will be important to integrate with related water plans to make them mutually compatible.

b. Cooperative planning includes those studies by other agencies that are directly related to water development. Examples of such studies are water supply, waste water treatment, and pollution control, wildlife management and recreation. Close cooperation in defining the direction of studies and in integrating the related planning

efforts of responsible agencies can produce a broader and more comprehensive plan for the manpower, time, and dollars expended.

In seeking this type of participative planning, the Corps should allow for flexibility in the types of reports issued as the product of planning. The formats should allow for joint reports by the cooperating planning agencies, and for documentation of concurrent planning with recommendations and authorities following the policy recommendations of 1a, b, & c.

3. Technical Assistance on Early Action Plans. Efforts of the planner in identifying problems and needs for the study and in establishing working relations often serve to pinpoint problems in which local and state agencies desire to take early planning action rather than wait for the completion of a study. In particular cases where expertise may be lacking in the local and state agencies, the Corps should be in a position to provide technical assistance on programs which should or can be undertaken on local initiative. In this way, the Corps will also be in a position to evaluate the consistency of these programs with respect to the comprehensive water resource development planning for the area.

Identify Specific Problems and Needs. A basic input to the development of planning objectives and alternatives is the identification of the water and land resource problems as perceived by the community interests. The means available to the planner for accomplishing this are through opinion surveys or through direct contact with the concerned public using one of the public participation methods. A variety of possible methods are described in the following section. The community

workshops have been used successfully for this purpose on a study now underway in the Rock Island District, Corps of Engineers. Some suggested approaches to survey techniques are contained in IWR Report 70-2, and Appendix A (p. 210) therein contains a checklist of types of plans normally prepared by local, state, or federal agencies which are related to water resource needs where coordination is required. In the same document, Appendix B (p. 213) contains a set of water resources management questionnaires for use in assessing public attitudes on water resources planning needs.

Working Toward Change

The social process of working toward change comprises the bulk of the planning effort. The basic task is to develop a set of alternative plans which satisfy the water resource problems and needs, and which are socially, politically, and environmentally acceptable as well. This latter set of conditions is largely tested through public participation in planning and public reaction to proposed alternatives. Generally speaking, it is difficult for the public to articulate a set of goals at the outset of a study, but goals and objectives emerge as the public has an opportunity to respond to planning proposals. This requires an iterative process. Thus, frequent interaction between the planner and various public interests is necessary for the development of alternatives responsive to community objectives and values. Such an iterative process will move from needs and problems to a broad range of possible solutions to specific survey scope studies of the viable alternatives acceptable to the publics.

Since the major part of participative planning falls within this phase of the study, detailed consideration is given to describing and evaluating the methods and techniques for interaction and public involvement in planning.

Information. One side of communicating with the public in planning is dissemination of information on the progress of study plans and alternatives, and publicizing opportunities for direct participation. The primary means of accomplishing this are through the news media including newspaper, radio, and television. Planners and information officers should coordinate in issuing newspaper press releases, and where possible encourage TV stations to cover aspects of the plans or to produce short documentaries on the basin water problems and the alternative plans under study. The Corps' desire for public response and how to contact Corps' representatives should be stressed in an information campaign.

A complementary method of disseminating information is the publication of a planning newsletter on regular basis. Such a newsletter serves as a forum for discussion of planning alternatives by various federal and state planning agencies, as well as local interest groups. The publication should contain current information about the basin study, plans, and other information about water and land resources in the basin. The mailing list usually will encompass all state and federal interests as well as local groups and individuals who had participated in workshops or had requested the publication. Every third or fourth issue should contain a mail-in coupon for those who want to continue to receive the newsletter.

Group Advocacy. In developing this line of public participation, each interest group is encouraged to designate a representative to serve as the group's representative and advocate in presenting its position, recommendations, or preferences for alternatives to the planning agency. The agency maintains contact and provides information on alternatives to the advocates, and they serve as an information link between the agency and the groups. These arrangements could be rather informal and considerable initiative on the part of the group encouraged.

Informal Contact with Organized Public Bodies. The agency planner as a matter of routine should maintain contact throughout the studies with local governments, planning commissions, county extension committees, special service districts, and with conservation, civic and community clubs and groups. Whenever representatives from the Corps are in an area, they should make themselves available to answer questions and bring interested groups up to date and present plans. In addition periodic or regularly scheduled meetings should be held with local leaders to discuss plans and request feedback.

Community Workshops. Of the techniques and methods for maintaining two-way communication with the public at large, the approach identified by citizens and community officials as the one preferred is that of community workshops (Bishop, 1969, and IWR Report 70-6). IWR Report 70-6 contains an excellent discussion of the format and approaches used in the workshops conducted in the Susquehanna Basin Study. Since these kinds of public meetings will likely play an important role in the planning process in the future, a fairly detailed description of the

considerations in organizing and conducting community planning workshops is given in the following paragraphs.

Planning workshops would generally be organized for several sub-regions in the study as determined by political, economic, and geographic relationships which identify a sub-region. Some advance preparation for the workshops should take place as part of the liaison activities. This includes determining the community support for workshops and lining up participants and assistance. The content and format of meetings held with citizen organizations will, of course, depend on their specific interests or concerns and their indicated preferences on matters to be discussed.

1. Workshop Sponsorship. Arrangements and planning for the workshop meetings in the local community should be handled by a local sponsoring committee or group whenever possible. The sponsoring group should be a non-political body with the capability of organizing, disseminating information to the community, and hosting or chairing the workshop meeting. Such organizations as the League of Women Voters can effectively assume this role, as well as planning commissions, civic groups, or in some cases local governments.

2. Arrangements and Facilities. The sponsor in coordination with the planners must consider the following items in preparing for the workshop meetings.

a. Time and Location. Experience has indicated that an evening meeting on a weekday approximately 2½ hours in length is best. A school or similar facility with auditorium and meeting rooms is preferred, since it will be often advantageous to break into small groups for discussion.

b. Invitations and Publicity. Personal invitations to community leaders and good publicity are important considerations in securing a cross section community representation and participation in the workshop meetings.

(1) Personal letters of invitation signed by the local sponsors should be sent to the leaders of organized interests in the community and other citizens who have an expressed interest in water planning. Organizational leaders should be asked to encourage other members of their group to attend. The letter should include an explanation of the workshop's purpose as well as the date, time, place and length of the meeting.

(2) A publicity campaign through local news medis should extend an invitation to all citizens to participate and share their views.

3. Meeting Preparation. The local sponsors should supervise other meeting preparations such as securing proper visual and audio equipment, materials for name tags, and other arrangements necessary to conducting the meeting.

4. The Role of Agency and Technical Personnel. The planners primary responsibility in pre-meeting preparation is to thoroughly brief the local sponsors in the purpose and objectives of the workshop and in the format for the meeting. They must also prepare illustrative maps and charts, visual aids, surveys and questionnaires, group discussion questions, and other technical aids necessary for the workshop.

After any initial presentations on basin problems or solution alternatives, the planners and other agency personnel should encourage

full and free discussion, acting mainly in the role of moderators and stimulator, while providing the expertise to answer technical questions.

5. Workshop Structure. The basic purpose of the workshop is to generate an input of local needs, desires, and goals for the planning study. An additional objective is to lay the groundwork for continuing feedback from local interests in developing and assessing planning alternatives. The format for the workshops is broken down as follows:

a. Registration. Sign-in and issuance of name tags.

b. Introductory Session. The introductory session, lasting about 30 minutes, should serve as a general orientation on the status planning study. Some of the items that should be covered are:

(1) The objectives and status of the planning effort underway.

(2) The purpose of the workshop and its role in the planning process.

(3) The organization of the workshop and what is expected of those in attendance.

(4) Introduction of agency resource people in attendance.

(5) Task-oriented presentation to instruct local participants on what and how they can contribute at this stage of planning.

A short questionnaire can be used to focus on what can be gained or accomplished during the workshop. This may be compared with a similar post-meeting survey to determine the effectiveness of the program.

c. Group Discussions. If a group discussion period is used the participants should be broken into groups of manageable size, about

15 to 20 people. For efficiency, this should be done during registration with codes on the name tags. This portion of the workshop should be planned for 1 to 1½ hours. The breakdown for groups can be along the lines of problem areas, such as water supply, water quality, flood control, recreation, specific geographical problem areas, or just at random.

It is recommended that each group be chaired jointly by a local sponsor and a Corps' representative. The sponsor would assume the formal leadership in laying out problem areas, posing questions, and in summarizing and following up on the concerns and needs expressed by the group. Corps personnel would provide technical support and monitor the discussion.

A summary of the discussion topics should be prepared prior to the meeting and made available to all participants. Other discussion aids such as maps, charts summarizing basic water conditions, and data should be used whenever feasible. A scribe should be appointed to record pertinent questions and discussion from the group.

d. Summary Session. In the summary session each subgroup chairman may present a brief summary of the major positions taken, points discussed and questions raised in that group. After the summaries are presented, it may be worthwhile to attempt to get some kind of informal consensus on the priority of needs or proposed solutions. This will help to clarify differences in local objectives and preferences.

To close the meeting, a Corps representative may outline how those attending can continue to participate in the planning study. Forms

should also be provided whereby attendees can request further information or written summaries of the workshop.

e. Critique. Planning workshops provide an excellent opportunity to obtain a degree of public consensus on planning decisions. The interaction between the participants in a meeting of this type provides the setting for confronting each other with different goals and objectives and resolving differences.

The planning workshop has some disadvantages, however. To be successful the planning workshop must be limited in size. This means that the group of participants brought into the workshops should be representative of the cross section of interests in the community. The workshop may be open to the public or followed by some type of forum or hearing to allow any interested citizen an opportunity to question or comment.

The planning workshop also offers an excellent opportunity for the planning agency to include community interest groups in the process at a policy making level, and it has particular value in the selection of study goals and in the evaluation of specific plan proposals.

Regional Citizens' Committees. As representative bodies to provide feedback on alternatives to the planning agency, sub-regions might organize citizens' committees to deal with the planning agency. The planners would meet periodically with the committee, present the alternatives presently under study, and the committee would act as a sounding board and reflect the community interests and preferences. The committee would be composed of representatives of the major interests in the

community and would serve as liaison between the planners and their local groups and citizens.

This approach to community participation works well so long as the committee activities and actions are publicized and open to the public and the committee is active as an intermediary between the public and planners.

Special Study Task Forces. Planning problems of a highly technical or localized nature might best be approached by a special study task force which works on solutions and advises the planning agency of local preferences for the solutions to particular planning problems. A task force would, of course, be limited to consideration of a special problem or particular region, but often the controversial aspects of a plan are of this nature. In these instances a special task force with representatives on all sides of the issue might be the best approach to conflict resolution.

Public Hearings. The public hearing used by the Corps of Engineers has previously been described. Typically, public hearings are characterized by their formal, structured format, and generally, anyone who desires to make a statement may do so.

One advantage of the public hearing is that by virtue of long tradition, they have a high degree of legitimacy. Also, individuals can say virtually anything they wish to say on the problem under consideration, subject to constraints of relevancy imposed by the chairman. All statements made in support of or in opposition to the plan are made in public and this facilitates wide dissemination through the news media.

On the side of disadvantages, public hearings provide no guarantee of representativeness; and thus there is a high potential for bias. The chairman, being from the agency, may also strongly bias the hearing. Open ended statements presented are often hard to interpret and use in planning, and often persons testifying do not completely understand the issue or the plan on which they are speaking. This is especially true if, as is usually the case with the Corps of Engineers, the plan is first presented and explained at a public hearing. The meeting time and place may prevent some interested citizens from attending. The protocol for ordering presentations may also inhibit participation. The length of time provided by public hearings may be inadequate if a large number of persons wish to participate.

To summarize, public hearings are good methods for the planning agency to furnish information to the public. A public hearing may serve to "legitimize" planning decisions reached in planning workshops and should follow workshops in the planning sequence.

Public Inquiry. The format of a public inquiry is similar to that of a public hearing except that the hearing chairman is not from the planning agency and the inquiry may extend over a considerable period of time. Usually an impartial chairman is employed to conduct the proceedings, and the hearing is held open until the hearing officer is satisfied that all pertinent information has been gathered and all interested citizens have had an opportunity to participate. At the first hearing the planning agencies would make a presentation which would be followed by testimony from the public. The hearing officer,

individuals, and agencies may ask questions that would be answered during the course of the inquiry.

Advantages of public inquiries over hearings are that the longer time involved makes it possible for the proceedings to be more deliberate; more people can participate and meaningful dialogue can take place; and multiple hearings make it possible to achieve greater participation by conducting them at various locations. An independent hearing officer avoids the agency bias. The hearing officer would typically make a report, as well as submitting a transcript. The public inquiry also has an advantage in controversial matters in that putting the planning agency on a participant status tends to encourage the presentation of opposition viewpoints.

The public inquiry has the same disadvantages as the public hearing, since it, too, provides no guarantee of representativeness. Many of the relevant publics may not be reached by advertisements of the hearing, although the longer time period involved and possible multiple hearings makes it more likely that a greater percentage of the public will be able to participate. Again, however, people may not fully understand the plan under consideration.

The main advantage of the public inquiry over the other methods is that it is a better method for obtaining information from the public. In identifying needs, the public can provide information on problems, and economic or physical data which would be of value in the selection of goals for the study. This might replace the first public hearing now held by the Corps.

Sample Surveys (Opinion Polling). A sample survey, in which a representative cross section of the public is interviewed to determine their attitudes, opinions, and other factual information on a particular issue, could be of great use in a comprehensive water resources planning effort. Many decisions in the planning process are based on value judgments and any method which will help the planner to substitute public values for his own will make the plan more responsive to the public interest. The representativeness of a well designed public opinion survey is much higher than any of the other methods. The results are also more easily interpreted. Problems associated with meeting sites and times are avoided. A sample survey, particularly when the relevant public is very large, can be relatively inexpensive and rapid.

A sample survey has the disadvantage that the public may not understand the issues and the answers may reflect this ignorance. The results of a sample survey can also be misleading if the sample design or the quentionnaire is poor. Another disadvantage of the sample survey is that it does not allow for two-way communication between the planner and the public. The public opinion survey is the best device for measuring public values and preferences which are an important input to any study. To get the maximum benefit from a survey, it should be conducted as early in the planning process as possible. It can provide useful information both in identifying problems and need, and in evaluating alternative proposals.

Stabilization of Change

The process of stabilization of change in the planning is brought about by an effective transition between the planning function, per se,

and the implementation of the preferred plan. Hence, the stabilization phase focuses on those decisions required to select the preferred plan and to carry it into action. In general, this requires the accomplishment of two things in terms of involvement and participation of citizen groups:

Public Discussion of Alternative Plans. It must be recognized at the outset that decisions about water and related land resource plans involve a variety of effects that are viewed and weighted differently by the affected interest groups. For this reason a period of open and fairly informal public discussion of alternatives is necessary to allow each community and interest group to evaluate the proposed plans and determine the consequences and tradeoffs as seen from their particular viewpoint.

1. Participation Methods in Discussion of Alternatives. The methods and approaches discussed in the preceding section which are low-key would be the most suitable for informal presentation and discussion of the final set of alternatives. These include workshops, information and informational meetings, informal contacts with community groups and leaders, and evaluative task force groups either sponsored by different interests or one group comprised of different interests. The effort is designed to move toward what Rogers (1970) calls a legitimation of the collective innovation decision. This legitimation is "the approval or sanctioning of a collective innovation (in our case, a particular water planning alternative) by those who informally represent the system's norms who possess social power." He also points out that "the rate of

adoption of a collective innovation is positively related to the degree to which the social system's legitimizers are involved in the decision making process."

2. Considerations in Discussion and Evaluation of Alternatives. In the evaluation of water resources plans where large amounts of information must be encompassed in a decision, the practice of the planners has been to aggregate the information relevant to the decision which could be quantified in economic terms into a benefit-cost ratio. However, in today's complex environment it is recognized that water resources development has many additional consequences ofter referred to as intangible, non-market, non-quantifiable, environmental, social, aesthetic, and community impacts. To date these descriptors have been applied to values which have not been quantified in money terms because neither suitable techniques nor adequate data have been developed for appraising these kinds of factors and including them in the benefit-cost ratio. Furthermore, in many cases it may be inappropriate to quantify them in money terms. It follows that the discussion and evaluation of alternatives which is based solely on the benefit-cost ratio generally submerges information that is pertinent to the decision. It masks and covers the true differences among alternatives and leaves no way to identify and contrast these differences in decision making. If two important rules are kept in mind by the planner, many of these difficulties could be alleviated when alternatives are presented and discussed:

a. That decisions must be based on the differences among alternatives.

b. That money consequences must be separated from the consequences that are not reducible to money terms;

then these irreducibles must be weighed against the money consequences as a part of the decision making process.

In applying these rules to an engineering, economic, and social analysis of the effects of water resources development, a basis must be established for evaluating and communicating both monetary and non-monetary consequences in making comprehensive comparisons of the differences among alternatives. To accomplish this, three important aspects of the problem should be considered. These are (a) quantification and separation of monetary and non-monetary consequences, (b) the viewpoint of decision makers, and (c) the time period of analysis. All of these aspects of differences in alternatives are pertinent if the planners and the public are to maintain a proper perspective in discussing and evaluating alternatives.

(a) Quantification. Comparisons of the differences among alternatives depend on identifying and defining the factors which measure the relative merits of the alternatives. These factors should be separated into those direct consequences that can be stated in economic money terms at both the regional and national level and those effects which fall upon the communities which are not an appropriate part of the economic costs and benefits. Where it is possible and there exists a rationale for doing so, these factors should be measured and evaluated in some other appropriate unit. Then, monetary and other factors can be weighted against each other to determine the tradeoffs among alternatives.

(b) Viewpoint. Different alternatives affect the various levels of government, communities, and groups in different ways. Much of today's controversy in water planning and management results from the

failure of one group to appreciate another's values and concerns. The factors which are most important will, of course, vary with each individual project. Various approaches to public participation should be used at the conceptual stage of plan formulation and again during plan evaluation to allow each group to express its principal concerns. By identifying the factors of greatest concern to each community group, the costs and benefits and the points of agreement and disagreement can be clarified. Such consideration of varying viewpoints should eliminate confusion and many of the pointless arguments which now afflict planning studies.

(c) Time Period. In the public discussion of alternatives, the time period over which the consequences of various plans are spread should also be considered. Otherwise short run effects might be given more weight in the decision as compared to the long run effects, or vice versa.

In developing these dimensions in the description of alternatives, it should be emphasized that both the viewpoint and the time period or horizon will markedly affect the analysis in selecting and quantifying the relevant factors in decision making. Both of these dimensions need to be specified before variables are quantified, and indeed a complete evaluation may require that a number of analyses be performed using different viewpoints and planning horizons.

3. A Method for Presenting and Evaluating Water Planning Alternatives. Following from the two decision rules stated earlier, a two part procedure is necessary to objectively present and evaluate alternatives: (1) an economy study which includes all items that can be

reduced to money terms, and (2) an analysis of all items which cannot be stated in terms of money but which must be weighed in the decision. Recent efforts have been made to develop methods and techniques which apply these principles in evaluating planning alternatives. Bishop (1969) and also Oglesby, Bishop, and Willeke (1970) present such a procedure for decision making among freeway route location alternatives based on economic and social factors. This approach is applied to a water planning problem in the following paragraphs. Also IWR Report 69-3 describes a similar methodology for decision making on flood plain development and management alternatives.

a. Factor Profiles: A Decision Making Tool. The approach proposed for analyzing and presenting the indirect, environmental and community effects is called a "factor profile." The use of such tools are at least a step toward more rational discussion of alternatives and decision making.

The factor profile is a graphical description based on the factors which measure the effects of each proposed alternative. Figure 5-2 is a highly simplified and consolidated version of such a profile for four flood control alternatives, numbered 1, 2, 3 and 4. On this figure, each profile scale is on a percentage base, ranging from a negative to a positive 100 percent. One hundred either negative or positive is the maximum absolute value of the measure that is adopted for each factor. Reduction to the percentage base simplifies scaling and plotting the profiles. The maximum positive or negative value of the measure, the units, and the time span are indicated on the right hand side of the profile for reference. For each alternative, the

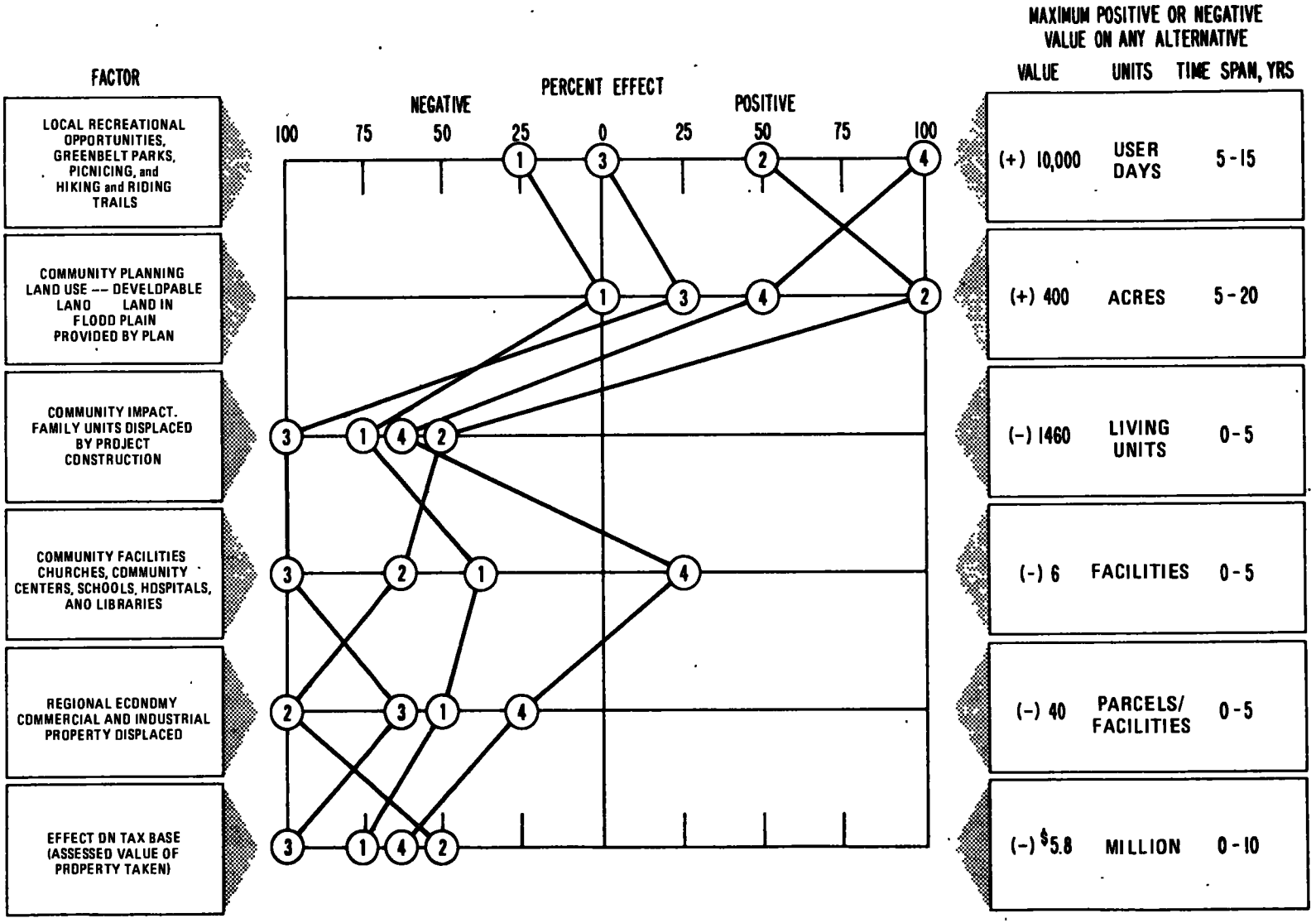


Figure 5-2: Factor Profile

positive or negative value for any factor is calculated as a percent of the maximum absolute value over all alternatives and is plotted on the appropriate abscissa. A broken line connecting the plotted points for each alternative gives its factor profile. For the profiles, factors and measures should be selected which will adequately describe all important elements of community and environmental impact. Care should be used in defining factor measures to assure that they are not measuring the same consequences. Otherwise in effect there would be "double counting" and disproportionate weight would be given to those factors. This may result in incorrect preference decisions.

In order to reduce the complexity of the diagram and, in turn, of the decision making process, the full set of factors should be reduced whenever it is possible to do so. Two guidelines are suggested for accomplishing this: (1) eliminating all those factors that are not relevant or important to the particular decision, and (2) eliminating all factors where the values are substantially the same for all alternatives. These tests must be acceptable to all parties involved in the study.

It is expected that the profiles will be prepared for each alternative from the viewpoint of each community interest group and will incorporate the factors that are important to that particular group's viewpoint. A composite profile would also be prepared showing the total community effect for each factor. Separate profiles for each alternative could be made on transparent overlays to facilitate the method of comparison proposed in the following paragraphs. In passing it should be noted that research is well under way to provide such displays on a

cathode-ray tube activated by a computer. This would permit almost instant recall of any comparisons that seemed appropriate.

b. Method for Plan Evaluation. Because of the complexity that "real life" factor profiles would often have, a systematic procedure for evaluating and comparing the relative merits of the several alternatives is essential. The method proposed here is that a series of paired comparisons be made using engineering economic analysis and factor profiles as the decision making tools.

First, alternatives 1 and 2 would be compared; then the better of these is compared with 3, and so on. In comparing two alternatives the incremental cost or benefit from the economic analysis is weighed against the differences in community and environmental impact between the alternatives as shown by the factor profiles. The decision maker representing each group would appraise the economic and community factors and determine his preference between the two alternatives. After all the paired comparisons among the various alternatives have been completed, there would result preference rankings for each viewpoint in the community. These would be used for comparisons among competing viewpoints in reaching a final decision.

A highly simplified example to illustrate the paired comparison approach is given by the question: "Is it preferable to save $50,000 per year in flood damages accruing to local residents by adopting a bypass flood routing or to dislocate a commercial enterprise situated in the bypass which employs ten people and paying $20,000 per year in property taxes? It is estimated that a substitute enterprise will develop in five years." It is admitted that this example is far simpler

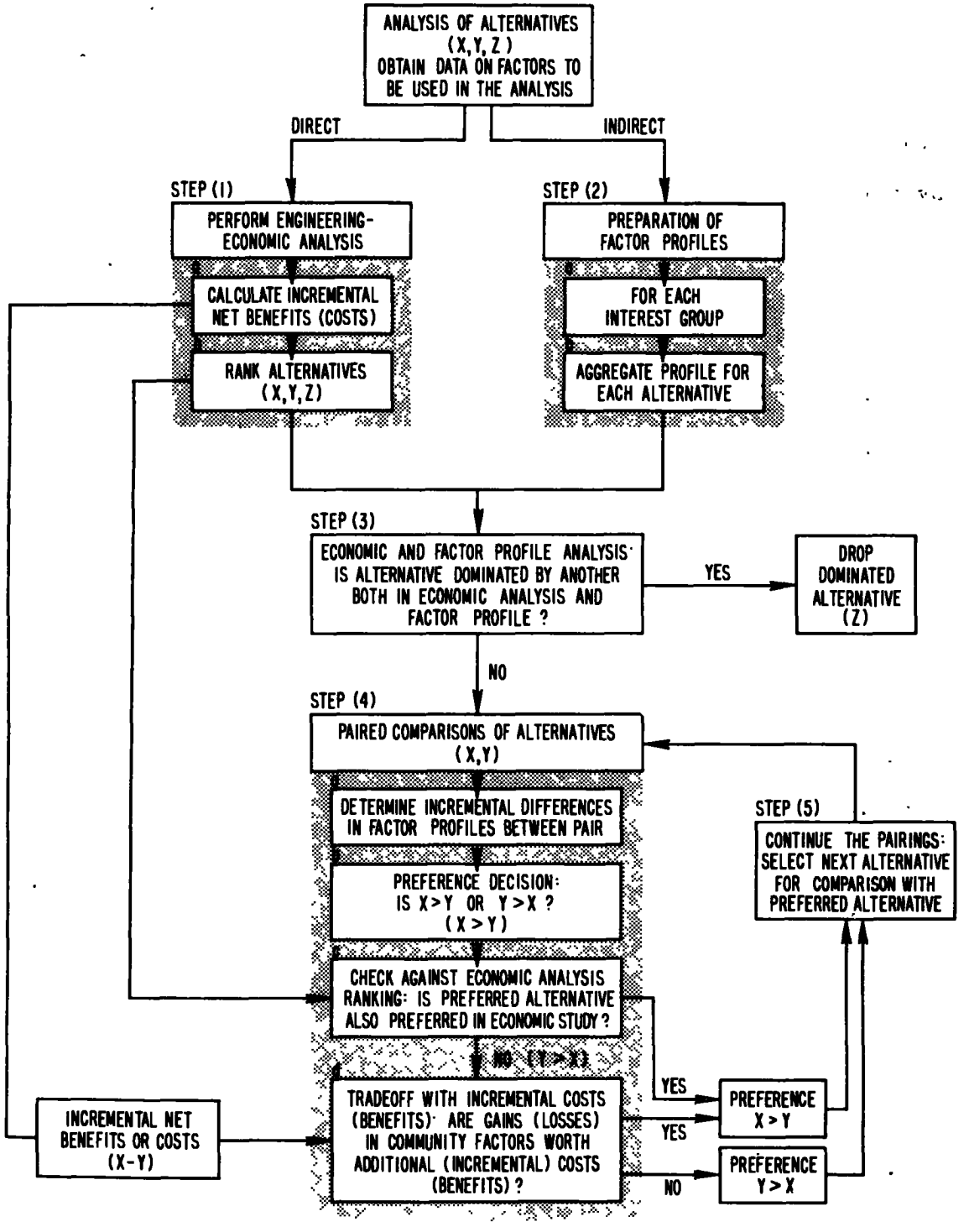
than those of the real world where the factor profile would include several elements. Even so, such comparisons make clear the actual points at issue and may greatly reduce the number of irrational arguments that accompany most controversial decisions.

The flow chart of Figure 5-3 depicts the procedure to be followed in making the paired comparisons described above. Such a procedure should greatly help community groups and decision makers in selecting a preferred alternative.

Step 1: Perform Engineering Economic Analysis. Rank the alternatives in order of preference as determined by the economic analysis. This may be done on the basis of maximum net benefits over cost or total and incremental benefit cost ratios or rates of return. Tabulate the net benefits over costs for each alternative.

Step 2: Prepare Factor Profiles. Factor profiles are prepared from the viewpoint of each interest group showing the plan or project's impact on each relevant factor for that group. A factor profile is also prepared which shows the total or aggregate effect of each alternative over all communities and groups.

Step 3: Economic and Factor Profile Analysis. Compare alternatives on the basis of the economic analysis and the factor profiles. Eliminate from the set of feasible alternatives any alternative which is dominated by another from the standpoint of both the economic analysis and the factor profile. One alternative strictly dominates another if all percentage values of the factor profile of that alternative are greater than that of the other. This implies that there are no cross-overs in the lines of the factor profiles for the two.



Figuer 5-3: Analysis of Alternatives

Step 4: Paired Comparisons of Alternatives. Paired comparisons are made for each viewpoint on the basis of the incremental differences in community effects from the factor profiles, and comparing these with the incremental differences in costs from the economic analysis. Any two alternatives can be paired, but a reasonable beginning would be to pair one of the alternatives having a good factor profile with the preferred alternative from the economic analysis.

(a) Determine the differences between the alternatives for the community and environmental factors, and compare the increments of values gained with the increments of values lost.

(b) State a preference between the two alternatives based on the importance to the decision makers of the tradeoffs among the factors.

(c) Check the preference statement against the ranking from the economic analysis. This resolves the question, "Is the alternative preferred in (b) also superior from the standpoint of the economic analysis?" If the answer is "yes" then the preferred alternatives is paired with the next alternative selected for analysis. If "no," then the analysis proceeds to (d).

(d) Test the differences in community and environmental factors against the excess of costs over benefits. The decision maker is asking the question, "Are the gains in these factors worth the additional incremental costs of this alternative?" If the answer is "yes" the alternative of higher cost is preferred because of its higher community and environmental benefits. Otherwise, the alternative preferred from the economic analysis is selected and paired against the next alternative for analysis.

Step 5: Continue Paired Comparison Procedure. The procedure (a) through (d) is continued until all feasible alternatives have been included in comparisons. The paired comparisons among the feasible alternatives produce a preferred alternative, and also a preference ranking among all alternatives for each viewpoint if this is desired.

The only constraint imposed on the decision makers in the paired comparisons is that preferences among alternatives must be transitive, i.e., if A is preferred to B, and B is preferred to C, then A is preferred to C. This insures that preferences and decisions are consistent with previous ones, and that the final ranking of alternatives reflects the decision makers' true preferences.

In sum, the purpose of the factor profiles and the procedure for analysis is to help the decision maker apply the two basic principles of decision making: (1) to separate economic effects measurable in dollar values from other consequences, and (2) to compare the differences in alternatives in making decisions. The factor profiles and the method of analysis offer both a visual aid and a systematic procedure for implementing these principles. The construction of the factor profiles does not imply that the area under the curves can be integrated, or the percentage values of factors can be added in order to make a decision.

c. An Example Application. Consider four proposed flood control alternatives with the relevant community and environmental impact factors and corresponding factor profiles depicted in Figure 5-2. The economic analysis in Table 5-2 provides the following information:

Table 5-2: Economic Analysis of Flood Control Alternatives

Item	Alternative $ (in thousands) 1	2	3	4
Annual Cost	650	750	850	700
Annual Average Savings in Flood Damages	1,000	1,200	1,150	1,000
Net Benefits	350	450	300	300
Benefit-Cost Ratio	1.54	1.60	1.35	1.43

Incremental Analysis	Incremental Cost	Benefit	B/C Ratio	Increm. Net Bnft. (cost)
4 over 1	50	0	0	(50)
2 over 1	100	200	+2.0	100
3 over 1	200	150	+0.75	(50)
2 over 4	50	200	+4.0	150
3 over 4	150	150	+1.0	0
3 over 2	100	(50)	-0.5	(150)

The economic analysis indicates that alternative 2 is preferred, since it shows a benefit-cost ratio greater than 1 on the total investment and on all increments of investment. Alternative 1 ranks next, then 4 and 3 have equal desirability from an economic standpoint.

It must be recognized that the rankings given by this analysis can be changed substantially by changing the interest rate, with lower rates tending to favor higher capital investments. This example is based on an interest rate that reflects the minimum attractive rate of return for a particular planning agency.

In examining the factor profiles, we find that the profile of alternate 4 dominates both 1 and 3. Since 4 is equally attractive as 3 in the economic analysis, alternative 3 can be dropped on the basis of the dominance tests. For the first paired comparison, alternative 2, preferred from the economic analysis, is paired with 4, a dominant alternative from the factor profiles. In comparing the differences between these two alternatives, we find that alternative 2 provides 200 acres of developable land and saves 290 housing units and $.58 million in assessed valuation. On the other hand, alternative 4 increases the average recreational opportunities in the community by 500 user days and saves 25 parcels of industrial property and 2 community facilities. Let it then be assumed that the decision makers agree that alternative 4 is the more attractive of the two, based on the factor analysis tradeoffs.

However, in the economic analysis alternative 2 is preferred to 4 by $150,000 per year, so that additional comparison to the net benefits foregone must also be made. Here it should be noted that alternative 2 costs the agency that will build the project $50,000 more per year; on the other hand, flood damage costs are $200,000 per year less. It could be that the various groups would therefore weigh the economic consequences quite differently. Assuming that, even with the cost differences, alternative 4 is selected over 2, a similar comparison would be made between 4 and 1.

d. Summary. To summarize, the advantages of the factor analysis method of evaluation are as follows:

(1) It separates the direct money consequences from the community and environmental consequences so that they do not become confused in the analysis;

(2) In complex decision making where it is important to have more rather than less information on which to base the decisions, it provides a visual means by which to display the different factors relevant to making choices;

(3) It provides a means for comparing the incremental differences in environmental and community factors among alternatives, and contrasting them with the differences in economic costs or benefits;

(4) The analysis also provides for separation of viewpoints as well as an analysis of the overall impact. It shows the incidence of community effects upon community groups, brings out the points of agreement or disagreement among those groups, and serves as a mechanism in resolving those conflicts;

(5) Finally, factor identification and factor profiles can be a useful tool during the planning process (a) in defining the factors which are important to the community and community groups, (b) in establishing goals and objectives, (c) as a basis for discussion during the development of alternatives, and (d) as a means of evaluating and making decisions among alternatives.

Decision on Preferred Plan. The purpose of such approaches to presenting, evaluating, and discussing alternatives is to stabilize the planning process by converging a decision that is most acceptable to the broadest possible composite of interests in society. By separating out those factors that are relevant to each decision making group, and following the procedure for analysis from the flow diagram of Figure 5-3, a preference ranking of alternatives can be derived from each viewpoint. This would be the alternative in the best public interest. However, any

alternative will have consequences that produce a certain degree of conflict among various interest groups because of the incidence of costs and benefits. Where there are areas of disagreement, the factors responsible for such conflicts, and the reasons for them, can be pinpointed explicitly. Hence, in the stabilization phase, the analysis and discussion of alternatives can serve as a basis for negotiation and bargaining. In a political setting, to stabilize decisions which are as equitable as possible may require compensation of losers by the gainers. As part of our planning process in the future, careful study and consideration should be given to provisions which will allow communities and groups to make concessions and side payments, and adjust community and service district boundaries in order to equalize gains and losses. Such steps as these could do much to smooth the path to reasonable agreements among interests and insure stabilization of water resource development decisions.

After the period of informal evaluation, discussion and negotiation over alternatives, the stabilization phase should be closed by formally focusing on the decision to act, i.e., to select the alternative preferred by the members and interest groups of the social system. This may be accomplished by a survey of the interest groups, a referrendum on the issue, or petitions may be circulated. The most widely used and accepted, and likely the best, means of formal stabilization is still the public hearing. In any event, as Rogers (1970 points out:

> ". . . it is usually thought to be advantageous to have widespread participation by members of the system in the choice process. This is because satisfaction with a collective innovation-decision, and acceptance of it, is positively

related to the degree of participation of members of the social system in the decision.

"Why should members of a social system be more satisfied with, and accepting of, collective decision if they feel they are involved in making that decision?

"1. Through participation in the decision-making process, individual members learn that most others in the system also are willing to go along with the decision. So, participation is a means of revealing group consensus to the individual. If the individual member knows of group support for the decision, he is more likely to be satisfied with it himself.

"2. The decision, whether to accept or to reject, is likely to be more appropriate to the needs of the system's members if they take part in reaching such a decision. In most cases we would expect a system's members to know their own needs more accurately than would their leaders."

Achieving Terminal Relationships

Three important objectives should be satisfied by the terminal relationships developed with the community interests and groups as the last phase in a particular planning study. The first is to maintain the momentum and support achieved in the planning phase to insure allocation of resources and the implementation of the plan. Second is the monitoring of plan and project implementation during and after construction in order to correct any unforeseen negative consequences impinging on communities or groups. The third is to maintain informal "continuous" contact with local community leaders and groups to periodically evaluate project operation and correct deficiencies, and to exchange information and data which will contribute to the future assessment of problems and needs that may require new cooperative planning studies.

Ultimately, the terminal relation of every planning study should evolve into the Corps' assuming a continuous planning responsibility. Eventually, this should lead to a systematic accumulation of data and information with respect to water problems in the several Districts, so that those who are or ought to be concerned with water problems may develop a confidence and trust in the Corps' expertise, and seek out representatives of the Corps for assistance in defining water problems, in developing program alternatives, and ultimately in choosing courses of action. As Wengert (1969) points out:

> "Such an approach contrasts with the process outlined in the '18 steps' which assumes that the initiative lies with individuals or groups at the grass roots. This emphasis may have been appropriate when local interests could be defined in terms of simple responses to periodic floods (for which levees and flood walls seemed an adequate solution) or the desire for better water transport (for which dredging and channel improvement was considered the appropriate solution). And certainly no planning procedure or process should prevent individuals or groups from discussing their interests with District or Division employees or from contacting their Senators or Representatives as outlined in the '18 steps.' "
>
> "However, in contrast to the rather static conception of the '18 steps' which seem to assume that interest and problem identification occurs more-or-less automatically, continuous planning recognizes that interests and problem identification results from the combination of information and data in an interactive communication process. And it is in this context that the role of the Corps as the primary source of information and data on the status, problems and opportunities with respect to water resources planning, development, and management becomes dynamically significant. No other agency (local, state, or federal) has the field organization and the scope of responsibility and authority to fulfill this crucial role. But to reinforce its position in this regard, the Corps must rise above the limited and restricting conception of planning outlined in the '18 steps.' "

The network of contacts and the lines of communication established through public involvement in current and future planning studies if

properly maintained as a function of the terminal relationship will place the Corps in a natural position of continuous planning with state agencies, local communities and interest groups.

CHAPTER VI

SUMMARY AND CONCLUSIONS

Water resources development has many impacts, economic, social, and environmental, on its users, on the surrounding communities, and on the region and nation as a whole. Consequently numerous interest groups become involved in decisions on water projects. Decision makers at the state and federal levels must weigh monetary and non-monetary consequences as seen by the water resources planning agency and, in addition, must consider the interests and demands of other public bodies, organizations and individuals, before reaching their decisions. A similar weighing must be applied by decision makers at the local level before they approve or object to proposed plans. Hence, the water resources planning process is complicated and entails numerous decisions over time regarding location, design, environmental quality, financing and public policy. As a result, decisions are difficult, time consuming, and involve many value judgments.

Public controversies over water resource development and management exhibit the characteristics of ill-defined problems, such as complexity of issues and organization, multiple objectives, and a wide distribution of costs and benefits. Yet, despite the fact that much of the planning deals with ill-defined rather than well-defined problems, engineers

commonly use a deductive approach to planning, assuming a well-defined problem for which a systematic way to decide which proposal is best can be employed. To enable the engineer to better cope with the ill-defined aspects of water planning problems, this study presents planning as a process of social change: models are developed which offer him a range of choices in deciding the means of structuring a planning study. With this approach, three components of the planning process are identified and defined as follows:

1. The hierarchical structure of decisions. In water planning, this begins with the broad delineation of the study area's problems and needs and ends with a final combination of water management projects and programs.

2. The sequential structure of planning activities. These are divided into phases based on studies of planned change, which are:

   a. Developing the need for change,
   b. Establishing the change relationship,
   c. Working toward change,
   d. Stabilizing change, and
   e. Achieving a terminal relationship.

3. The institutional structure and participants in the process. These include agency planners, local officials and staffs, business and industrial firms, citizens, and other special interest groups.

Using these components, a number of possible planning procedures and institutional arrangements are explored at the critical points in the time sequence of the planning process, particularly for the initiation of studies, the planning period, and making the final decision.

During the planning period, the strategy used by the planners is particularly important. "Strategy" is a procedure, established in advance, which determines how, when, and to what depth various parties

will participate in the planning, evaluation, and decisions. Possible planning strategies include:

1. Strategy of information--the planner controls the study.

2. Information with feedback--planner controls with feedback from community groups.

3. The coordinator--planner contacts and coordinates with community groups.

4. The coordinator-catalyst--the planner stimulates interaction of community groups, e.g., by a planning workshop including all interested parties.

5. Community advocacy planning--an ombudsman represents community interests in planning.

6. Arbitrative planning--an independent party conducts public hearings and arbitrates differences on planning studies.

7. Plural planning--each interest group has its own planners, with final plans achieved through political processes.

The key to effective public participation in planning studies is to get state representatives, local communities and concerned citizens involved early in the planning and decision making process. To be effective, this approach must accomplish four major objectives:

1. Legitimization of the planning process. Before the Corps begins to develop plans, they should have the communities and concerned interests participate in establishing planning procedures and the approaches to be used during the planning process. This requires identification of concerned and influential local interests. Points requiring agreement to legitimize planning are:

a. The problems and needs that require study;
b. What individuals, agencies, or groups will participate;
c. The limits of the study area;
d. How the study will be made;
e. The authority of each participant;
f. How the study will be organized and conducted;

g. The means of involvement and interaction of participants;
h. Who will make the decisions; and
i. Some general goals and objectives for the study.

2. Community participation in planning. While the Corps has been moving toward more community contact in planning, broader community participation in planning is desired. Appropriate planning strategies encompassing a broad spectrum of community interests should be used in different phases of the planning study.

3. Get the community to iteratively define its goals.

4. Develop water resources plans that will augment other efforts to reach community goals.

Achievement of these objectives can be expedited by:

1. Maintaining continuous contact with communities in order to foresee when planning studies are needed, and

2. When a study is made, to perform the socio-economic and environmental studies early in the planning process to form a basis for community interaction and proper formulation of plans.

Development of effective community participation has the following implications for the Corps of Engineers:

1. Develop educational and research programs to give personnel a broader view of communities' problems.

2. Develop continuous interchange with local communities.

3. Assign and educate personnel to carry out the function of the planner as a coordinator and catalyst to develop community consensus.

The report also emphasizes the importance of social, environmental and community factors in water planning decisions and explores methods for describing, analyzing and presenting the principal variables to decision makers at all levels. Such a method for evaluating and presenting alternatives and obtaining preferences of community groups should help to stabilize the planning process. Since preference decisions are extremely complex and involve many variables, a step by step procedure which can both systematize and simplify the decision making process is also presented.

Correct decision making requires the application of two basic principles:

1. That decisions must be based on the differences among alternatives, and

2. That money consequences must be separated from consequences not reducible to money terms; then the irreducibles must be weighed against the money consequences as part of the decision making process.

In order to make the community and environmental effects more understandable, a graphical procedure called the factor profile is offered as a tool for analyzing them. The method of obtaining preferences is a series of paired comparisons using engineering economic analysis and factor profiles. In comparing two alternatives the incremental cost or benefit from the economic analysis is weighed against the differences in community and environmental impact between the alternatives as shown by the factor profiles. Since different attitudes and viewpoints will be present in the analysis, it is proposed that the comparisons can be made from the viewpoint of each group in the community. These preferences can then be considered in making the final decision.

The factor profile approach can also be a useful tool during the planning process in (a) defining factors important to community groups, (b) establishing goals, and (c) developing alternatives. It also offers a visual aid and a systematic procedure which could well eliminate much of the off-target discussion that usually accompanies water resource planning.

Water development can be an instrument for social change, and in the context of today's formulations of resources problems, the challenge to Corps' planners is to think about the Corps' responsibilities in such a framework, and not simply as responses to negatively defined problems. Corps' planners have an opportunity to assist in the definition and articulation of societal goals with respect to water, and to use their positions in the local communities for influencing decisions affecting the quality of life and improving the environment. The focus of planning must be shifted from end products like reports, studies, and projects, to structuring water development approaches and decision processes in such a way as to contribute on a <u>continuing</u> basis to the achievement of a broad range of societal goals.

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13 ABSTRACT

Public concern over the use of the nation's natural resources has led to increased citizen participation in the public works planning process. This report focuses on the development of water resources in relation to the role of the planner in communicating and interacting with the publics in planning. It describes the institutional and behavioral aspects of planning as a process of social change, offers a descriptive model of the planning process, and with this as a framework discusses methods and approaches for developing public participation in planning studies. Six public participation program objectives are set forth to guide the organization of citizen involvement in planning studies. Initially, the planners should identify concerned local interests and establish working relationships with them in order to legitimize the study. A number of methods for working with the public are described, including information campaigns, sample surveys, group advocacy, informal contact with local interests, community workshops, citizens' committees, special task forces, public inquiries, and public hearings. The use of a factor profile is discussed as a method for presenting, discussing and evaluating the social, environmental and community effects, together with the economic effects of alternative planning proposals.

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