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AN ANALYSIS OF CONSERVATION AUTHORITY
DECISION MAKING AS TO THE ACQUISITION
AND DEVELOPMENT OF OPEN SPACE RESOURCES

by

James C. Johnston

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES
IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF
MASTER OF ARTS

WILFRID LAURIER UNIVERSITY
WATERLOO ONTARIO

1976

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A C K N O W L E D G E M E N T S

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James C. Johnston

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I N T R O D U C T I O N

INTRODUCTION

STATEMENT OF THE PROBLEM

The management of natural resources, whether for aesthetic and recreational value or for economic exploitation, has come to be regarded by a number of researchers as a study of a decision making process where optimal solutions regarding the manner, timing and allocation of resources are sought within the economic, political, social and institutional framework afforded by any given culture.¹ Such a view, by necessity, emphasises the methods and processes behind resource management decision making.

The economic point of view in resource management for the most part also subscribes to this view, believing that resource allocation decisions should be mindful of efficiency in resource use and cognizant of maximizing social benefit through optimal resource utilization.²

Decisions which involve appraisal and allocation of resources are considered all the more important since the finite nature of all resources is now more often fully perceived. Also, the vulnerability of the physical resource base to degradation and destruction, as a result of man's actions, has gained increased attention in recent years.³

Associated with this recent concern for the environment generally has been a growing awareness on the part of the populace, of the value of various natural resources for uses which traditionally

have not been considered important. As a result, the decision making theme becomes even more important as additional parts of the natural environment are recognized as resources which have to be allocated, acquired and managed. Termed "amenity resources" by some researchers, they are increasingly the focus of studies by geographers, economists, political scientists and other social and natural scientists who view their management and control as important topics of research.

These "amenity resources", like the more traditional varieties, are also subject to pressure for use, often of a conflicting nature, must be allocated in a wise and judicious manner and are subject to various demands, some of which could destroy the quality and value of the resource and render it virtually useless. It is evident, when the new resources are considered in this light, that decision making is an important concept if man is to derive maximum benefit from them and in such a way that destructive interactions are avoided and man's impact on the landscape is minimized.

The use of the resource base to support recreational activities is one of the important recent social phenomena which relates to this new perception of amenity resources. Spurred by rising discretionary income, greater mobility, and greater amounts of leisure time, modern man has increased his demand for recreational facilities at a substantial rate.⁴

This upsurge in the demand for recreation has been accompanied by an increase in the amount of natural resources that are used to support recreation. Outdoor recreation as an activity is now an intensive

user of the natural resource base as a result of this increased demand for recreation. Consequently, the acquisition and management of recreational resources is directly tied to the resource management decision making theme. Moreover, recreational resources, unlike other resources, are often acquired by government agencies so management and development can be more closely controlled and the public good more effectively served. As such, acquisition must be considered as a management procedure when discussing recreational resources and the land acquisition procedure therefore takes on special significance as a decision making process.

The decision making theme in the recreational resources field is well developed in terms of micro studies dealing with designation and development decisions on an individual park level. However, little research has been carried out into the large scale decision making operation as a procedure or process for selecting and acquiring land parcels for recreational use. Research into small scale decision making methods, while of value, is reduced in effectiveness because the dynamics of the larger decision making procedure are often not understood. This larger process, however, provides the context in which the smaller decisions are made and knowledge of its operation is essential if small scale decisions are to be made judiciously. Moreover, research examining large scale decision making as a process "is significant in that it attempts to relate and assess the totality of forces in operation and aids the understanding of the processes involved in the spatial variation of phenomena on the landscape".⁵

The decision making procedure as a management process is also important from a research perspective because of the nature of the majority of resource management agencies. Resource management is an activity that is usually the responsibility of government agencies. Many of these have characteristics which are not conducive to efficiency and productivity. Others have limitations causing decision makers to lose touch with one another and other parts of the organization. Outcomes, as a consequence, may be less than optimal with the management operation becoming less effective as a result. The Conservation Authority Branch of the Ontario Ministry of Natural Resources, because of its origin and organization suffers from the problems that afflict all resource management agencies.

The Conservation Authorities are unusual in that the decision making organization is composed of distinctive levels each one responsible to a different group or other agency. Decisions are initiated at the lowest level of the organization and are considered by the highest level in the organization last, which is a reversal of the normal pattern of resource management agency decision making.

When an initial decision to acquire land is made by an individual authority it requires action by the other two levels in the decision making organization. However, the terms of reference that the individual authorities use in deciding on projects and acquisitions; the participants in the decision making operation; the context or situation in which the decision is made; the information

that decision makers at all levels of the hierarchy use in making judgments; the process whereby decisions are actually arrived at, and the organization that exists within the agency are factors that vary from authority to authority. This diversity complicates the resource management process.

The dynamics of the decision making procedure are interesting from a research perspective and the opportunity exists to propose more effective arrangements for decision making to overcome some of the deficiencies inherent in the present decision making operation. Preliminary research also indicates that the existing procedure, because of inherent problems, may neglect a rigorous examination of the proposed recreational land acquisition and viable alternatives may not always be considered. This state of affairs may also cause difficulties in subsequent review of the decision by higher levels, since the dynamics of the decision making operation as a process are not explicit and consequently may not be clearly articulated to the office or official reviewing the decision.

This lack of an identifiable, common and systematic decision making process or framework can lead to inefficient or less than optimal resource utilization. Some projects or acquisitions may possibly be undertaken which are not desirable in overall terms while other projects using the resources more optimally may not be approved.

It is the purpose of this thesis to review and critically examine the existing decision making process in five Conservation Authorities in Southern Ontario so that the dynamics of the procedure as a management process can be made explicit and its merits and

shortcomings assessed.

The assessment will provide a basis for construction of an altered land acquisition process where methods and procedures are consistent and systematic, responsibilities of various participants are explicit and overall efficiency of the decision making process as a resource management operation is improved. This system would be a common decision making process and could be used as a procedural guideline.

PURPOSE OF THE STUDY

The objectives of the study are three in number: firstly, to critically examine the present decision making operation noting its merits as well as its limitations; secondly, to propose modifications that will simplify the process, making it more rigorous and reducing the severity or eliminating shortcomings in the present procedure; thirdly, to evaluate the proposed decision making process as a practical resource management operation.

These objectives are inclusive and embody numerous other goals which will be met in conducting the research to meet the three main objectives.

METHODOLOGY

At the outset, the literature dealing with public agency decision making on resource management issues is reviewed to provide a framework for the research. The conceptual framework that is developed, presents the decision making operation as a process having six main elements. The main elements identified are; the participants, the situation or environment,

the process, the information variable, the organization, and the outcome (Figure 1).

The six elements noted above are used in the second part of the methodology where the procedure by which the Conservation Authorities select land for purchase and acquire such properties is assessed.

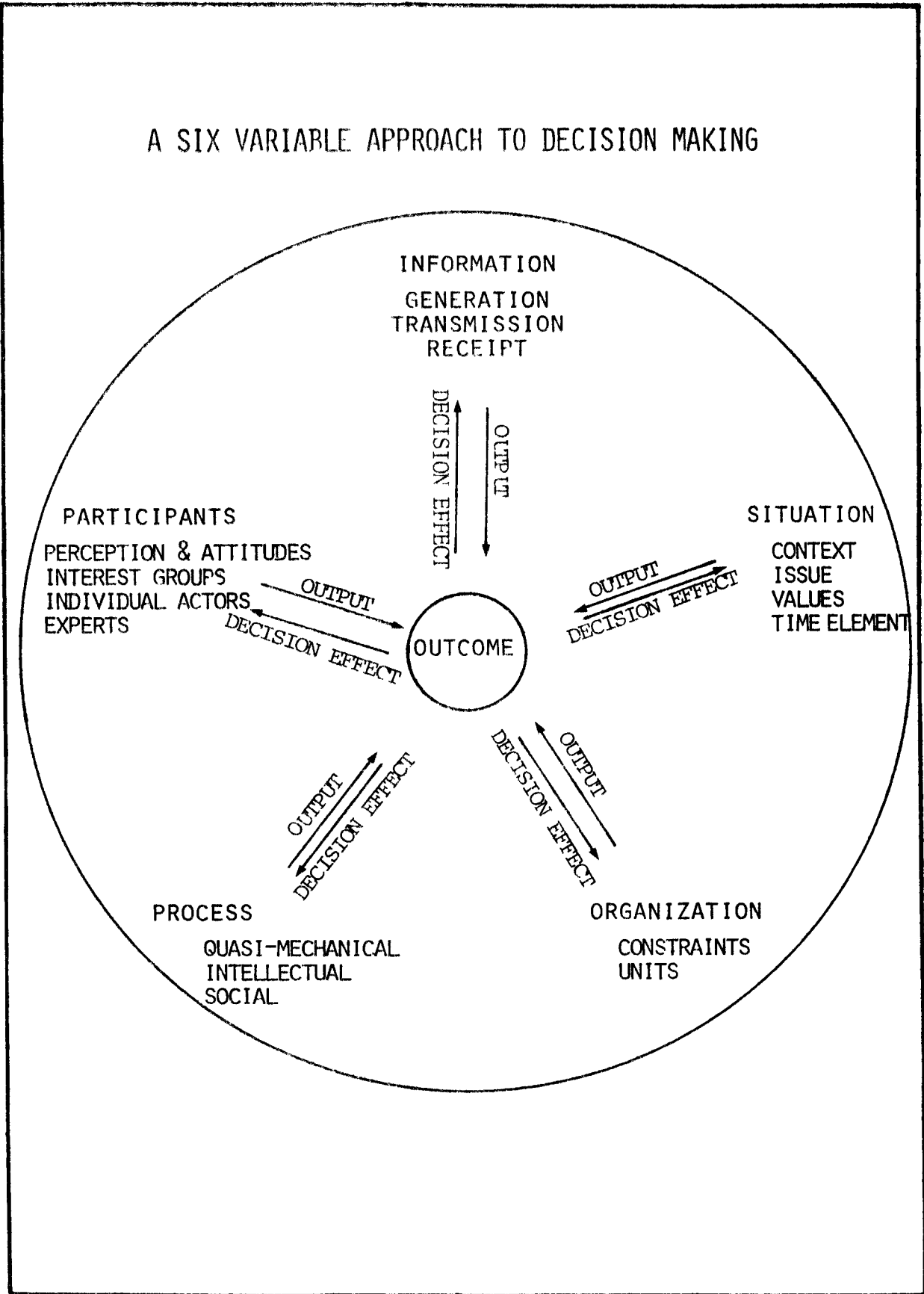
The Secretary --Treasurers and Resource Managers of the Ausable - Bayfield, Lower Trent Region, Otonabee Region and Saugeen Valley Conservation Authorities were questioned concerning the land acquisition procedure. Emphasis was put on the six main elements identified above in conducting the questioning. In the Grand River Conservation Authority, the General Manager and the staff of the resource planning division were interviewed.

To facilitate information gathering and to assure access to uncirculated documents, the Director of the Conservation Authorities Branch provided introductory letters, explaining the purpose of the interview. Interviews were arranged by telephone.

In addition to the interviews with professional staff, members of the executive and advisory boards of the individual authorities were also interviewed. All interviewing was done during June, July and August 1975. Twenty eight individuals were interviewed at length and fifteen more were consulted on a casual basis.

Due to the nature of the research, the interviews were not conducted by using a formalized procedure. The research framework, consisting of the elements of situation, organization, process, participants, information and outcome was explained to the interviewee and questions were posed in terms of the above six variables. Response to questions was good and individuals

A SIX VARIABLE APPROACH TO DECISION MAKING



Source: Author's Conceptualization

FIGURE 1

with different roles and perspectives were questioned to assure relative objectivity. Some of the individuals interviewed were only indirectly involved in land acquisition procedures. Others had roles that more directly involved them in acquisition of recreational land. Where these latter individuals made specific reference to particular land acquisitions, these were noted and followed up in document research. In addition to specific cases mentioned by those being interviewed, documents pertaining to recent decisions made by individual authorities were examined. The Southwestern, Central and Eastern Regional Conservation Authorities Program Supervisors were questioned about these land acquisition decisions and staff at the Conservation Authorities Branch head office in Toronto were also interviewed to obtain information on specific land acquisitions and land acquisition procedures generally.

When information on the decision making procedure was obtained it was noted according to its content and integrated with concepts drawn from literature research on public agency decision making. Chronic delays in decision making, duplication of roles, lack of systematic decision making, lack of communication between decision makers, similarity of decision making roles, problems in information availability and associated problems were established as limitations, in conjunction with officials at the Conservation Authorities Branch.

In summary, the methodology used in the first section of the thesis is hindsight evaluation. This methodology, although rigorous and widely used is subject to limitations. Firstly, there is an element of subjectivity in the methodology. When past decisions are being examined, actual occurrences may be different from what is recollected by the

individual being interviewed. This is a problem when obtaining information through interviews and the same difficulties are often experienced in reviewing documents that pertain to specific land acquisitions. Circumstances surrounding a particular decision may not be made known in the document and the researcher may inadvertently examine the particular decision in relative isolation from the events that surrounded it and had an influence on the outcome or the procedure by which the outcome was determined.

Despite limitations, hindsight evaluation must be the methodology used when noting how resource management agencies operate. When assessing man's collective interaction with the environment, research cannot proceed until the formal interaction is established and functioning. This set of circumstances by necessity, requires that hindsight evaluation be the methodology used to examine the land acquisition decision making procedure. A useful perspective on the resource management agency and its procedures is obtained by employing such an approach and the use of the technique is growing and gaining acceptance in the field.⁶

A new model for decision making is developed by firstly recognizing the positive attributes of the existing decision making process and retaining these to provide a basis for the model. Inputs are then formulated in terms of the six variables that have been used as a research framework when examining the existing decision making framework. These inputs are designed to remove major shortcomings in the existing method of deciding on land acquisition.

When the inputs were formally expressed in model form, the model was presented to individuals at the head office of the Conservation

Authorities Branch, at the Regional offices of the Ministry of Natural Resources and at the individual authorities. Their assessment provided an indication of the effectiveness and viability of the model.

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Inputs to the model are formulated by a number of methods. In some authorities examined, innovative and original solutions to problems in land acquisition have been developed and used successfully by the individual authority. Where these novel methods of decision making would solve common problems they are included as inputs to the model being developed. Concepts drawn from other sources that have proposed alternate methods for government decision making operations are also used as the basis for inputs to the model. The majority of inputs to the model were in the form of proposals put forward in response to obvious problems in the existing land acquisition procedure. These hypothesis type inputs are made on the basis of previous research and subject to approval by the professional staff mentioned above.

The last part of the methodology, illustrative in nature, describes how a decision would be made using the proposed system, identifying the limitations in the original decision making procedure that are absent in the proposed system.

GEOGRAPHICAL PERSPECTIVES ON THE RESEARCH

Whatever definition of their subject geographers adopt, it is unlikely that many would challenge the view that geography is concerned with man's use of the earth's resources. Geographers have investigated many aspects of the use of resources throughout the world. Until recently, however, the concept of management of such resources has been only implicit

in the geographers' approach, and management and husbandry of resources has not been a major component of geographic research.

The lack of concern with management is understandable, for the traditional task of geography has been to focus on the visible expression of use in the landscape. The main thrusts of geographic research have dealt with man as a user of resources as opposed to as a manager of the natural environment.

Furthermore, there has been some reluctance on the part of resource managers, most often government agencies, to reveal the basis of their decision making and management procedures, making study difficult.

Most recent research in geography has not focussed on the major themes of resource management but a number of geographers believe these are important and have recommended that emphasis be placed on the study of man's relationship to and management of the natural environment. In particular, they have suggested that more geographic research examine the decision making theme.

Gilbert White, for example, one of the acknowledged leaders in the man—land tradition of geography claimed that "*the whole process of decision making as it goes on in ... government agencies deserves much more attention*".⁷ His views have been echoed by Coppock, a British geographer who has lamented the lack of problem oriented research undertaken by geographers and has claimed that "*a concern with the processes of human interaction, particularly in respect of decision making, will powerfully assist a more effective geographic contribution*".⁸

O'Riordan also believes decision making must be taken as a principal theme in the study of geography and resource management specifically. He maintains "*that the geographer must assume a heightened*

degree of public responsibility and use his talents in the area of decision 14
making studies ... to help shape public policy in environment matters".⁹

O'Riordan also points out the value of research in decision making when he comments that: "studies of decision making in resource management are significant in that they attempt to relate and to assess the totality of forces in operation and aid the understanding of the process involved in the spatial variation of phenomena on the landscape".¹⁰

The interest in decision making expressed by these geographers seems justified for the decision making theme is central to the discipline. It is the process whereby man interacts with the environment and decides on the most appropriate course of action which will enable him to accomplish his goals whether they be exploitation, management or conservation. In some instances decisions are made by individuals or private groups but more often these decisions are made by governments or government agencies. Therefore, an essential element in understanding and evaluating environmental change is the decision, which links conceptually the before and after states of the environment.

A special part of man's relationship with the environment involves the pattern of location of various features on the landscape. The central concern is the method whereby man has organized himself in a spatial context, in terms of his needs and wants and within the limits dictated by the environment. In this regard, decision making is also an essential element, since to ask why certain patterns are observable or why a certain phenomena is found in a particular location one must examine the decisions which produced the spatial pattern.

Although man's relationship with the natural environment exists on an individual level, governments as representatives of the people are

the medium whereby interaction is most apparent. It is through decisions made by government agencies that man's collective preferences are defined and allocations and regulations made. Seen in this light decision making is a basic activity of government as well as a resource management operation and as such has implications for political geography.

THE STUDY AREA

Five Conservation Authorities are studied in carrying out the research. These are: The Grand River Conservation Authority; the Ausable-Bayfield Conservation Authority; the Saugeen Valley Conservation Authority; the Otonabee Region Conservation Authority; and the Lower Trent Region Conservation Authority (Figure 2).

These five authorities have been chosen for a number of reasons. Firstly, they represent a good mix of size; secondly, some are predominantly rural with low budgets, while others, specifically the Grand, are mainly composed of urban municipalities and as a result have higher operating budgets; thirdly, the geographical areas within which the authorities are located are distinctive and as a result different problems are faced by each of the authorities.

The length that the authority has been established is also a factor in selecting the five authorities for study. The Grand River and Ausable-Bayfield Authorities are among the first established while the others have existed for shorter periods of time. It was thought that the authorities that had been established for a longer period would have evolved different methods of dealing with land acquisition.

The circumstances of the research also influenced the selection of study sites. Access to uncirculated documents was required, to obtain

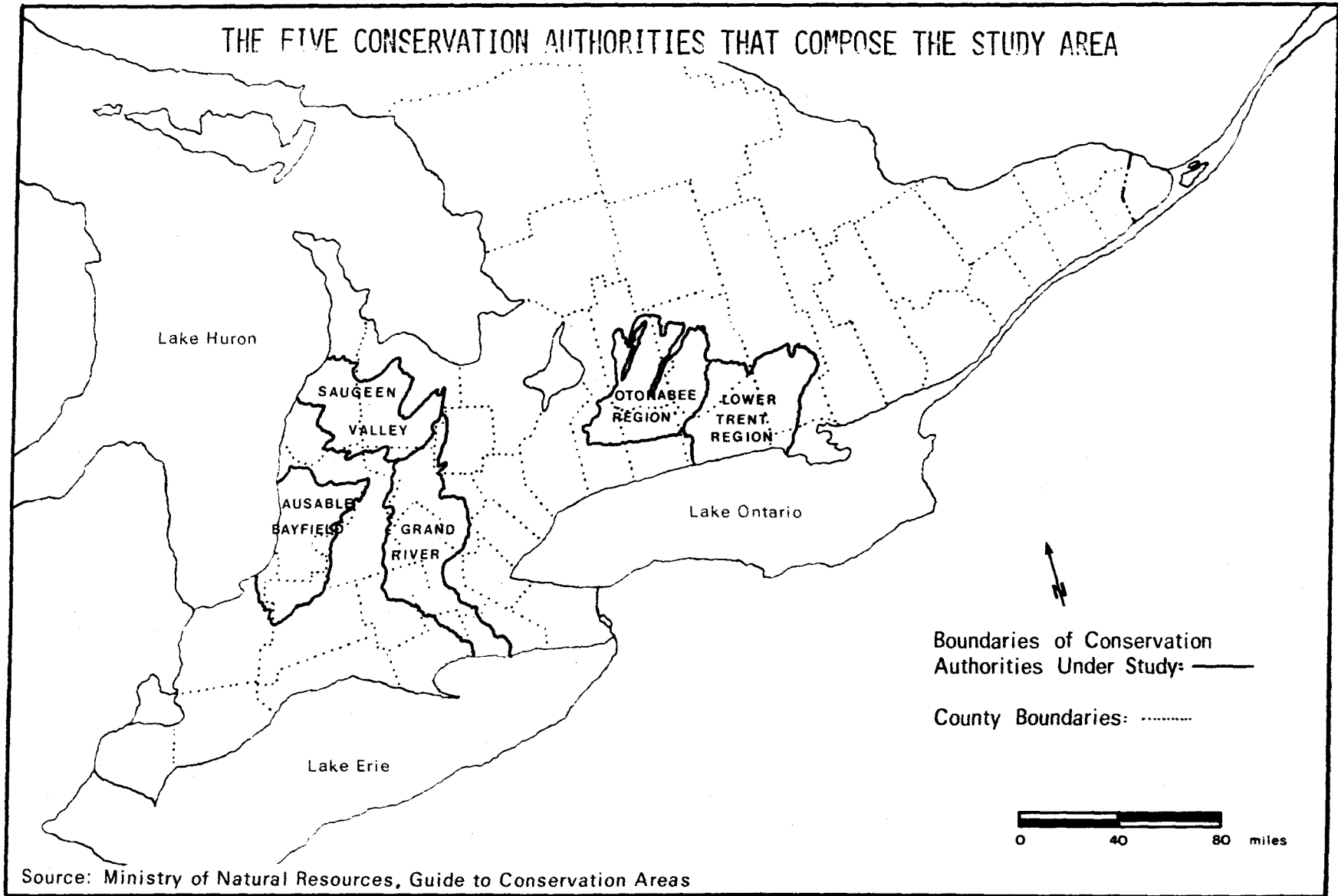


FIGURE 2 16

information for the thesis. As a consequence, the Conservation Authorities Branch dictated that the Ausable-Bayfield, Grand River, Lower Trent Region, Otonabee Region and Saugeen Valley Conservation Authorities be the five authorities examined.

A final reason for selecting the five authorities is due to the methodology used. Because of the reliance on interviews as a data source, the staffs of the authorities had to be knowledgeable and familiar with the operation of the authority. The above consideration was recognized by the Conservation Authorities Branch in designating the five authorities to be studied.

FORMAT

The research presented a number of options in terms of a format; however, a breakdown into four sections was judged to be most conducive to conceptual order and clarity.

Following this introduction, the literature as it pertains to decision making is reviewed. This literature review accomplished two things. It permits the present research to be put into perspective in terms of overall research in this area. Secondly, it provides a basis for developing and refining an approach to be used in analysing the existing decision making procedure.

The second part of the research, the analysis of the existing decision making process, is conducted in terms of the six variable model evolved by modifying the previous research in decision making. This chapter is broken down into divisions each one examining a particular part of the decision making operation of the authorities selected for study.

The third section of the thesis addresses itself to a proposed decision making system designed to improve the recreational land selection and acquisition operations of the Conservation Authorities. Chapter three presents an overview of the main characteristics of the system and chapter four provides greater detail and expands upon the various parts of the proposed system.

Following this stage, an examination of the system as a resource management procedure is conducted. In the final section, conclusions are reviewed and guidelines for further research are suggested.

This introduction has set the stage for the research in terms of approach and direction. It also has provided a formal statement of the problem, the methodology used in the thesis and has shown the relevance of the topic to geographical research. While this step is necessary and of value it is only one part of the task of placing the research in a broader context. A second part is the literature review which provides a basis for designing a method of assessment that is used throughout the rest of the thesis. As such, the literature figures prominently, in the methodology and it is this part of the research that is conducted in the following chapter.

F O O T N O T E S

INTRODUCTION

¹One of the main proponents of this view is T. O'Riordan. See T. O'Riordan, Perspectives on Resource Management (London: Pion Ltd., 1971), pp. 109-120.

²See A. Scott, Natural Resources: The Economics of Conservation (Toronto: University of Toronto Press, 1955).

³See, for example K.E. Boulding, "The Economics of the Coming Spaceship Earth", in Environmental Quality in a Growing Economy, ed. H. Jarrett (Baltimore: Johns Hopkins Press for Resources for the Future, 1966), pp. 3-14.

⁴These are the three main causes of increased interest in outdoor recreation which Clawson and Knetsch identify. See M. Clawson and J.L. Knetsch, The Economics of Outdoor Recreation (Baltimore: Johns Hopkins Press for Resources for the Future, 1974), pp. 93-112.

⁵O'Riordan, Perspectives on Resource Management, p. 119.

⁶See, for example, O'Riordan, Perspectives on Resource Management, p. 118, and H. E. Thomas, "The Role of Hindsight Evaluation", in International Geography, ed. W.P. Adams and F.M. Helleiner (Toronto: University of Toronto Press, 1972), pp. 1279-1281.

⁷G.F. White, "Needed Research" in Readings in Resource Management & Conservation, ed. I. Burton and R.W. Kates (Chicago: University of Chicago Press, 1965), p. 505.

⁸Terry Coppock, "Geographers and Conservation", Area 2 (No. 2, 1970): 25.

⁹O'Riordan, "New Conservation and Geography", Area 2
(No. 4, 1970): 35.

¹⁰O'Riordan, Perspectives on Resource Management, p. 119.

C H A P T E R 1

PUBLIC AGENCY DECISION MAKING:

A REVIEW OF THE LITERATURE

PUBLIC AGENCY DECISION MAKING:
A REVIEW OF THE LITERATURE

1. 1 INTRODUCTION

In the last several decades decision making has become a valid subject for academic research and a disparate and varied literature on the topic has developed since the end of World War Two. A number of disciplines have contributed to this body of literature, each one emphasizing different facets and each providing different perspectives on the topic. This chapter presents the concept of public agency decision making, discussing its relevance for resource management and evaluates the existing research concerned with public decision making pertaining to the management of natural resources.

On a superficial level the study of decision making seems so simple as to be unnecessary. Choosing among alternatives is a fundamental human activity and was regarded as nothing more until the advent of operations research during the mid 1940's as a response to the decision making demands of the Second World War. Researchers became interested in decision making and the topic is now the subject of much research.

To facilitate study of such a broad subject, researchers have divided the topic into three broad classes.

Some research is concerned with the tools or methods of the decision making act. Such research examines the development, evaluation and application of methods or techniques which can be used in making

decisions. Management science, operations research and such analytical devices as systems analysis, dynamic programming, input-output analysis and benefit-cost analysis exemplify work done in this sphere. Economics whose own norm is intended to be rational and which undertakes to be a science of rational action has made the major contributions in this general class.

The descriptive class of decision making studies has psychology and sociology as its main focus and its basic concern is the analysis of decision making. How do people go about making choices, and how are decisions made, are the questions being asked by researchers in the descriptive field of decision making. Such research may examine specific techniques such as input-output analysis but the focus is not on the technique but on the dynamics of the decision making procedure.

In addition to the descriptive and prescriptive studies of decisions, a nomothetic, academically oriented body of literature dealing with decision theory has evolved. Basically, decision theory pertains to the normative study of behavioral decision making and its concern is with prescribing how decisions should be made. Such research utilizes the concepts of utility and probability and consequently relies heavily on the work of mathematicians, statisticians, and economists who have been concerned with the theoretical discussion and exploration of these topics which provide the conceptual underpinnings of decision theory.

Decision theory may also be divided into two sections. The first is normative, dealing with the quality of the decision as an act; the second is behavioral, dealing with the action context, and the location of the actor in the system of action. The former tends to be subjective in focus, the latter objective or positivist.

Decision theory as well as being a separate body of research helps bridge the prescriptive and descriptive research area and combines the work done in these categories with the normative and behavioral. In effect, decision theory is concerned with preferences among alternatives (utility) and through probability, studies the likelihood of these preferences being realized. Operations research provides techniques by which these elements of the environment pertaining to the decision may be evaluated and organized whereas decision theory indicates how the information provided should be used in making choices. In reality, the studies of decision theory provide unity for the varied and large decision making literature.

In reviewing government decision making, the focus on decision making appears to become more narrow. Decision making in public agencies involves groups or collections of individuals whose purpose is to decide as a unit. As a result the concept of organization must be considered in addition to utility and probability. Consequently, a review of government decision making also involves an analysis of the process of decision making as well as the outcome from the decision making method.

The analysis of government decision making processes constitutes a sizeable body of literature by itself. Such research does not focus on results of the process specifically but rather deals with the procedure itself. The Economic Council of Canada for example devoted its eighth annual review to an assessment of methods used to determine funding for projects and investigated the existing decision making process utilized in federal government programs and agencies.¹ This document, prompted by the increasing role of government in everyday affairs, looked at new approaches to decision making, the evolution of systematic analysis

in government decisions and proposed a framework for government decision making. Specific government departments that had been using novel approaches to decision making were analyzed to determine the effectiveness of the new procedures and recommendations were made concerning adoption of new techniques for selecting strategies and allocating federal funds among competing programs and projects. Special reports concerning particular facets of government decision making procedures have also been prepared under the auspices of the Economic Council of Canada.

Some provincial governments have, as well, commissioned studies by certain departments or ministries to examine the decision making processes used in parts of the provincial government hierarchy and one report in Ontario has prompted a reorganization of the local governments to expedite more efficient decision making at the lower levels of government.² In 1960 a Royal Commission on Government Organization was convened to consider government decision making processes and make recommendations for their improvement.³ In 1969 the Government of Ontario decided that there was an urgent need to conduct a critical review of its organization and administrative processes. The Committee on Government Productivity was consequently appointed to examine the management process by which objectives and policies were arrived at and recommend realistic and practical ways by which the management by government can be improved.⁴

Private consulting firms have also conducted studies on decision making processes of city administrations in Western Canada and in Quebec.⁵

1.2 APPROACHES TO DECISION MAKING STUDIES

Concurrent with the increased interest in decision making has been a growth of perspectives and approaches developed to aid in studying

a wide and diverse topic. There has emerged from these studies no accepted overall framework or model which can be used to simulate the political agency decision making procedure. Instead, a large number of different conceptions, many interrelated, have appeared, each one applicable only to one aspect of the decision making method and each one reflecting the different orientation of the study from which it evolved. Each of these models has relevance for the purpose for which it was designed and is useful for understanding a particular aspect of the decision making procedure although such a limited use model does not serve to contribute to the general topic.

In addition to these micro analysis of decision making processes several large encompassing studies have been conducted which can provide an integrating framework in which to consider the various less inclusive studies.

The most comprehensive study, and one that lends itself easily to serving as an analytical framework for other research is that devised by Snyder Bruck and Sapin in 1954.⁶

Originally formulated to aid in the examination of political phenomena it can be modified to encompass virtually any decision making procedure. As initially presented it consists of a number of variable clusters which dealt with the selection of appropriate foreign policy. It has been modified in this case, with additional elements included and the variable clusters for purposes of this analysis consist of six elements listed under the general headings of organization, process, participants, situation, information and outcome.

The above six divisions are not made entirely arbitrarily. The interdependence among the six variable clusters is important since all

are essential elements of any decision and any process of choice, constitutes and functions as a unit. Any schema or framework is a breakdown to facilitate the study of the multitude of variables and the relationship between them.

With the above six groups as a framework, the literature and approaches to decision making will be examined.

1.3 PARTICIPANTS

Some recent research in the decision making field has been primarily concerned with the participants or actors involved in the decision making procedure.⁷ The concern is not with the role of the actor per se; rather it is with the way in which their functioning as individuals affects their role and the influence on the decision.

Three personality traits of decision makers may significantly alter the decision method and as such these warrant examination. First are personality characteristics including such variables as "propensity to assume high risk, intelligence and creativity".

These traits and others like them, appear to have connections with decision making styles and outcomes.⁸ The social backgrounds and experience of decision participants or political actors have also been identified as being important traits and thirdly, values of the decision makers, defined as relatively enduring orientations towards goals, are also important in analyzing decision actions.

Smith is the researcher responsible for formulating a model to include the decision makers as participants.⁹ Essentially he synthesizes the situational and participant variable clusters to show how the decision making behaviour is a function of both the environment that the decision is

made in as well as the actor's personality and predisposition toward the issue. Specific sections of Smith's framework are situational elements while others deal with the participant as a determinant of the decision. Smith maintains that his structure is a model and he emphasizes that it is not a theory that can be confirmed or disproven by testing deductions against evidence.¹⁰ As a model it is a useful device with which to deal with the participant in the decision procedure and it has been used by other researchers for this purpose.

Greenstein, for instance, has used Smith's framework to deal with single actors, with types of actors and with the effects of personality on political decision making systems.¹¹

Although the conceptual framework for analyzing the individual as a participant exists, it has been generally under utilized in resource management. Recent research however has devoted attention to the perceptions and attitudes of the participants in the area of research that Smith presents. This work is an extension of Gilbert White's work on human adjustment to floods or natural hazards.¹²

Saarinen has reviewed the literature in the perception field and O'Riordan also devotes attention to the same topic in his review.^{13, 14}

Despite the fact that most research has focussed on the attitudes and perceptions of the decision maker as an individual citizen, some work has been done concerning group attitudes and the way they affect decision procedures. This research is comparatively recent and the concepts that are examined were not included in Smith's framework which focussed on individual behaviour. Nelson, for instance, in a recent paper presents the decision makers as a myopic group obsessed with a particular ineffectual response to flooding along the Lake Erie shoreline.¹⁵ Perceptions and

attitude determine the responses selected, and Nelson et al attempt to account for them in terms of social environment/ personal bias variables as in Section Two of Smith's framework.

Craik has taken a different stance and studied the "environmental disposition" of public employees or experts both as administrators or as advisors to politicians, and Rein has examined the beliefs and values of these advisor types and noted their impact on the decision making process.^{16,17} Sewell used much the same approach in examining the attitudes and perceptions of two professional groups in B.C. He concluded that "views about man's relationship to nature" appear to have an important influence on perceptions and attitudes.¹⁸ In the same vein, MacIver has shown conclusively in his study of water supply alternatives in the Grand River Basin that a professional's attitude and perceptions are closely allied with the goals and operating procedures of the agency for which he works. He found that preferences for water supply alternatives varied closely with the occupation of the individual questioned.¹⁹ Other authors have used the psychological concept of cognitive dissonance to explain how individuals responsible for managing a resource can rationalize and harmonize conflicting actions and cognitions.^{20,21}

In summary, research concerning the participants in the decision procedure has focussed on attitudes and perceptions and the way these affect selection behavior. The object of most of this research has been the professional manager whereas politicians and elected officials have generally been neglected. Nor have studies discussed the decision makers as individuals or personalities although Kasperson touched on this topic in his discussion of the conflict between recreational and municipal use of water reservoirs in Massachusetts and O'Riordan has also mentioned

it briefly in his discussion of water management decisions in B.C.^{22,23}

Smith's framework provides a number of different perspectives from which to study the participant in the decision making procedure; however such studies have not been undertaken by researchers in resource management. Likewise, study of the individual actor or decision maker with great power has proven fruitful in other disciplines yet little work of this type has been conducted in resource management. In conclusion, the study of the participant or actor in the decision process would seem to be a largely unexplored yet promising area of research.

1.4 THE SITUATION

Recent interest in community decision making studies which attempt to correlate various environmental factors such as city size, age, location, etc. exemplify the importance attached to placing a decision in its environment or context.²⁴ Obviously the decision situation consists of a set of circumstances and as a result every decision situation is in a way unique. Despite this variability common groups of situational variables can be identified which can serve as perspectives from which to analyze the literature pertaining to the context of the decision.

Some researchers argue that environment is of prime importance in explaining a decision outcome and many authors believe that more in depth treatment must be given to the context out of which the decision issue grew. The origins of the issues cannot be isolated from the other variable clusters since the situation will influence the manner in which the decision makers perceive and deal with the problem.

Some studies have looked at the origin or context of the decision. Bolan, for example, in his study of decision making includes a variable

labelled socio-political environment and Rumley, too, has called for the recognition of the importance of context in political geographic studies.^{25,26}

Despite the treatment afforded the context or situational element by Bolan and Rumley, resource management studies are lacking in their treatment of the environment or political culture as an independent variable which may affect the decision outcome. O'Riordan and Kasperson focus only briefly on the position or characteristics of the municipalities in their studies of decision making at the municipal level, although the variables are important in determining what these municipalities can and cannot do. On a different scale, Richards, in his analysis of the effectiveness of ARDA as resource management legislation notes that the political and social climates in particular provinces lead to quick acceptance and implementation of the Act while in other provinces the administrators decided not to encourage ARDA's use.²⁷ Caplan, also focussing on a federal provincial resource management issue, concludes that the nature of the political environment was an important influence in shaping the decision outcome.²⁸

Other studies in resource management that deal with the issue context are those by McConnel, who maintains that individuals' decision to accept the conservation movement of the sixties was due to the political climate which pervaded during this time, while Hendee maintains that the context was altered by a shift in the philosophy of conservation.^{29,30}

Other researchers, when discussing the situation or context of a decision, have generally used three approaches. Kasperson, for example, drawing upon the work of the political scientist Easton, has characterized the issue as environmental stress (drought) which becomes articulated to

the resource manager who then takes action to reduce or alleviate it.^{31,32} This same paradigm has been used by Sewell and Wood and O'Riordan to study resource management issues in British Columbia although they fail to place the particular stress they are studying in context of other pressures which may cause the same response.^{33,34}

Ingram, in discussing the politics of water resources also deals with the issue in a different sense and concludes that the most important consideration in terms of the issue concerns who stands to gain or lose.³⁵

The "values at stake", the third perspective, is the context attribute which has received the most discussion in resource management studies. Some researchers have noted the changing values inherent in the adoption of the conservation movement of the 60's. Others have discussed the problems encountered in approaching environmental intangibles. Inherently, values play a large part in this study. Schiff, in his discussion, notes how a decision maker's personal values may affect the decision outcome.³⁶ In the situation he studied, decision makers were biased against recreational development and as a result ranked recreation low in their development decisions.

Although the concept of values is a general one, in terms of the decision situation, two dimensions emerge. Firstly, groups, and/or individuals may hold values which bring them into conflict which consequently demands a decision. Secondly, as McConnell and Bolan emphasize, there are values which underlie the context of the decision.

One situational concept that has been noted concerns the time available to the decision maker to respond and the degree to which the

situation is anticipated. Kasper's stress variables come into play in this context and Nelson's discussion of Great Lakes flooding, points out how decisions made during a crisis situation, where time is of the essence, can often result in less than optimal choices with little consideration given to efficiency or unique or novel responses.³⁷ Clearly, time is an important situational variable which can often significantly affect a decision outcome yet its discussion has not been widespread in the resource management literature.

In conclusion, the concept of values has received the most attention in resource management literature dealing with the decision context. The political circumstances surrounding the decision have not been examined as closely. Some workers have initiated research into these areas and the topic is well advanced in community decision making research and urban political studies. Students of resource management could devote more attention to this topic since resource management is closely tied to political structures and agencies and the context may often be a prime determinant in resource decisions.

1.5 ORGANIZATION

As was noted previously, the organization within which a decision is made is a primary characteristic of public agency decision making. Public decision makers are not only acting in their individual roles but also within a set of constraints and limitations which exist in the system within which they are operating.

In some cases decision emerge from the interaction of groups and these choices are determined and to some extent affect other decisions because of their relation to other units in the decision process. Some authors have suggested that roles in decision making organizations are aggregative in the sense that an individual has role, these individual roles can be aggregated into a unit which in turn has a role and these units may be further aggregated. Decision making hierarchies, often a characteristic of public agency decision making, may also be considered in this way.

A further division may be noted in government decision making organizations by focussing on the distinction between executive decisions, administrative or bureaucratic decisions and of prime importance in resource management, judicial decisions. Executive decisions, made on the basis of judicial decisions, are most important since policies, regulations and allocations are made at this level while administrative decisions concern the enforcement or application of natural resource management policies. Both the administrative and executive branches do, however, consist of units and roles and three groups within the framework can be distinguished. Since the line between executive and administrative branches in the natural resources sector is sometimes hazy, it is opportune to examine the activities of the three groups in the decision making process generally rather than analyze the actions of the three in executive and administrative decision making separately. Interest groups have recently become one of the most important influences in natural resource decisions. These groups are

collective organizations with common goals, interests or activity and they function as protectors of their interest. Wengert emphasized the role of interest groups in the "political struggle" and most of the resource decision literature accepts the pluralistic perspective and the central role of interest groups in representing the concerned public sector.³⁸

Dittmer, in a local study investigated the role of the Federation of Ontario Naturalists, the Algonquin Wildlands league and the Ontario Deer Preservation Committee, and the affect that they had on the government decision making process. He proposed a model to show the interaction of the interest group with the ongoing government decision making process and determined that interest groups are influential and successful bodies and tend to bring alternatives or options to the attention of the decision makers which otherwise would be ignored.³⁹

Other researchers, who equate power with numbers of individuals involved, have calculated the percentage of the population that interest groups represent. Hendee estimated that 1% of the population was involved and O'Riordan concluded that 12% of the population belonged to an interest group, in his study of water resource decisions in B.C.^{40,41} In his examination of a contentious water resource allocation decision in Brockton Massachusetts, Kasperson concluded that 4% of the population was involved in an interest group.⁴²

Research has also been undertaken concerning the motivation of interest groups. Private actors, have been identified as those who are involved to protect their own interests; ideological actors are committed because of a moral concern over conservation and civic actors are interested

in community matters. Hendee on the other hand recognizes only two groups.⁴³ Expressive groups, which may be seen as civic and ideological actors in Kasperson's scheme, are policy oriented, and pursue activities to protect their own interests. Instrumental groups, or private actors under Kasperson's categorization, are issue oriented and pursue activities as a means for achieving some goal.

Increased concern with public participation in resource management decision making has also focussed attention on interest groups. Kasperson has reviewed this literature from an advocacy viewpoint as has Arnstein.⁴⁴ Burke views public participation in decision making from an administrator's viewpoint while Von Tril presents a matrix for viewing the public in the decision making operation.^{45,46}

Although resource management writers agree that more public participation should take place in resource decision making they have yet to integrate this component into the existing ongoing decision making process. Wengert outlines four theoretical approaches to include the public in decisions but these have resulted in no practical application.⁴⁷ Associated with this concept is the principle of the public interest. This term has long been employed as a catchall especially in natural resource economics with little thought concerning its actual definition. Even though it has been addressed by various researchers, the public interest is an elusive definition. It has been suggested that the public interest cannot be served in resource decisions since various factions exist within society which defeat efforts at decision making for the public interest since, to some citizens, decisions will always be to their disadvantage.

Experts or advisors, like interest groups, have recently become an important part of the public agency decision making procedure. Despite disagreement as to what constitutes an expert in the natural resource field, and what characterizes such an individual, there is little doubt that the "input of sophisticated technical advice seems to be increasingly necessary as many policy problems appear to require extremely specialized knowledge for their analysis."⁴⁸ Sewell also notes public agencies' growing dependence on experts.⁴⁹ The role of experts in influencing decisions and providing information on which decisions are made in both the U.S. and Canada is well documented and few decisions of any importance are now made without consultant inputs.⁵⁰ Advisors or experts are also important components of the decision making process in an organizational sense and often function as more than professionals, well versed in some specialty. Advisors providing information for political decision makers are often the administrators who will be called upon to execute and enforce a decision. Marshall has noted how organizations continually try to expand since this adds prestige and power.⁵¹ Thus, advisory contributions will often be supportive of the growth of the agency with the actual decision or information relegated to a less important role. Cost-benefit analysis has been used to this end and in a sense experts become less advisors than articulators of interest.⁵²

An obvious group in public agency decision making are politicians since it is here that the final decision making authority lies in almost all agencies. Particular politicians, when members of large executive bodies, often become specialists. An adjunct to this point is an institu-

tionalized device such as a legislative committee which is responsible for assessing proposed legislation and considerable attention has been devoted to the work of such committees.⁵³ In a local government situation, Kasperson's work has discussed the managerial role of elected public officials in natural resources management. Often the official's elected role and the managerial role are not compatible -- a conflict which leads to complications in his decision making capacity.⁵⁴

Despite their lesser importance much effort has been directed toward the description, analysis and evaluation of administrative decision organizations in resource management. Much of the work is prescriptive in nature and attempts have been made to outline more effective administrative organizational structures. A prime shortcoming in this area that has been delimited by several studies, is the compartmentalization of the governmental administration of resources.⁵⁵

Empirical research on the administration of water resources in Wisconsin has been carried out by Ranney.⁵⁶ He outlines responsibilities of various groups and individuals in decision making.

Considerable discussion has also been devoted to intergovernmental resource administrative arrangements including interstate plans and commissions and international arrangements for natural resource management.

Analysis of the political and administrative structure of the resource management decision making process has been extensive both through academic research and through public inquiry. This review of the organization variables in resource management decision making is far from comprehensive

for almost all studies contain some reference to organizational variables. Stress has been placed on division of the decision making units into politicians, experts and interest groups and through the interaction of these groups a decision results.

Interaction introduces the concept of time and in a decisional setting denotes the concept of process which is examined in the next section.

1.6 PROCESS

Resource management as a study, has like a number of other disciplines, attempted to find the main model or process used in choosing management strategies. In effect the process of decision making constitutes the "how" of making decisions and consequently a large number of variables are operative in the decision process. It is inevitable therefore that attempts at classification of decision processes should meet with only limited success.

Maass, for example, long a critic of public agency decision making processes, has devised a model which focusses on progressive levels of responsibility in decision making.⁵⁷ He visualizes four concentric circles, each one representing certain procedures in the decision process and each one dependent on the previous circle.

The outer circle is representative of the public, whose duty it is to initiate the selection procedure. The public must therefore be aware and must actively participate in order for the model to work since they are in a fundamental position on which all other parts of the decision making process depend.

The premise is in fact a limitation of the model since some authors have found that attributes of human nature often prevent public participation which limits the capability of Maass' model to simulate the decision making process in the real world.⁵⁸

O'Riordan, who was critical of Maass' model, has incorporated the idea of the group struggle into his model. He envisages a conservation action group becoming aware of a problem and articulating it to administrative or political decision makers.⁵⁹ As was pointed out in considering the organization of decision making, the total good will not be served by this decision no matter what the choice. The resulting clamour by other citizens causes a reconsideration by the decision maker and in most cases a modification of the original decision. O'Riordan's model fits well into the limited cases he discusses and his model is similar to that one developed by Wolpert which lends it some credibility.⁶⁰

Kasperson, on a different scale, proposes a model with which to consider the decision making procedure on a municipal level.⁶¹ He views the decision in terms of stress or pressure and the decision makers' perception and evaluation of this stress is an important determinant of the final outcome. This work is a modification of Easton's work on pure political decision making and like Easton's work, emphasizes the decision environment. The politicians are the decision makers; therefore their evaluation of the environment is important and Kasperson's emphasis of this point seems valid. This is also in accordance with Snyder's work of 1958.⁶²

In review, O'Riordan's descriptive simulation focusses on the intellectual and social world of the decision maker while the work of Maass

is descriptive in nature and borders on the quasi-mechanical category of alternative selection. In the final analysis, all three are only partially successful at incorporating into a simulation, all the variables associated with the process of decision making.

The limitations of these refined models is representative of problems encountered by other researchers who have attempted to simulate the decision process in model form. This research, while of value, is disparate and other studies conducted may be grouped under three main categories which can be labelled as quasi-mechanical, social and intellectual processes. These divisions are broad enough to overcome many of the limitations associated with more specific models and analysis will proceed in terms of these categories.

When choice is made consistently on the basis of a specific method, then the decision process can be termed quasi-mechanical. Such a situation can exist when a group realizes that forces beyond their control will inevitably determine the outcome and often such decisions are made with relevant factors not considered.

Such a situation can exist when management controls for air and water pollution are decided upon. Vested interests in industry may routinely sway decision makers to impose controls which are realistic as far as the company is concerned but ineffecutal as management controls.⁶³ In such a case, decisions are beyond the effect of interest groups or those advocating stringent controls. In some cases quasi-mechanical decision making processes are used intentionally. In a hierarchial bureaucracy, for example, the existence of explicit formal procedures or frameworks can facilitate decisions,

especially those that must be made repeatedly. Much administrative decision making is therefore of this type.

Although quasi-mechanical decision processes can expedite efficiency, flexibility often suffers as a consequence, a limitation which can often offset the improved efficiency obtained through reliance on a quasi-mechanical process.

The social process, the second type, is operative in group decision making situations and exists where interaction is the dominant method by which decisions are arrived at. Whereas the quasi-mechanical process of decision making focusses on the routinization of making choices, the social process emphasizes a pluralistic setting in which interaction among groups is characteristic. The social processes of decision making include a variety of interaction, some positive and some negative, but both types essential to making a selection or choice.

In discussing water resource decisions, Ingram, for example, proposes a framework of five rules or guidelines for aiding the social decision making process.⁶⁴ These rules can be applied in selecting projects to be authorized and funded and are proposed to expedite the interaction among groups or individuals so that choices will be facilitated. Ingram's rules pertain to individual and group support of the project, the consensus of agreement that must be reached at each level of the social process, the interaction in terms of interference by the decision makers and the function of objective criteria in project selection. It is apparent that these guidelines all pertain to social interaction.

Other researchers have seen the social decision making process as essentially a bargaining procedure. Hagevik maintains that bargaining provides a rational approach to deciding on air pollution control measures and he contends that if a game theoretic approach to decision making, which he proposed, was used in an actual situation, controls for air pollution could be more successfully decided upon.⁶⁵

Holden also discusses bargaining in pollution control, though with an emphasis different from that of Hagevik.⁶⁶ He stresses that control is dependent on the consent of those being regulated and that such consent must be achieved through a bargaining procedure which induces the parties to acquiesce.

Ranney, in discussing water resource administration in Wisconsin, modified Holden's model and stressed that "since an agency is trying to balance a large number of competing demands and requests it must bargain with each user or affected group to gain maximum compliance."⁶⁷

Freeman, in an article in Natural Resource Journal also used the social decision making framework in his study of the advocacy process.⁶⁸ In this case, two interested parties attempt to influence a decision maker to follow a particular course of action. Freeman concludes that the usefulness of this view of the decision process is dependent upon the information provided and on the responsiveness of the decision making process to the interests of the public.

Disputes over environmental quality are usually studied from a social perspective as well, since invariably certain conservation action groups are posed against administrative decision makers and interact with

them in resolving the contentious issue.⁶⁹ Although research dealing with environmental quality issues reflects different approaches and objectives, all the studies in essence deal with social decision making processes.

A recent article concerning decision making in the natural resource sector maintains that research concerning natural resource decisions of the social genre has failed to give adequate consideration to the concept of power and its role in decision processes and outcomes.⁷⁰ The notion of power, for example, has been studied by political scientists but most studies in resource management analyze decisions in terms of the social relationship such as bargaining and accomodation and ignore the power stature of the actors involved. Much theoretical work has been done in this area but resource management decision studies still have not applied the nomothetic principles evolved by other disciplines to their work.

Social and quasi mechanical decision making processes account for a large percentage of actual decision making processes but another variey, the intellectual process of choice also is relevant especially in considering policy decisions. This is the analytic aspect of decision making which is performed by individual and group thought processes. Choices are decided upon by the decision maker by contemplating, analyzing, and discussing the information available with regard to any particular decision and the optimizing models of economics are illustrations of intellectual decision processes.

Much discussion has focussed on the intellectual processes involved in resource management decision making. The rational model of decision making outlined by Sewell is concerned with the intellectual process although

it requires some form of communication -- a social process.⁷¹ Sewell's intention in designing this model is to alter evaluation techniques in order to improve efficiency in decision making. The intellectual process involved in his model is further emphasized since only policy makers and planners are participants and no role is provided for the public or interest groups, as would be in a social process model.

The theme of intellectual process is also an underlying concept in White's well known work on the choice and use in resource management.⁷² He stresses the role of decision makers' perception of the range of possible choices and the influence this has on the final outcome. White also sees attitudes as prime determinants of decision outcomes. He delimits three attitudes which he believes are relevant to the decision makers' choices: the personal attitude of the decision maker, the opinions as to what others prefer, and thirdly the opinions as to what others should prefer. Intellectual considerations are therefore not confined to evaluation and measurement of the natural environment.

The role of the decision makers' perception or attitude, an intellectual faculty, also is emphasized by O'Riordan in his simple model of decision making.⁷³ Although uncomplicated, O'Riordan's model is nonetheless suitable for portraying the scope of the intellectual processes in decision making. It incorporates many of the elements that are presented in terms of stages or steps. The techniques of decision making, including cost benefit and systems analysis have also received attention from O'Riordan, Sewell, Marshall and Ingram since they are essentially intellectual processes of decision making with mechanical structures imposed to facilitate procedures.⁷⁴

Information or facts necessary for decision making, which can be regarded as intellectual material, has been the subject of Gregory's work in the U.K.⁷⁵ He showed how the facts of various issues were introduced, discussed and evaluated by decision makers and his work is of note as well since it shows the interdependence of three decision subprocesses.

Intellectual process involved in decision making is of significance since it is most often invoked by decision makers responsible for policy or high level directives. Subsequent administrative decisions are usually based on these policies and so policy decisions and consequently the intellectual process of decision making is all the more important.

Despite limitations and shortcomings it is apparent that students of resource management have focussed considerable attention on the decision making process since it is the most visible portion of the entire decision making procedure.

No matter what process is used by the decision maker he must have information to consider before a choice can be made. This element is a key factor in resource management studies since knowledge of the resource must be generated, transmitted to the decision maker, and considered before management strategies can be decided on. It is to this set of variables that we now turn.

1.7 INFORMATION

An essential element in decision making is the information that the decision maker must consider and act on. This set of variables was not

presented in Snyder, Bruck and Sapin's original conceptual framework but it is imperative that it be included when discussing the resource management decision making process. Information represents a very rudimentary level in the choice procedure and because of this, is particularly influential in altering the other parts of the process.

Three parts of the information element are salient: generation of information, transmission of information to the decision maker, and consideration given this information by the decision maker. Analysis will be conducted in terms of these three categories.

In obtaining information a number of methods have been used and some have been more actively utilized than others. Initially information was obtained through resource inventories, designed to provide information that was of use to the decision maker. The natural resource inventory has been a mainstay in natural resource planning for a number of years and techniques have ranged from simple checklists of natural resource quantity to refined assessments of quality and quantity from a systems perspective.

The primary value of good resource inventory data is to provide a portion of the facts needed for objective analysis of alternatives and to limit conflict in the decision making procedure to the main issue being considered.

The basic requirement that must be met is a data source that will supply information that will permit resource managers, policy makers and the public to evaluate the trade offs of alternative use of resources.

Although the inventory is still used as a data gathering device, research has altered the inventory from an examination of resource quantities

to a study that gives consideration to values of the different services that can be derived from the same resource and the relative change that specific resource use induces, which may preclude subsequent use of the resource for a different purpose.⁷⁶

Considered in this light, an inventory is not just a stocktaking operation but is an essential link in the evaluation of alternative resource decisions. The need for inventory data is consequently governed by the resource trade offs that must be evaluated and it must be continually upgraded over time as decisions and different trade offs are made by decision makers.

If this view is adopted, then the implication is that inventory data on some resources is not needed or is required at a lower level of precision, because only particular resources are relevant to the decision in a given situation. These perspectives are representative of the concepts that are now considered before resource inventories are undertaken and represent a radical departure from the old system of resource inventory.

Another method of data collection which has pertinence to the public agency decision making procedure is the environmental impact statement. This procedure has recently been recognized as a valid natural resource decision making tool and its formulation and implementation has advanced to a refined level.⁷⁷

In considering the information generated, one must not overlook the interest groups who often generate data themselves and articulate it to the decision maker in the form of a brief or petition. Although not all action groups function in this way there are a number that take advantage of the

provisions for public input in the decision making organization and regularly are part of the public decision making process.⁷⁸

Researchers have found that the perception of the decision and what is at stake affects what information is generated and transmitted by the interest group.⁷⁹ This assessment of what is at issue is a function of the goals and objectives of the group. Consequently, some groups are inevitably affected by decisions whereas others, with less inclusive purposes, become mobilized only on very specific issues.

Interest groups have also been found to react first and most strongly to what is perceived as an imminent and direct effect upon its interest and will react later and with lower order of effect to issues with an indirect and secondary impact. Again, this research accounts for the few interest groups that are consistently mobilized against a specific issue.⁸⁰ The ones that are most visible are the groups that have the widest area of interest and consequently perceive every decision as a potential threat to its interest.

Although the interest group may be mobilized, and information may be generated, the anticipated impact of information affects its transmission and its content. Organizations will only transmit to decision makers information that they believe will get a hearing and will be of some consequence in the decision. Again, research into this field explains the public visibility of some groups since information presented at a national decision making arena is more conspicuous and is more likely to be heeded by the decision maker than information presented at an initial and inconspicuous agency hearing.

A final consideration concerning the interest group as a generator of information pertains to the resources of the group and its ability to generate and transmit information to the decision makers. Obviously, groups with limited resources in terms of expertise, capital and support are less likely to figure prominently as sources of data than organizations with extensive resources and backing. Smaller groups, therefore, by necessity are not so vocal on national issues although they may be able to sway decisions on a local level because of their small but closely knit membership, whereas larger groups with widespread membership are unable to influence those decision makers.

Generation of data is obviously only a first step in the decision making procedure. Information is an element that must be transmitted to those responsible for the decision making and how it is considered when it is received, is also a matter for study. Often the receipt of data is influenced by the process group of elements since some processes facilitate the flow of information while others, specifically the quasi-mechanical type, lack interaction and communication and impede information transmission.

The decision maker may in fact also determine what data reaches him. Usually decisions which differ only incrementally from existing policies are chosen and as such decision makers focus on a limited number of alternatives and weigh only limited data in making choices.

Information in the form of feedback may also be determined by the decision maker himself since usually only the direct and immediate effects of the decision are considered by the policy maker. This behavior limits the information that he receives since data relating to long term effects or secondary impacts of his choice do not concern him and

consequently are not considered.⁸¹

Although the movement of information is often affected adversely by the decision maker himself there are certain situations when his biases facilitate information reaching him. The issue context, for example, affects what information the decision makers are receptive to. Information is sorted out and used in decision making on the basis of the actor's predisposition towards the issue and data which is non-supportive may not be diligently considered.⁸²

The source of information is likewise evaluated in terms of the decision maker's goals and interests. The decision maker is most apt to listen to information that is issued from sources that have been supportive or which provide data that is consistent with his initially formulated position on a particular decision issue.

As sources of supportive information are heeded so are groups or individuals who hold a threatening position over the decision maker. In short, the sources that the decision maker considers are those that he perceives as being relevant to the specific issue, whether they are supportive or threatening.

Movement of data to the decision maker may be facilitated or impeded because of the source but the content of the information is also significant to data transmission and can influence how the decision maker uses the information providing it reaches him. Obviously, participants in the decision process are most likely to put more weight on those views that support their stand than information that is adverse. It also has been determined in studies that decision makers are particularly receptive to

categories of information which justify and legitimize their decision making processes. Marshall stated, for example, that one of the principle uses of cost benefit analysis is "to clothe politically desirable projects in the leaf of economic responsibility."⁸³

It has been shown that information produced by the physical sciences is more likely to be used by a decision maker than data from social sciences since the former is of a hard nature and can be more easily justified than the data from the behavioral sciences.⁸⁴ This feature puts the decision maker in a less tenuous position since less interpretation is required and chances of conflict or disagreement are consequently reduced.

Characteristics of the decision maker also affect the information that is received. The background and experience of a decision maker screen his receptivity in favour of disciplines and facts with which he feels familiar and comfortable. Nelson, in a recently published study, showed how responses to flooding in a large part, were determined by those ultimately responsible for selecting management strategies to alleviate the problem.⁸⁵ Alternatives to overcome the resource management problem were not adequately considered by the resource managers and decisions were made in keeping with historical precedent and in keeping with the actors' predisposition toward agriculture.

The fact that the final decision was in the hands of individuals predisposed toward agricultural land use also meant that information on other responses was not likely to be considered since new information is likely to have its greatest impact early in the decision making procedure.⁸⁶

The information group of variables has been discussed in terms of generation of data, transmission to the decision maker and consideration given by the decision maker to the data of which he is aware.

In summary, resource inventories, although simple techniques, have been refined in recent research so they are logical and innovative and are more responsive to the needs of resource decision makers in many disciplines. The same is to a large extent true of environmental impact statements which have evolved to a high level of refinement in a brief period.

Despite improved methods of generating data for resource management decisions, one important problem exists in the dissemination of information from decision making agencies to public groups and individuals. This problem results from the agencies' reluctance to release information that it has used to make a choice, which often makes subsequent evaluation of previous decisions virtually impossible. This problem has been particularly acute in Canadian resource management agencies which, unlike their American counterparts, are often not required by legislation to release information to the public.⁸⁷ This same problem of access to information also exists

in the United Kingdom, where a belief in the sacredness of private property and a paternalistic attitude on the part of the government departments are long established features, so that decision makers of all kinds and at all levels show a general unwillingness to⁸⁸ reveal the basis of their decision making.

Research has shown that the interest group is not only a significant generator of information but also articulates its information to the decision

maker. Various factors account for the dynamics of the interest group as a participant in the information generation and transmission process, many of which also explain the behavior and functioning of the interest group as an element in the overall decision making procedure.

No matter what information is generated and transmitted, the data received and considered by the decision maker is the basis of the decision. Numerous characteristics of the decision maker, his environment and the issue govern how the individual and group actors consider the information and select a certain alternative. These characteristics have been covered in the literature and are reviewed in the foregoing assessment.

Generation of information by a number of sources, transmission to the decision maker and consideration by the decision maker result in an outcome and it is this important set of variables that is now assessed.

1.8 OUTCOME

In a conceptual sense, the outcome of the resource decision is as distinctive as the other variable clusters. Although the research in this area is not plentiful it has revealed three concepts relevant to the outcome cluster of variables; effect, outcome and output.⁸⁹

Outcome can be viewed as the final decision making process as a whole, while output is reserved to refer to the products of the various previously discussed subprocesses of decision making. The implementation of decision outcomes may be referred to as decision effects.

Although the outcome of the decision can be best understood by

analysis of these three concepts, few studies in resource management have utilized all of them. Instead, researchers have come to examine the decision outcome more from the effect perspective in recent years. Researchers are now concerned with the outcome of the decision process and its effect as well as with the procedure by which the outcome evolved.

Both O'Riordan and Sewell, in studies, call for more hindsight review and decision effect evaluation.⁹⁰ Often events that were to occur as a consequence of the decision fail to materialize and desired effects never are evident. Agencies, often fearful of the result of such hindsight review, are reluctant to undertake such studies even though decision making may be improved by research of this type. Despite these conditions, work of this genre has been undertaken by Canadian, British and American researchers.⁹¹ Some of these studies conducted in California are particularly encouraging since they have been undertaken not by academic critics, but by resource managers who are most likely to produce changes in future decisions.

1.9 CONCLUSIONS

Although any decision procedure forms a unit and functions as such, this review has examined the decision method in terms of six variable clusters: situation, participants, organizations, process, information and outcome. This breakdown allows each part of the decision system to be analyzed without losing sight of the decision itself as a conceptual unit.

From the studies reviewed it is apparent that resource management research, with its emphasis on man's adjustment to, and interaction with his environment, has recognized the importance of decision making as a vehicle for

the study of these themes. Resource management decision making studies have typically dealt with different aspects of these variable clusters individually and some have been more rigorously investigated than others.

Despite the fact that most studies in resource management deal with the individual parts of the decision making operation, some research deals with decision making as a unit. O'Riordan is one of the better known researchers who takes this perspective and Moore, in a recent review, also touches upon all the parts of the decision making operation.^{92,93} This approach is of equal, if not of more importance than research which focusses on individual components of the decision making procedure, since it emphasizes that the decision making operation, is in reality, one unit. Research which focusses on particular parts of the operation is revealing, but does not portray the dynamic and holistic characteristic of the decision making operation.

In turning attention to the focus of this study, which involves an analysis of a decision making procedure utilized by a public agency, one can examine all the variable clusters which have been examined to this point and retain a holistic perspective as well. The study takes the form of an analysis of the Conservation Authority decision making as to the allocation and priority of development of open space resources. Such an examination, to be thorough, must assess the multiplicity of elements which are determinants of the final outcome and in this way all the clusters which have been discussed enter into this study.

Previous work provides a solid base on which to build the effort. To some extent, however, a very uneven consideration of resource management

decision making as a whole has resulted because of the micro focus of many of these studies. For the most part, the relationships between the variables, and their consideration as a whole has not been focussed upon.

Such an emphasis is important however, since it pertains to the method whereby the government alters the natural environment. Through examination of the decision process of five Conservation Authorities the study should provide a holistic perspective on the individual elements of the decision procedure, as well as the decision process as a management process (Figure 1). By examining the decision making procedure this way the individual functioning units of this decision process may be more clearly seen such that shortcomings in the present method may be observed and recommendations made to improve the decision making procedure of the authorities.

FOOTNOTES

CHAPTER ONE

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C H A P T E R 2

ANALYSIS OF EXISTING CONSERVATION AUTHORITIES

DECISION MAKING PROCEDURES

ANALYSIS OF EXISTING CONSERVATION AUTHORITIES DECISION MAKING PROCEDURES

2.1 METHOD OF ASSESSMENT

The main purpose of this chapter of the thesis is to analyse the procedure presently used by the Ausable-Bayfield, Grand River, Lower Trent Region, Otonabee Region and Saugeen Valley Conservation Authorities to acquire recreational land. Assessment of the land acquisition procedure used by the above five authorities is undertaken to provide a description of the process of making decisions. The process itself is being analysed since questionable decisions have been made in the past. Also, faults in the existing decision making procedure often result in decisions being delayed. Finally, there has been an officially recognized need for a reassessment of land acquisition methods used by the authorities.

Preliminary research indicates that delays in land acquisition are often serious and in some cases, information is gathered, recommendations are formulated but a decision is never made. In the Ausable-Bayfield Conservation Authority, for example, resource inventories were initially conducted during July and August 1972 and specific sites recommended for acquisition. Although three years had elapsed when the decision making procedure of the Ausable-Bayfield Conservation Authority was assessed, no final decision had been made on the initial recommendations for acquisition. As a consequence of the above mentioned delays, the resource inventories that were conducted in 1972 were duplicated in 1975. This duplication became necessary because conditions that existed when the first recommendations were made had changed, making

the original recommendations irrelevant.

The limitations of the present system are also evident in decisions made in authorities other than those selected for close examination. In the South Lake Simcoe Conservation Authority, land acquisition decisions in a particular area were made on an individual lot basis even though a large area had been slated for acquisition by the authority. The acquisition of land piecemeal, increases the bureaucracy, allows land prices to rise, increases expenditures and hinders long range planning. Other examples of similar problems are numerous. In the St. Clair Region Conservation Authority, resource inventories were conducted during July and August 1974 and recommendations made for land acquisition. In March 1975, a consultant was hired to duplicate the exact work that was completed in July and August 1974. The individual responsible for the field surveys undertaken in July and August 1974 was not contacted when the contract was let although he was aware that previous research had already recommended specific sites for acquisition by the authority. Obviously, the above three examples are manifestations of limitations of the present procedure for acquiring recreational land.

The first reason for examining the decision making process is to determine what characteristics of the present land acquisition procedure caused the problems enumerated above and others like them to occur. Only by understanding the characteristics of the decision making procedure can the faults in the existing method of acquiring land be identified.

Although, the limitations of the land acquisition procedure are not always so obvious as in the cases mentioned above, the shortcomings

of the present land acquisition procedure have been recognized. In 1972 government reorganization resulted in the Conservation Authorities Branch being included in the Ministry of Natural Resources. The Conservation Authorities Task Force, composed of advisors from the Conservation Authorities Branch and individual Authority Chairmen, recommended at that time that: "the Conservation Authorities, in cooperation with the Ministry of Natural Resources review the existing administrative procedures regarding the acquisition of lands by the authorities and that procedures be simplified to facilitate acquisition".¹

Dissatisfaction has also recently been expressed orally by professionals involved in Conservation Authority recreational land acquisition. Their dissatisfaction is centred around the lack of a systematic terms of reference that provides direction for land acquisitions. The lack of a procedural guideline results in each level of the decision making organization operating in isolation. The lack of communication is frustrating to decision makers and result in decisions which are made without adequate inputs.

The five authorities being examined, like the other thirty three, in the Province have as their purpose, integrated resource management within a particular watershed.² Since the Conservation Authorities have multiple purpose objectives, choices to acquire land are not the only decisions made by the authority. Decisions are also made on soil and water Conservation projects, on issues pertaining to forestry and land use. However, recreational land acquisitions lend themselves to study since they are carried out in a consistent process which is not subject to the vagaries of natural events. The same is not true in regard to water management, for

example, where decisions must sometimes be made which deviate from a planned and implemented management strategy because of natural events which were not foreseen when the management plan was formulated.

Land acquisition decisions, in addition to being free from distorting natural occurrences, are also made frequently, especially in particular circumstances. The Conservation Authorities Act does not specify the priority of any part of the individual authorities program, however, recreational land has often been acquired as a first priority in the newly created authority. Long established authorities, in addition to their regular land acquisitions, make frequent recreational land purchases if their boundaries are extended to include smaller adjacent watersheds. In a number of cases, the provision of recreational facilities has been a motivating factor behind a municipalities request that a new authority be established.

In July 1975 the Grand River Conservation Authority reaffirmed that provision of recreational lands was a second level priority, with water management as the primary responsibility of the authority. The other four authorities studied, have made no recent formal statement of their priorities but the resource managers of the Ausable-Bayfield, Lower Trent, Otonabee Region and Saugeen Valley Conservation Authorities indicated that provision of recreational facilities was a second level priority in their authorities.^{3,4,5,6} In summary, the nature of land acquisition decisions, and the frequency with which they are made, make decisions to acquire recreational land ideal topics for study.⁷

To determine the limitations of the existing land acquisition operation in terms of organization, situation, process, information, participants

and outcome, certain conditions were established which were considered to constitute limitations. These conditions, described below, were established through literature reviews and in consultation with senior staff of the Conservation Authorities Branch.^{8,9}

The organization of the decision making agency should ideally be uncomplicated with clearly defined lines of communication between all decision makers. In addition each level in the decision making hierarchy should have a specific function and serve a particular purpose. Levels in the hierarchy that serve no purpose are considered limitations.

The participants in the decision making operation should have a clearly defined role and the responsibilities of that role should be clearly articulated. Decision making by individuals without input from another individual or group is considered to be a limitation in that values and attitudes of the individual decision maker could replace objectively derived information as the selection criterion.

Information provided to the decision makers should be of high quality and quantity. All information relevant to the issue should be available to the decision maker and at no time should the decision maker rely on his subjective views and opinions as selection criteria because of lack of information. As soon as it is generated, information should be accessible to all decision makers.

When a land acquisition decision is being made, the decision maker should be cognizant of the circumstances surrounding the proposed land acquisition. The purpose of the decision and what goals are being aspired to should be clearly known to the decision maker. Also, the individual decision should be

considered in the terms of the larger context by the decision maker who should also be aware of what will be achieved if he decides on land acquisition. To ensure the relevancy of land acquisition choices, decisions should be made as soon as complete information is available.

A social decision making process, involving groups, which allows interaction to take place is the method whereby most options and alternatives are considered. As such, it is the favoured decision making process and the method whereby the best allocation of resources will occur. Lack of communication between decision makers, a consequence of decision making by individuals acting alone, is judged to be a limitation.

The outcome of the decision making process should be considered in terms of the objectives and the initial circumstances which prompted the decision. Failure to consider the implications of any decision leads to a disjointed and piecemeal approach to land acquisition which does not permit systematic and long range planning.

The above criteria provide the basis for the assessment of the decision making procedure used by the five authorities to acquire land. The established criteria are general parameters and they serve as standards against which the existing decision making process can be compared. It is neither feasible nor realistic to prescribe exact conditions which must be met by all aspects of the decision making procedure. For example, particular circumstances may dictate special ways of dealing with recreational land acquisition issues. Because special circumstances sometimes dictate particular decision making processes, it is necessary to judge certain elements of the decision making process on their own merit. Where interpretation of the land

acquisition took place, the intent of the pre-determined standard was kept in mind and used as a guide for assessment thereby ensuring equitable assessment and objectivity.

In the broadest sense the objectives of the Conservation Authorities are to ensure that the resources of the watershed over which it has jurisdiction are enhanced, protected and allocated in a wise and judicious manner.¹⁰ Decisions made to acquire land mean that certain areas in the watershed are allocated to recreational use. The decision makers role is to ensure that the most desirable areas are acquired and in a manner that avoids duplication, makes efficient use of existing expertise and fulfills objectives established for recreationally oriented conservation areas. If any of these conditions are not met, then land acquisition decisions are imperfect.

2.2 ORGANIZATIONAL ARRANGEMENTES OF SELECTED CONSERVATION AUTHORITLES

In government agencies, decision makers are required to operate within a set of rules and constraints imposed by the organization of the agency. In the Grand River Conservation Authority, for example, the organization consists of five hierarchial levels which form a decision making structure. In the acquiring of land the organization is set into action by the availability of land parcels within the watershed.

Possible acquisitions are examined initially by the planning staff to determine if the acquisition would fit into the authority's existing overall plan. If in its review the planning staff finds the proposed acquisition satisfactory, it then makes a recommendation to a Senior

Management Committee which consists of the Directors of Administration, the Resource Planning, the Land Management and Community Relations divisions. This body then makes its recommendations to the Land Use Advisory Board consisting of general members of the Authority appointed to serve on this board, and responsible for plans for land acquisitions and development of properties.¹¹

The Senior Management Committee is an optional stage and its inclusion as part of the decision making organization is dependent on the urgency of the acquisition. If the authority was anxious to acquire a particular property then the Senior Management Committee would be bypassed and the planning staff's recommendations would be made directly to the Land Use Advisory Board.

The next level in the decision making organization is the Executive Committee of the Authority followed by the general membership which is the final stage in the decision making hierarchy of the agency (See Figure 3).

Although the Grand River Authority has an organizational structure that is characteristic of larger authorities generally, the four smaller authorities in the study group are significantly different in terms of decision making organization.

The Lower Trent Region for example, being a small authority with a limited budget and staff, has a decision making organization that consists of four hierarchical levels, less formally imposed. This authority differs from others in that the organizational levels are not so rigidly structured. It is also apparent from examining the decision making process that the staff

ORGANIZATION OF THE DECISION MAKING OPERATION
IN THE GRAND RIVER CONSERVATION AUTHORITY

CONSERVATION AUTHORITIES

BRANCH LEVEL



RECAPS



GENERAL
MEMBERSHIP LEVEL



EXECUTIVE
COMMITTEE LEVEL



LAND USE ADVISORY
BOARD LEVEL



SENIOR MANAGEMENT
LEVEL



RESOURCE PLANNING
STAFF LEVEL

Source: Interviews, Author's Conceptualization

FIGURE 3

does not have as significant a role in the Lower Trent Region Conservation Authority as it does in the other authorities. This concept is mentioned here as an observation in terms of the organization but the role of the staff has more pertinence in terms of participants and is discussed under this heading in a later section.

The individuals who act within the organization however, have much the same status as they do in other authorities. The Secretary Treasurer can initiate the land acquisition procedure by approaching the land owner with an offer to purchase or, as in most of the other authorities, the organization is set into motion by a landowner approaching the authority, or the authority, through its normal operations, becoming aware of the availability of land. The remainder of the organization in their respective order are: the Resource Manager and his technical staff who carry out a brief natural resource inventory; the Conservation Advisory Board, who reviews the proposed acquisition; the Executive, who considers the economic ramifications of the proposed acquisition in terms of the budget; the Secretary Treasurer who secures an option on the Executive's request; and finally, the full Authority who sit to determine if acquisition should take place (Figure 4).¹²

The Saugeen Valley Conservation Authority has some different organizational characteristics which influence the land acquisition procedure.

A unique feature of the Saugeen Valley Conservation Authority, directly influencing the decision making organization, and also affecting other parts of the land acquisition procedure, is the designation of project areas. These areas have received full authority approval at some previous

ORGANIZATION OF THE DECISION MAKING OPERATION
IN THE LOWER TRENT REGION CONSERVATION AUTHORITY

CONSERVATION AUTHORITIES
BRANCH LEVEL



RECAPS



FULL AUTHORITY
LEVEL



AUTHORITY EXECUTIVE
LEVEL



CONSERVATION ADVISORY
BOARD LEVEL



RESOURCE MANAGER
AND
TECHNICAL STAFF LEVEL

Source: Interviews, Author's Conceptualization

FIGURE 4

time and serve as areas for which priorities and goals for development have been established. As potential acquisitions are presented they are first examined in terms of the project area and would only be seriously considered for acquisition if the land under question was located within these defined areas.

If the proposed acquisition conforms to these project areas, then the Resource Manager or his staff will notify the land acquisition committee who examines the property to assess the nature of the resources. If, in their assessment, the property represents a resource worth acquiring and if time restrictions are such that the acquisition would be jeopardized, they will attempt to secure an option. If no time constraints are imposed, the staff of the authority would make a recommendation to the executive who would then instruct the land acquisition committee to obtain an option. Should the option price be satisfactory, then the executive would take the matter to the full authority and if acceptance is shown at this stage a brief is prepared and forwarded to the Southwestern Regional Conservation Authorities Program Supervisor for approval (Figure 5).¹³

The Saugeen Valley Authority, by defining project areas, improves the efficiency of its land acquisition procedure.¹⁴ However, where acquisitions take place outside the project areas another organizational structure can be identified. In such cases, the staff of the authority plays a much more important role. In this situation, inventories by staff are carried out; the decision is referred to the Land acquisition Committee who carry out field observations themselves; they then make a recommendation to the executive who hears reports from other committees and from personnel in district

ORGANIZATION OF THE DECISION MAKING OPERATION
IN THE SAUGEE VALLEY CONSERVATION AUTHORITY

CONSERVATION AUTHORITIES
BRANCH



RECAPS



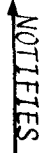
FULL AUTHORITY



AUTHORITY EXECUTIVE



LAND ACQUISITION
COMMITTEE



RESOURCE MANAGER
AND
TECHNICAL STAFF

Source: Interviews, Author's Conceptualization

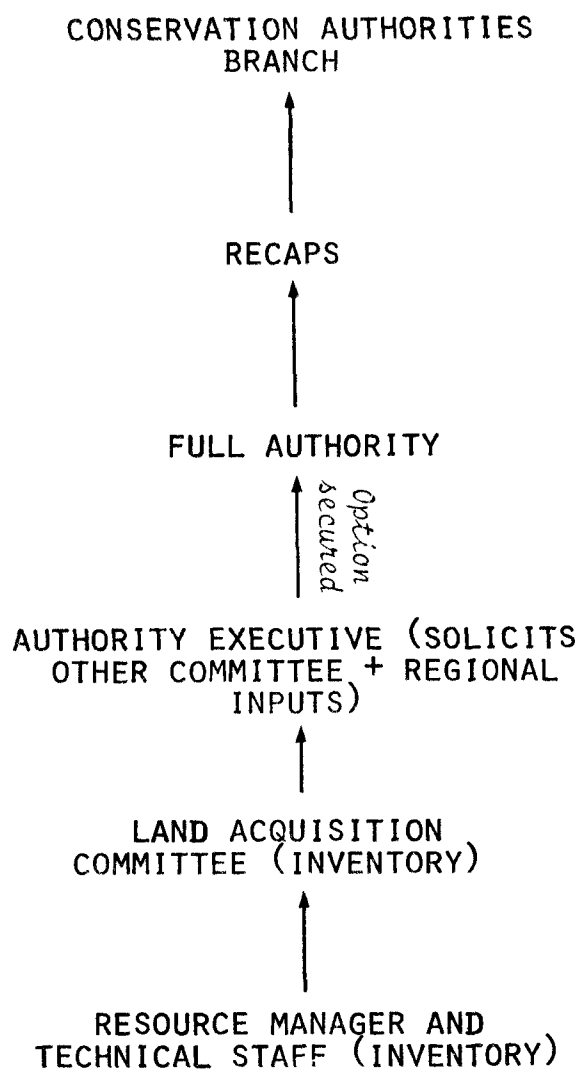
FIGURE 5

offices if these have been requested. If the executive decides in favour of acquisition, an appraisal is authorized, and an option is then secured. A full authority meeting considers the matter and may refuse or authorize purchase (Figure 6). If they are in favour, a brief is prepared by the Secretary Treasurer and submitted to the Regional Conservation Authorities Program Supervisor.

The decision making organization in the Ausable-Bayfield Authority contains no other features than those discussed to this point. As in the Saugeen Valley Conservation Authority, one unit functions as a Land Acquisition Committee and, like the GRCA, the organization is characterized by the existence of an optional stage which is operative in specific situations.

The decision making organization in the Ausable-Bayfield Conservation Authority is set into motion by the land owner who initiates the land acquisition process by approaching the authority. The property in question is examined by the staff of the authority who, if acquisition is not judged as essential, submits a report to an executive meeting of the authority or if time constraints are imposed, bypasses the executive at this point and submits a report to the Land Acquisition Committee. This group functions as an administrative unit and attempts to secure an option on the property in question. The Executive Committee, the next level, and at this stage always included, meets to decide whether to accept or reject the option. If the optioned price is acceptable the acquisition goes before the authority. Should the decision be affirmative at this level, a brief is prepared by the Secretary Treasurer and submitted to the regional office of the Ministry (Figure 7).¹⁵

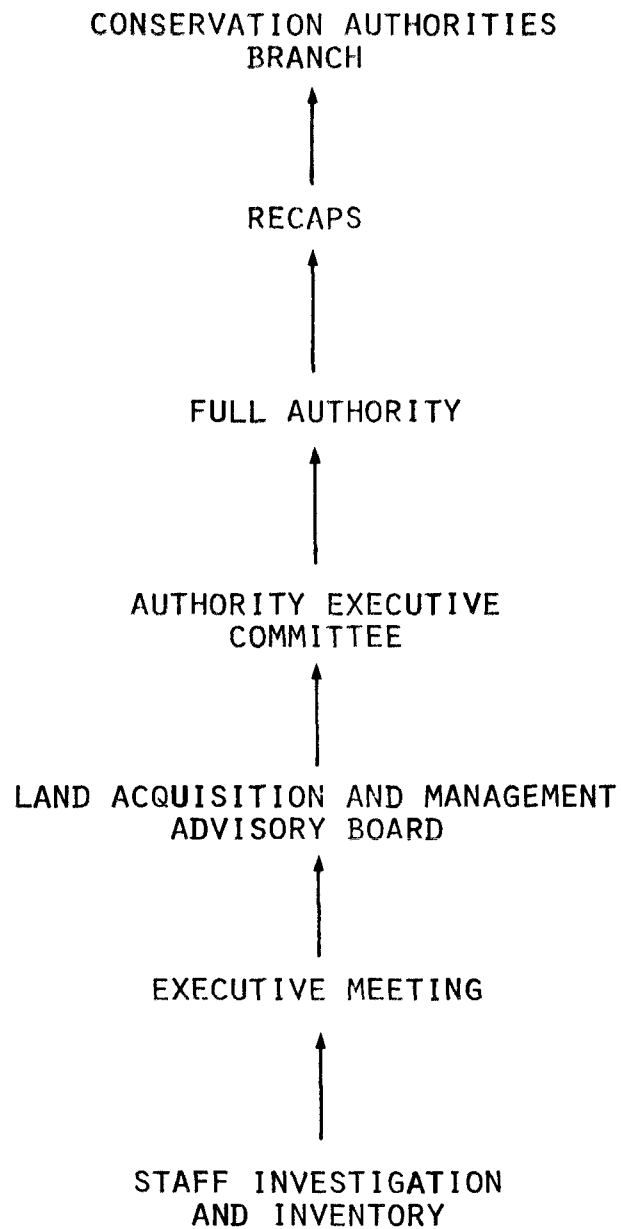
ALTERNATIVE ORGANIZATIONAL ARRANGEMENT IN THE
SAUGEEN VALLEY CONSERVATION AUTHORITY FOR ACQUIRING
LAND NOT INCLUDED IN PROJECT AREAS



Source: Interviews, Author's Conceptualization

FIGURE 6

ORGANIZATION OF THE DECISION MAKING OPERATION
IN THE AUSABLE-BAYFIELD CONSERVATION AUTHORITY



Source: Interviews, Author's Conceptualization

FIGURE 7

The decision making organization in the Otonabee Region, like those in the other authorities, consists essentially of four hierarchical units which can be noted under the general headings of: Staff, Advisory Board, Executive and General Membership. These units function like those in the other authorities which have been examined above (Figure 8).

One unique feature in the Otonabee Region Authority is the role of individual members of the authority with special expertise who assist the staff in completing natural resource inventories, the first step in the land acquisition procedure. In a number of cases the organizational structure is altered in the Otonabee Region Conservation Authority allowing the organization to vary from project to project. The organization as presented however, remains the same -- the roles of the participants who act within the organizational framework are altered however.¹⁶

In all of the authorities examined the upper level in the hierarchy has the power to veto or override the decisions of the preceding level, if, in its assessment, the decisions of the lower unit to acquire land is considered less than optimal. This type of organization may be termed aggregative. Each individual can be seen as a unit with a role, these roles can be aggregated into larger units with collective roles and these units are further aggregated in that some have more power than others which is manifested in their ability to override the decision of the unit with less influence.

Obviously, the decision making organization in the smaller authorities is less aggregative than that found in the GRCA where a large number of individual actors make up each unit. The Saugeen Valley and the

ORGANIZATION OF THE DECISION MAKING OPERATION
IN THE OTONABEE REGION CONSERVATION AUTHORITY

CONSERVATION AUTHORITIES
BRANCH

↑
RECAPS

↑
FULL AUTHORITY

↑
AUTHORITY EXECUTIVE
COMMITTEE

↑
CONSERVATION ADVISORY
BOARD

↑
TECHNICAL STAFF
INVENTORY*

** assisted by individual members*

Source: Interviews, Author's Conceptualization

FIGURE 8

Otonabee Authorities are less aggregative in terms of larger units in that there are fewer levels in the organizational hierarchy.

In none of the Authorities however, does the aggregative nature of the individual roles or units appear to restrict productivity. The diversity of backgrounds of the actors within the organization allows for productivity to be maintained in all situations. Flexibility is evident in the Saugeen Valley Authority where two organizations exist -- one that becomes operative when land within designated project areas is to be acquired and one when land outside these project areas is considered for purchase and development. In the Otonabee Region the involvement of individuals with diverse backgrounds also is a manifestation of the flexibility and adaptability inherent in this organization.

The above assessment of the organizational variables in the land selection and acquisition procedure has not been overly comprehensive since many of the organizational variables have pertinence to the other sections of the procedure. Emphasis has been placed on the identification of the organization and examination of the characteristics in terms of productivity, administrative quality and the aggregate nature of the organization.

The organization is, however, a structure for interaction which occurs in a temporal sense. Interaction over time is analogous to the concept of process which deals with the characteristics of that interaction. It is to this topic that we now turn attention.

2.3 DECISION MAKING PROCESSES USED BY SELECTED CONSERVATION AUTHORITIES

In effect the process comprises the "how" of making a decision. The selection of certain properties for acquisition can be made in a number of ways and in this sense it is misleading to speak of one decision process. Rather, it appears that the process of selecting and acquiring land consists of three types of operations. These can be identified in particular parts of the decision making organization and in particular authorities where some processes are more prevalent. In general terms they may be classed as three types: quasi-mechanical, social and intellectual.

In all five authorities the land acquisition procedure is best characterized as a quasi-mechanical process, closely related to the decision organization previously discussed and characteristic of administrative decision making operations, most of which are also quasi-mechanical. The aggregative nature of the organization and the fact that lower level choices are ratified by a higher level in the organization are manifestations of the quasi-mechanical process.

Although a rigid and formal decision making process has benefits, it has a major limitation in that it inhibits communication between decision makers. What communication takes place is minimal and information which should be communicated to decision makers is not. Lack of communication due to the decision making processes is illustrated by the Conservation Authorities Branch's ignorance of project areas defined by the Saugeen Valley Conservation Authority. This lack of communication is unfortunate because the project areas determine the conservation authorities acquisitions and should be known to other decision makers involved.

In broad terms the decision making process is quasi-mechanical but in each authority other methods of decision making exist as well. In the Grand River Conservation Authority, for example, social processes that are characterized by interaction between individuals or groups and other individuals can be identified in all five tiers of the organization outlined earlier. At the planning staff level, for example, interaction occurs amongst the technical staff. Interaction at this level is the process that determines the outcome which then moves via the quasi-mechanical process, to the next level in the decision making organization -- the Senior Management Committee.

Previous research indicates that a bargaining type of interaction often occurs in groups where professionals are present.¹⁸ Such is not the case, however, in the GRCA where communication between the members of the planning staff is more characteristic. This can be termed horizontal interaction since it occurs between individuals with the same status as opposed to vertical interaction which takes place between levels of the decision making organization.

The concept of horizontal and vertical social interaction in the decision making process also has pertinence to other aspects of the land acquisition procedure. On preliminary examination it would appear that the quasi-mechanical process of decision making with its formalized structure would have an adverse effect on social interaction. To a certain extent this is the case in that the majority of social interaction is confined to the specific levels of the decision making operation. Interaction occurs amongst the members of the planning staff, the members of the Senior

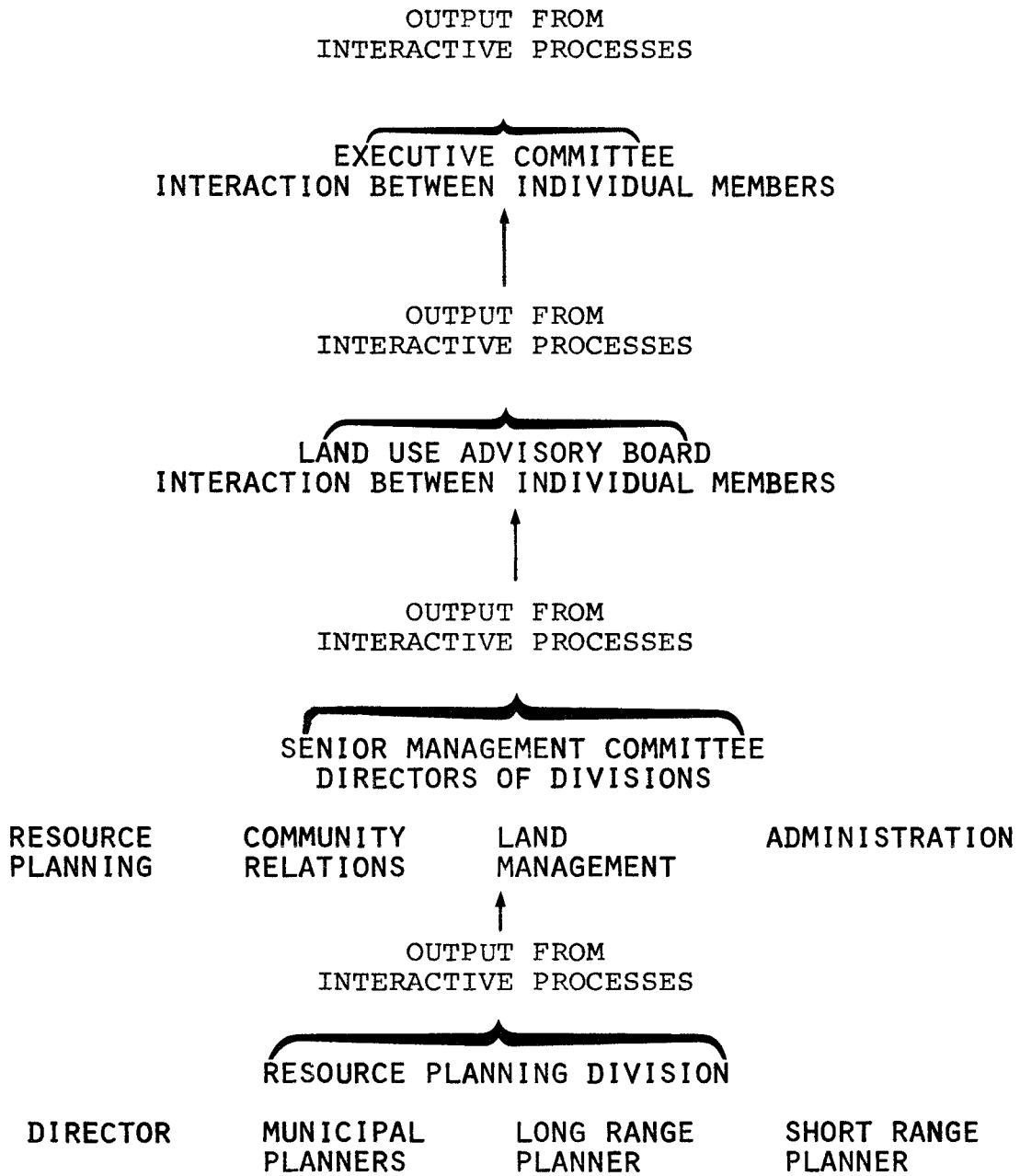
Management Committee, the members of the Land Use Advisory Board and those individuals on the Executive Committee, and in these situations the interaction is characteristically horizontal (Figure 9).

Social interaction that is vertical, however, does occur on a reduced scale between decision makers of different status (Figure 10). In the Grand River Conservation Authority the fact that the director of the resource planning division sits on the Senior Management Committee means that social interaction between the planning staff level and the Senior Management level is ensured. Interaction also occurs between the Land Use Advisory Board and the Executive Committee since there are common members of both groups and continuity between the final levels is assured by the number of individuals previously involved who are active in the full authority meetings. The gap between the Senior Management level and the Land Use Advisory Board is not bridged by social decision making processes, however, since no members of the Senior Management Committee are members of the Land Use Advisory Board.¹⁹

Critical evaluation of the decision making process in the Grand River Conservation Authority reveals that, should the Senior Management level be bypassed, which is an option, then there is no formal interaction between the staff level, where the initial decision is made, and the remainder of the decision making process. This segmenting of the administration may be nonoptimal and loss of continuity in the decision process may result as a consequence.

In the Otonabee Region Conservation Authority, the social process is mainly confined to each specific level in the quasi-mechanical process as

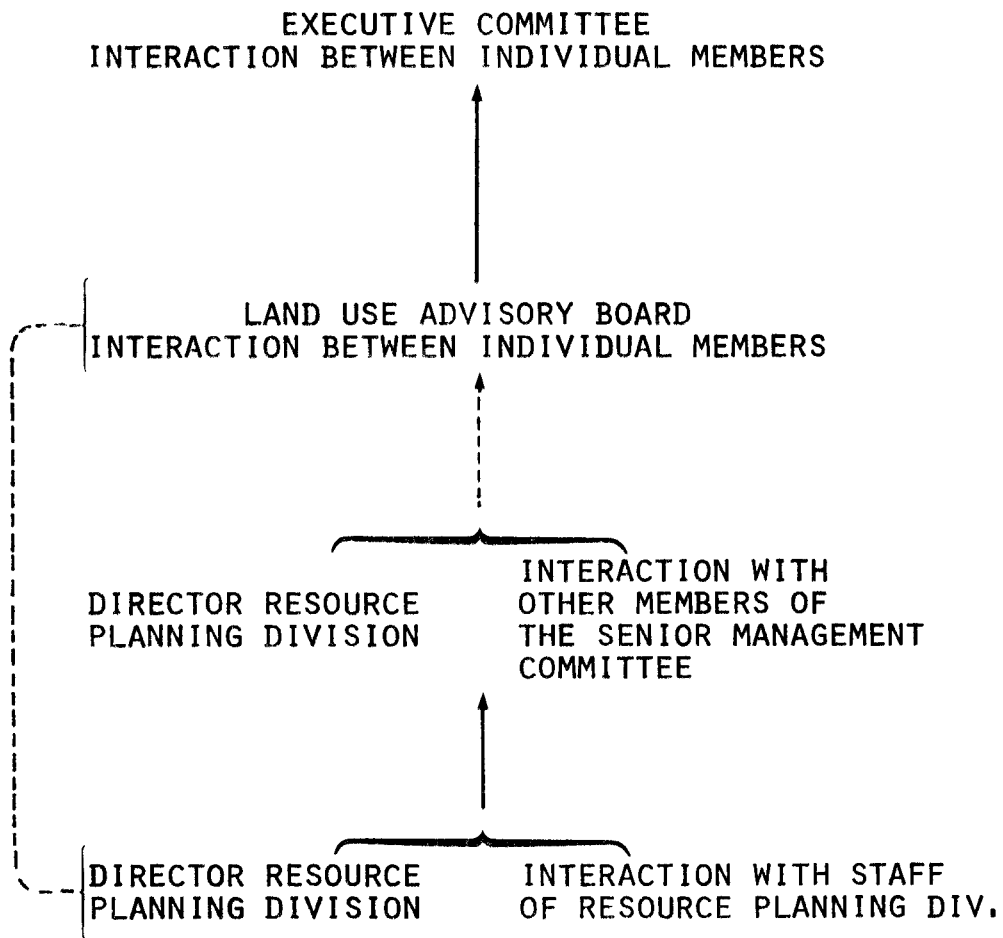
DECISION MAKING BY SOCIAL PROCESSES: INCIDENCE ON THE SAME LEVEL IN THE GRAND RIVER CONSERVATION AUTHORITY



Source: Interviews, Author's Conceptualization

FIGURE 9

DECISION MAKING BY SOCIAL PROCESSES: INCIDENCE
BETWEEN LEVELS IN THE GRAND RIVER CONSERVATION AUTHORITY



| Indicates lack of interaction between individuals and/or groups
| Indicates interaction between individuals and/or groups

Source: Interviews, Author's Conceptualization

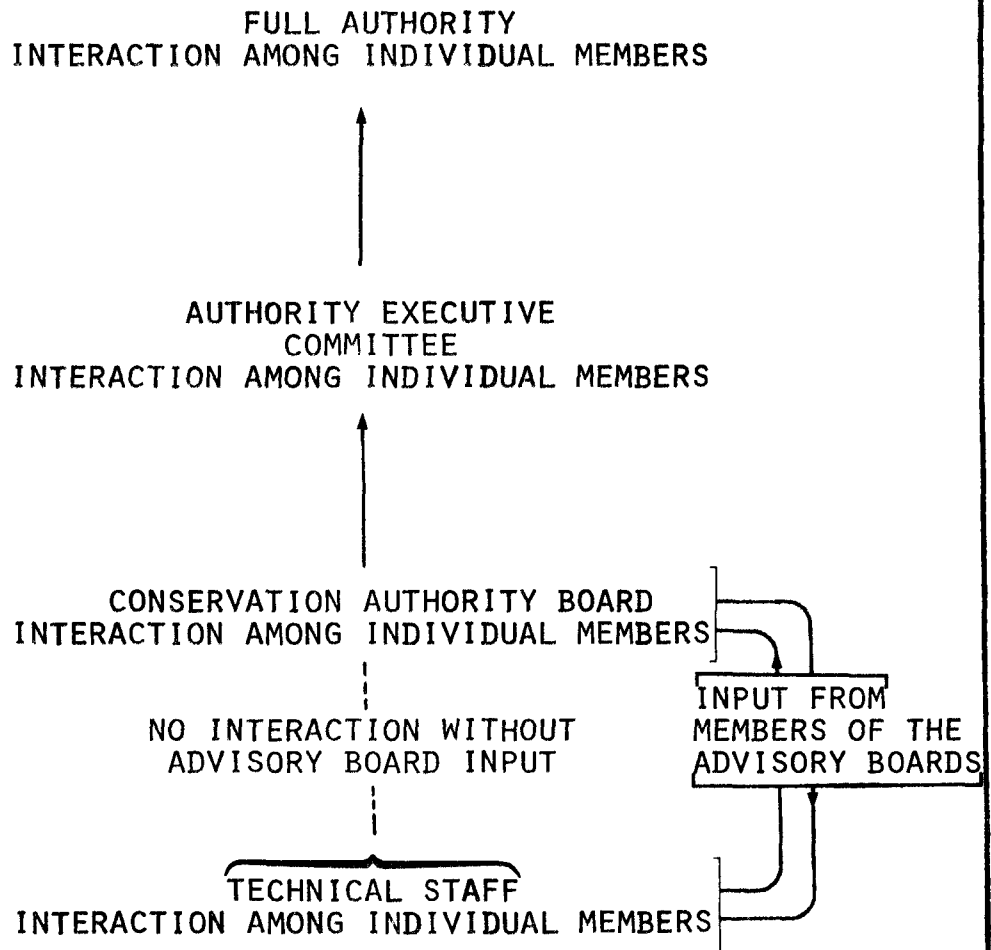
FIGURE 10

it is in the Grand River Conservation Authority, yet all levels in the organization can interact with one another through formal channels. The heads of the Advisory Boards are members of the executive, ensuring interaction between these two levels. The executive, by virtue of its position and its role in the full authority meetings, ensures that communication occurs between itself and the full authority. The technical staff of the authority, through an indirect arrangement, also is able to interact with the upper levels of the decision making hierarchy.

To assure interaction with other levels in the hierarchy the staff of the Otonabee Region Authority relies on individuals with expertise in many areas of conservation and resource management. These individuals assist the staff in conducting resource inventories before it makes recommendations to the advisory board. The members of the advisory board, all of whom are knowledgeable in their field, are the individuals that the staff consults in conducting the resource inventory. This arrangement ensures social interaction since liaison between the staff level and the advisory board exists and continuity is consequently maintained (Figure 11).

The decision making process in the Saugeen Valley Conservation Authority, as in the other authorities, is quasi-mechanical in nature. The pluralistic process of decision making is also operative in this authority at the individual level and interaction between individuals with the same status can be identified. The staff of the authority and those individuals who participate as decision makers at the Advisory Board and Executive levels do not have the same formal interaction between them

DECISION MAKING BY SOCIAL PROCESSES: INCIDENCE
 BETWEEN LEVELS IN THE OTONABEE REGION CONSERVATION AUTHORITY



| Indicates lack of interaction between individuals and/or groups.

| Indicates interaction between individuals and/or groups.

Source: Interviews, Author's Conceptualization

FIGURE 11

however (Figure 12).

The relatively low profile that the staff has in land acquisition projects in the Saugeen Valley Authority does not necessitate a large degree of communication between itself and the rest of the authority. The size of the authority also leads to informal communication which provides some form of interaction between the staff and other decision makers. Isolation of the staff is consequently less serious in this authority.

The decision making process in the Lower Trent Region Conservation Authority is affected by the size, budget and programs of the authority. The program operated by this authority is less inclusive than that found in the other four authorities. As a consequence, the process for acquiring land is less formal although it can be identified as quasi-mechanical, like the other authorities examined. Because of a less rigid structure, social interaction is facilitated and in this authority, interaction and communication between individuals and groups is commonplace and unimpeded. The staff however, is isolated by the organizational structure in that formal communication channels do not exist between it and other individuals and group (Figure 13).

Process in the Lower Trent Authority is also characterized more by the action of individuals than groups. What groups or units exist are small in size. Although such a characteristic is conducive to efficiency, the chance for opportunism to become operative is increased. In addition, individuals acting alone may reduce efficiency since choices may be made without all the information provided being considered.

The Lower Trent Authority is informal in its decision making process

DECISION MAKING BY SOCIAL PROCESSES: INCIDENCE
BETWEEN LEVELS IN THE SAUGEEN VALLEY CONSERVATION AUTHORITY

FULL AUTHORITY
INTERACTION AMONG INDIVIDUAL MEMBERS



AUTHORITY EXECUTIVE
INTERACTION AMONG INDIVIDUAL MEMBERS



LAND ACQUISITION COMMITTEE
INTERACTION AMONG INDIVIDUAL MEMBERS



TECHNICAL STAFF
INTERACTION AMONG INDIVIDUAL MEMBERS
INCLUDING RESOURCE MANAGER

- | Indicates lack of interaction between individuals and/or groups.
 | Indicates interaction between individuals and/or groups.

Source: Interviews, Author's Conceptualization

FIGURE 12

DECISION MAKING BY SOCIAL PROCESSES: INCIDENCE
 BETWEEN LEVELS IN THE
 LOWER TRENT REGION CONSERVATION AUTHORITY

FULL AUTHORITY
 INTERACTION AMONG INDIVIDUAL MEMBERS



AUTHORITY EXECUTIVE
 INTERACTION AMONG INDIVIDUAL MEMBERS



CONSERVATION ADVISORY BOARD
 INTERACTION AMONG INDIVIDUAL MEMBERS



TECHNICAL STAFF
 INTERACTION AMONG INDIVIDUAL MEMBERS
 INCLUDING RESOURCE MANAGER

| Indicates lack of interaction between individuals and/or groups.

| Indicates interaction between individuals and/or groups.

Source: Interviews, Author's Conceptualization

FIGURE 13

but the Ausable-Bayfield Authority is rigid in its approach to land selection and acquisition.

In the Ausable-Bayfield Authority the status of decision makers is sharply defined and social interaction between the different levels does not occur informally.

There is communication and continuity maintained between the Land Acquisition Board and the Executive levels of the decision making organization as the head of the Advisory Board chairman sits on the executive and is involved in the general meetings of the authority. The organization and the dominant decision making process, however, in conjunction act to isolate the staff of the authority from the advisory boards and the officers and members (Figure 14).

Some form of intellectual process does occur in the land selection and acquisition operation, however, these are of little consequence at the authority level. Each individual decision maker personally perceives the range of possible choices and the impacts resulting from any one choice but perception is an obscure operation and difficult to assess. Furthermore, the land selection and acquisition procedure at the authority level is administrative in nature and as a consequence is not heavily dependent on the intellectual process which is more characteristic of decision making for executive directives and policies at the Branch.

The above assessment of the decision making process has centered on the identification of the processes utilized by the five Authorities in selection and acquiring recreational property and the characteristics of the processes involved. The dominant process is quasi-mechanical, closely

DECISION MAKING BY SOCIAL PROCESSES: INCIDENCE
BETWEEN LEVELS IN THE AUSABLE-BAYFIELD CONSERVATION AUTHORITY

FULL AUTHORITY
INTERACTION AMONG INDIVIDUAL MEMBERS



AUTHORITY EXECUTIVE
INTERACTION AMONG INDIVIDUAL MEMBERS



LAND ACQUISITION AND MANAGEMENT
ADVISORY BOARD
INTERACTION AMONG INDIVIDUAL MEMBERS



EXECUTIVE MEETING
INTERACTION AMONG INDIVIDUAL MEMBERS



TECHNICAL STAFF
INTERACTION AMONG INDIVIDUAL MEMBERS
INCLUDING RESOURCE MANAGER

| Indicates lack of interaction between individuals and/or groups.

| Indicates interaction between individuals and/or groups.

Source: Interviews, Author's Conceptualization

FIGURE 14

related to the organization of the decision making hierarchy and dependent on a rigid structure for direction and productivity. Social processes are functional within each level of the operation and in some cases are operative between levels as well. The intellectual process of decision making is of secondary importance.

Critical scrutiny of the decision making operation has revealed one shortcoming that is common to the decision making process in almost all the authorities. The decision making process by which recreational land is acquired, restricts interaction among the decision makers. Social process in the form of communication and interaction does exist between most of the various levels in the organization and to an extent overcomes the isolation between decision makers. Such interaction does not occur formally, however, between the staffs of the authority and the officers and members. In the Grand River Conservation Authority, an optional step in the process ensures that interaction takes place between the staff of the Authority and the rest of the organization. Should this optional step be bypassed, however, the staff is isolated from the rest of the Authority. This situation effectively precludes continuity from being maintained throughout the decision making procedure. Although not serious in the day to day operations of the authority, the potential loss of continuity does have implications for efficient decision making in the long term. The role of the staff, more fully investigated in the next section, also compounds this problem.

Although the decision making processes have been examined separately and one found to be more dominant it must be stressed that they do not

operate in isolation. Each decision to acquire land consists of at least two if not all three sub-processes and in the final analysis, decision making cannot be understood adequately, or decision outcomes explained without taking into account all the types of process.

2.4 ANALYSIS OF THE INFORMATION VARIABLES

Process signifies action and the processes that have been identified and examined are specific types of decision making action. However, before action can be initiated there must be some body of information on which the decision making action is based. The element that deals with the basis of the decision process can be viewed as an information component. Under this heading the information itself, its characteristics, its source, how it is derived and its transmission to the decision makers is examined.

Initially, information used to decide on recreation acquisitions in all of the five authorities was in the form of a complete natural resource inventory, conducted by the Branch, which examined the natural and cultural resources of the watershed from an interdisciplinary perspective and made recommendations for acquisition on this basis. These were then transmitted in a written report to the staff of the authority who implemented the bulk of the recommendations.²⁰

The form of the information is now changed. In the Grand River Conservation Authority, for example, an explicit inventory or synthesis of existing data sources is not conducted to obtain information on proposed acquisition. Information sources are now considered as "*background papers intended for the information of co-operating agencies*", although emphasis has

shifted from a purely physical system orientation to one that takes into account the social and cultural elements as well.²¹

This new form of information does not appear to be adequate. Analysis of land acquisition briefs of some authorities reveals that, when decisions are made by different individuals and groups, the information on which the decision is based is not communicated to other decision makers.²² Where clear lines of communication do not exist, problems of information availability may arise.

In the Saugeen Authority the existence of project areas indicates that these areas have been inventoried and researched, and information concerning natural resource quality and quantity has been made explicit at the authority level. When acquisition of a particular parcel of land within a project area is contemplated, information is available to the decision maker in the authority although this data in its entirety is not necessarily transmitted to the decision maker at the regional level or in Toronto.

When land acquisitions outside project areas are considered, more intensive staff inventories are carried out to compensate for the lack of an overall data source that is provided by the formation of a project area. The isolation of the staff from the remainder of the decision making organization due to the quasi-mechanical process, may, however, jeopardize the transmission of much of this data to decision makers at a higher level. Nor is there, in other authorities, a conscious attempt to generate new, and synthesize existing data, to provide a basis for selecting recreational properties.

In the Lower Trent Region Conservation Authority, extensive resource inventories are not systematically conducted prior to selecting land for

acquisition. Selection is on an ad hoc basis with individual members of the authority sometimes deciding on their own volition what properties should be slated for acquisition.²³ The Resource Manager and his staff do play a part in the acquisition process and provide inputs but, as in the other authorities, the information generated here is not transmitted to other decision makers higher in the authority.

The information generated in the Otonabee Region Conservation Authority is of greater quantity than in other authorities and some cases is of superior quality. It is unique in that individuals with expertise in particular fields who are interested in conservation as a broad issue and who function as ideological actors assist in the generation of the information. The contributions of these individuals, in terms of knowledge, augments the data gathering that is conducted by the staff itself and contributes to the overall information that is available to the decision maker at the authority level.²⁴

The Ausable-Bayfield Authority is unique among the authorities studied in that an active attempt is made by the staff to generate data for land acquisition. Here, technical staff under the direction of the resource manager carry out complete natural resource inventories for broad areas that are being considered for acquisition. Present inventories concentrate on the physical resources of the area examining chiefly the topography, the vegetation, the wildlife resources and unique features of the site. Cultural qualities in terms of ownership and the owners' views towards disposing of land parcels are also detailed.

Regardless of its quantity or content, inventory information is

the basis for the initial decision to acquire specific properties within a watershed. To a certain extent its use ends at this point, in that decision makers at a higher level have no say in regard to other options. In the same vein decision makers not directly involved with the initial decision do not know specifically what information has been considered by the staff in making its original decision. This lack of knowledge is further compounded at the upper levels in the hierarchy where individuals are making a decision with no general knowledge of the project and no specific data concerning the acquisition.²⁵

It must be acknowledged that the authority staff and membership is quite familiar with the physical and biological characteristics of the watershed. Furthermore, only acquisitions which differ incrementally from the status quo are seriously considered, and, as a consequence, the decision makers focus upon a quite limited number of alternatives in making choices. The information needs of these decision makers are therefore to a certain extent restricted.

The process by which decisions are made in all the authorities, however, does present barriers to the flow of the sometimes small and inadequate amount of information produced.²⁶ This is especially a problem since the staff, who play a primary role in the initial choice of land and who are responsible for generating data relevant to the acquisition, are in some situations isolated from the rest of the decision making organization. This separation results in less than ideal amounts and varieties of data being transmitted to the decision makers, especially those at higher levels. Furthermore, the RECAPS* and personnel at the Branch, all of whom are decision

makers, do not have complete information of the watershed's resources, which, in many cases, is common knowledge to the decision makers at the authority level. This diminished quantity of information is reduced further by the biased receptivity of the individual decision maker, who inevitably screens the information that he does receive through his values and perceptions thus reducing further the amount of information used in making a choice.²⁷

The source of information that the decision makers ultimately act on is a variable which also warrants consideration. The data which is provided consists of information which is derived and synthesized by the authority staff and in one case staff and membership. This source of the data is "in house" and consequently the information is evaluated positively by most decision makers higher in the organization who depend on it. The upper levels in the decision making hierarchy therefore do not dismiss the information outright, although some perceive it as threatening since neither the Branch nor the Regional Office has had any part in its generation.²⁸ Consequently, a number of decision makers disregard information that is provided for their consideration. This is a minor problem at the present time although similar situations in U.S. agencies have caused problems in transmission and receipt of information.²⁹

Although there are positive aspects of the information generation and transmission process, the shortcomings and limitations outweigh the positive attributes of the existing process. The isolation of the information generators from the rest of the decision making organization; the long and complicated route by which the information generated by field staff is transmitted to the decision maker; the fact that social process is not operative

between the information generators and the other levels of the decision making organization who require the information, all products of the process by which decisions are made, impose serious and important restraints upon the efficient flow of information which is essential to optimal resource management decision making.³⁰ As well as these difficulties in terms of organization and process, the decision makers' perception of the information generators poses problems in generation and transmission of data.

The organization's evaluation of what is at issue is a function of its goals and perceptions. Legislatively the core interest of all authorities is water management, but provision of facilities for recreation has recently been reaffirmed as a second-level goal in the Grand River Conservation Authority.³¹ In the other authorities the recreational facilities aspect of the conservation program ranks as high as it does in the Grand River Authority.³² Despite this priority, the action associated with the acquisition of land in all of the five authorities examined is low key.

The relationship between the information generators (the planning staff) and the rest of the decision making hierarchy explains the low key attitude the decision makers hold. In most cases the goals and priorities of the agency dictate the amount, quality and type of information that is generated. It appears, however, that in the Authorities examined, the planning staff views the decision as inconsequential, so little information is generated.³³ Because of their influence the remainder of the decision making organization adopts their attitude with the overall result being little information collected and no demand for more. The same dynamics are operative in regard to the expected impact of the information. Little information has been considered adequate in previous occasions so there is

no incentive on the decision maker's part to demand more. Since the decision making organization views the land acquisition operation as incidental it is inevitable that they should not demand a change in the amount, type or quality of information. Their perceptions of the impact of the decision is also influenced by the planning staff which holds this influence because of their professional training and role as "experts."

The information context of the decision making operation at the authority level has been examined in terms of the nature of the information, the units of the decision organization that are generators of data and the channels of information transmission. The perception and the expected impact of the decisions as they affect the information element have also been analysed.

In examining and attempting to explain the information generation and its transmission, the individual participants have been found to play an important role, both in terms of their own personalities and in regard to their status as decision makers. The participants who generate information; who operate within the restraints imposed by an organizational structure and process; and who consider the data are important elements in any decision making operation and the following section examines their function and role in detail.

2.5 PARTICIPANTS AS A VARIABLE IN DECISION MAKING

An analysis of the participants in the decision making operation reveals that the organization of the agency itself is such that there are a

number of different categories of actors. These may be classified as: professionals, ideological actors and individual actors.

The expert or professional in the decision making process which will be examined initially, has been the subject of much research.³⁴ An expert has typically been perceived as a participant with certain qualities, knowledge or skill whose role is to provide technical advice and information to the decision maker. The professional staffs of the larger authorities, while not meeting all these requirements do function as "in house" experts. As such their effect on the process of land selection and acquisition is significant. In authorities like the Grand, where the staff is large, well trained and possesses formally acquired expertise, the perception of the decision and the expected impact that the decision will have is influenced by the values of the staff.

In the smaller authorities such as the Lower Trent Region the same process is operative. In these instances the staff's expertise is relatively the same as it is in the larger authorities, because the membership is not as large and is not, for the most part, composed of private individuals who in their own right must be considered as experts as is the case in the Grand River and the Otonabee Region Authorities.

In a relative sense the members of the staff in all the authorities, regardless of their actual expertise play the same role in the decision making operation. This role, although similar, tends to be narrowly defined in all the authorities and it is a prime determinant of the low key, "laissez faire" situation in which land acquisition decisions are made. This situation exists because the staff perceives their role, and rightly so, as planners and managers

whose function is to formulate management schemes for the authority owned resources of the watershed.³⁵ They do not perceive their function as land agents whose duties theoretically would be to review the basic resources of the watershed and make choices for acquisition. Since their emphasis is on planning, development and management and not land acquisition, it is inevitable that land acquisition assumes a role of much less importance than the former tasks. This set of circumstances, in the author's estimation, accounts for the low key attitude that the staff and the rest of the decision making organization have toward land selection. Since the planning staff as experts influence the rest of the decision making organization they consequently set the overall tone for the land selection and acquisition procedure. Considered in this sense those participants with an expert role become more interest articulators and less advisors.

Research in the literature supports this view. Studies have shown that experts in natural resource management agencies hold wide powers and exert significant influence over other decision makers.³⁶ Other researchers have shown that experts who participate in decision making processes are expected to find an objective truth, a concept which confers an expert role and further adds to the influence of a professionally trained participant.^{37,38}

In all five of the authorities examined, actors were identified whose interest and motivation confer upon them an ideological actor status. These individuals show a moral and intellectual concern over conservation as a broad issue and their interest and dedication is greater than that of most individual members. They are often in key positions in the decision making organization; consequently, their skills and dedication are well utilized and

their contribution tends to improve the efficiency of the decision making procedure. In addition to the individual actors who function as ideological participants, there are also those whose background and training must be considered in some regards to be that of an expert.

Individual actors with specialized expertise are effectively utilized by the staff in the Otonabee Region Authority to assist in carrying out its duties. Individuals, many with formal training in specific areas of conservation and resource management, also assist by serving on advisory boards, thereby acting as a free source of information.

No conflict occurs between the staff and the advisory boards in the Otonabee Region Conservation Authority. Individuals assisting the staff are acting in an advisory role and serve only at the staff's request. When serving on advisory boards, members are less likely to conflict with the staff if they have advised the staff on some matter previously and have had an input into the initial decision.

In the other authorities the arrangement mentioned above exists but is not so noticeable as it is in the Otonabee Region Conservation Authority. In the Saugeen Valley Authority, the individual participants who are most active are typically more concerned intellectually and morally with conservation and resource management as an issue, although some of these same individuals possess a wealth of practical information which is used by the authority to its benefit.³⁹ These individuals also differ in that they have acquired their expertise through practical experience unlike ideological actors in the Otonabee, many of whom are formally trained and who are professionally employed.

In the Ausable-Bayfield and Lower Trent Valley Authorities the utilization of individual participants as experts is less common. Individuals who make significant contributions to these authorities must be considered as actors who show concern over conservation and resource management but they do not function as experts as in the Otonabee Region Conservation Authority.

In the Grand River Conservation Authority, individuals with expert roles serve in several key capacities also. In many ways these individuals and the roles that they play resemble those in the Otonabee Authority. In comparison, however, the incidence of individual actors who are motivated by an interest in the broad issue and who possess expertise which they bring to bear on specific problems or tasks of the authority is much greater in the Otonabee Authority.

To this point little mention of the role of the Regional Conservation Program Supervisor and the professional staff at the Conservation Authorities Branch has been made. Although they are not directly involved in selecting land for purchase and deciding what parcels should be acquired they are participants and do play an important part in the overall decision making organization.

Few studies in resource management have discussed decision makers as individuals and personalities. As a consequence there are few concepts in the literature and this examination of the individual actor as a participant in the decision making process will be exploratory.

The individual actor, in his isolated position is more likely to be influenced by his values and attitudes in making choices. Where decision makers act alone, subjective preferences may intentionally or inadvertently replace the information that is provided as selection criteria.

The type of situation described above exists at the Conservation Authorities Branch in Toronto. Personal attitudes and values are a strong undercurrent that influence the decision making procedure here.⁴⁰ Likewise, the role that the Conservation Authority Branch decision makers are supposed to play has not been clearly stated. Lastly, the paucity of information that reaches the decision maker does not provide adequate criteria for making decisions and a hazily defined concept of good and undesirable projects is the criterion that is used to decide on which land acquisitions or projects should proceed. As such it is inevitable that personality and subjectivity should play a more important role since the lack of information precludes using objective data as a basic for decision making.

By their own admission these decision makers require more information to make judicious choices since they can no longer serve in administrative capacities, keeping aware of all happenings in all the authorities.⁴¹ Provision of more information relevant to any proposed acquisition would also serve to offset the decision makers' personality, values and attitudes which are now included as decision making criteria.

The Regional Conservation Authority Program Supervisors for the Southwestern, Central and Eastern Regions are also individual actors but with somewhat different characteristics. They too possess a certain degree of autonomy and their position allows them relative freedom in performing their duties. Although, overall they are part of a pluralistic decision making organization because they are part of the decision making hierarchy, in participant terms they are not affected by the pluralistic process that characterized other levels. In fact, the RECAPS alone comprise one unit in

the decision making hierarchy whereas groups of individuals combine to form units in other parts of the hierarchy.

At the present time the RECAPS functions as an individual actor, making non-administrative decisions. He consequently perceives his role as one requiring little or no interference from other levels of the hierarchy.⁴² If the RECAPS alone had this view and function, no problems would result. However, the Branch officials see their own role as responsible officials making executive decisions to be administered by the RECAPS and ultimately by the individual authorities.⁴³ This similarity of perception and attitude toward their roles ultimately causes conflicts, leading to a lack of communication between decision makers. Because the two sets of individual actors have conflicting perceptions of their responsibilities they also conflict when carrying out their duties.

In summary, then, discussion of the participants has concentrated on identifying the individuals who act within the decision making organization. The role of these participants and the effect that they have on the decision has been detailed in terms of the individual authorities and the upper level of the organization as well. The participants' perception of their role has been found to be a prime determinant of their behaviour and this concept has also been used to explain the receipt of information and its utilization.

Individuals with their own perceptions and attitudes also have been identified as important participants and some of these function not only as individual actors but as ideological actors as well. In addition, individual actors have been examined as they participate in the upper levels of the decision making procedure. Here, individuals acting alone have roles with wide

responsibilities that in many cases would be shared by groups of actors if lower in the decision organization. These positions, because of their nature and the surrounding circumstances, allow overpersuasive personalities and values to encroach upon the official function of the role.

The situation or context element has been identified as a prime element in determining decision making behaviour especially in terms of participants. This variable as it relates to the decision making process as a whole is more fully examined in the following section.

2.6 ROLE OF SITUATION AND CONTEXT IN DECISION MAKING

The decision situation or occasion consists essentially of a set of circumstances. Obviously, every decision arises out of a different set of circumstances, and to this extent each situation is unique. This makes it difficult to assess the context of the choice procedure specifically, however, three categories of situational variables warrant examination. These are; the extent to which the decision is anticipated and can be dealt with through routine procedures; the political and legislative context in which the decision is made; and, the domain and scope of values at stake.

A review of the land resources of the watershed and choice of one particular part for acquisition can be a relatively unhurried process and is not subject to severe time restraints which some resource management decisions may be pressured by. Moreover, the land selection and acquisition decision is anticipated and can be dealt with through an existing process. The main time constraint that imposes itself on the procedure is that of the continual upward spiral of land values and the decreasing availability of prime

recreational land due to the finite nature of the resource. This is a problem with broad implications for resource management agencies generally but warrants no further consideration here.

Delays in the acquisition of recreational land do, however, develop at the upper levels of the hierarchy. These have been recognized by the Branch itself and attempts to overcome the problem have been initiated.⁴⁵ It is inevitable, however, that numerous small projects, many of which are piecemeal, should delay the decision making process in the Branch. To be sure, small projects are submitted first to RECAPS for consideration and time restraints impose minimal problems at this stage. There are, however, four conservation authority program supervisors: in the Southwestern, Central, Eastern and Northeastern Regions to process these briefs. There is only one Branch, however, which has been recognized as being understaffed by official bodies in recent reports, and the number of briefs that must be processed is more than the administrative organization at the Branch can handle.

These delays are damaging to the minimal liaison and rapport between the three main levels in the decision making organization -- the authorities themselves, the program supervisors at the regional level and the Branch in Toronto -- and may be partially responsible for the dominance of personalities over official roles in some of the previously mentioned positions. Furthermore, periodic purges to process a backlog of briefs may lead to less than optimal scrutiny by pertinent professional staff whose input would be invaluable in helping to choose the most desirable option.⁴⁶

To rectify the problem of delays in decision making the manpower of the Branch could be increased and channels of interaction made more effective or

the nature of the submission to the Branch could be altered so that the more rapid processing of requests for project approval and funding can be realized. The second option is more feasible than the first for a number of reasons and one solution of this sort is presented in a subsequent section.

Although the land selection and acquisition is anticipated by authorities there is a time constraint due to a lack of information on which to base decisions. The problem in timing is due chiefly to the lack of liaison and interaction between levels in the decision making hierarchy. This difficulty not only makes recommendations more difficult to realize but also confounds simple communication between levels which subsequently delays implementation of recommendations. As a consequence, information that is available and which could be acted on may not be used because individuals at the first level of the hierarchy do not approach the Branch which holds the data.⁴⁷

The time constraints that have been identified also help to produce a "laissez faire" situation which in itself is not conducive to efficiency in land acquisition.

Previous research has proven that decision makers caught in a crisis atmosphere and required to make choices in a minimum of time inevitably choose less than optimal strategies.⁴⁸ The situation in land acquisition is analagous in the authorities and the same overall dynamics are at work although reversed and the same outcomes result. Most authorities, adopting the view of their professional staff, proceed via the existing decision making process on a slow route to land acquisition. Although these same dynamics would not necessarily be operative in new authorities, since programs are newly initiated, the delay

in receiving the specific recommendations from other levels in the organization because of lack of communication between the levels in the hierarchy causes problems. This low priority that land acquisition decisions have means that the full resources of the authority are not brought to bear on the problem and subsequently, decisions may be made without complete analysis of all alternatives.

An important part of the contextual element is the political or legislative "climate" which may affect other parts of the operation. Review of The Conservation Authorities Act reveals that it lacks definite statements and is not explicit in regard to operational procedures or methods to be utilized in the selection and acquisition of recreational land resources.⁴⁹ This weakness is partially compensated for by the existence of clearly formulated statements of procedural requirements to which every authority must adhere. Unfortunately, these relate only to the upper levels of the decision making operation and only outline the format that the authority must take in approaching the Branch. This stage is virtually the last step that the authority goes through so it is of limited value in directing the action of the authority at a lower level.

The time element is a significant part of the decision context but the impact that values have on the decision making procedure is more important. Values are held primarily by individuals as participants, but there are also those values that underlie the political culture -- the widely held and enduring position that is taken by the agency as a whole. In one case, we are concerned with the values within the system; in the other with values of the system. Circumstances at the Conservation Authorities Branch often allow the decision

makers' values to be used in making choices.

When the brief arrives at the Branch it is initially reviewed by one individual. The brief includes only the most superficial information on the resources of the site, what need will be satisfied if the land is acquired, or what objectives of the authority necessitate the proposed acquisition. The decision maker at the Conservation Authorities Branch cannot, on the basis of information supplied in the brief, make a critical assessment of the need or significance of a proposed acquisition. The decision maker who initially reviews the brief for land acquisition and in a large part determines the outcome, by his own admission, is not sufficiently aware of the projects in the individual authority to be able to make a decision without information supplied by the authority.⁵¹ In particular situations, the problem of lack of information is compounded because the decision maker at the Conservation Authorities Branch who sometimes makes the decision is not the member of the professional staff most capable of making a decision on the proposed land acquisition.⁵²

Each individual on the professional staff at the Branch has his own values and attitudes. As has been pointed out previously, this multiplicity of values, is not integrated because the intellectual or quasi-mechanical process which is characteristic of this level of the decision making organization downplays interaction and allows specific values to become salient. The same situation once existed in the individual authorities, however, it is no longer the case although examples of it can still be found. In the Ausable-Bayfield Authority for example, the presence of the past resources manager's values is evident. Many of these individuals were foresters and consequently

forest and woodlot acquisitions were obtained regardless of the need or value of such properties.⁵³ This situation is no longer the case in this authority or any of the others examined. Decision making procedures used now, since they are group decision making processes, prevent values of the resource manager or any other participant in the decision making organization from dominating the outcome.

Overall, the concept of values is a somewhat general one. Two dimensions have emerged however. Firstly, there are values that underlie the whole process at the authority level. These are values of all the decision makers which, although present, do not influence the actual choice. Secondly, at the upper levels of the hierarchy, where decision makers operate individually, specific values of the individual are more dominant and may affect the outcome.

In review, the context of the decision is an important variable. Three variables have been identified as contributing towards the decision outcome: the temporal element which imposes restraints on the decision makers ability to act; the values of the decision maker himself which predisposes him to choose a certain option; and the political environment which sets the stage legislatively for the decision and which provides a certain term of reference in which the decision maker must operate.

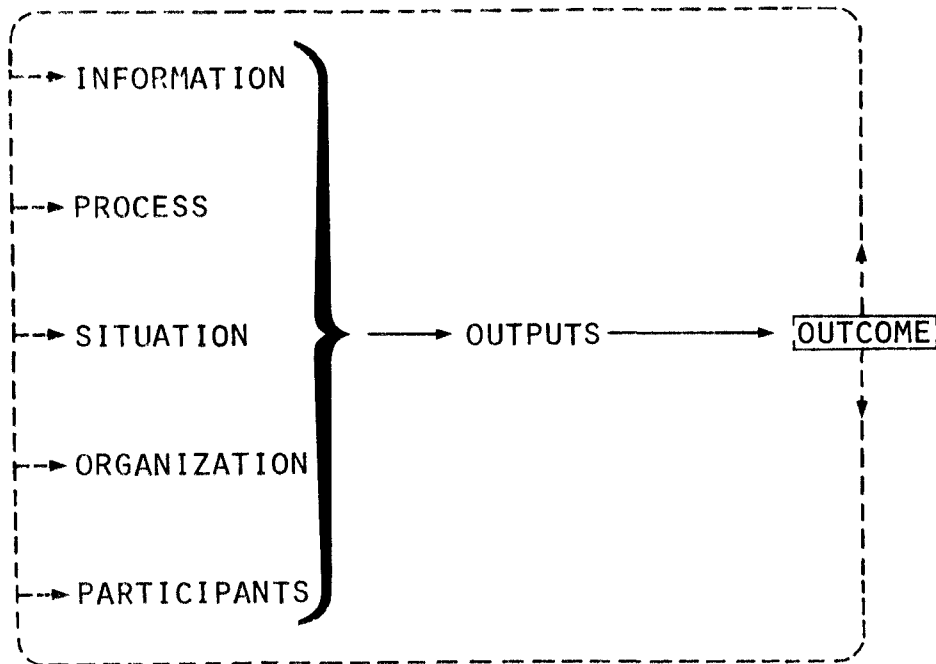
Many of these variables have pertinence to other parts of the decision making procedure. Regardless of their relationship to one another, all the elements and variables combine to produce an outcome which is the culmination of the various components of the decision making operation. It is this final topic that the analysis now considers.

2.7 THE OUTCOME VARIABLE OF THE DECISION MAKING PROCEDURE

The decision sequence is not an open ended system and the outcome should not be considered as an end point. Rather, the outcome should be regarded as a turning point in a closed system. It should also function to focus attention back on the issue that the choice was made in response to. This retrospective analysis should serve to determine if the choice satisfies the requirement that first necessitated action be taken by the decision maker (Figure 15).

It appears, however, that the choice to acquire land, once made, is not reconsidered in terms of impact or to determine if the final choice satisfies the goals, or purpose which prompted the decision to acquire land. When properties are selected for development and acquired, it is to satisfy some goal or overall management plan as set out in The Conservation Authorities Act. The broad goal as stated in the Act is to *"establish and undertake in the area over which it has jurisdiction, a program designed to further the conservation, restoration, development and management of natural resources."*⁵⁴ A specific and formal plan to guide recreational land acquisition does not exist however. Nor is a retrospective assessment of any choice of recreational land made in terms of a larger more inclusive land acquisition program. Decisions to acquire land do not appear to be treated systematically. Projects are carried out with no specific goal or program in mind and consequently, continuity and systematic planning suffer.⁵⁵ Specific goals and explicit objectives known to all the actors within the decision making organization appear to be nebulous, poorly defined and subject to alternation.⁵⁶ This situation further complicates the hindsight review and decision effect evaluation

THE OUTCOME AS A FEEDBACK ELEMENT



----- indicates feedback

since the objectives that the decision is undertaken in an attempt to satisfy are never clearly articulated.

The Saugeen Valley and Ausable-Bayfield Authorities, have established larger and more formal goals that their land acquisitions are designed to satisfy in an attempt to overcome this problem. These larger more formal programs, while commendable, are reduced in their effectiveness since other levels in the decision making organization are unaware of their formation. Consequently, the RECAPS and officials in the Branch do not know that the proposed acquisition is part of the overall program nor do they have the information that the authority had when it decided to designate the project areas.

Decision making would become more effective at all levels if explicit goal oriented programs were established. Hindsight review would be able to tell if objectives were being achieved or if projects were not consistent with a larger goal. At the present time, however, hindsight evaluation is not being conducted at all.

These faults are the most severe in terms of the decision procedure both because they are problems in their own right and because they may lead to other difficulties. Projects and outcomes that would be found to be less than optimal if carefully assessed, become models for subsequent projects or acquisitions that also fail to lead to a realization of objectives. Systematic evaluation of outcomes would prevent this from occurring. Furthermore, failing to evaluate the outcome in terms of large programs or goals may lead to "locking in" whereby acquisitions, formulated without examining the goals that are to be achieved, are continued even though a retrospective examination would serve to illuminate deficiencies and provide an incentive to change.

Should assessment of outcomes be undertaken with the present process, the task would be complicated because of the lack of interaction between the three levels of the decision making organization. The decision making process at the authority level, for example, produces one output which is a result of various processes involving numerous participants who operate within a specific organization. Likewise, at the regional level, the Conservation Authority Program Supervisor assesses the output produced by the authorities decision making procedure from his terms of reference and he too provides an output. The Branch provides the third output when they make a choice concerning the project's or acquisition's desirability.

The outputs discussed above are made, however, in a partial vacuum since the basis for arriving at any particular decision (output) is known only to that level. Decision makers at a higher level are in most cases unaware of what basis and what information was utilized in choosing a particular piece of land for acquisition at the authority level.⁵⁷ Similarly, a negative decision may be made by a higher level in the organization yet the basis for a refusal would not necessarily be known to the authority. This isolation of each unit results in conflict and means that decision makers theoretically may be at cross purposes when deciding on the same project. Moreover, if the criteria used by the decision maker is hazily defined and only vaguely perceived by any other level in the decision making organization, decisions can be made at one level which may well be vetoed at the higher level due to the aggregative nature of the decision making organization.

Evaluation of acquisitions is compromised if decision making criteria are not only inconsistent from group to group but also not known to each of the

three levels in the organization. More explicit criteria for evaluation of alternatives would ameliorate some of the problems mentioned above and this topic will be discussed in greater detail in the following section.

2.8 CONCLUSIONS

In examining and attempting to explain the dynamics of the decision making process used in the selecting and acquiring of recreational land by conservation authorities, a vast number of different variables are operative, both collectively and individually. To maintain conceptual clarity the decision making procedure has been analysed in terms of six variables -- organization, process, situation, information, participants and outcome. It is felt that this framework enables both the breadth of the variables involved and their importance to be taken into account, without losing sight of the decision procedure itself as a unified process.

The elements examined in the foregoing analytical structure in some cases offset and in some cases reinforce one another. Unfortunately, they cannot be assigned quantitative weights than can be used in the development of a precise decision making model which has use in practical situations.

At this stage the analytical structure set forth herein does not in itself, offer clear solutions to the problems that have been identified. It does, however, provide a research framework which enables the first objective of the research to be realized. Furthermore, it serves as a basis so the second objective, which is to design a system to make the decision making procedure more rigorous and efficient, can be carried out. Chapter Three of this thesis deals with this second objective.

F O O T N O T E S

CHAPTER TWO

¹Ontario, Conservation Authorities Task Force, "Report of the Conservation Authorities Task Force", Toronto: 1972, p. 62 (Typewritten).

²See, Ontario, Revised Statutes of Ontario, Chapter 78, The Conservation Authorities Act, (Toronto: Queen's Printer for Ontario, 1973).

³Interview with R. Martin, Resources Manager, Ausable-Bayfield Conservation Authority, Exeter, Ontario, 15 July 1975.

⁴Interview with Bryan Boyce, Resources Manager, Lower Trent Region Conservation Authority, Frankford, Ontario, 2 September 1975.

⁵Interview with P. Gill, Resources Manager, Otonabee Region Conservation Authority, Peterborough, Ontario, 30 July 1975.

⁶Interview with A. McBride, Resources Manager, Saugeen Valley Conservation Authority, Hanover, Ontario, 22 July 1975.

⁷For a similar study, R. H. Platt, The Open Space Decision Process, University of Chicago, Department of Geography, Research Paper No. 142, (Chicago: University of Chicago, Department of Geography, 1972).

⁸Interview with R. J. Dickie, Forestry and Land Use Section, Conservation Authorities Branch, Toronto, Ontario, 21 May 1975.

⁹Interview with A. D. Latornell, Director, Conservation Authorities Branch, Toronto, Ontario, 21 May 1975.

¹⁰See, Ontario, Revised Statutes of Ontario, Chapter 78, The Conservation Authorities Act, Toronto: Queen's Printer for Ontario, 1973.

¹¹ Interview with F. Lemp, Director, Resource Planning Division, Grand River Conservation Authority, Cambridge, Ontario, 8 July 1975.

¹² Interview with W. Lawson, Secretary Treasurer, Lower Trent Region Conservation Authority, Frankford, Ontario, 31 July 1975.

¹³ Interview with A. McBride, Resources Manager, Saugeen Valley Conservation Authority, Hanover, Ontario, 22 July 1975.

¹⁴ Land acquisition briefs from the Saugeen Valley Conservation Authority are processed in less time and other staff are better able to assess land acquisition proposals when made in conjunction with project areas. Interview with J. R. Powell, Southwestern Regional Conservation Authority Program Supervisor, London, Ontario, 8 August 1975.

¹⁵ Interview with R. Martin, Resources Manager, Ausable-Bayfield Conservation Authority, Exeter, Ontario, 14 July 1975.

¹⁶ Interview with P. Gill, Resource Manager, Otonabee Region Conservation Authority, Peterborough, Ontario, 30 July 1975.

¹⁷ See, L. K. Caldwell, "Administrative Possibilities for Environmental Control", in Future Environments of North America, es. F. Darling and J. Milton (New York: Natural History Press, 1966), pp. 648-72.

¹⁸ G. M. Hagevik, Decision-Making in Air Pollution Control (New York: Praeger Publishers, 1970), pp. 97-120.

¹⁹ Interview with M. Coutts, General Manager, Grand River Conservation Authority, Cambridge, Ontario, 14 July 1975.

²⁰ See, for example, Ontario, Conservation Authorities Branch, Lower Trent Region Conservation Report, (Toronto: Queen's Printer for Ontario, 1972).

²¹ Interview with D. Bradley, Long Range Planner, Grand River Conservation Authority, Cambridge, Ontario, 10 July 1975.

²² See, for example, Lower Trent Region Conservation Authority, "Brief Requesting Approval for Acquisition of Land", Frankford, Ontario, no date, (Typewritten).

²³ Interview with D. M. Murray, Eastern Region Conservation Authority Program Supervisor, Kemptville, Ontario, 1 August 1975.

²⁴ Interview with E. A. Wright, Secretary Treasurer, Otonabee Region Conservation Authority, Peterborough, Ontario, 29 July 1975.

²⁵ Interview with H. J. Christian, Parks Assistance Officer, Conservation Authorities Branch, Toronto, Ontario, 13 August 1975.

²⁶ This situation was revealed in an interview with H. J. Christian, Parks Assistance Officer, Conservation Authorities Branch, Toronto, Ontario, 13 August 1975, when he stated that inadequate information on the authorities programs made decision making difficult.

* RECAPS indicates "Regional Conservation Authority Program Supervisor". This abbreviation is used interchangeably with the official title and denotes the same position or individual.

²⁷ H. Ingram, "Information Channels and Environmental Decision Making, Natural Resources Journal, 13 (January 1973): 151-169.

²⁸ Lack of confidence in information provided by the individual authorities was voiced by a number of regional and Head Office staff. For example, interview with J. A. Anderson, Central Region Conservation Authority Program Supervisor, Richmond Hill, Ontario, 29 July 1975.

²⁹ See H. Ingram, "Patterns of Politics in Water Resources Development", Natural Resources Journal, 11 (January 1971): 102-108.

³⁰ See, H. Ingram, "Information Channels and Environmental Decision-Making", Natural Resources Journal, 13 (January 1973): 151-169.

³¹ Statement by Ian Turnbull, Chairman, Long Range Planning Committee, Grand River Conservation Authority, Cambridge, Ontario, 14 July 1975.

³² Interview with B. Boyce, Resources Manager, Lower Trent Region Conservation Authority, Frankford, Ontario, 2 September 1975; P. Gill, Resources Manager, Otonabee Region Conservation Authority, Peterborough, Ontario, 30 July 1975; R. Martin, Resources Manager, Ausable-Bayfield Conservation Authority, Exeter, Ontario, 15 July 1975; A. McBride, Resources Manager, Saugeen Valley Conservation Authority, Hanover, Ontario, 22 July 1975.

³³ Ibid.

³⁴ For a review of research in this area see, B. L. Martin, Experts in the Policy Process: A Contemporary Perspective", Polity, 6 (1973): 149-173.

³⁵ Interview with the staff of the: Ausable-Bayfield Conservation Authority, Exeter, Ontario, 14-18 July 1975; Grand River Conservation Authority, Cambridge, Ontario, 9, 10, 14 July 1975; Lower Trent Region Conservation Authority, Frankford, Ontario, 31 July, 2 September 1975; Otonabee Region Conservation Authority, Peterborough, Ontario, 29, 30 July 1975; Saugeen Valley Conservation Authority, Hanover, Ontario, 22, 23 July 1975.

³⁶ For example, W. R. Sewell, Environmental Perceptions and Attitudes of Engineers and Public Health Officials", Environment and Behavior, 3 (1971): 23-59.

³⁷ B. L. Martin, "Experts in the Policy Process: A Contemporary Perspective", Polity, 6 (1973): 199.

³⁸ Ibid.

³⁹ Interview with Irwin Lobsinger, Past Chairman, Saugeen Valley Conservation Authority, Walkerton, Ontario, 23 July 1975.

⁴⁰ Interview with H. J. Christian, Parks Assistance Officer, Conservation Authorities Branch, Toronto, Ontario, 13 August 1975.

⁴¹ Ibid.

⁴² Interview with: J. Anderson, Central Region Conservation Authority Program Supervisor, Richmond Hill, Ontario, 29 July 1975; D. Murray, Eastern Region Conservation Authority Program Supervisor, Kemptville, Ontario, 1 August 1975; R. Powell, Southwestern Regional Conservation Authority Program Supervisor, London, Ontario, 8 August 1975.

⁴³ Interview with the professional staff of the Conservation Authorities Branch, Toronto, Ontario, various dates, June, July, August, 1975.

⁴⁴ A. D. Latornell, Director, Conservation Authorities Branch, "Internal Memo to Staff concerning Requests for Project Approval", 14 June 1975. (Typewritten.)

⁴⁵ Recommendation number 15 in The Report of the Royal Commission Inquiry into the Grand River Flood, 1974, states that "The evidence indicated that the Branch is understaffed and underequipped to carry out its functions. It is recommended that the Ministry of Natural Resources consider upgrading the Branch and providing it with the proper staff and equipment, so that it can perform its role in a more efficient manner. See, Ontario, Ministry of the Attorney General, Report of the Royal Commission Inquiry into the Grand River Flood, Commissioner, Judge W. W. Leach. (Toronto: Queen's Printer for Ontario, 1975), p. 77.

⁴⁶ Interview with R. J. Dickie, Forestry and Land Use Section, Conservation Authorities Branch, Toronto, Ontario, 13 August 1975.

⁴⁷ Interview with R. J. Dickie, Forestry & Land Use Section, Conservation Authorities Branch, Toronto, Ontario, 13 August 1975, revealed that this situation existed. Field studies and land acquisition recommendations in unedited form were available at the Conservation Authorities Branch for the Ausable-Bayfield watershed, yet no request was made for this information.

⁴⁸ For an assessment of how the time variable affects the decision making procedure, see, J. G. Nelson, J. G. Battin, R. A. Beatty and R. D. Kreutzwiser, "The Fall 1972 Lake Erie Floods and Their Significance to Resources Management", Geographical Inter-University Resource Management Seminars (Proceedings) 5 (1974-75).

⁴⁹ When closely assessed the Act lacks specific statements concerning land acquisition, see, Ontario, Revised Statutes of Ontario, Chapter 78, The Conservation Authorities Act. Toronto: Queen's Printer for Ontario, November, 1973.

⁵⁰ Procedural requirements are contained in Ontario, Conservation Authorities Branch, "Revised Manual of Information", November 1974. (Typewritten and Photocopies.)

⁵¹ Interview with H. J. Christian, Parks Assistance Officer, Conservation Authorities Branch, Toronto, Ontario, 13 August 1975.

⁵² Interview with R. J. Dickie, Forestry and Land Use Section, Conservation Authorities Branch, Toronto, Ontario, 14 June 1975.

⁵³ Interview with L. Hume, Secretary-Treasurer, Ausable-Bayfield Conservation Authority, Exeter, Ontario, 16 July 1975.

⁵⁴ Ontario, Revised Statutes of Ontario, Chapter 78, The Conservation Authorities Act. Toronto: Queen's Printer for Ontario, November, 1973, Article 20.

⁵⁵ Personal Communication with A. D. Latornell, Director, Conservation Authorities Branch, 30 October 1975.

⁵⁶ No consistency was evident when decision makers were questioned concerning authority goals. Decision makers in the same authority had different views of the authority's objective for land acquisition.

⁵⁷ Interview with J. Anderson, Central Region Conservation Authority, Program Supervisor, Richmond Hill, Ontario, 29 July 1975.

C H A P T E R 3

OVERVIEW OF THE MAJOR CHARACTERISTICS

OF THE DECISION MAKING SYSTEM PROPOSED

TO ASSIST IN CONSERVATION AUTHORITY LAND ACQUISITION

OVERVIEW OF THE MAJOR CHARACTERISTICS
OF THE DECISION MAKING SYSTEM PROPOSED
TO ASSIST IN CONSERVATION AUTHORITY LAND ACQUISITION

The objective of this part of the research is to identify and outline the elements of a decision making system which can be used to upgrade the existing land acquisition procedure used by the conservation authorities in Ontario. Aspects of the system examined in this chapter are intended only to provide an overview and no attempt is made to include all the elements of the system or model the complexity of the interaction between the different elements. That task is carried out in the fourth chapter of the thesis

3.1 PERSPECTIVE ON THE SYSTEMS APPROACH

In the previous section the analysis concentrated on how decisions to select, acquire and develop recreational properties are made in five conservation authorities in Ontario. The Regional Conservation Authority Program Supervisor and the decision makers at the Branch, also part of the process, were included in the analysis. Six main characteristics of the decision making procedure were used to provide a framework for analysis. This method of examination revealed similarities and differences among the decision making processes. Efficiencies in land selection and acquisition were also identified as were shortcomings and limitations.

The six variables that have been used as a framework to analyse the existing decision making process also serve as an explanatory perspective

in the form of a system. The system concept has obtained wide spread acceptance in decision making studies and a number of examples of its use are well known. The Economic Council of Canada, for example, in its Eighth Annual Review investigated various new approaches to decision making and found the systems method to offer the best perspective when analysing government decisions. In the same study, the Council relied on this approach when constructing a framework for government decision making.¹

Although the majority of researchers subscribe to the use of a systems approach when analysing government decision making, some believe that other methods of analysis offer more valuable approaches. In order to put the approach in perspective, and to illustrate the most salient characteristics of this method, a brief discussion of the systems concept as it pertains to decision making will be presented.

The idea of a system seems only recently to have diffused out of a scientific context into everyday use; yet the term has been common in the past, although denoting a different concept. As well as physical systems, reference is now made to social systems, education systems and numerous others. In spite of this considerable use, it is not an easy term to define. The basic idea is clearly that of a unity formed of many diverse parts subject to a common plan or serving a common purpose; or, alternatively, components that work together for the overall objective of the whole.

Systems do not necessarily stand alone or move in isolation. In fact they usually exist in hierarchies that overlap or are mutually interdependent. For example, the recent concern about environmental conditions has sharpened awareness of the ecological system with its interrelatedness

of natural life forms, that function as a system with balances and counterbalances inherent so as to preserve the unity of the system.

The essence of systems analysis as it relates to decision making is in reality quite simple. It consists of a preliminary objective; the derivation of a process that is in balance, interrelated, and which aids in the selection of alternate paths for achieving the goals or objectives: in this case, acquisition of land for recreational purposes. As the options are enumerated they are considered in light of the goals that have been made explicit at the outset, and a feedback mechanism, inherent in the system, allows the options to be reviewed so the most desirable alternative can be chosen. This process is usually dynamic -- that is, ongoing and repetitive, involving a continuous re-evaluation of alternatives, objectives and results.

One important effect of the systems way of thinking about decisions is to stress interrelatedness. Indeed, a key ingredient in all views of the systems approach to decisions is interrelatedness, which leads in theory, to a consideration of the whole system. While this approach is appealing it is apparent that it is not possible to consider all factors that bear on the decision. The illusion that everything is, or can be taken into account, in decision making conducted from a systems perspective is misleading. Systems analysis does, in some ways, provide the basis for recognizing at least in part what is and what is not accounted for.

Unfortunately, the very word "system" has an aura about it that frequently leads to misunderstanding. While the term suggests certainty, predictability and control, certain of these features cannot be included.

Some relationships are uncertain and unquantifiable although all systems are not afflicted by elements of uncertainty.

3.2 POLICY AND OBJECTIVES LEVEL OF DECISION MAKING

One concept which is of primary importance and is of key relevance in both the first step of the decision making process and ultimately in all the steps of the procedure is the delineation of goals or objectives which the decision is made in an attempt to satisfy. The establishment of goals can be viewed as having significance mainly in terms of the situation-context group of variables and the outcome component.

The Conservation Authorities Branch, like many other natural resource management agencies is an organization that has diverse objectives. These goals have been specified generally in the Conservation Authorities Act but it is sometimes difficult to know whether they have been attained due to their general and nonspecific nature. Likewise, it is sometimes impossible to determine whether projects are successful because no operationally meaningful measure of success has been stated.

The first premise of the new system is that inclusive, specific goals should be articulated at the outset. It is desirable in all phases of decision making to have broadly stated objectives embodied as policies which can be used as goals. The Conservation Authorities decision making will be improved if special efforts are made to state long term objectives and to be explicit about what specific acquisition and development programs are to accomplish. Past research has shown that it is easier to make a decision when all levels of the decision making organization know and are

aware of what broad long range goals exist for recreational development in watersheds generally.² Moreover, in terms of outcome and evaluation of each individual decision, it is easier to evaluate an action when the agency, on all levels, has a measure of what constitutes success.

By establishing explicit goals and making known conditions which have a bearing on the decision, the chances are increased that the decision, when made, will actually reflect what the participants in a decision process intended. Being precise and explicit is also an end to rational consideration of alternatives and acts as a catalyst for the enumeration of options which if adopted, can lead to realization of the goals.

It is important to realize and emphasize the nature of the goals that are being advocated as a primary step to improving the decision making process. The purpose is not to specify goals so precisely as to overemphasize measurable objectives to the detriment of non-measurable but equally important objectives. Specificity about objectives and goals will, however, serve to improve the enumeration of options which can satisfy the goals; positively influence the situation/context in which the decision is being made; provide greater information to assist in selecting the most desirable option; provide a basis for retrospective review of particular decision outcome, and furnish an objective criterion that all participants, especially those at the upper level, can use for making choices. If goals were stated the influence of subjective criteria which are often the basis for decisions in the present system would also be lessened.

The design and formulation of long range goals and priorities is not the responsibility of the lower level of the decision making organization.

Nor should only one perspective be used when formulating a broad course of action and charting the direction and position of the agency. The two upper levels of the organization, in collaboration with one another, must formulate and articulate some policy or goals which would serve to put the rest of the procedure in perspective. Chief responsibility for formulation of policies must lie at the highest level of the decision making hierarchy -- the Conservation Authorities Branch. The system requires that broad alternatives be chosen and priorities established here so as to arrive at policy objectives. These objectives, when formulated, can be viewed as general statements of intent directed toward achievement in particular goal areas.

Previous requests have been made for the Conservation Authorities Branch, in conjunction with other agencies, to define the role that provision of recreational facilities in the watershed should have.³ The Conservation Authorities Act sets forth certain broad courses of action which are to be adopted by the individual authorities, however, these do not provide operational guidelines for recreational land selection, acquisition and development.⁴

The process whereby the policies and consequently goals and objectives are formulated and chosen, while an executive requirement, should be made in a pluralistic setting. In such a setting divergent opinions and inputs from the professional staff as a whole can be synthesized and integrated. Moreover, an effective policy requires multiple inputs so that the end result will reflect a wide perspective. The weight placed on each part must also be decided upon through a social decision making process so that

the policy represents an integrated approach.

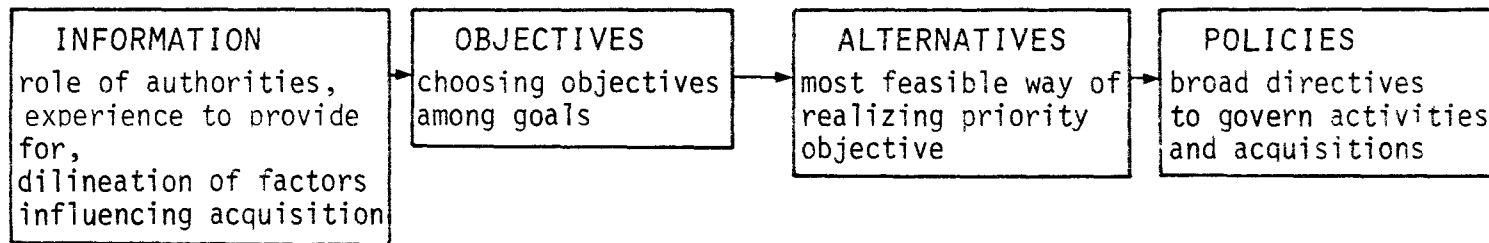
The first questions that should be asked in deciding upon a strategy or policy are very straightforward and are dealt with in greater detail in the next chapter. Briefly, the policy should address the authorities' role in supplying recreational facilities in Southern Ontario. What part of the recreational experience is catered to in the authorities' areas should also be addressed and the factors that should influence acquisition of land for recreational use and development is a third important issue which should be examined. When these and other concepts like them have been resolved then policies that reflect the emphasis and objectives of the authorities can be formulated.

Each policy situation presents specific alternate ways of meeting objectives. Some of these may in specific situations be unfeasible for various reasons but the essence of policy formation is the selection and combining of strategies aimed at meeting objectives while considering the widest possible range of alternatives. The most desirable alternative in terms of many considerations will be the one that is chosen to satisfy the objectives and consequently becomes the policy (Figure 16).

3.3. OPERATIONAL PROGRAM LEVEL OF DECISION MAKING

A second level of decision making bridges both the executive level, where broad inclusive goals are articulated in policies, and the administrative or tactical level of decision making represented by the individual authorities. At this level questions such as: what broad

THE GOALS AND POLICY LEVEL OF THE DECISION MAKING SYSTEM



Source: Author's Conceptualization

FIGURE 16

programs, which, when implemented in their entirety will lead to the realization of the broadly formulated goals encompassed as policies should be resolved. This is the level at which alternative programs should be designed and evaluated, outcomes anticipated, and the information needs of the entire decision making organization assessed. For lack of a better nomenclature, this level may be called the operational stage.

Previous discussion has focussed on the formulation of broad policy statements but no mention has been made of designing appropriate approaches for constructing and formulating program alternatives. The operational level is included as part of the system to provide a functional terms of reference which will allow the individual authorities to work with greater ease. It is equally important that analysis at this point take account of alternatives and interrelationships since it is the middle level in the system and must tie together the abstract policy level and the project oriented tactical level of the individual authorities.

The second level provides a term of reference for formulating small projects which can be viewed in terms of the operational program by decision makers at all three levels. Operational programs must be structured so as to reinforce and not impede progress toward the large policies or objectives and must be designed so as to give direction and provide a terms of reference for the development of small projects. If design and formulation of the operational program does not serve this function, the operational stage becomes more a liability than an asset, serving only to further segment the decision making process. Methods and options for fulfilling the upper level policies must be recognized at the operational level and

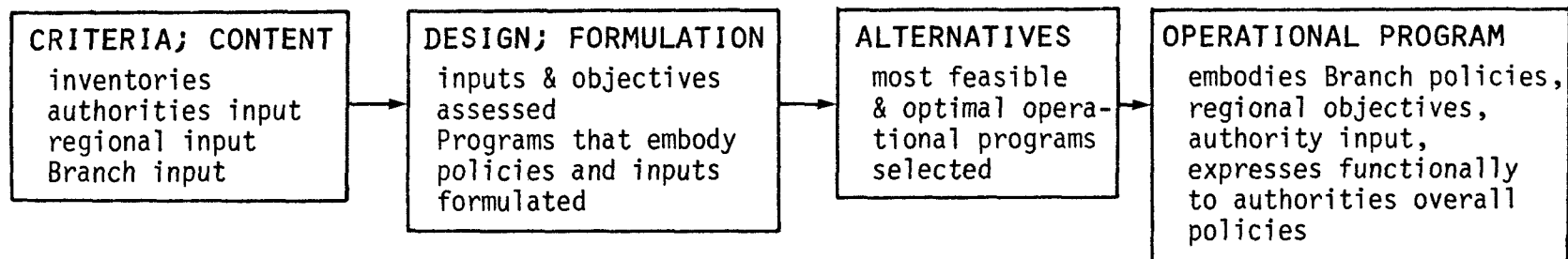
articulated in terms of programs so decision makers and individuals at the authority level can more easily perceive the direction that is most optimal for the authority.

Although the operational level is a stage that is not always differentiated in resource management decision making it is a necessary one.⁵ Government agencies propose policies which, in the absence of such a step, must rely on traditional small scale administrative projects to become implemented. In many instances, relationships between policy and administration are so stressed as to impede decision making which in turn obstructs the realization of goals. While the value of the executive and administrative arrangement in some situations has merit, the addition of another level, which serves to make functional the formulated policies, leads to more directed channelling of small projects, and ultimately leads to better decisions has a purpose.

Furthermore, the present organization is structured at three specific levels. The last chapter has shown that the role and function of the regional decision maker is not made explicit and many responsibilities at this level are shared with the Branch. This arrangement leads to friction and less than optimal utilization of the position occurs. The operational level, as it is termed in the proposed system, overcomes this difficulty by stating clearly the role of the regional level decision maker and making clear his responsibilities (Figure 17).

3.4 TACTICAL OR IMPLEMENTATION LEVEL OF DECISION MAKING

THE OPERATIONAL PROGRAM LEVEL OF THE DECISION MAKING SYSTEM



Source: Author's Conceptualization

FIGURE 17

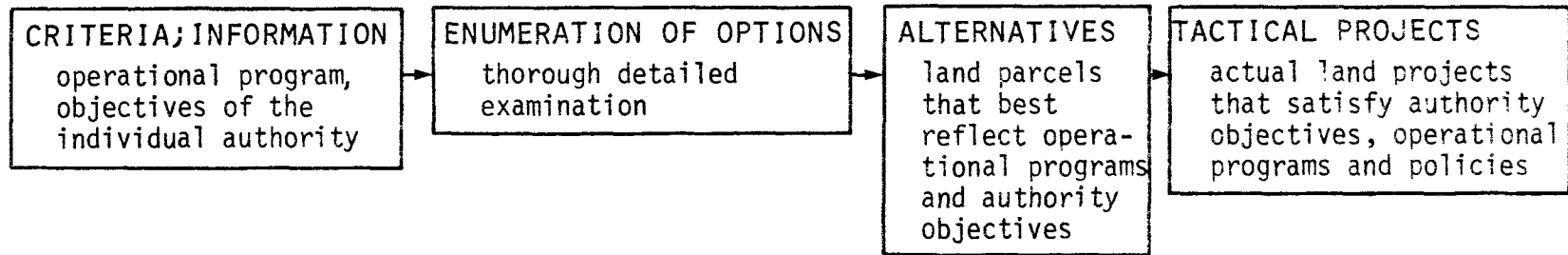
The fact that there are many links in the chain of public decision making greatly increases its complexity. The preceding sections have stressed that policies and objectives must be formulated at the executive level of government and that operational programs set out to augment and express fully these policies at a second level.

The third and final level in the decision making system is project oriented and deals with administrative questions. This is the final level of the decision making process where projects are formulated in terms of operational programs to achieve the priorities and broad objectives of the executive policy (Figure 18).

A specific land acquisition policy for example, is set out at the policy level, is expressed in functional terms at the operational program level and is finally realized as a specific project at the tactical level. The tactical project is only one of a number of options available under the operational program, any of which would lead to a realization of the goal. In this way the three levels that are all related to goals, are used to lead to a better allocation of land resources.

At the outset of this chapter it was mentioned that the setting of goals and clarifying the way these goals are attained is a primary step in the decision making system which has ramifications for all of the six variables discussed in Chapter One. Two of these variables, the situation and the outcome, were noted as being most directly implicated in regard to this subject. A brief conceptual overview of the three level decision making system has been presented in this section and it is apparent that the new system differs from the old in a number of ways.

THE TACTICAL OR IMPLEMENTATION LEVEL OF THE DECISION MAKING SYSTEM



Source: Author's Conceptualization

FIGURE 18

The three levels in the system provide a basic structure for the framework and are its most important attributes generally. One additional feature of the system which warrants consideration at this stage is the feedback mechanism.

3.5 FEEDBACK CHARACTERISTICS OF THE SYSTEM

The conditions that decisions were made in response to are not static and unchanging. The context in which the decision is made is constantly being altered, partly as a result of decisions made by the agency. In these circumstances there is no guarantee that the anticipated or designated policies or goals will be attained no matter how well designed they may be. What is required is a systematic way of learning from decisions that have been made so that the decision maker can realize the gap between the intended and the actual result and take action to realize the goals in subsequent acquisitions.

The proposed system makes provision for this feature. It provides for the feedback of information into the decision making process from ongoing evaluation of programs. Where the outcome is not what was expected or wanted, the decision maker has the opportunity to adapt or revise either the tactical or the operational program.

Feedback may also perform a slightly different function. Ideally, operational programs and tactical projects are expressions of the actual objectives and policies. However, policies aimed at providing broad guidelines in the resource management and recreational field may require alteration because of changes in government policy or reorganization. Feedback from

programs gives an indication of the goals being aspired to and those achieved and provides a concrete base from which to work when realigning objectives, strategies and even policies.

Systematic feedback mechanisms which permit reassessment of policy and program areas significantly increase the prospect of attaining policy objectives. There should therefore be provision for continuing evaluation and regular reviews of the results of particular programs at periodic intervals (Figure 19).

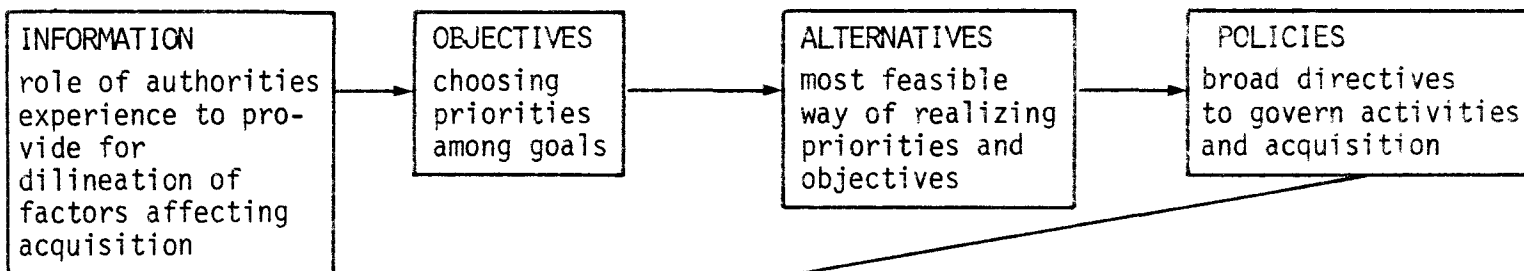
3.6 SUMMARY

The discussion to this point has emphasized certain key features of an altered public agency decision making system. First, the executive level of the agency is faced with the choice of alternatives at the levels of objectives, policies and goals. Second, programs which make operational the policies, objectives and goals of the executive level must be formulated by a middle range of decision makers. Thirdly, projects couched in terms of the operational programs must be designed by the tactical or administrative level in the decision making hierarchy. The fourth element that is essential in this regard is a need for ongoing evaluation of projects and programs and a continuous feedback of information into the decision making process so that objectives, policies, programs and projects can be re-assessed and, if necessary, realigned in light of the actual results.

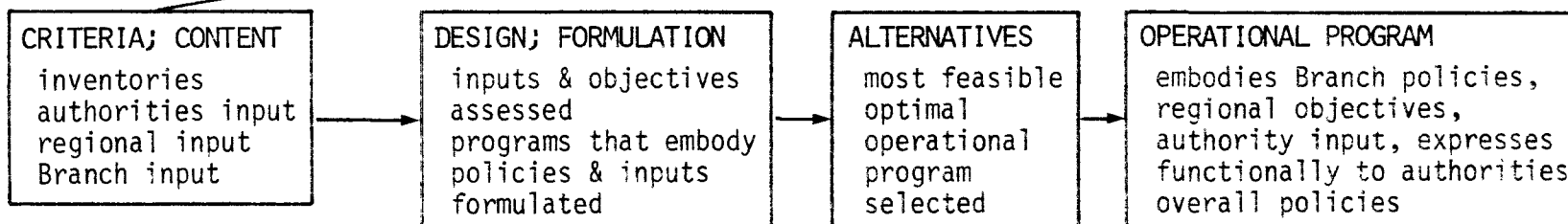
The formulation of goals, policies, programs and projects is an essential concept in a systematic decision making process. In terms of the six variables that were used to analyse the existing decision making procedure

THE THREE LEVELS AND THE INTERNAL FEEDBACK COMPONENTS OF THE DECISION MAKING SYSTEM

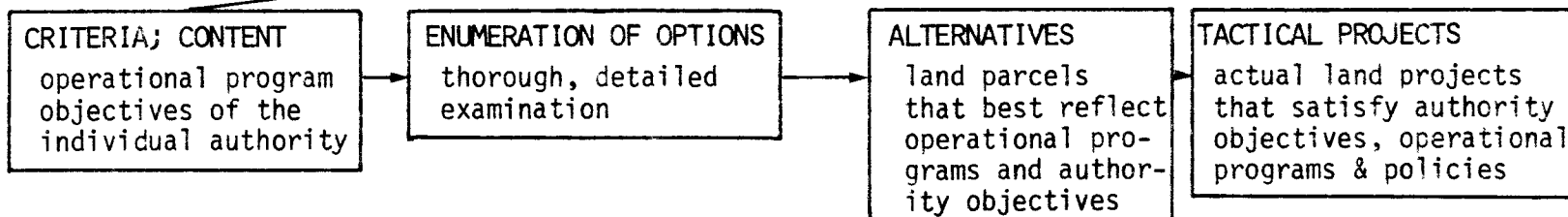
POLICY LEVEL



OPERATIONAL PROGRAM LEVEL



TACTICAL; IMPLEMENTATION LEVEL



Source: Author's Conceptualization

FIGURE 19

the statement of goals at several levels provides an improved context/ situation in which the decision is made and affects the outcome and its related variables.

Although there are obvious implications in terms of the context and outcome variables, the proposed system also involves, in general principle, the participants, information, process and organization variables. To give more complete treatment to the dynamics of the system the following chapter deals with the system in greater detail generally and in terms of these variables specifically.

F O O T N O T E S

CHAPTER THREE

¹Canada, "Design for Decision Making", Eighth Annual Review of the Economic Council of Canada (Ottawa: Information Canada, 1971), pp. 35-62.

²Alice M. Rivlin, New Approaches to Public Decision Making (Ottawa: Information Canada, 1971).

³Conservation Authorities Task Force, "Report of the Conservation Authorities Task Force", Toronto: 1972, (Typewritten).

⁴Goals or objectives of Authorities are stated in the legislation. See, Ontario Revised Statutes of Ontario, Chapter 78, The Conservation Authorities Act. Toronto: Queen's Printer for Ontario, November 1973 (Office Consolidation), Article 19. However, the lack of specific goals has been addressed by at least one group. See Ontario, "Report of the Select Committee on Conservation Authorities", 1967, p. 36 (Typewritten).

⁵See, B. L. Driver, "Some Thoughts on Planning, the Planning Process and Related Decision Processes," in Elements of Outdoor Recreation Planning, ed. B. L. Driver (Ann Arbor, Michigan: The University of Michigan Press, 1974), pp. 195-212.

C H A P T E R 4

DEVELOPMENT OF A COMPREHENSIVE SYSTEMS FRAMEWORK
FOR ASSESSING CONSERVATION AUTHORITY RECREATIONAL
LAND ACQUISITIONS

DEVELOPMENT OF A COMPREHENSIVE SYSTEMS FRAMEWORK
FOR ASSESSING CONSERVATION AUTHORITY RECREATIONAL
LAND ACQUISITIONS

This chapter of the thesis leads to a realization of the second objective of the research by providing a more detailed examination of the elements of the decision making system that was presented briefly in the preceding chapter. To ensure a clear picture of the individual elements of the system the components of the system are identified in terms of the six variables used in the first section. Not only does this method maintain clarity and order but it also allows for changes and differences between the existing decision making procedure and the proposed system to be examined. Furthermore, the six variable approach is consistent with the systems perspective and augments the basic three level breakdown of policy level; operational program level; and, tactical project level as discussed earlier.

4.1 CONSERVATION AUTHORITIES BRANCH:

DECISION MAKING FACTORS FOR CONSIDERATION

The levels of decision making that have been briefly outlined as necessary prerequisites to constructing a systematic decision making process impose certain requirements in terms of participants. The question of who is involved in these three levels of decision making is an important one and will be addressed first.

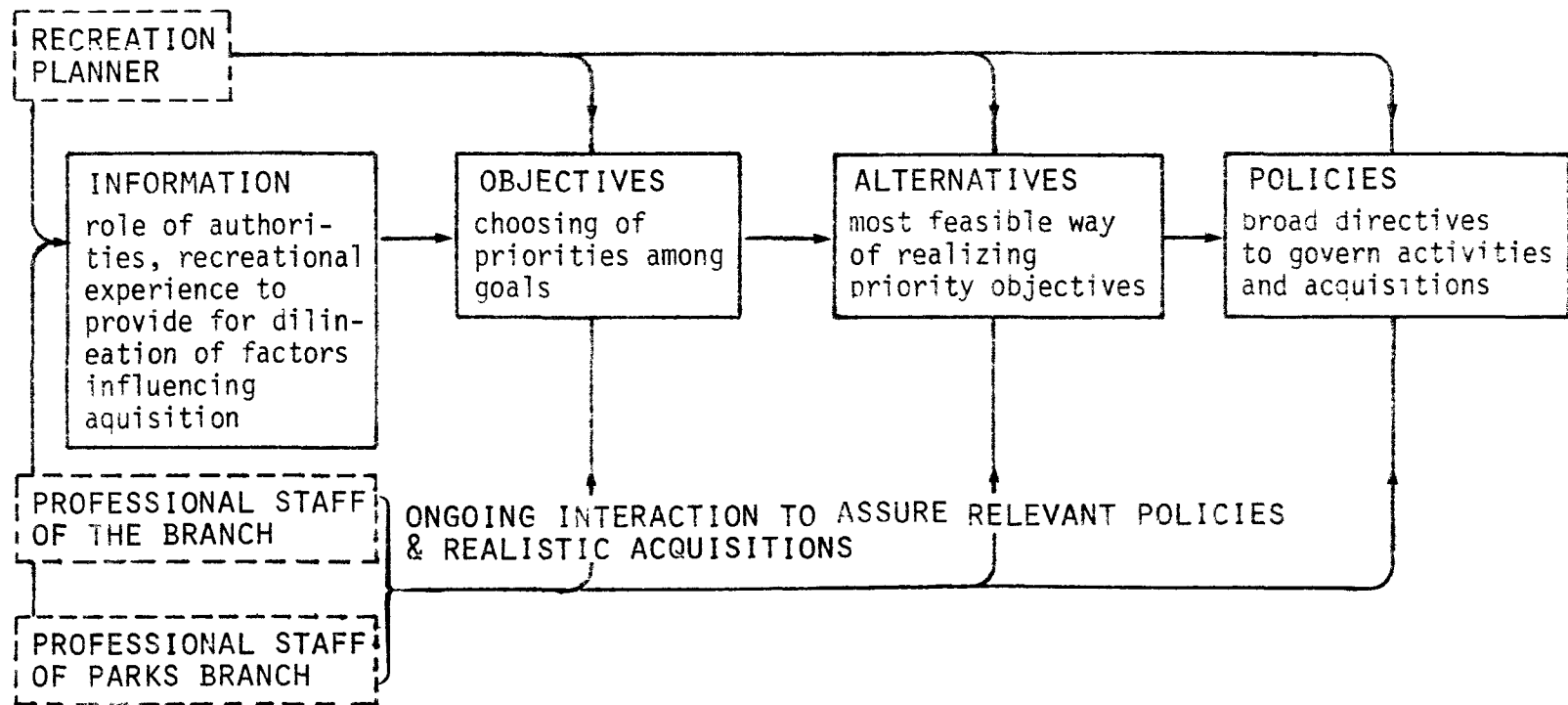
It is recommended that the highest level of decision making dealing with policies and objectives be carried out by the decision makers at the Branch.

Collectively these individuals should formulate policies which define the broad role of the conservation authorities in the provision of recreational facilities in the Province. Such policies and objectives should not be formulated alone but in conjunction with the Ministry of Natural Resources, especially the Parks Branch, so that roles can be differentiated and the individual authorities when acquiring land can be guided by the official stance concerning provision of recreation land.

In terms of participants involved at this level of the system, it is recommended that a recreational planner always be retained by the Branch. The individual who fills this position, which has remained vacant until recently, should have expertise in policy fields as well as planning from a design standpoint. The planner could assume the main responsibility for the completion of policy formulation and bring expertise to bear on the problem as it has been identified. The present staff because of their different training and heavy responsibility in other areas cannot initiate and undertake such a task. It is important, however, that they participate so that individual values and attitudes do not bias the formulation of policy (Figure 20).

In the preceding section the need for feedback and monitoring in all levels of the decision making process was noted. The policy stage in the system is one level which can benefit from a systematic feedback process. Decisions made at the Branch level have direct implications for the rest of the procedure since it is the executive Branch of the decision making hierarchy. Therefore, it is essential that continuing evaluation be conducted so as to ensure that policies formulated for Conservation Authorities, are still serving their purpose in broader terms and remain realistic and adequate in terms of

PARTICIPANTS AND PROCESS INPUTS AT THE POLICY LEVEL OF THE DECISION MAKING SYSTEM



- - - - Indicates participants or groups of participants.
 ———— Indicates social or pluralistic decision making processes.

Source: Author's Conceptualization

FIGURE 20

other closely related policies. Also conditions may be altered and in turn dictate a change in policies and objectives. The professional staff of the Branch should therefore, in conjunction with other agencies who have responsibility in the same area, review stated policies and objectives to ensure their continuing relevance.

The question regarding the content of these policies is an important one and warrants examination at this stage. In terms of the six variables outlined in the first section, the content of policies is an information variable.

The content of policy at the Branch level must be adequately broad so as to represent an exclusive position on provision of recreational properties but also be specific enough to permit realistic formulation of operational programs and tactical projects. It is therefore recommended that policy be formulated which states the goal of the authorities in provision of recreational facilities; distinguishes the role of recreational oriented conservation areas; articulates in operational terms the difference between conservation areas and facilities furnished by National and Historic Park Branch of the Federal Government, the Provincial Parks Branch; those facilities furnished by the private sector; distinguishes in concrete terms the general characteristics of recreationally oriented conservation areas; and, states the sort of recreational experience that the authorities try to provide for in conservation areas. Policies of the sort suggested above should also state clearly the priority that provision of recreational facilities has in the authorities general program (Figure 21).

In the second chapter the dominance of values, attitudes and biases

SELECTED INFORMATION INPUTS AT THE POLICY LEVEL OF THE DECISION MAKING SYSTEM

- 1) goal of the authorities in provision of recreational facilities.
- 2) distinguish the role of recreation oriented areas.
- 3) articulate in operational terms the difference between Conservation areas and other public provided recreational facilities.
- 4) make explicit the characteristics of recreation-ally conservation areas.
- 5) type of recreational experience that authority recreational areas are catering to.
- 6) role that recreation plays in regard to the rest of operations of the authority.
- 7) priority that provision of recreational facilities has in the authority programs.

INFORMATION →

OBJECTIVES
choosing
priorities
among goals

→

ALTERNATIVES
most feasible
way or realizing
priority
objectives

→

POLICIES
broad direc-
tives to
govern
activities &
acquisitions

Source: Author's Conceptualization

FIGURE 21

of individual actors was identified as a factor which reduced the objectivity of the decision makers process of selection. In some cases the lack of information and the failure to specify responsibilities was hypothesized as being a chief cause of this condition. Under the proposed system, the participants would be required to formulate policies and synthesize inputs from other sources in a group setting using a pluralistic process. This altered process and role should overcome the incidence of individual actors acting alone by making participants responsive to new information and by instituting a decision making process emphasizing communication.

As a general principle, the organization of government agencies is resistant to change and even small alterations in organizational structure are not always successful.¹ The existing organizational structure appears adequate. Rather than change the organization, it is recommended that only the participants, their roles and duties be modified and the process whereby they exercise their judgment be altered. The organizational structure, since it is resistant to change, remains virtually unaltered in the new system but each level carries out the job to which it is best suited. The inputs into the systematic decision making process detailed above, reflect and embody these recommendations.

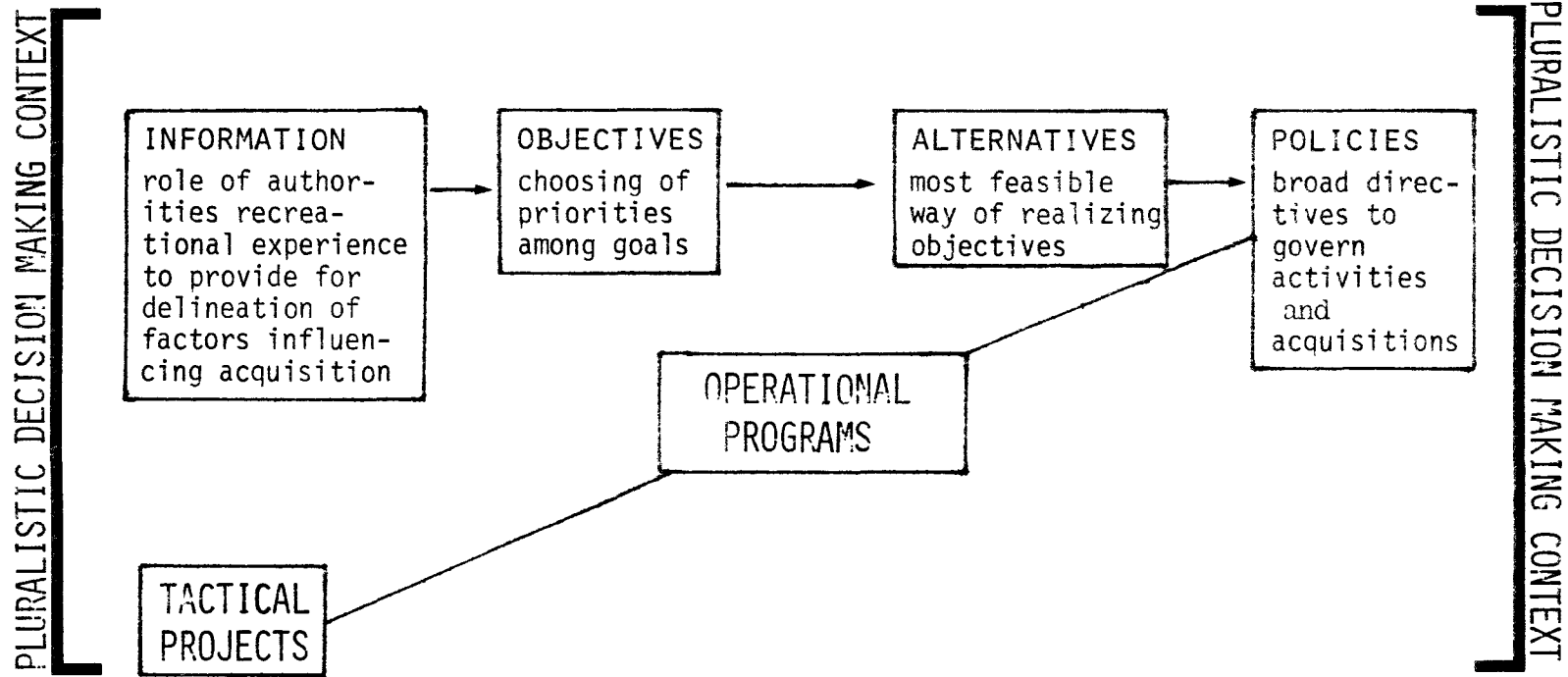
The decision making process at the executive level is quasi-mechanical in nature with little interaction among decision makers. Individual actors themselves decide, often without input from other individuals, on what decision making criteria they will use and what decisions made by the lower levels of the hierarchy, should be ratified. This arrangement also leads to the overdominance of values and biases of individual actors.² To overcome the

difficulties enumerated above, the decision making process at the Branch level should be oriented toward group decision making, the context of the choice procedure altered to encourage communication and the number of information inputs increased. The inclusion of a social decision making process at the executive level should preclude or reduce the influence of biases, values and attitudes.

The nature of the system requires that inputs from more than one perspective be included in order that the effectiveness of the system be maintained. Moreover, the need for social process must extend beyond the formulation and selection of policies. Decisions made by the executive level on projects submitted by the individual authorities must also be made in a context where information is adequate and communication unimpeded. The value of decision making criteria, devised by decision makers operating within a social process, is partially defeated if decisions on actual projects are not made by utilizing multiple inputs and obtaining as many perspectives as possible.³ It is not necessary to convene formal groups to consider every small project but operational programs should have the collective attention of all the executive level decision makers, and decisions on small projects, made in terms of operational programs, should receive group consideration before a decision is made.

In summary, the modified inputs at the policy level are mainly in terms of situation, outcome, information, and process (Figure 22). The existing organization requires few modifications and remains as it was.⁴

SELECTED SITUATION AND ORGANIZATIONAL INPUTS AT THE POLICY LEVEL OF THE
DECISION MAKING SYSTEM



[] indicates situation or context in which the decision is made.

Source: Author's Conceptualization

FIGURE 22

4.2 CONSIDERATIONS RELATED TO THE OPERATIONAL PROGRAM LEVEL OF THE DECISION MAKING SYSTEM

The second level of the new decision making system can be termed the operational program level. In the new system this level is envisaged as a stage where goals, stated as policies, are made operational. These programs are formulated in conjunction with the individual authorities and other professional staff at the regional levels. Subsequent review of these operational programs is carried out by the Branch. The programs by necessity must be responsive to the policies and goals of the Branch and in this way continuity in the overall process is maintained.

In one sense operational programs can be termed goal indicators since they provide a terms of reference for the individual authorities on which to base their decisions when they proceed to select and acquire individual land parcels for recreational use. Policy formulation can also be guided by these programs since the policies and goals are in abstract terms whereas operational programs are relatively specific. When a particular land acquisition project, couched in terms of the operational program, reaches the upper level of the hierarchy for consideration, the decision makers at the Branch are able to assess the extent to which each individual acquisition satisfies the established goals of the Authorities Branch as a whole. This mechanism therefore provides a form of feedback which serves as an indication of goal achievement.

The first section has noted that the Regional Conservation Authority Program Supervisors, the participants at the middle level in the organization, are in conflict with decision makers at the Branch because of similarity of

roles. The actions of individual actors with strong personalities and distinctive perceptions of their official position have lead to difficulties resulting in role conflict and clashes with individual actors at the Branch who view the role of the Conservation Authority Program Supervisors differently than those who serve in that capacity. To overcome this difficulty the RECAPS should have their role altered. They should, in conjunction with the individual authorities attempt to devise and design broad programs which would express the goals and policies established by the Branch. This will still preserve the role of program supervisor but will allow an input from professionals at the regional level and allow constructive contribution from the RECAPS who is now limited to a supervisory role. The lack of definition in the role of the Conservation Authority Program Supervisor has caused conflict in the past. Input of the sort proposed above should encourage a productive relationship between the regional level and the Branch.

The title "*Regional Conservation Authorities Program Supervisor*" does not at the present time, portray accurately the role that such individuals play. The RECAPS spends a majority of his time reviewing small projects, most of which stand alone in terms of broader projects or programs.⁶ As such, a concrete program for the RECAPS to supervise has not always been formulated. If such a program exists at the authority level it is not always articulated to the RECAPS. Providing the Conservation Authority Program Supervisor with a role in the formulation of an operational program will furnish a valuable input and will enable the RECAPS to more effectively supervise and direct the activities of the authorities within the region.

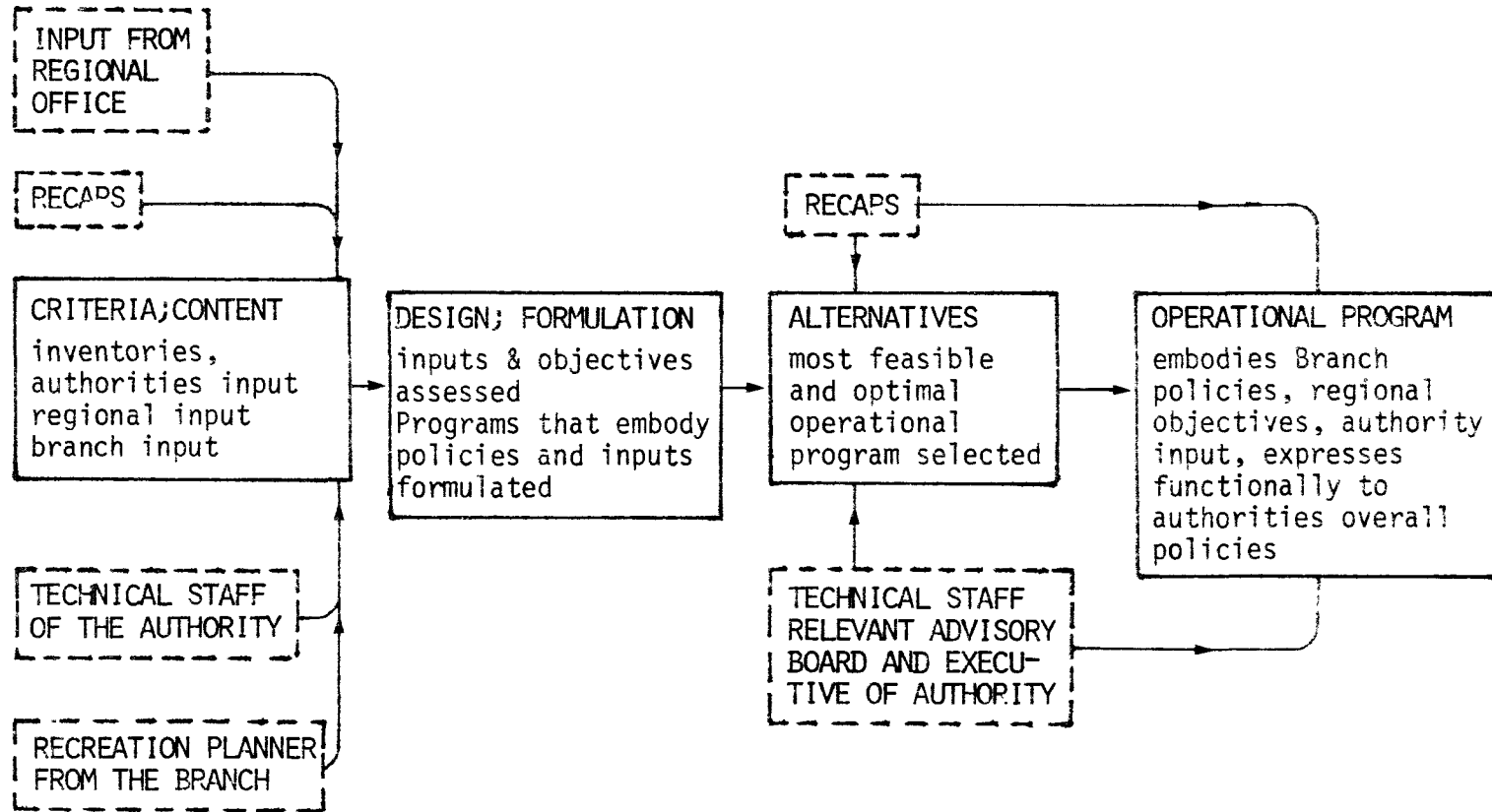
The fact that the RECAPS reports to the regional director as opposed

to the Branch will also enable the expertise of the regional office to be brought to bear on specific programs of the authorities of the region, a feature which is not widespread now. Working in conjunction with the various staff of the authorities will also have positive results which will be detailed in the discussion of the tactical decision making level which follows (Figure 23).

The content of operational programs will obviously vary in each authority and different information will have to be included in each operational program. In general terms, however, the content of the operational program should be of three varieties. Firstly, the program should address the need for recreation in the watershed and make explicit the authorities' role in providing recreational opportunities for the populace. This will differ in each authority since recreational needs are different both in the specific watershed and the region and provision of facilities by other agencies with responsibility for recreational planning and management will also vary. The program should also make explicit the priority that provision of recreational facilities has in terms of its overall program and make known the intent in the provision of recreational opportunities. Such a statement will not only provide better criteria for decision making in the Authorities but also furnish other agencies with information that is necessary to ensure co-operation and continuity in the overall provision of recreational facilities.

The second part of the operational program should provide information in survey fashion of the most important recreational resources of the watershed and note how they compare to regional resources which also have significance for recreation. The operational program should also make known the kind of

PARTICIPANTS AND PROCESS INPUTS AT THE OPERATIONAL LEVEL OF THE DECISION MAKING SYSTEM



□ □ □ indicates participants or groups of participants

— indicates interaction or pluralistic decision making processes

Source: Author's Conceptualization

FIGURE 23

facilities that best utilize the recreational resources and those that are most needed by the populace. This requires knowledge of the supply-demand situation in the area and such data can be made available by the staff of the regional office.

Resource based, intermediate and user oriented facilities provide an accepted breakdown of facility type and the operational program should make known the priority that the authority has for development of each of the three types of areas.

Finally, the operational program should designate and delineate broad geographical areas representing what has been expressed in the operational programs. These areas are, in effect, functional expressions of the broad policies and goals formulated at the executive level.

The operational program is an integral step in the decision making procedure and its content must be reviewed periodically both in regard to policies, other regional plans and directives and specific tactical projects. As a middle level in the decision making organization, feedback is provided by the tactical level of the authorities and the executive level of the Branch. In addition, the RECAPS, because of his position in the regional office, can assess the operational program in terms of other programs and undertakings at the regional level (Figure 24). This feedback also provides an additional input for systematic review of the operational program.

At the present time, the decision making process at the second level of the hierarchy is quasi-mechanical. Here individual actors decide on alternatives by means of an intellectual process whereby they receive relatively few inputs from other sources. In the system being proposed, however, the

INFORMATION INPUTS AT THE OPERATIONAL PROGRAM LEVEL OF THE DECISION MAKING SYSTEM

- 1/ Statement concerning need for recreation in the watershed. Make explicit the role of the authority in providing recreation in the watershed and the region as a whole.
- 2/ Information in survey fashion of the most salient recreational resources of the watershed and note their significance in a regional context.
- 3/ Type of facilities that best utilize these recreational resources identified.
- 4/ Make known the priority that the authority has for development of Resource based, Intermediate and User oriented areas.
- 5/ Designate broad geographical areas representing what has been expressed in the operational program.

CRITERIA:CONTENT

DESIGN FORMULATION
 inputs and objectives assessed. Programs that embody policies and inputs formulated.

ALTERNATIVES
 most feasible and optimal operational program selected

OPERATIONAL PROGRAM
 Embodies Branch policies, regional objectives authority in-out. Expressed functionally to authorities overall policies.

Source: Author's Conceptualization

FIGURE 24

method would be more pluralistic and is essentially a social process. It is desirable that interaction take place between decision makers at this level since multiple inputs will be made by a number of individuals thereby offsetting the influence of individual actors.

Under the proposed system, RECAPS will continue to receive the briefs outlining individual authority acquisitions, and their ratification or refusal will continue to be the responsibility of the Conservation Authority Program Supervisor alone. However, the fact that more concrete choice criteria exist in the form of operational programs, derived through interaction and by means of social processes, will make the choice procedure pluralistic to a degree and should reduce the inordinate influence of the individual actor at this level.

One characteristic of the existing decision making process in most of the authorities analysed is the isolation of the staff from the rest of the decision making hierarchy. This isolation is a function of the quasi-mechanical decision process which results in the segmenting of the organization. The operational program is to be researched, designed and formulated jointly by the RECAPS and the Authority staff. This involvement will have the effect of intergrating the staff with the rest of the hierarchy. Encouraging interaction between the staff and the upper levels of the decision making organization also has implications for the role of the staff at the tactical level. These effects are detailed in the next section dealing with the authority level of decision making.

The second level of the decision making framework is a step which now exists in vague form in the existing organization. In its present form,

however, it does not lead to productivity and efficiency in acquiring recreational land because of a number of limitations. In the proposed system, however, the second level of the organization serves a definite purpose. The duties to be conducted at this level have been altered and clearly articulated both in regard to the policy level, higher in the overall organization and the lower level tactical decision making carried out by the individual Authorities (Figure 25).

The attribute of connectivity is the most important characteristic of the new system. In continuing this theme this chapter will now turn to the tactical level of decision making. This is the third level in terms of the construction of the system but in actual practice it is the first place where acquisitions are considered.⁷

4.3 COMPONENTS FOR INCORPORATION AT THE TACTICAL LEVEL OF THE DECISION MAKING SYSTEM

The same criteria that have necessitated a change at the operational program level also dictate that modifications be made at the lowest level of the decision making organization -- the individual authorities. In more theoretical terms this is the administrative level where policies and directives, made functional at the operational program level, are implemented in concrete terms in the form of specific projects.

The lowest level of the decision making hierarchy that now exists, however, requires relatively few changes to make it conform to the decision making system being proposed. However, the roles and interaction between the two higher levels have been changed so it is necessary that the tactical

SITUATION, ORGANIZATIONAL AND FEEDBACK INPUTS AT THE OPERATIONAL LEVEL
OF THE DECISION MAKING SYSTEM

ROLES AND DUTIES EXPLICITLY DEFINED
DECISION CRITERIA ARTICULATED

CRITERIA;CONTENT
inventories
authorities in-
put,
regional input
Branch input

DECISION;FORMULATION
inputs to objectives
assessed
programs that embody
policies & inputs
formulated

ALTERNATIVES
most feasible
and optimal
operational
program
selected

OPERATIONAL PROGRAM
Embodies Branch
policies, regional
objectives, authority
input, expresses
functionally to
authorities overall
policies

POLICIES
Broad direc-
tives to
govern
activities &
acquisitions

TACTICAL PROJECTS
actual land acqui-
sition that satisfy
authority objectives,
operational programs
and policies

ROLE AND DUTIES EXPLICITLY DEFINED
DECISION CRITERIA ARTICULATED

[] Indicates situation or context in which the decision is made

Source: Author's Conceptualization

FIGURE 25

level also be modified to make its input compatible with the system at the upper level.

Firstly, it is required that authorities prepare their briefs for acquisition of recreational properties in terms of the operational program. The operational program provides broad directives for acquisition and states goals and conditions to which individual authorities should adhere. It is also desirable, in terms of the new system, that information relating to the resource inventory be furnished in the brief and details that augment the information present in the operational program be provided. As well, the type of development that is proposed should be detailed, and the classification of the area, when developed, and how the facility will fit into the overall operational program for recreation should be made explicit.

The content of the brief should be upgraded to include the rationale for the new area in terms of the operational program, details on how the proposed acquisition fits into the broad aims and objectives of the authority should be included, and the priority for development should be stated. Finally, recognition should be given to the planning inputs that will be required.

The size of the site and the scale of development will partially determine the resource analysis that will be required however the information content that is now available, is, in almost all cases, inadequate for decision makers to assess the merits and shortcomings of any proposed acquisitions.

The information that should be made available to the decision makers in the new system should therefore include details of the cultural history and present use, the physical resources of the site including

geomorphology, soils topography (slopes-drainage), the nature of the water resources associated with the site, the vegetation and the wildlife. As well as this data on the physical resources, the brief should address such topics as the incidence of unique features, either natural or man made, the most significant resources of the area that should form the basis of development for the area, as well as the constraints to recreational development and potential land use conflicts. Lastly, in this group of variables, the carrying capacity for the site should be recognized and development that is proposed recognize these parameters.

Finally, a classification in terms of the operational program should be provided. This classification would make known the recreational experience that is being catered to, what resources are available and how intensively they can be used. In conclusion, some development concepts should be provided with an indication of the phasing of the project and how the facility would fit into the present water and management plan of the authority (Figure 26).⁸

Information inputs suggested as part of the proposed system, are more than is presently furnished. However, the data collection suggested serves a number of needs identified previously. Additional information provided in the brief does not exist in a vacuum. In each brief it complements and augments the information contained in the operational program. Nor is the data collection the sole responsibility of the staff at the authority, many of which lack the expertise and time to carry out such extensive inventories. The broad information base, required to make the system efficient, is generated by the staff in conjunction with the RECAPS and other regional staff. The staff, in preparing their brief for acquisition of recreational

SELECTED INFORMATION INPUTS AT THE TACTICAL LEVEL OF THE DECISION MAKING SYSTEM

- type of development proposed, classification of the area when developed, how the facility fits into overall operational program for recreation
- Rationale for new areas articulated, how the acquisition fits into objectives and aims of the authority
- planning inputs that will be required including complete natural and cultural inventory detailing present use
- physical resources -- geomorphology soils, topography, water resources, vegetation and wild life, unique features, most significant resources constraints to development, carrying capacity. Development plans presented
- phasing of the projects development detailed

CRITERIA
CONTENT

ENUMERATION
OF OPTIONS
thorough
detailed
examination

ALTERNATIVES
land acquisitions that
best reflect
operational
programs and
authority
objectives

TACTICAL
PROJECTS
actual land
projects that
satisfy
authority
objectives,
policies and
operational
programs.

Source: Author's Conceptualization

FIGURE 26

land, need only to address the various factors detailed above so that both the Conservation Authorities Program Supervisor and the Branch, when the submission comes to them for a decision, can recognize the place of that specific project in terms of the operational program and objectives. If information is provided it will enable upper level decision makers to make a more objective choice by being more cognizant of the qualities and characteristics of any specific alternative.

Another consideration that justifies the generation and transmission of additional data is the use to which it can be put at the upper level of decision making hierarchy. In the existing process the individual actors at the Branch and the RECAPS are in a position to allow their attitude, values and perceptions to sway their choice. This condition is due to their isolation, their status as individual decision makers and the paucity of information on which to base their decisions. Inadequate inputs from other decision makers or inadequate information transmitted from lower levels of the decision making hierarchy appear to be the chief causes of this behaviour.⁹

By providing a larger information base, in the form of increased detail in the brief, the decision maker is given a better basis on which to make his choice. This objective data reduces the impact that the decision maker's personality and values have on his choice. The result is more objective decisions made in response to objective and explicit criteria (Figure 27).

The second chapter, assessing the present decision making procedures in the five authorities, noted that the task of selecting and acquiring land is characterized by a low key context which did not reflect the priority

UTILIZATION AT ALL LEVELS OF DECISION MAKING OF CRITERIA GENERATED AT THE TACTICAL LEVEL

- classification, how the facility fits into overall operational program for recreation
- Rationale for new areas articulated how the acquisition fits into objectives and aims of the authority
- planning inputs that will be required including complete material and cultural inventory detailing present use
- physical resources -- geomorphology, soils, topography, water resources vegetation and wild life, unique features most significant resources constraints to development, carrying capacity. Development plans presented.
- phasing of the projects development detailed

CRITERIA
CONTENT

ENUMERATION
OF OPTIONS
thorough
detailed
examination

ALTERNATIVES
land acquisitions that
best reflect
operational
programs and
authority
objectives

TACTICAL PROJECTS
actual land projects that
satisfy authority
objectives,
policies and
operational
programs.

POLICIES
broad directives
to govern activities and
acquisition.

OPERATIONAL
PROGRAM
embodies branch
policies,
regional objectives, authority
input expresses
functionally
policies

Source: Author's Conceptualization

FIGURE 22

actually associated with land acquisition. This situation exists because the staff of the authority, who initiate the land selection and acquisition process, view the task of land acquisition as outside their purview because it involves too little planning and management and because each acquisition is not made in terms of an overall plan or scheme.¹⁰ In short, they are required to act as land agents with responsibility to acquire small parcels of land piecemeal.

The proposed new decision making system would, however, change the task of the staff. This change would alter the staff's perception of their role, and in turn change the perception of the remainder of the organization.¹¹ This change in perception would be accomplished because the selecting of land for acquisition would be a joint effort with long range planning inputs included as part of the decision making process. Under the proposed system, each individual acquisition would be part of an overall recreational planning and development process. The organization's perception of the acquisition process would be altered and the context of the decision will be improved as well. The land acquisition procedure becomes more a part of a planning and management exercise and less a land agent's job under this new conceptualization of land acquisition (Figure 28).

It was determined in the previous chapter that time constraints often affect the decision making procedure and in some cases impede the decision makers' ability to act. This is especially the case in regard to the information generation at the tactical or project level of decision making when carried out by survey crews.

To alleviate the existing problem it is recommended that social or

ALTERED CONTEXT AT THE TACTICAL LEVEL OF THE DECISION MAKING SYSTEM

CONTEXT: EACH DECISION/ACQUISITION, PART OF AN OVERALL RECREATIONAL PLANNING PROCESS COMMON INTEGRATED PROCESS

CRITERIA;CONTENT
operational program, objectives of the individual authority

ENUMERATION OF OPTIONS
thorough detailed examination

ALTERNATIVES
land parcels that best reflect operational programs and authority objectives

TACTICAL PROJECTS
actual land projects that satisfy authority objectives operational programs & policies

CONTEXT: EACH DECISION/ACQUISITION, PART OF AN OVERALL RECREATIONAL PLANNING PROCESS COMMON, INTEGRATED PROCESS

[] Indicates the context in which the decision is made.

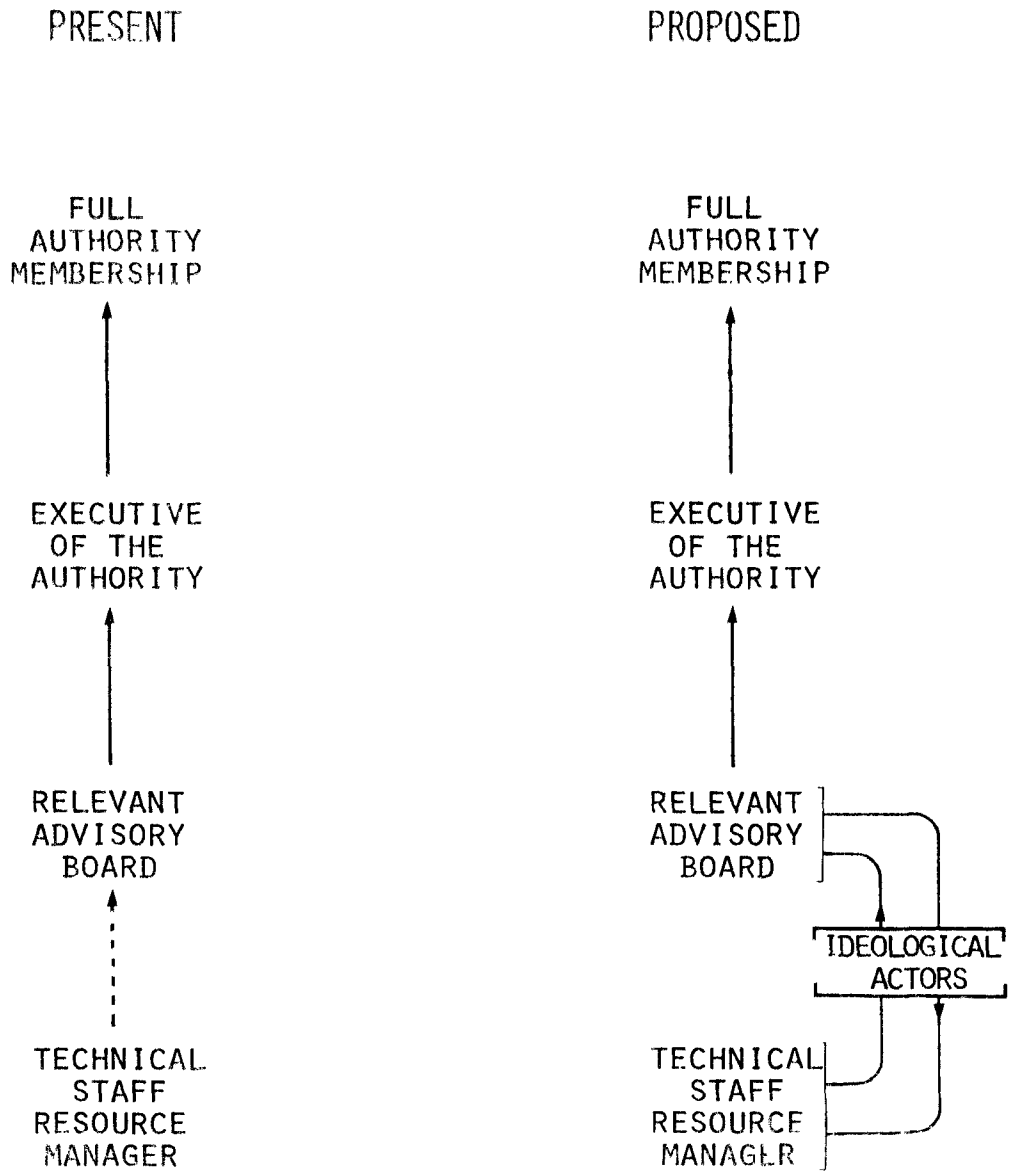
Source: Author's Conceptualization

FIGURE 28

group decision making processes be emphasized and interaction and communication between levels in the organization be improved. If interaction is improved then time constraints which now impede decision making would be removed, free exchange of information would occur, and relationships between levels would become less strained, resulting in improved productivity of the decision making organization.

Emphasizing interaction and social processes of decision making can overcome some difficulties in the present system but to effectively integrate the staff with the rest of the organization requires a different method. Although the problem of staff isolation is a function of the decision process, it is not feasible, to alter the process at this level to permit the staff more interaction with the rest of the decision making hierarchy. The present difficulty is overcome in the new system by changing the role of the participants. It is recommended that authorities attempt to have members who have professional expertise, acquired through training or education, assist the staff in carrying out its duties. These assisting individuals, termed ideological actors, would contribute by generating information on the particular acquisition and would have an ascribed expert status. Since they would also sit on advisory boards they would form a link with the staff. In this way the isolation of the staff is broken down, the expert status is ascribed to a larger group and considerable expertise in the form of these members' knowledge is brought to bear on the problem. Furthermore, a type of interaction or social process is implemented at the lowest level of decision making, information generation and transmission is consequently improved and a wider level of participation in decision making is realized (Figure 29).

SELECTED INPUTS AT THE TACTICAL LEVEL OF THE DECISION MAKING SYSTEM TO OVERCOME THE ABSENCE OF SOCIAL PROCESS



! Indicates lack of interaction between individuals and/or groups.
 | Indicates interaction between individuals and/or groups.

Source: Author's Conceptualization

FIGURE 29

The recommended input is not without precedent. In the Otonabee Region Conservation Authority, individuals with particular expertise have been appointed to advisory boards and have also been responsible for assisting the staff in carrying out inventories for proposed acquisition.¹² This method has resulted in a number of benefits in this authority. If included as an input in the system, it would cause the benefits enumerated above to be realized as well as enhancing the productivity and efficiency of the procedure as a whole.¹³

The proposed decision making system has incorporated the existing decision making procedure at the authority level but has modified it by providing new inputs in terms of participants, information and content, context, and outcome. Basically, the organization stays as it was and the process, a problem area in the existing procedure, is modified by altering the participant's role.

Of all three levels of the decision system this has required the least modification in terms of specific inputs to make it conform to the system method for choosing alternatives. The inputs themselves, although few, are significant, however.

One variable that was discussed at the outset of this chapter but which has not been explicitly dealt with to this point is the matter of feedback. Conditions and inputs both outside and within the system are not static and are constantly changing partly as a result of decisions made by the Conservation Authorities. In these circumstances there is no guarantee that the anticipated or designated outcome of particular projects will be attained, no matter what the capability or quality of the decision making system.

Due to the interrelated nature of the system however, feedback mechanisms exist at all three levels and can be used to determine how the system is functioning. If projects fail to satisfy goals then the component that is at fault can be identified and action taken to ameliorate the problem.

The three main levels in the decision making hierarchy are more interrelated than they would be without a systems framework. This interrelated nature permits any one of these three levels to be modified or altered if problems are encountered or conditions change so much as to warrant wholesale alteration of one particular level in the system.

Systematic feedback also increases the prospect of attaining policy objectives since changes can be made in quick response to a change of condition outside the system.¹⁴ Failure to employ a feedback component can result in locking into a rigid procedure which is very resistant to alteration. When the change is finally made the problem that originally dictated the change may no longer be the same or has become more serious and requires further alteration in terms of decision making procedures. Ongoing systematic monitoring and evaluation avoids this problem and results in quick response to changing conditions as they present themselves (Figure 30).

4.4 CONCLUSIONS

This chapter has outlined a framework for a more open, systematic and forward-looking approach to decision making. It provides for a more rigorous and objective consideration of policies and goals, as well as programs and specific projects related to the selection and acquisition of

EXTERNAL AND EVALUATION FEEDBACK COMPONENTS OF THE DECISION MAKING SYSTEM

POLICY LEVEL

INFORMATION
 role of authorities
 experience to provide for
 delineation of
 factors affecting
 acquisition

OBJECTIVES
 choosing
 priorities
 among goals

ALTERNATIVES
 most feasible
 way of realizing
 priorities and
 objectives

POLICIES
 broad directives
 to govern activities
 and acquisition

OPERATIONAL PROGRAM LEVEL

CRITERIA; CONTENT
 inventories
 authorities input
 regional input
 Branch input

DESIGN; FORMULATION
 inputs & objectives
 assessed
 programs that embody
 policies & inputs
 formulated

ALTERNATIVES
 most feasible
 optimal
 operational
 program
 selected

OPERATIONAL PROGRAM
 embodies Branch policies,
 regional objectives,
 authority input, expresses
 functionally to authorities
 overall policies

TACTICAL; IMPLEMENTATION LEVEL

CRITERIA; CONTENT
 operational program
 objectives of the
 individual authority

ENUMERATION OF OPTIONS
 thorough, detailed
 examination

ALTERNATIVES
 land parcels
 that best reflect
 operational pro-
 grams and author-
 ity objectives

TACTICAL PROJECTS
 actual land projects
 that satisfy authority
 objectives, operational
 programs & policies

ON GOING EVALUATION AND FEEDBACK

Source: Author's Conceptualization

FIGURE 30

resources for recreational development and use.

It is not the purpose of the framework to provide a totally objective scientific process whereby decisions may be made. Rather, the proposed system is designed to furnish a framework which can be used to make judgment and choice a more deliberate process and provide a tool which will assist in the choosing of the most desirable option.

Although the initial concern was with the lowest level of decision making it soon became apparent that the entire procedure would have to be modified if a viable decision making system was to be proposed for the lowest level. For this reason, the research has proposed a system which deals with broad questions of policy as well as dealing with individual authority projects and acquisitions. The system also includes a level which assists the decision maker in choosing alternative ways of reaching the broadly defined objectives and policies. The final level that the system has relevance for is the tactical level where the new procedure assists the decision maker in structuring his judgment so as to choose the most desirable option in terms of individual authority acquisitions.

New techniques do not always make decisions easier. In many cases, new knowledge and more systematic exploration of alternatives serve only to reveal how difficult the decisions really are. Despite their limitations however, the technique of systematic analysis can, it is felt, provide a great deal of useful information and guidance for those concerned with public land selection and acquisition.

F O O T N O T E S

CHAPTER FOUR

¹Canada, "Design for Decision Making", Eighth Annual Review of the Economic Council of Canada, (Ottawa: Information Canada, 1971), p. 65.

²Personal Communication with A. D. Latornell, Director, Conservation Authorities Branch, Toronto, Ontario, 30 October 1975.

³H. Ingram, "Information Channels and Environmental Decision Making", Natural Resources Journal, 13 (January 1973): 151-169.

⁴For a general review of the relationship between policy formulation and decision making in the recreational planning field see, J. L. Pressman, "Decision-Making and Public Policy: The Perils and Possibilities of Fragmentation", in Elements of Outdoor Recreation Planning, ed. by B. L. Driver (Ann Arbor, Michigan: University of Michigan Press, 1974), pp. 273-298.

⁵Interview with J. Anderson, Central Region Conservation Authority Program Supervisor, Richmond Hill, Ontario, 29 July 1975.

⁶Ibid.

⁷Concepts relating to the operational program level have been drawn, in part, from S. Marquis, "Steps in the Planning Process", in Elements of Outdoor Recreation Planning, ed. B. L. Driver (Ann Arbor, Michigan: University of Michigan Press, 1974), pp. 235-260.

⁸R. Lewington, "Criteria for Planning of Conservation Areas", no date, (Typewritten).

⁹Interview with R. Powell, Southwestern Region Conservation Authority Program Supervisor, London, Ontario, 8 August 1975.

¹⁰ Interviews with members of the staff of the Ausable-Bayfield Conservation Authority, Exeter, Ontario, 14-18 July 1975; Grand River Conservation Authority, Cambridge, Ontario, 10-14 July 1975; Lower Trent Region Conservation Authority, Frankford, Ontario, 29-30 July 1975; Otonabee Region Conservation Authority, Peterborough, Ontario, 28-29 July 1975; Saugeen Valley Conservation Authority, Hanover, Ontario, 20-22 July 1975.

¹¹ Interview with R. J. Dickie, Forestry and Land Use Section, Conservation Authorities Branch, Toronto, Ontario, 16 October 1975.

¹² Interview with E. A. Wright, Secretary Treasurer, Otonabee Region Conservation Authority, Peterborough, Ontario, 30 July 1975.

¹³ Interview with D. M. Murray, Eastern Region Conservation Authority Program Supervisor, Kemptville, Ontario, 1 August 1975.

¹⁴ See, B. L. Driver, "Establishment of Goals and Definition of Objectives", in Elements of Outdoor Recreation Planning, ed. B. L. Driver (Ann Arbor, Michigan: 1974), pp. 261-272.

C H A P T E R 5
EXPLANATION AND APPLICATION
OF THE PROPOSED DECISION
MAKING SYSTEM

EXPLANATION AND EXAMINATION
OF THE PROPOSED DECISION
MAKING SYSTEM

This chapter of the thesis examines the functioning of the system and provides another perspective on decision making system described in Chapter Three and Four. This examination is not intended to provide a comprehensive and detailed analysis of the complete functioning of the system but is illustrative in nature and is designed to make more meaningful some of the conceptual matters raised in the earlier sections of the report.¹

5.1 TACTICAL OF INDIVIDUAL AUTHORITY LEVEL OF DECISION MAKING

At the authority level, the land selection and acquisition project is initiated by the staff of the Authority. They carry out an extensive inventory of the physical and cultural resources that are associated with the site. Assisting in this task are ideological actors, who also sit on advisory boards, and who have expertise in the resource management and conservation field. These individuals bring their expertise to bear on the problem, provide a wider perspective and serve to integrate more fully the staff with the rest of the decision making hierarchy.

The physical inventory conducted at this level provides a basis for subsequent decisions but the staff, in formulating a brief for acquisition, also makes explicit what role the land, if acquired and developed, has in terms of the more inclusive operational program. In short, the brief outlining the acquisition states how the specific project will serve to realize the goals of

the authority.

Once the information relevant to the land resource under consideration has been generated and the context of the proposed acquisition established in terms of the larger operational program, the acquisition proceeds upwards through the decision making hierarchy. Rationale for acquiring the land has been provided and information in terms of the site specific resources has been furnished to assist the decision maker in exercising his best judgement. The context of the decision is also explicit enabling the decision makers to judge the merits of the specific acquisition in terms of broadly formulated and implemented operational programs. These programs give direction and purpose to the recreational aspect of the authorities' overall operations. If the decision makers decide acquisition should take place, and under the new system they have explicit criteria on which to base their choice, then a brief, requesting acquisition is submitted to the Regional Conservation Authorities Program Supervisor.

The second level of the decision making system will be addressed below but it is opportune at this time to briefly outline the changes that are incorporated in the new system at the tactical level.

By including ideological actors in the inventory stage, to assist the staff to carry out its duties in regard to land acquisition, the system has employed individuals with expertise to improve the generation of information for later use by decision makers. More effective integration of the staff into the decision making organization and the introduction of social process between the two levels is also accomplished. The context in which the decision is made is improved by giving the staff wider responsibilities and making their

task more compatible with their position and their perception of their role.² The information supplied to the higher levels of the decision making organization is also increased and upgraded. This means that individual decision makers at the upper level of the hierarchy have improved criteria on which to base their choices.

In terms of outcome, the proposed system provides improvements at the tactical level. Choices made by decision makers at the authority level (outcomes) under the proposed system are made on explicit terms and with knowledge of goals, operational programs and objectives. As such the outcome can be justified and reworked if necessary. This arrangement ensures that the first outcome has been rigorously arrived at and decision makers at other levels in the agency can assume that choices have been made by means of a common and identifiable system. This feature maintains the rigorousness of the overall procedure and facilitates feedback and hindsight review of specific projects, programs and policies if required.

5.2 OPERATIONAL DECISION MAKING BY THE REGIONAL CONSERVATION AUTHORITIES PROGRAM SUPERVISORS

After the authority decision makers have made a judgment on the specific acquisition, decision making becomes the responsibility of the Conservation Authority Program Supervisor. Under the proposed system this decision maker is in a better position to make an objective choice on the merits or shortcomings of any particular proposal. In the proposed decision making system his choice is based on an operational program which expresses in functional terms the policies and objectives of the Branch, the aspirations

of the regional office for recreational development on crown lands, and the recreational plan of the individual authority. As such the RECAPS is in a position to judge effectively how the specific project, approved by the individual authority, fits into the operational program.

In the proposed system the RECAPS position is given a particular role which will overcome the problems in role definition and the lack of specific responsibilities which now exist. These problems were identified as difficulties which reduced the effectiveness of the Conservation Authority Program Supervisors position. The improved decision context should have the effect of improving the decision maker's perception of his role and his actions should, as a result, also be enhanced.

Under the existing land acquisition procedure the decision maker at the regional level, as well as having a poorly defined role, is faced with making important choices with inadequate decision criteria. Under the new system, the information available to the decision maker is increased enabling him to assess a proposed recreational land acquisition proposal by using the information provided in the brief from the authority.

5.3 POLICY OR BRANCH LEVEL DECISION MAKING

Decision making at the Branch or Policy level, under the new system, is not changed radically yet the alterations do have the effect of improving the procedures at this level.

When a brief for a specific acquisition reaches the Branch two decisions have been made previously. The Branch decision maker is, however, aware of how and why these two lower level decisions were arrived at. The

brief outlining the specific acquisition makes known the resources associated with the land and articulates how the project or development satisfies the goals of the authority and how the project compares in terms of the operational program. The Branch decision maker also is aware of the recreational policy and objectives of all authorities since they are formulated at the Branch.

Under the proposed system, the professional staff provide an input and a decision is made objectively. Furthermore, systematic and long range planning can be realized at all levels of the system yet cash flow and control of financial matters can be retained at the Branch. Large programs are, however, formally articulated to the Branch in the form of operational programs so long range planning, inherently more efficient than ad hoc acquisitions and planning, can take place.

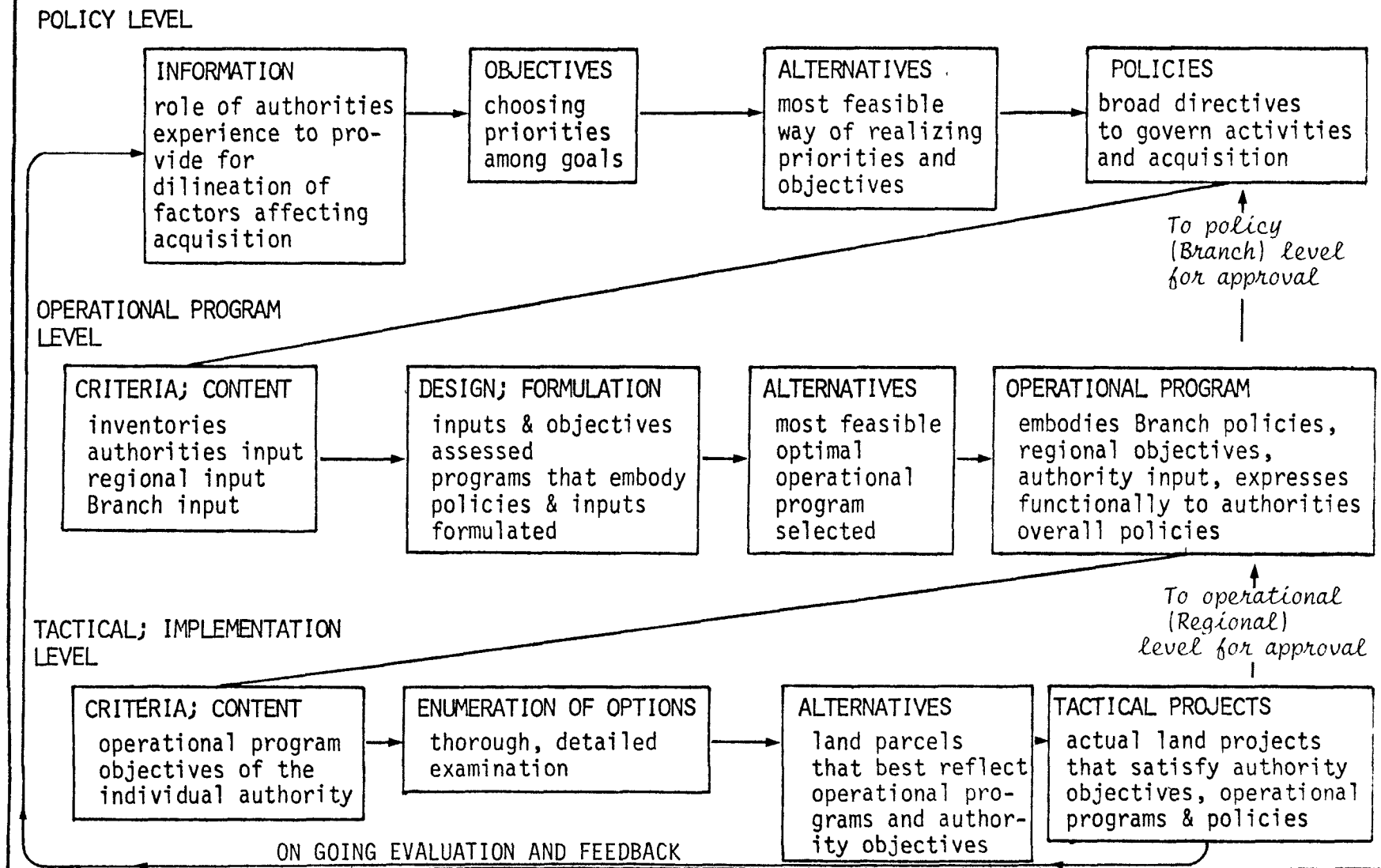
Various other benefits of the proposed system will also be realized. The information and data provided to the decision maker at the Branch is upgraded. As such he can become more aware of planning concerns in the individual authorities and better recognize the merits and shortcomings of any project. Since decision criteria (policy objectives) are derived through interaction and with multiple inputs, lines of communication are improved at the Branch and more social processes of decision making come into existence. The presence of increased social process and the increased and better decision criteria means that the context of the decision making is improved. The new system, since it assigns a more specific and non-conflicting role to both the Conservation Authority Program Supervisor and the professional staff at the Branch, helps reduce conflict between the two upper levels of the decision

making hierarchy, which in turn, leads to an enhanced decision making context.

The decision making system at the Branch provides for increased information for decision making, more communication between decision makers and a more specific role for participants. The above changes serve to improve the relationship with the rest of the decision making hierarchy, lessen the tension that presently exists and improve the context in which decisions are made (Figure 31).

This Chapter has shown how the proposed System would operate and how the elements of the decision making framework described in Chapters Three and Four are inter-related. In the next Chapter this theme is extended to show how the concepts presented in the research compare to what other researchers have concluded about public agency decision making.

OPERATION OF THE DECISION MAKING SYSTEM IN PRACTICE



Source: Author's Conceptualization

FIGURE 31

FOOTNOTES

CHAPTER FIVE

¹Conclusions and interpretations made in this chapter were substantiated in meetings and in communication with the staff of the Conservation Authorities Branch. Personal communication with A. D. Latomell, Director, Conservation Authorities Branch, Toronto, Ontario, 30 October 1975; and R. J. Dickie, Forestry and Land Use Section, Conservation Authorities Branch, Toronto, Ontario, 16 October 1975.

²For a recent view of public involvement in decision making see, W. R. Burch, Jr., "Who Participates: A Sociological Interpretation of Natural Resource Decisions", Natural Resources Journal, 16 (January 1976): 41-54.

C H A P T E R 6

CONCLUSIONS AND GUIDELINES FOR FURTHER RESEARCH

CONCLUSIONS AND GUIDELINE FOR FURTHER RESEARCH

6.1 EVALUATION

In the introduction of the thesis, a set of objectives were formulated and stated and a methodology proposed which would lead to a realization of these goals. The purpose of this final chapter is to determine if the objectives were attained; to assess the effectiveness of the methodology; to examine the conclusions that resulted; to consider the limitations that became evident as the research was being carried out; and, to demonstrate how the present study relates to existing and ongoing research in the field of resource management decision making. In addition, this chapter may provide a point of departure, and a methodology for further research as well as suggest possible limitations that might be encountered in subsequent research.

The first objective was to assess the existing decision making operation used by selected conservation authorities in acquiring land for recreational development. This objective implies that deficiencies exist in the present process used by the authorities to acquire recreational land and was formulated after exploratory research into the existing process and examination of literature dealing with public agency decision making.

The criticism of resource management agencies and their operating procedures expressed by Maass raised a number of points in terms of agency administration which prompted interest in the procedures used by Conservation Authorities.¹ Research carried out by Fox also has illustrated problems in administrative decision making for resource allocation and his findings were

considered in formulating the first objective.²

The second objective was to propose an altered decision making system which incorporated modifications to overcome deficiencies identified as a result of the assessment of the existing process. Similar objectives have been established in other research. Fox has attempted to outline more effective organizational arrangements for decision making although his work has focussed on administration only, with no view toward the decision making process as a whole.³ Research that proposes and examines in detail a new decision making system is not common.

To show the merits of the proposed system and how it overcomes limitations of the existing procedure is the third objective. As is the case with the second objective, literature which has had the same purpose is minimal.

Although the research stands alone in terms of objectives, numerous researchers have used a hindsight evaluation methodology similar to the one used in this thesis. Most have focussed their attention on the outcome rather than the decision making process itself. Notable among the recent users of a hindsight evaluation methodology are Mitchell, Cook and Thomas.^{4,5,6}

Basically the methodology used consists of an appraisal of the existing decision making procedure from a six variable perspective. This technique provides coverage of the main elements of the decision making operations. Development of the new decision making system is also carried out in terms of these six variables.

Although this six variable model of decision making was developed to be used in this research, other researchers have utilized multiple variable models to examine other decision making operations. Snyder, Bruck and Sapin

in their discussion of political decision making, use five variables as a framework, and Moore uses a similar device in his review of public agency decision making.^{7,8}

When one reviews the product of the research it seems apparent that the objectives as initially established were realistic and the methodology adequate. The thesis has found shortcomings in the existing decision making procedure. Similar flaws have been identified by other researchers investigating other agencies. Recommendations that have been made to overcome these difficulties have been accepted as viable and capable of improving conservation authority decision making, if implemented.⁹

The present study concludes that one of the most obvious limitations of the present decision making process is the disjointed and segmented characteristic of the decision making operation. Decisions are made by a "quasi mechanical" process. Ridgidly imposed levels in the hierarchy of the agency prevent flexibility in decision making behaviour and confining procedures are adhered to in every situation. Communication and interaction between decision makers is minimal which has negative implications for other parts of the operation. This reliance on a quasi mechanical process of decision making is partly due to the lack of explicit goals and aims of the agency. If goals and objectives were clear and unambiguous then these aims would show the direction that should be followed by the agency. However, in the absence of such goals the decision makers are dependent upon the quasi-mechanical decision making process for direction and productivity.

The conclusions enumerated above are consistent with those of other researchers. O'Riordan has noted the lack of communication in resource

management agencies and the impact that the lack of clear goals and aims has on decision making processes.¹⁰ Moore has characterized the main target of dissatisfaction of researchers in this area of decision making as "the compartmentalization of the government administration of resources."¹¹

A second shortcoming identified in the appraisal of the existing decision making process pertains to the roles and duties of participants. In general terms the responsibilities of decision makers, most specifically the Conservation Authority Program Supervisors at the regional level, have not been articulated. This failure to define roles leads to conflict with other decision makers. Duties are inadvertently shared between groups that view each other as encroaching upon their field of jurisdiction. One must conclude that less than optimal utilization of human resources also results since duplication often occurs. Another manifestation of this problem can be found in the lack of liaison between different levels in the decision making hierarchy.

Findings of the type noted above have not been made by many researchers although problems in role definition have been alluded to in some studies. Smith has noted how a decision maker's role and function may affect his personality and in turn influence his behaviour in making decisions.¹² In general, work examining the role of the individual in the agency is a deficient area in decision making studies.

Despite the paucity of other research in this area to support this finding it nonetheless is an important conclusion. Not only does lack of role definition cause problems of its own but it also has implications for other parts of the decision making operation.

An important part of any decision making process is the objectives that a decision is made in an attempt to satisfy. Despite the recognized importance of aims, one must conclude that goals have not been made clear for recreational land acquisition. The Conservation Authorities Act provides aspirations, but clear and unambiguous goals and objectives have not been articulated.

The lack of explicit goals is no different from that found in other agencies, both American and Canadian. White, in one of his studies has pointed out how the goals and strategies of resource management agencies are rarely identified clearly and frequently overlap because of inconsistent aims.¹³ Wood has also pointed this out in his study of the objectives of the Conservation Authorities Branch.¹⁴ A number of other researchers, examining duplication and contradiction in resource management program and strategies, have attributed the cause to lack of clearly articulated goals and objectives.^{15,16}

Another conclusion arrived at in carrying out the research concerns the information that decision makers use in making selections of recreational land for acquisition. An inadequate amount of information is generated, even less is transmitted to decision makers and an even smaller amount is received by the decision maker and used in making a choice. This conclusion stems from the following: the lack of communication between decision makers which impedes free transfer of information between participants; the decision makers perception of the task and the information required; the context, or circumstances surrounding the decision making procedure, and the decision makers' biases and values which determine how he uses the data available. Ingram's conclusions concerning the generation and transmission of data within decision making organizations parallel those made concerning the present study

and add credence to these interpretations.¹⁷

Information is retained by the upper levels of the organization although such information is required by the individual authorities in order to make an initial review of the recreational resources they wish to acquire. This is another conclusion made in terms of the information component. This conclusion is supported by the work of Marshall who has pointed out that a universal characteristic of most agencies is the desire to survive and retain power.¹⁸ One may conclude that these are the dynamics that explain why the Conservation Authorities Branch in Toronto retains information for which it has no immediate need but to which the individual authorities require access. Such a stance emphasizes the power of the Branch over the individual authorities.

Conclusions in terms of participants centre on the ineffective utilization of interested and motivated individuals (ideological actors) in the authorities examined. Individuals who could significantly improve interaction between levels in the organization by acting as intermediaries, assist in data generation and transmission, and in some cases, act as experts for consultation are not used for these purposes. In the authorities examined, there are individuals, many of whom have formal training equal to that of the authority staff and who have made known their willingness to work with the staff and the advisory boards if required. Since these individuals are not utilized by the authority, one must conclude that less than optimal utilization of existing expertise occurs.

The above conclusion is unique to this study, however, other researchers have proposed similar roles for ideological actors or suggested ways of embodying citizen participation in resource management decision making.

Burke, in his work, proposes a similar method to involve citizens as a means to achieve certain ends in decision making.¹⁹ Wengert's research also supports the conclusions, particularly those relating to the public as information generators, although he is not specific about the role the public should play.²⁰ The work of Sewell and O'Riordan is also supportive of the conclusions made, in terms of the participants.²¹

Examination of decision makers' behaviour leads to the conclusion that subjective values of some decision makers carry too much weight and in particular cases are used as selection criteria. This conclusion is supported by similar research conducted by Nelson who has shown how the attitudes and values of decision makers, especially those with considerable responsibility, influence their input to the decision making process.²² Sewell also has examined the perceptions and values held by decision makers, and, although he does not use the same variables to explain the place of values as a determinant of a decision maker's behaviour, his research is relevant to the conclusion made as a result of the present research.²³

In general, much research has been devoted to the identification of attitudes, perceptions and preference of private individuals, and authors reviewing and discussing these studies have constantly pointed out their presence in public decision making process.²⁴ Few, however, have reported how values or attitudes may influence the outcome.

A final conclusion that warrants mention concerns the context or circumstance surrounding the entire decision making operation. The most obvious conclusion is that the context is confused in the existing decision making process and is not conducive to objective and rigorous decision making.

This situation is analagous to what Lindbloom found in his research in 1959 which he termed "muddling through".²⁵

Other research to which this conclusion can be compared to is minimal. Wildavsky has dealt generally with the context element and has drawn the conclusion that more emphasis should be given to the context or circumstances surrounding decision making processes.²⁶

6.2 LIMITATIONS

The present study has successfully realized the objectives that were set out and major findings have been made. Nonetheless limitations exist in the existing study and these can be pointed out. These will serve as guidelines for future research.

Small deficiencies exist in the methodology used in the research. One central problem in interviewing professionally trained staff is bias resulting from their position. In fact this problem was encountered. The view of Branch officials, gave support to their position or behaviour and placed the blame for deficiencies or problems at the regional or individual authority level. The same pattern of bias was encountered at the regional level where the Branch or individual authorities were accused of being the weak link. Staff of the individual authorities also blamed other decision makers for problems they perceived or had experienced.

Individual members of authorities were interviewed in an attempt to overcome this respondent bias but this procedure did not eliminate the problem. Members of authorities were sympathetic to the authorities generally and the

authority that they were associated with specifically.

Assuming the role of a participant observer is one possible way to overcome the biases inherent in using individuals as information sources. Again objectivity is likely to be lost, however.

Another problem in conducting any research of this sort is the interpretation of actions and behaviour of decision makers. This problem is one of subjectivity on the part of the researcher and is a difficult one to overcome.

Despite the shortcomings of the methodology used, it is the only feasible alternative available to study the whole decision making process. Reviewers have noted the many pitfalls that await research of this genre yet the conclusion is that a methodology similar to the one actually used is most revealing. O'Riordan for example states

The difficulties of obtaining interviews and receiving reliable data are enormous, yet such analyses are vital in furthering the understanding of the process by which resource management decisions are made and are reflected on the landscape. It is unlikely that professionals will expose the secrets of their organizations or of the decision apparatus in which they play a part ... Research techniques in this area will therefore require unusual amounts of discretion and diplomacy. Constant improvement of interview procedures will be necessary. However, the researcher cannot simply rely upon what professionals and administrators say, either in interview or as reported: he must also be prepared to analyse

and interpret the actions and behaviour of the expert, as expressed through the decision process and the subsequent implementation of resource management strategy.²⁷

6.3 RESEARCH POSSIBILITIES FOR THE FUTURE

The six variable model was developed after review of the literature and the conclusions that have been made have been compared to those made in similar research. In reviewing the literature to carry out these tasks, shortcomings and areas where future research could be concentrated have become evident.

Recent research into the context or circumstances surrounding a decision making operation was found to be lacking. Such work has generally not been undertaken in resource management. Research which has pertinence to resource management by Lindbolom and Wildavsky is more than a decade old. Few studies integrate all the facts to show how the overall context in which the decision is made can affect the outcome. This research has made an attempt to describe and characterize the overall context of the decision making operation and has made recommendations whereby it could be improved. It is probable that research of this sort in terms of other agencies would also be revealing and productive.

Research concerning participants has been greater and is more recent than that investigating the situational elements. Emphasis has been on the role that experts, individuals and interest groups play and how this role affects their behaviour.

One area that this thesis has touched on which appears to have been neglected by other researchers is the behaviour of decision makers when roles are overlapping or poorly defined. Interesting dynamics become operative when role conflict occurs, affecting other parts of the decision making process. Decision making behaviour could be examined from this perspective in future research especially since *"agency operations are recognized as segmented and often seriously in conflict"*.²⁸

The question of public participation in resource management decision making has received considerable attention in research yet conclusions reached by this study prompt additional questions. Most research has not addressed the question of how public participation can best take place. The present study has concluded that the most beneficial role requires the public to act as intermediaries to facilitate communication and help provide information. Future research could examine and propose other innovative and productive ways whereby public input could be used to advantage.

Further investigations from a participant point of view could also augment research conducted into the organization of decision making agencies. In the past, research that has attempted to find solutions to the segmented organizational structure has used concepts drawn primarily from public administration. The participant perspective would provide a fresh approach to the problem which still plagues resource management agencies.

There has been a recent surge of research dealing with the information base used by decision makers especially as it relates to the outcome of the process. Focus has been on how deficiencies in information can lead to less than projected results. This research is of importance since

it relates the outcome to the other variable clusters. Additional research, however, could be undertaken to examine how the transmission of information to decision makers affects the outcome. This topic has been addressed by Ingram.²⁹ However, her work looks more at channels of communication than the flow of information. Future research might propose alternative methods to expedite transmission of information between decision makers.

Specific possibilities for future study exist in the field covered by this research but the thesis itself also presents avenues for continued research. Firstly, any one part of the decision making procedure as examined in this study could be re-examined in more detail in future research. Some variables associated with the participants, situation, information, process, organization and outcome elements have received only cursory treatment in this analysis, since the objective of the research was to study the whole decision making process. More intensive analysis of one or more variables would be productive and revealing. Additional research focussing on any one of these elements of public agency decision making would also contribute significantly to the literature generally since other research in some of the areas is minimal.

Another major area of research that can be proposed concerns the application of the decision making process. Since new authorities are being created yearly, opportunities for implementation and subsequent examination for research purposes exist. The fact that the Conservation Authorities Branch is also undergoing re-organization also makes this a particularly auspicious time for testing new procedures.

A final area of further research would be a comparative study between

the Conservation Authorities and another similar resource management agency. Such a study would be particularly revealing if the other agency had the same organizational arrangement as the Conservation Authorities. Watershed based resource management agencies, some modelled on the Conservation Authorities, do exist in the U.S. and other countries so a comparison of decision making operations is a feasible research undertaking. Analysis of the context group of variables and the role of the participants would be a particularly revealing part of such a study.

6.4 SUMMARY AND OVERVIEW

This thesis has combined a number of variables to produce a critical examination of a decision making process in a public agency. This examination is important, for the decision making process is the operation by which government agencies produce changes in the natural environment. The research therefore, contributes three things, Firstly, it examines in detail the procedure by which man collectively interacts with and alters the natural environment, thereby contributing to a major theme in geography. Secondly, it provides input to show how this interaction can be improved and the activities of the agency made more efficient. Lastly, the research contributes to a topic which requires more attention; it charts new directions; and, it provides methods for future study of man's collective interaction with the land.³⁰

F O O T N O T E S

CHAPTER SIX

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