DECISION MAKING IN THE ASSESSMENT OF LAND USE SUITABILITY: THE CASE OF CROWN FORESHORE PLANNING IN LADYSMITH HARBOUR, BRITISH COLUMBIA

by

GEOFFREY STUART MOYSE
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We accept this thesis as conforming
to the required standard

[redacted]
Dr. W.M. Ross

[redacted]
Dr. C.J.B. Wood

[redacted]
Dr. R. Bish

UNIVERSITY OF VICTORIA
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Supervisor: Dr. William M. Ross

ABSTRACT

As human population increases, and resource supplies dwindle, the importance of the land base increases. As such, decisions about allocation of land to certain uses and about the preservation of the quality and integrity of that land also become increasingly significant. Now, more than ever in human history, decision making with respect to land use is becoming a critically important process.

In the past, demand has often dictated land and resource use patterns as well as the extent of such use. While the supply of land and resources seemed infinite and the population was small, few people saw any real problem with this scenario. Now, however, it is becoming necessary to base such use patterns on the capability of the land, rather than solely on demand. In response to this fact, resource and land use planning programs are being emphasized by several government agencies in British Columbia. Such land use suitability planning, however, is subject to certain problems and constraints which are common in many other decision making situations.

This thesis examines theoretical elements of decision making, the principal factors that tend to influence or condition decisions, and applies this body of theory to a case of land use suitability planning in British Columbia. The case study chosen is the Ladysmith Harbour Crown Foreshore Plan, completed by the Ministry of Lands, Parks and Housing in 1981.

The thesis reviews the stages of decision making and the fundamental aspects of the normative and behavioral approaches. It then examines three major types of influence which tend to affect decision processes. It is posited that influence can be *passive* or *assumptive* in terms of preconditioning decision scenarios; *procedural* in the sense that problems with process or logistics can skew decision outcomes; and/or *active* in terms of interest group, public, bureaucracy and media input directing decision outcomes. The thesis also examines the

relative effect of these three types of influence on the Ladysmith Harbour decision process, and the degree to which that decision process successfully balances the various behavioral inputs involved.

It is noted that the decision process in the Ladysmith Harbour case represents an example of decision making in which the various behavioral influences involved have not been carefully balanced. It is determined that passive influence—the socio-economic assumptions made by the decision makers—caused the process to reaffirm a status quo situation, rather than meeting its stated goals and objectives. To a lesser degree procedural influence—in the form of shortages of time, funding and data—conditioned the decision process towards inaction by limiting its objectivity and comprehensiveness. Active influence is concluded to have been of relatively little importance in dictating the outcome of the decision process, due to the presence of strong and encompassing initial value assumptions.

It is concluded that better coordination of land use suitability decision making is needed in British Columbia; that land use planners should be aware of the relative merits and drawbacks of normative and behavioral approaches to decision making and of the need for careful balancing of behavioral considerations. It is also concluded that decision makers should be aware of the critical importance of the three major types of influence that are reviewed here, and the relative ability of these to condition and bias decision outcomes, if they are not properly balanced in the decision process.

It is hoped that the results of this research in detailing the components of the decision process and reviewing the principal types of influence that can affect that process—as well as analyzing the effects of such influences on a practical example of decision making in British Columbia—will provide future decision makers with a better understanding of the process and some of the critical positive and negative effects of various types of influence.

Examiners: [redacted]

Dr. William M. Ross

[redacted]

Dr. Robert Bish

[redacted]

Dr. Colin J.B. Wood

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DEDICATION

For my parents, whose endless patience
and wisdom have given me inspiration.

Relativity obtains within the inner limits of human affairs, in the countless matters of individual choice, taste, and obligation. But if pushed or challenged beyond cultural relativity, as is usually the case in conflict or crisis, values meet the objectivity of basic ecological limits, and these provide barriers against the open end of relativism.

— T.B. Colwell, Jr., "Ecology and Philosophy," 1972.

CHAPTER 1

DECISION MAKING IN THE ASSESSMENT OF LAND USE SUITABILITY: RATIONALE AND RESEARCH METHODOLOGY

1.1 RATIONALE

In a world of accelerating technology, exploding population, and rapid change, man is causing substantial degradation of the environment. This degradation is occurring on a very large scale, yet it has not come about as a result of global decision making. Rather, it has resulted from the cumulative disturbance of relatively small and subtle ecosystem processes, and is therefore difficult to recognize in terms of a single event or crisis. Man is still failing to comprehend that such small scale cumulative ecosystem disturbances are beginning to have staggering effects in global terms; and that these effects are being magnified by burgeoning population and technology.

Decisions in the arena of resource utilization—taken in the public and corporate sectors—have generally been founded upon the principle of "bettering the lot" of mankind, and thus have contributed over several centuries to global environmental disruption. Decisions about land use and resource allocation are often of a small or localized nature, and, in many cases, are based on local values and rather short sighted ideas of "cultural relativity" (Colwell, 1972). The compound effect of such decisions—an evolutionary "incrementalism" as viewed by Lindblom (1951)—has been the growth of large scale economic systems, industrial and technological revolutions, and "increasing" standards of living. Such large scale systems are now being supported by the gradual exploitation of the natural resources of the entire planet, often at the expense of environmental quality.

Environmental awareness—a relatively recent phenomenon provoked by far sighted individuals and the presence of impossible to ignore

degradations—has introduced an important new factor into resource utilization decision making. It has now become untenable in many instances to base resource utilization decisions solely on cultural relativity or short term socio-economic advantage. Decision making is beginning to be recognized as the key component in man's interaction with his environment; the place where economic and social wants must be tempered with ecological reality. As such, it is the point at which ecological change can be sanctioned—as was the case in the past—or avoided to the extent possible. Decision making in the allocation of resource uses and in the reduction of conflicts between uses is beginning to focus on the concept of land use suitability as a foundation, rather than on mere socio-economic utility.

The whole notion of assessing land use suitability prior to allocating resource uses—or in attempting to optimize resource uses—constitutes a decision process in itself. Goals and objectives must be identified; technical, cultural, and ecological constraints considered; alternatives drawn up and evaluated; and a framework for allocations proposed. The decision process in the determination of land use suitability is critical to ensuring that resource utilization meets socio-economic requirements to the extent possible, while ensuring that ecological stability, environmental quality and future use options are maintained.

Decision making in the determination of land use suitability thus provides the framework for resource allocation choices. Once land use suitability designations have been made, such allocations are often simplified. In this respect, the decision process used to determine land use suitability carries far more importance than does the ensuing process of assigning uses. As such, it must take into account uses and demands as well as biophysical capability of the land base. Because this type of decision making is anticipatory in a sense, it is often referred to as resource planning. It is generally carried out in the interests of ensuring optimum land use with minimal negative externalities and environmental impacts.

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Planning, or land use suitability assessment and designation, must recognize a wide variety of behavioral inputs. In attempting to determine optimum land use over an extended period, projections about *future* biophysical states, resource needs, and types of utilization must be seriously considered. While planning recognizes that certain behavioral inputs such as *existing* uses, demands and biophysical states are important in ensuring that *present* needs are recognized; decision outcomes can no longer be based solely on such considerations. If this occurs there may be a tendency to emphasize and reaffirm existing or current states of affairs; often to the detriment of future options. In short, the planning process, while taking into account "what is" and "what is desired," must also consider "what is likely to be" and perhaps "what should be" in the context of land use suitability designations.

Certain behavioral factors are present in many land use decisions in the form of assessments of biophysical capability and environmental states; and projections of future uses and needs drawn from a wide analysis of economic, demographic, development and preservation trends. It is often the case, however, that behavioral inputs advocating short term socio-economic development overshadow similar inputs advocating environmental protection. This situation can often depend upon the degree of pressure or influence exerted by various lobby groups, bureaucratic agencies, or media coverage; or the constraints imposed by conflicting values, time and data availability, and institutional arrangements.

At the level of bureaucratic decision making on a small scale—a level at which many land use planning decisions are made—it may be the case that decision makers attempt to impose rational or normative methods of decision analysis on the process, thereby attempting to limit the degree to which they must respond to the various behavioral inputs present. This "government knows best" attitude cannot be shown, however, to produce particularly desirable results in many instances. The drawbacks of the normative approach in this respect are examined in the second chapter of this thesis.

The problem in most land use or resource decisions appears to be the way in which various behavioral influences are countenanced and weighed by decision makers. Certain types of influence or certain influences applied through particular channels can effectively outweigh other less prominent—although perhaps equally important—behavioral considerations. Thus, for example, while many land use decisions involve a rather well-balanced tug-of-war between vested interests—environmentalists and developers—decision making that is intent on establishing optimum current and future land use cannot rely on such a balanced polarization of inputs being present. Decision makers need to become more familiar with weighing and analyzing behavioral inputs, and with recognizing those types of factors that can precipitate significant bias or narrow unresponsiveness in decision outcomes.

Crown land planning, as carried out by the Ministry of Lands, Parks and Housing in British Columbia, constitutes a current practical example of land use suitability decision making. The Crown land plan is designed to take into account various types of behavioral inputs. It also allows a certain degree of scope for retreat into the normative style of analysis in the face of complex or controversial variables. It is the intent of this research to examine the drawbacks associated with the latter course of action by examining critically the normative approach to decision making. Further, the research examines the principal types of behavioral influence and attempts to demonstrate how certain influences under certain circumstances can cause critical bias in some types of decisions. Finally, these theoretical observations are applied to a case of land use suitability decision making—the Ladysmith Harbour Crown Foreshore Plan—in British Columbia. The research is conducted in light of the following hypothesis:

- That improper weighting and balancing of strong passive, procedural and active influences acting on the decision process is more likely to precipitate land use suitability designations that reaffirm or rationalize existing biophysical states and existing uses, than designations which reflect potential or projected biophysical states and projected uses and options.

1.2 RESEARCH STRUCTURE AND PROCEDURE

Chapter 2 reviews the principal theoretical works on individual and/or team decision making. In covering a wide literature base, the normative/behavioral distinction is reviewed. This chapter focusses on the normative approach, and critiques some of the major assumptions upon which normative decision theory rests. An attempt is made to indicate those circumstances under which the normative approach runs into difficulty, as well as outlining some scenarios in which total reliance on normative principles can result in narrow or unresponsive decisions and oversimplification. The process of decision making is outlined, and that process is examined from the point of view of some of the limitations of the normative approach. The chapter is summarized with a brief analysis of the procedure of decision making and a review of the advantages and disadvantages of the normative approach. It is the intent of this chapter to show why normative models are largely unacceptable as frameworks for land use decisions.

In Chapter 3 a broad review of the major types of behavioral influence that can theoretically affect the decision process is offered. In a literature review format, the chapter involves an initial assessment of the nature of influence; followed by an analysis of the roles of passive, procedural and active influence in the decision process. Passive influence is defined as the general realm of preconceived ideas, value assumptions, perceptions and attitudes. Procedural influence is defined as those factors of a practical nature that can affect decision outcomes, such as decision maker expertise, rationality, data availability, data quality, time, funding and institutional constraints. Active influence is a very broad subject area, consisting of the range of public, interest group, media, and bureaucratic involvement in the decision process. Since each one of the latter subject areas is complex and involves a voluminous literature base, only the principal theoretical elements of each general type of active influence will be presented. Throughout the chapter an attempt will be made to analyze the ways in which

these various types of influence tend to condition and direct decision outcomes. As was the case in Chapter 2, this analysis also seeks to demonstrate those circumstances under which undue emphasis on certain types of behavioral influence can produce undesirable results. Part of that task is to show also the reasons why certain behavioral influences cannot be relied upon to forward invariably an objective and equitable decision proposal.

With the theoretical framework of normative and behavioral decision theory outlined, Chapter 4 examines a case study of sub-District Crown foreshore planning, as an example of land use suitability decision making. The plan was undertaken by the Ministry of Lands, Parks and Housing with the intent of establishing foreshore land use suitability categories for Ladysmith harbour on Vancouver Island. The intent of the case study is to review the Crown land planning format, and to assess planning as a land use suitability decision making process; to examine that decision making process in the context of Crown foreshore; to compare that decision process to the "classical" formulation of Lindblom; and, finally, to compare the nature and relative weighing of various behavioral considerations in the decision process with respect to the research hypothesis.

The Crown foreshore planning process is chosen for a case study for two reasons: (1) the nature of the foreshore is such that utilization decisions—based upon land use suitability designations—are becoming both complex and controversial; and (2) the land use suitability designation process (planning) represents an excellent example of individual or team decision making, involving a wide variety of groups, agencies, interests and values, as well as projected uses, needs and demands. In short, the Crown land planning process recognizes the need for different types of behavioral input. The question becomes how effectively that process balances those types of input.

The Ladysmith Harbour Plan has been chosen for analysis as the area has a high level of existing use and a large number of users who have major interests in foreshore allocation decisions. However,

existing use allocations have been the subject of conflict in that traditional uses have been seen to be the cause of deteriorations in the harbour's water quality and general environmental and recreational amenities. The plan was initiated in response to these conflicts, and has as its aim the reduction of such conflicts, protection and enhancement of environmental and recreational quality, and maintenance of current and future socio-economic enterprises that utilize the harbour. The Ladysmith plan represents an example of land use suitability decision making involving potential problems in process and in the balancing of behavioral inputs.

The analysis is undertaken in two ways: (1) a literature review of the Ladysmith harbour planning process and the major components of the plan; and (2) a questionnaire—administered in an interview format—utilizing open ended questions to assess the relative weighting given the major behavioral inputs and considerations in the plan, by the decision makers—Lands, Parks and Housing regional planning staff. The literature review focusses on the plan process in terms of how it compares to Lindblom's (1968) classical decision making procedure. The interviews are directed at the various participants in the planning process, and attempt to relate the relative weighting given to certain behavioral considerations to the nature and amount of various passive, procedural, and active influences acting on the decision process. The plan review and the interview results are then combined, analyzed and summarized with respect to the case study.

Finally, in Chapter 5, an analysis of the case study is presented in terms of the theoretical principles of decision making that were reviewed in Chapters 2 and 3. On the basis of this analysis the research hypothesis is then considered. Conclusions with respect to the process of land use suitability decision making, implications of the research in terms of future planning efforts, and proposals for improvements to future land use decisions are then forwarded.

CHAPTER 2

THEORETICAL ELEMENTS OF THE DECISION MAKING PROCESS

2.1 THE NATURE OF DECISION MAKING

The decision process—process because it invariably can be seen to involve distinct components or steps—generally represents the act of choice between two or more courses of action or ways of thinking. Applied, as opposed to abstract, decision making is referred to by Kates (1962) to be "in a broad sense, the selection of alternate courses of human action" (p. 12).

Virtually all cases of resource use and environmental conservation require decision making of some type. Very often, the decision process in these areas of concern falls largely within the realm of government responsibility. Most major resource and environmental decision making is carried out by municipal, provincial and federal governments; and such decision making may represent the collective effort of elected officials and appointed bureaucrats, the former alone, or, in some cases, the latter alone. Because of the emotional nature of many environmental and resource use cases, the decision process and the actions and responses that it produces often generate heated public debate. Despite this observation, few people seem to understand fully the decision process, as it is exhibited by governments; and many fail to comprehend the rationality of actions and responses invoked as a result of that process. Perhaps this should not be particularly surprising. For many, the fundamental reality of how one arrives at a choice about subjects that affect one's own day-to-day routine, such as change of career, neighbourhood, or marital status, is rather obscure. Most often, such personal decisions seem to be the result of a vague, undefined and sometimes almost subconscious process of choosing, selecting, and collating information relating to wants, needs, ambitions, goals and alternative courses of

action. While the actual theoretical process of making a decision can be rigorously defined, it would appear that many governmental decisions, involving environment and resources, simply come about as a result of a vague and only partially understood set of circumstances, similar to those many people feel condition their own personal decisions. Some decision making theorists would, of course, question this assumption, claiming that decisions are reached on the basis of conscious rational evaluation. In fact, there is some merit to the conceptual underpinnings of both of these views.

That decisions may, indeed, be reached through a process of "disjointed incremental" steps has been recognized and postulated by Lindblom (1959). In his analysis, the decision making process typifies what he terms "the science of muddling through." Lindblom points to a fundamental dichotomy of theory about decision making which sees man, on the one hand, as a rational policy making creature capable of comprehensive evaluation of all possible relevant decision alternatives; and, on the other, as a less than fully rational creature of quite narrow scope capable of interpreting only a limited amount of information, and fundamentally affected by cultural, behavioral and social variables. This dichotomy basically involves two different assumptions about the rationality and objectivity of man as decision maker. This duality of approaches has been reflected to a large extent in the way in which decision theory has developed. Two fundamental approaches can now be isolated: one which seeks to move man closer to rationality in attempting to *prescribe* his decision making in terms of what ought to be, and the other which seeks to *describe* and predict his decision making from the stance of how he in fact reacts to decision situations. The former approach has been given the label "normative" decision making, while the latter is termed the "behavioral" approach.

2.2 *CONCEPTS OF PRESCRIPTIVE AND DESCRIPTIVE DECISION THEORY: THE NORMATIVE AND BEHAVIORAL APPROACHES*

The analysis of decision making to be undertaken here does not seek to demonstrate the merits of any particular approach to decision making. Rather it seeks to examine the underlying rationales of the normative approach in this chapter, and to assess critically the fundamental assumptions of the behavioral approach in the following chapter. Of primary importance in this chapter will be the task of describing the decision process as it typically occurs.

Before embarking on a specific examination of the mechanics of the decision process, it is important to describe the normative/behavioral distinction further, in order to assess more fully the direction and merit of each approach. Without doubt, the normative approach in decision theory represents the classical approach. As stated, the normative approach, if actually not resting entirely on the supposition that man is a completely rational being, utilizes the rational potential of man with respect to decision making. As Machol (1960, pp. viii-ix) states:

> We assert that it is possible to describe analytically any human function which can be reasonably defined in objective terms—and we specifically include in such functions "thinking" insofar as the term is definable. If by "thinking" one means being able to do arithmetic, or play a good game of chess, or learn from experience, or make optimal decisions in exceedingly complex situations, then we assert that thinking can be described analytically, and there are two important corollaries: if it can be described analytically, it can be simulated; and if it can be simulated, it can be performed mechanically.

Notwithstanding the fact that it would appear that Machol makes an illogical comparison between doing arithmetic or playing chess and making complex decisions which can involve infinitely more variables of a highly subjective nature than either of the former, it is this fundamental assumption, as he states it, which underlies most normative approaches to decision making. Dorfman and Jacoby (1971), Krutilla (1963, 1971, 1973), Krutilla and Eckstein (1971), Krutilla and Cicchetti

(1972), Pearce (1975), and Sewell (1966, 1974) have all examined various applications of the normative approach in decision making, with particular reference to the Columbia River Treaty. Certain differences of opinion exist as to the effectiveness of this approach with respect to assessing social wants, needs or costs. In those instances of environmental or resource decision making in which the major parameters of the issue can be readily defined, identified, collated, and quantified in some way such that the relative benefits and detriments can be ranked, a prescriptive model has application. Such parameters, however, are usually only definable in very simple environments where information availability is very high and goals are not in conflict.

A large part of the rationale behind cost/benefit analysis is the assumption that aspects of environmental or resource use problems can be objectively defined, quantified in some way, and ranked in benefit/detriment terms. Howe (1971), Krutilla (1967), Mishan (1971) and Pearce (1975) explore the cost/benefit approach to resource management economics. As long as a critical economic assumption underlies this type of normative approach, it does have applications. Problems, however, occur when non-economic and non-quantifiable variables are introduced. One of the major shortcomings of the normative approach lies in the tendency of normative theorists to rely on economic assumptions about what is right for society, and the tendency to attempt to reduce the major parameters of a given decision situation into quantifiable units. Also, as has been seen, in cost/benefit analyses, there is no logical way to get from what "is" the case to what "ought to be" the case. It is true in most normative models that the conclusions drawn follow from the premises quite logically. To accept those conclusions, however, one must accept the premises. It is the premises of such studies that are most often the focus of contention, from a behavioral point of view.

Major opposition to the normative approach is found in the ranks of the behavioralists, and, apart from questioning many of the "rational" foundations of the former approach, their criticisms centre on certain basic points. From a behavioral standpoint, many of the

influencing components in resource and environmental issues are not clearly definable; or, if they are definable, they are not meaningfully quantifiable. In cases where all aspects of an issue are easily quantified, ranked, and given a measure of "worth," prescriptive models may be useful; however, many cases exist where values are not quantifiable, impacts are not known and are not particularly predictable, and interests may not be singularly rational or objective. In fact, it is the very process of assigning worth to certain values in a decision context that constitutes the crux of the normative approach; and, at the same time, constitutes the most questionable aspect of that approach. In many instances, the normative approach fails in its ability to describe analytically and simulate the decision process, with the identifiable variables, as subjective or qualitative inputs are introduced.

Anderson (1970), Cooley (1963), Kasperson (1969, 1971), Minghi (1971), and O'Riordan (1971) all recognize the importance of behavioral analysis and value structure in the decision making realm. Kasperson, in particular, recognizes that external factors, outside the bounds of comprehensive rationality, can significantly affect major environmental decisions. One of the most obvious reasons for this is the fact that environmental issues often involve some conflict between notions of socio-economic quantity or worth and aesthetic or ecological quality. Predictably, the latter is very hard to take into account without utilizing some degree of behavioral analysis.

A great deal of confusion exists with respect to the applicability of normative and behavioral approaches. This confusion can be identified in the scramble within many disciplines to hold on to the normative style of analysis. The attempt to clarify and simplify decision processes by somehow furthering the ability to isolate and quantify *all* of the applicable variables involved continues in many subject areas—not the least of which is resources management. A good example is the predilection of theorists in recreational resource analysis to attempt to quantify the recreational and/or aesthetic experience such that it can be meaningfully ranked against proposed economic uses. It would

seem that, as yet, attempts to quantify the recreational experience have not resulted in a satisfactory framework by which aesthetic or other qualitative experiences can be assigned a "value." The reason is fairly obvious—economic quantification represents the one and only real standard by which modern industrial society can assign a value. Ask a researcher to assign value to parks, for example, and he will in most instances attempt to express that value in terms of "willingness to pay" for the recreational experience, on behalf of the user, distance the user will travel for the experience or opportunity cost. With few exceptions, this underlying economic assumption has manifested itself in attempts to reduce all variables involved to a common quantifiable denominator. This realization promotes the observation that the normative approach is tied very closely to the concept of rational/economic man, and to the logical rationality of his economic constructs.

Where the normative style of analysis does run into serious difficulty is in cases of land use suitability or environmental *conflict*. In such cases, stress produces an over-abundance of qualitative responses—emotional, rational, irrational, and behavioral—and, correspondingly, a large input of non-quantifiable information, much of it in the form of opinion and subjective point of view. The nature of conflict is such that stress is generated and, in turn, emotional polarization often occurs. That such stress severely limits the ability of participants in the conflict to assess the conflict and act in a rational/comprehensive manner is abundantly obvious. Dyckman (1961) analyzes decision theory in terms of its usefulness and applicability to planning. In his review it is clear that time frame and lack of stress allows for a much greater measure of rationality in the decision process. Sewell and Wood (1971) and Wood (1976) have explicated to some degree the effects of stress, tension, and threat, as well as conflict perception, on the decision process. Manifest effects include shortening of time frame for a decision, lack of dependable forethought or preplanning, the presence of often irrational yet viable opinions about the issue, and qualitative rationales undermining and reducing the

validity or acceptability of quantitative ones.

In short, the decision process can be viewed as taking place according to a format drawn from somewhere on a continuum with the following extremes: a process of rational choice based on comprehensive review of alternative courses of action and the relative merits of values involved, at the one end; and a process of choice, sometimes and in some respects rational, and at other times emotional and qualitatively based, in which the issue, alternatives considered, and outcome are heavily influenced by various cultural, behavioral, and psychological factors, at the other. The next part of this chapter is devoted to an examination of the decision process, taken out of the context of land use suitability or resource allocation conflict. The focus of the examination will be the degree to which normative assumptions can be seen to be employed in the theoretical decision process, and the degree to which some of those assumptions can be questioned. The emphasis, in this context, is the mechanics of the decision process, disregarding for the time being the influence of external factors.

2.3 THE METHODOLOGY OF DECISION MAKING: A CRITICAL ANALYSIS OF NORMATIVE ASSUMPTIONS

While decision theory is being generated in a variety of disciplines, including psychology, political science, economics, and geography, the decision process has an essential importance to the latter. The concern, from the point of view of geographers studying resource, land use, or environmental conflicts, is the nature of that process of "selection of alternate courses of action" in such conflict cases.

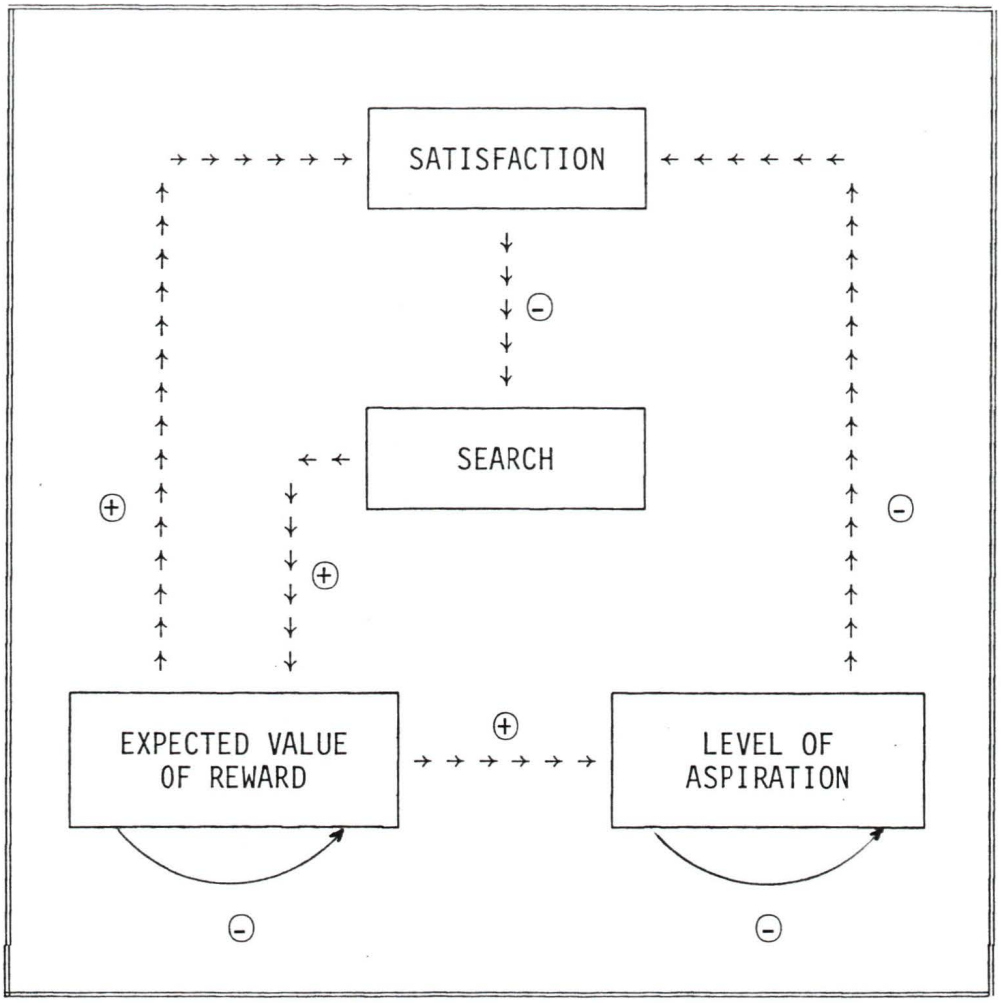
Most decision theorists, no matter what their discipline, view decision making as a process which begins with the identification of goals or objectives, selects and reviews possible alternative courses of action, ranks or gives value to those alternatives, and then adopts one, most valued alternative as a proposed course of action. March and Simon (1958), Archer (1964), Thompson (1965), Scott (1967), Scott and

Haimann (1970), and Scott and Mitchell (1972) all postulate these basic steps or stages in the decision process. Termed the "classical formulation" by Lindblom (1968), this breakdown of the decision process into its parts leads, in his explication, to six identifiable steps: (1) the problem; (2) clarification of goals, values and objectives; (3) alternate ways of achieving goals; (4) consequence of each alternative; (5) comparison of each alternative with goals; and (6) choice of alternative most consistent with goals. It must be borne in mind that this is an explication of the theoretical processes involved in rational decision making. In short, these are the components that are desirable in the context of reaching decisions. Not all decision processes are rational to this extent. At each stage of such a process external factors can be influential: decision maker bias or preference, pressure group input, and a whole realm of other related variables that can affect and severely limit the objectivity of any stage of the decision process. The stages of decision making, now a unified and generally accepted description, were probably first set out by Dewey (1910) in his work on human problem solving. He identified the three main requirements of problem solution to be: problem identification, some consideration of alternative courses of action, and some choice between alternatives. Since that time, Simon (1960) and Gore (1964), and others concerned with the decision process, have reaffirmed these steps, while adding some peripheral considerations to each step.

2.3.1 Problem Analysis in the Formulation of Goals and Objectives: The Search Process

In the initial stage of decision making, it is clear that some concept of problem must be formulated. The fact that a problem requiring decision resolution exists can be due to several reasons. Scott and Mitchell (1972), in looking at goal formulation, posit the use of a goal search process which is invoked when a certain dissatisfaction occurs in the realization of former goals. March and Simon (1958) diagrammed this search concept in a now classical representation, shown

FIGURE 2-1: THE SEARCH PROCESS



Source: March and Simon, 1958.

in Figure 2-1. This search for new goals is undertaken when satisfaction from realization of former goals falls below the level of aspiration. This method of goal search may be useful for organizations and individuals who are making decisions with the intent of satisfying certain aspirations. In many cases of resource allocation or land use suitability conflict, however, it is not this type of search process which generally underlies the re-evaluation of goals or problem identification. Rather, it is the reality and realization of conflict and stress which forces the setting of new goals. In short, the problem is defined as a result of tension of some type. The concept of stress or tension as the prime motivating mechanism for problem definition does not involve the identification of goals in a "positive" sense. This is to say, the search for goals that is initiated as a result of tension or conflict is a search for avoidance or mitigative mechanisms, rather than "increased satisfaction" mechanisms. Though the conflict may have occurred as a result of competing attempts at realizing other goals, conflict resolution decision making seems to involve the modification of such polarized "satisfaction oriented" goals into unified "conflict avoidance" goals. Thus, in conflict cases the rationale behind the setting of goals and the relative motivation for achieving those goals can differ markedly from the rationale involved in satisfaction oriented goal identification. This is important, as it reveals a new component to the process of problem perception and introduces the potential for irrationality in the search process.

Needless to say, definition of problem involves a whole realm of perception and attitude considerations. The influence of differences in perceptions and attitudes on the way in which the problem is idenfified and approached, and on the way in which goals and objectives are established, will be considered, to some extent, in the next chapter. Once a problem has been identified, and once goal alternatives and values are interpreted, the next stage of the decision process can occur. It should be noted before proceeding, however, that it is the area of problem identification and goal, objective, and value determination

which seems to be the most important in terms of preconditioning decision outcomes. If irrational choices are made at this stage—even though they might be followed by a rigorous and objective decision process—the decision outcome may still be seriously biased, narrow or inappropriate. The notion of an optimum course of action is conditioned at this stage, since some alternative courses of action will be overlooked or bypassed by the way the goals and objectives are perceived.

2.3.2 Assimilation and Evaluation of Alternatives

With problem, goals, and objectives established, alternative courses of action and evaluation of alternatives become the next priorities in the decision process. Under the assumptions of rationality, which will be explored in the next chapter, a comprehensive list of alternative courses of action will be assimilated by the decision-maker, taking into account the entire scope of possibilities. That the decision maker is capable, that he has the expertise and time as well as resources to do this is another assumption that will be explored further, in the analysis of procedural influence. Assuming, for the moment, rationality and expertise, the listing of alternatives will generally involve a spectrum or continuum of choices ranging from an extreme polarized option, to compromise in the middle, to an extreme polarized option on the other end. Needless to say, once again perceptions and attitudes and other external influencing factors can critically "skew" such a continuum, in offering more alternatives on one side of an issue, avoiding consideration of extreme alternatives, and conditioning the concept of compromise in one direction or another. Once a continuum of alternatives is established, some notion of ranking or establishing "relative merit" must be introduced. Clearly, if a value laden definition of what is "best" is to be avoided at this stage of the decision process, a rigidly and rigorously defined "scale" must be posited, such that ranking of alternatives is objectively accomplished.

The problem of developing a scale against which decision alternatives can be measured and "weighed" is deceptively fraught with diffi-

culty. As previously mentioned, cost/benefit analysis is probably the best known attempt at creating such a scale. The inherent problems associated with cost/benefit analysis are exactly the problems which undermine virtually all attempts at creating such a scale: many alternatives are quantifiable in socio-economic terms, while many others are not. This is to say that, as yet, economic rationales have not proven completely satisfactory as a scale for evaluating alternatives. When qualitatively defined variables meet quantitatively defined variables, a "no man's land" occurs between them in the matter of basis for comparison. As Blazek et al. (1974) are quick to point out, man's predilection to value things from an economic perspective causes him to continue to attempt desperately to give an economic value to such things as unpolluted environment, aesthetic character, recreational experience, and ecological preservation. As such, myriad theoretical schemes—such as willingness to pay, distance travelled and money spent in pursuing a given experience, and negative externality payments—have been concocted in an attempt to place familiar economic values on qualities and experiences, which for the most part bear only a superficial relationship to concepts of economic worth. The presence of this general inability of theorists to come to terms with an appropriate methodology for comparing "apples with oranges," so to speak, may very well stem from man's basic inability to conjoin and rationalize his economic outlook with environmental reality. Whatever the reason, the development and use of a reasonably objective and unbiased scale by which alternative courses of action can be weighed in the process of decision making remains as a major task for decision theorists. The choice of existing scales for comparison inevitably introduces a major bias into the ranking process.

Once a scale or set of criteria has been established for the purpose of ranking alternatives, the merits of each in meeting or satisfying the established goals or objectives must be assessed.

2.3.3 *Consideration of Alternatives, Decision Outcome and Proposed Course of Action*

Clearly, the way in which the goals and objectives have been defined severely limits the type of alternatives which will suffice in meeting those goals and objectives. Thus, if the goals of the decision process are economically defined, the merits of alternatives that are ecologically defined will probably not appear to be as high as the merits of economically defined alternatives. This is to say that the theoretical range of choice may be reduced by the way in which the goals and objectives have been defined. This insight is attributable to White (1961) and will be explored further in the next chapter, where influencing factors upon the decision process are discussed.

With an alternative course of action found to be the most consistent with the established objectives, and felt to be the most useful in realizing the established goals, that alternative will usually be chosen as a solution or decision outcome. Once again, barring other influencing factors, Machol (1960) seems to have a plausible case regarding the rigorous and mechanically rigid nature of the decision process once this initial stage has been passed. Clearly, once goals and objectives are identified and alternatives are outlined, the decision process can be reduced to a purely academic procedure. Decision theory, modelling, and gaming are all products of the realization that the *essence* of the decision process can be described analytically, simulated and reproduced mechanically. Where the problem clearly arises is in the way in which goals and objectives are established. Advanced normative approaches often hold that, given the reasonable predictability of human wants and needs under certain well-defined sets of circumstances, based on past experiences, even the process of establishing goals and objectives can be rigorously defined. The validity of this assumption will be more easily assessed at the end of the next chapter. Somewhat more critical, however, is an analysis of some of the other factors which can affect the rigorousness of the actual choice process. Accepting the point of

view of Machol and other normative theorists, as to the analytically definable nature of the decision process, is conditional upon acceptance of other controversial assumptions about the principal influencing factors that can be seen to condition the decision process and its outcome.

The following chapter reviews these major types of influence, and defines, to some extent, the ways in which such influences can affect the land use suitability decision process.

2.4 SUMMARY

It was the intent of this chapter to present the major principles of decision theory; and, by so doing, to highlight the normative/behavioral distinction.

Decision making can be viewed as a complex process of seeking out or identifying goals, needs and/or objectives; assimilating alternative options for action; evaluating and weighing alternatives; and choosing an appropriate or "best" course of action. This process can be viewed as consisting of a realm of possible manifestations—going from the extreme normative approach on the one hand, to the extreme behavioral approach on the other.

In addition to reviewing major aspects of decision theory and describing the "process" of decision making, this chapter was concerned with a critical analysis of some of the fundamental assumptions underlying the normative approach. The result of the analysis was to show that there may be critical difficulties encountered in reaching representative decisions when basing such decisions on normative considerations. In particular, social criteria, aesthetic considerations, values, wants and needs were judged especially difficult to simulate in predictive decision models.

The normative approach is often utilized by decision makers who are unwilling or unprepared to countenance a wide range of complex behavioral inputs. The relative drawbacks of the normative approach

and the assumptions underlying normative inputs will become clearer as a review of behavioral influence is undertaken in the following chapter.

CHAPTER 3

MAJOR BEHAVIORAL INFLUENCES AND LIMITING FACTORS IN THE LAND USE SUITABILITY DECISION PROCESS

3.1 THE NATURE OF INFLUENCE

It would seem that the basic point of departure for normative and behavioral theorists in their divergent views on decision making, is the degree to which external influences on the decision process can be defined and anticipated. Normative approaches generally attempt to reduce external variables into predictable modes; thereby concentrating on prescribing decision actions, given definable circumstances. Behavioral theorists, on the other hand, seem to hold fast to the notion that external variables are infinitely subtle and changeable, and that decisions are actually partly a result of behavioral variables, perceptions, attitudes, pressures and human preference. The result of the latter approach is to concentrate on defining what decision types may be produced by given external variables. It is a premise of this thesis that: (1) influence can play a major role in defining decision processes and outcomes; (2) influence can vary both in type and degree from decision to decision; and (3) influence does not always admit definability and rigorous approximation. While most normative theorists would concede the first two parts of the premise, most would be unwilling to admit that influence was not definable. However, attempts at such rigorous definition in previous cases have yielded noticeable over-simplification of decision situations, attempts at reducing all variables of influence to questionable common denominators, and intentional neglect of unclassifiable, hard to define, or extraneous variables.

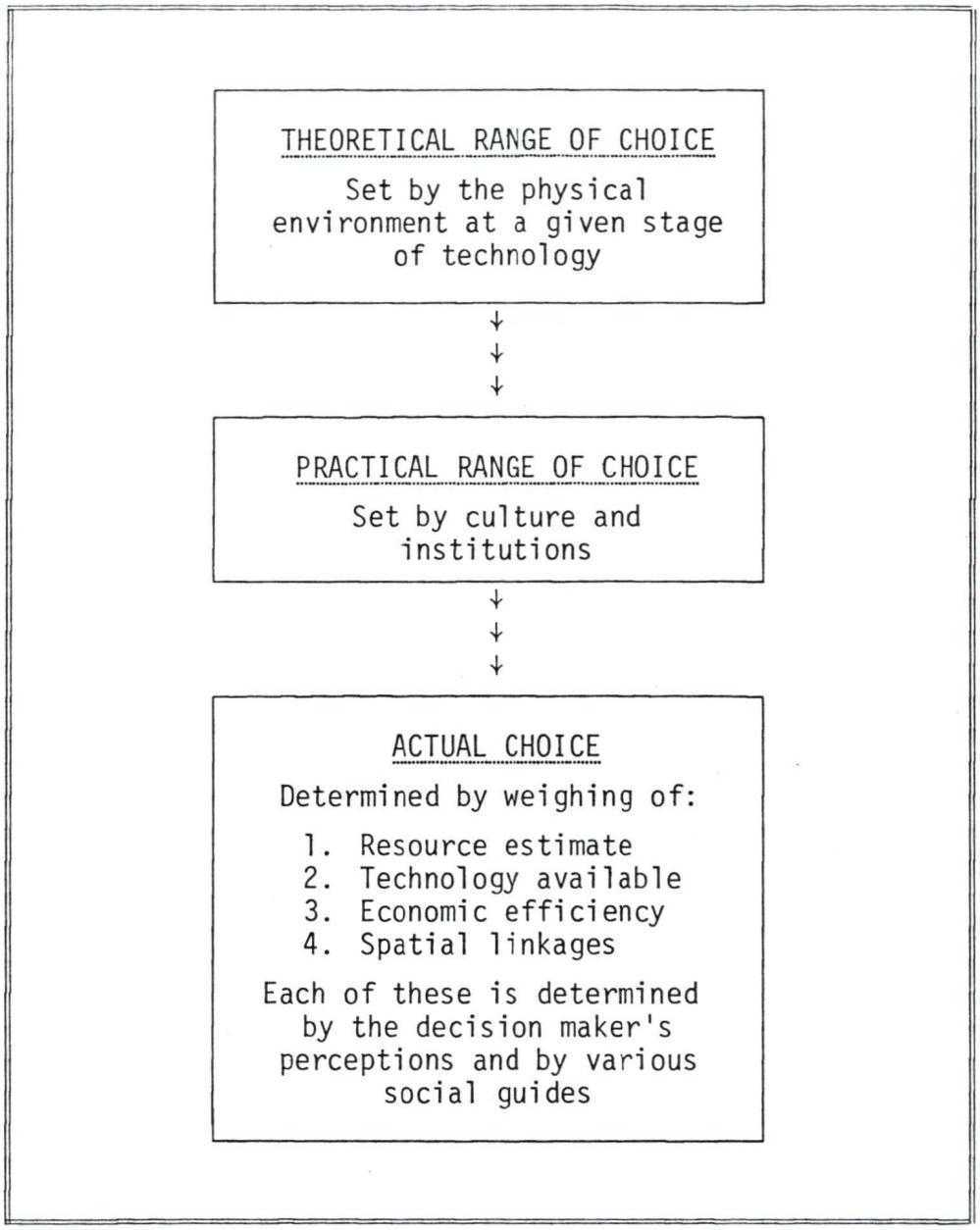
While the previous chapter examined the decision process in isolation of critical external influence, and in so doing levelled certain criticisms at the normative approach, this chapter will seek to assess

the nature and importance of the principal forms of influence. As such, a realistic assessment of the degree to which such factors can be expected to influence the decision process will be attempted; while, at the same time, an examination will be conducted into some of the major reasons why attempts at seeking normative quantifications of such factors often prove unsatisfactory.

As has been previously stated in this thesis, influence exists as an external conditioning factor in almost all decisions. White (1961) offers one of the most valuable analyses of the role of influence in speaking of the ranges of theoretical and practical choice. White differentiates between the "theoretical" range of options open to a decision maker and the "practical" range of choice that exists once the former has been conditioned by factors of "awareness" and "restraint." The theoretical range of choice constitutes all "possible" or "potential" courses of action which might be open to the decision maker in a given circumstance. However, White contends that in no decision situation will the decision maker actually deal with such a realm of choice. Rather, the theoretical range will be conditioned by lack of awareness of the extent of theoretical possibilities, or editing and restraint by the decision maker, yielding a practical range of choice. In the matter of awareness, the preceding chapter alluded to problems of decision maker expertise, knowledge and/or lack of awareness of existing information—problems which are explored more fully in this chapter. As far as restraint is concerned, it can be conditioned by "passive," "procedural" and "active" factors: value assumptions, perceptions and attitudes; degree of rationality, expertise time or funding constraints; and external influences brought to bear on the decision process. White's analysis can be schematically represented: Figure 3-1 diagrams the decision process in this manner.

White proposes that restraint is imposed as a result of a variety of factors, many of a social nature. He sees a continuum of such sources of restraint going from "formal political structures" at one end to the subtle nuances of "social attitude and tradition" at the

FIGURE 3-1: SCHEMATIC REPRESENTATION OF WHITE MODEL OF DECISION MAKING IN RESOURCES MANAGEMENT



Source: White, 1961.

other. Kates (1962) and Firey (1960), in pointing out that such constraints are most forceful in restricting decision maker adoption of "new" or previously untried courses of action, substantiate White's view. They comment that such restraints can cause the ultimate narrowing of the theoretical range of choice down to a practical range of choice that involves only *one* option. In such instances habitual choice occurs. White remarks that such cases constitute "the most elementary form of choice—the reaffirmation of the past" (1961, p. 28). The sources of such restraint, as far as external factors are concerned, are values, perceptions, attitudes, wants, needs and demands of those involved in or affected by the decision process.

Influence seems to manifest itself in decision scenarios in three basic ways: (1) passive or subconscious value assumptions and predetermined concepts; (2) procedural limitations or problems in the mechanics or process of decision making; and (3) active pressure from individuals, groups and agencies external to the decision process. In the following sections of this chapter these three types of influence are considered in terms of the ways in which they can be seen to affect the decision process, and their relative importance in terms of conditioning decision outcomes.

3.2 PASSIVE INFLUENCE: THE IMPORTANCE OF VALUE ASSUMPTIONS AND CULTURAL DETERMINANTS

3.2.1 Historical Roots of Man's Perception of Environment

Herbert Marcuse (1964) has pointed out that there exists in modern society a huge logical gap between the needs and necessities of man, and those things which he *perceives* as needs and necessities. Marcuse's "one-dimensional man" has lost touch with the reality of his biological and ecological self, and the importance of his relations to other physical beings; an aberration which has led him to replace such reality with an artificial system of beliefs and values which bear little relation to

his physical limitations and needs. Why has this occurred? Surely, it cannot be attributable to the mere presence of some degree of developed intellect, or to the belief that man is somehow exempt from physical natural laws.

In essence, modern society is the product of the cultural and scientific evolution of man. The nature of this evolution can be seen as a highly complex network of intellectual, social, cultural and technological realizations that spans the entire time frame of man's existence on this planet. Dansereau (1970) has traced some aspects of the relationship between man and environment from the state of virgin land, through human hunting and gathering societies, to the appearance of industrial and urban systems. This analysis, however, fails to approach a key question: how is it that man has developed in such a way that his relationship to his environment has become so obviously strained—how has society become so estranged from the fundamental principles of ecology?

Many theories have been expounded on the subject of what factors are to blame for the impending ecological crisis. The starting point for considering this question can be found in the principal common denominator of such theories: that man has somehow developed an overriding and all-consuming anthropocentricity in his view of himself and the environment. By anthropocentricity it is meant that man does not tend to view himself as a functioning part of a global ecosystem, but rather as the "steward" of the planet, "owner" and principal "manager" of its resources, and "controller" of its destiny. The roots of this anthropocentric orientation, which exists to differing degrees all over the globe, can be seen in many social and cultural factors. Science, technology, social science, and theology can all be seen as "roots" of the current societal orientation towards the environment.

Lynn White Jr. (1967) chooses to focus on the Judeo-Christian ethic, blaming the doctrines of "go forth and multiply" and "dominion over the earth" for man's view that the environment is something to be conquered. Moncrief (1970), in responding to White, rightly points out

that the latter's analysis is too narrow, arguing that there is an entire cultural tradition involved in man's orientation towards the environment. Leiss (1970) chooses to link technology and science together, in his review of the contributing elements in man/environment relations. In his view, science and technology—indistinguishable from one another—have perpetrated man's environmental defilement. This is also a popular analysis in many current religous doctrines. Sears (1967) traces the use of science and technology in controlling or "mastering" nature back to the time of Bacon and even Aristotle. What is wrong in these analyses, however, is that they fail to take into account the subtle distinctions that were made by Aristotle, Descartes, Leibniz, and Bacon, as well as their precedessors.

If one traces the history of Western thought (and for that matter Eastern thought—though the progression, assumptions, and manifestations of the latter differ somewhat from the former), it becomes evident that even before the time of Aristotle two often conflicting orientations were apparent in human society. Man was, at that time, still sufficiently in awe of the natural systems around him that he was particularly susceptible to the doctrines of mysticism and theological dogma. It was, thus, a time in which science—spurred on by man's curiosity about his surroundings—was in conflict with theology, tradition, myth and superstition. Prior to Aristotle's time, the Ionian civilization had already made major scientific advances. Russell (1945), Jeans (1951), Sarton (1952, 1959), and Schrodinger (1954) agree that it was at the time of Pythagoras that a major and irrevocable split occurred between pure science and that which was to become social science. Pythagoras was, in fact, one of the first to reject the Ionian concept of science—the process of observation and experiment—in favour of the idea that the laws of nature could be divined and deduced by *pure human thought*. The critical importance of the advancement of this idea cannot be overstated. It was at this point that pure science and its methodology were split from the intellectual pursuits of politics, economics, philosophy, and theology. The former, when not being

suppressed by the latter continued to flourish in its attempts to understand man through *understanding* nature; while the latter continued to attempt to *interpret* nature through the eyes of man. For the most part, the tradition that was begun by Pythagoras represented a sanctuary for theological and mystical dogma. This tradition substantiated an ever-increasing assumption that man was somehow different from nature—a unique "higher being" who was capable of understanding his environment through mere intellectual interpretation.

It was this tradition, steeped in theological dogma, that appears in the philosophy of Descartes (1649) and Leibniz (1714), in which man is elevated from biological reality to a position somewhere between the "angels" and the "brutes." The French philosopher Michel de Montaigne, in the *Defence of Raymond Sebond* (1959, p. 21), summarizes this "man apart" orientation:

> The most wretched and frail of all creatures is man, and withal the proudest. He feels and sees himself lodged here in the dirt and filth of the world, nailed and riveted to the worst and deadest part of the universe, in the lowest storey of the house, trapped worse than bird or fish, and yet in his imagination he places himself above the circle of the moon, bringing heaven under his feet. By the vanity of that same imagination he equals himself to God, attributes to himself divine faculties, and withdraws and separates himself from all other creatures; he allots to these, his fellows and companions, the portion of faculties and power which he himself thinks fit.

Kuhn (1970) points out the cyclical nature of scientific revolutions, and Russell (1945) demonstrates the way in which scientific investigation has been suppressed at various times throughout history, only to emerge again in a refined form. The *raison d'être* of science and that of social science, however, have not been reconciled since the time of Pythagoras. The result has been that the strong philosophical and theological tradition of "interpretation" as opposed to "investigation" of nature has dominated the development of most societies, particularly those in the West. Notwithstanding this, science has continued to advance and to offer observations of ever-increasing complexity about the physical environment. The conceptual gap, however,

between man and his science has not yet been bridged in the minds of most people.

The importance of these observations to the question of how man has come to view his environment can now be explicated. The man-apart traditions of theology and philosophy have become the underlying principles of the modern social sciences—not the least of which are politics, economics, psychology and sociology. In effect, man has been culturally conditioned to view himself as being something quite different—not just intellectually different but generically different—from the other living entities on the planet. In short, a "man versus nature" psychology has developed over time. The actions, institutions, and cultural traditions of modern man can be seen as manifestations of this "interpretive" methodology. Pure science, on the other hand, continues to elicit awe, distrust, and even gross misunderstanding from major segments of the population. Technology is *not*, as theorists such as Leiss would argue, science. It is, rather, the "socialization" of science—the utilization of scientific principles and discoveries by society, towards socially dictated ends. Vaughan (1974) provides an analysis of the way in which this traditional orientation was transcribed into social use, particularly technology and economic systems, largely as a result of the writings of Locke and some of his followers.

In a sense, man's inability to control his population, inability to limit the side-effects of his burgeoning technology, and inability to conjoin his *raison d'être* for society with the tenets of ecological reality, can be seen to stem from his estrangement with science. Only science and the principles behind its pursuit offer man the chance to throw over this long-standing cultural anthropocentric tradition. Some theorists on this subject, including Vaughan (1974) would disagree with this analysis, holding that science is a detrimental pursuit that should be curbed such that socio-religious pursuits of an ecological orientation can prevail. This type of view tends to reaffirm the realization that man still firmly distrusts science, and somehow blames the methodologies of science for the state of man/environment relations. These theories

are all open to interpretation, and clearly one could present a myriad of such interpretations of historical literature. What is important, though, is the fact that some of the major predetermining factors have been isolated, and some understanding of the two distinct orientations from which perceptions, attitudes and values spring has been achieved.

To a large degree, the success of attempts to increase man's awareness of the principles of ecology, and the importance of his environment to his well-being, rest upon the degree to which man's tendency to interpret nature from the point of view of his own self-interest can be altered. In a very real sense, the "mastery of nature" tradition can be traced directly to the tendency of man to interpret nature from an egocentric point of view. The interpretation of nature that has predominated has failed to take into account the complexity of the system and the reality of the relationships between its components. Thus, man has created and attempted to sustain a series of societies, technologies, and politico-economic systems that defy ecological reality. Within these artificial systems lie the majority of socially and culturally conditioned values to which the majority of people still adhere (Marcuse, 1964). These values do not yet admit that perhaps something is amiss; that perhaps ecological reality is also a concept that mankind should adopt into its value system. This will probably not occur, however, until the cultural anthropocentricity that underlies man's social and politico-economic systems is altered in a major way.

3.2.2 Nature and Importance of Socio-Cultural and Socio-Economic Value Assumptions

In the recent past, emphasis has been placed on the importance of perceptions and attitudes to the resolution of environmental issues. As such, a wide body of theory exists dealing with both the nature of how people perceive their environment and the way in which those perceptions are transformed into attitudes. Also, the role of attitudes in decision making has been extensively covered in the fields of psychology, sociology, and geography. White (1966), Saarinen (1966), Lowenthal (1961,

1967), and Burton (1971) review and present the major theoretical advancements in perception/attitude studies. Saarinen (1969) and Goodey (1971) provide a fairly comprehensive bibliography of the literature in this subject area. There can be little doubt that perceptions and attitudes are critical factors in environmental awareness, and subsequent inputs and involvement in environmental issues. Perceptions and attitudes, however, are generally important in terms of how they are manifested or represented in given situations. In other words, they are important in an *active* sense—as opinions and overt convictions about an issue. It is a premise of this thesis that perceptions and attitudes are important in the sphere of active social and institutional influence, and, of course, decision maker orientation; but that other, more fundamental and more static orientations of a covert or *passive* nature can be seen to also affect decision processes. In general, perceptions and attitudes will appear in an issue through the forums of public participation, interest group involvement, and media coverage. As Rokeach (1968, 1973) points out, however, such perceptions and attitudes often stem from a larger, more static, more intuitive, and more basic set of principles to which people adhere. These principles are fundamental beliefs and values.

In making the distinction between attitudes and values, Rokeach (1968, p. 160) refers to values as:

> enduring beliefs that a specific mode of conduct or end state of existence is personally or socially preferable to an opposite or converse mode of conduct or end state of existence.

Rosenberg (1960, p. 322) makes the distinction between values and attitudes clearer by stating that:

> The importance of a given attitude depends upon the extent to which it is perceived to be instrumental to the furtherance or hindrance of important values.

Value systems provide a "well-spring" for attitudes. Attitudes, in turn, are affected to some degree by perceptions. Perceptions can be conditioned in two ways: from external inputs about situation and environment,

and from fundamental beliefs. In a sense, attitudes are *active* manifestations of values and beliefs—conditioned in some cases by external factors. While attitudes have received a good deal of attention in terms of environmental issues, values have generally received somewhat less consideration. This has occurred despite the fact that the importance of the latter in affecting decision outcomes would seem to be high. One could posit a hierarchy in this sense in which values form the apex of an inverted pyramid, with perceptions and attitudes radiating up from that apex.

This first section overviews some of the possible interpretations of the historical and cultural foundations of man/environment conflict. This overview is intended to uncover to some extent the roots of predominant value systems, as well as societal assumptions about the environment and man's place in it and proper function with respect to it. No matter what interpretation is chosen, it would appear that there has been a strong culturally conditioned "man versus environment" value base adopted by modern society. This man versus environment orientation seems to pervade man's actions to such an extent that it is clearly visible in most major economic systems and political philosophies in the world today. Caldwell (1963) summarizes this pervasive orientation with respect to the United States by pointing out that there has yet to be a clear "public doctrine of public responsibility for the human environment." To some extent the environmental movement of the 1960s resulted in increased environmental legislation, but even so environment still has not achieved full status as a major human and societal "value."

It has been observed by theorists such as Rokeach, that perceptions and attitudes are manipulable and alterable. This is to say that given the right information and influence, perceptions of an issue, and attitudes towards that issue, can be modified. Values, however, are generally more fundamental and more enduring in the face of contrary indicators. Thus, they tend to be more static and resistant to change. The significance of this observation is that perceptions and attitudes may be altered by external factors, while the fundamental values under-

neath those attitudes remain unchanged. Thus, while researchers often tend to view attitudes as active manifestations of values, cases can occur where this is *not* entirely accurate. Reliance on perceptions and attitudes as indicators of influence on the decision making process may be too narrow an approach. The possibility exists that even in the face of contrary opinions and attitudes, actual values and beliefs will dictate decision outcomes, in the final analysis. The latter can thus form a completely different type of external influence on the decision process—a passive "assumptive" influence.

The importance of beliefs and value systems in the context of this thesis is that they involve reasonably static and immutable assumptions about man and environment. Most often these assumptions centre on socio-cultural concerns—ensuring that social welfare is guaranteed—and socio-economic concerns—the sanctity of free enterprise, or the progress of the socialist state, rising material living standards, economic growth and industrialization. As Marcuse (1964) observes, it is not clear that such assumptions are directly related to *real* human values; but, as he acknowledges, they have been so completely and pervasively instilled in the populations of modern industrial states that those populations tend to view such socio-cultural and socio-economic models as being sacrosanct. In this sense, reconciling environmental concern with current political philosophies and economic policies becomes difficult. As such, environmental concern tends to involve a perception of environmental degradation, and gradual change in attitudes to encompass a desire for environmental protection. When a situation is reached, however, where environmental protection is pitted against economic growth or any of these strong societal values, large percentages of the population will defer to the latter, where their most strongly conditioned values lie, and will accept compromise of the environment as an alternative to compromise of those values. Even in the face of environmental awareness on a massive scale, due to the presence of the media, and the presence of institutionalized environmental protection measures, a major shift of values with respect to the environment has yet to take place fully.

Such values as economic growth and development, resource exploitation, and increased alienation of man from the hazards and physically unpleasant aspects of his environment, are the products of a long socio-economic evolution. It remains unclear as to whether the concept of environmental sanctity can ever be fully integrated with these assumptions, in their current format. Perhaps it will take a major ecological catastrophe to force men to reassess and revamp their value assumptions; response to crisis is often the final inexorable precipitator of change—as is most clearly evidenced in human reactions to large scale natural disasters.

Rokeach (1968, 1973), Lee (1966), Miller et al. (1970), Cain (1967), Horowitz (1972) and Goodey (1971), to name only a few, have emphasized the importance of such underlying value assumptions in conditioning environmental responses. The latter reviews perception studies in some depth, and comments on the degree of anthropocentricity involved in most attitudes and perceptions. Lee (1966) comments that until environment becomes something to be protected and respected rather than dominated and exploited, and until this type of attitude becomes an actual human value, environmentalism will represent little more than hypocrisy—an ideological clash between attitudes and beliefs. Blazek et al. (1974) recognize that the domination and exploitation of nature is a shared human orientation which has become, through centuries of socio-cultural tradition and indoctrination, an entrenched human value system. They argue that in order for environmental (biological and ecological) considerations to receive objective and fair hearing in land use suitability or resource allocation conflict cases, this inherent belief about man's relationship with respect to environment will have to change. That such a change would imply more than a mere change of attitudes and perceptions is a corollary to this argument.

Value assumptions form the basis of many individual decisions about minor issues. In major decisions where institutions are involved value assumptions may still play a major role. Value assumptions can be seen to influence institutional decision processes in two basic areas.

Firstly, they can influence the decision maker as values that he himself holds or that his political party or economic associates hold. Often unskilled or harried decision makers have to fall back on their "gut feelings" about an issue to reach a choice—a tactic that brings decision maker values to the fore. Even in cases where decision makers do not consciously refer to their own values, the subtle and intrinsic nature of such values can often allow bias to enter the decision maker's evaluations without his knowledge. The presence of bias can narrow the range of variables considered in the decision process. In both of the above situations, value assumptions can preclude equality of plausibility for ecological/environmental variables in terms of their being considered objectively in the decision process. Secondly, value assumptions may dictate the type and amount of external influence brought to bear on the decision process. The public and/or interest groups, as well as bureaucrats, may take a particular stance on an issue as a result of their value orientation towards that issue, as opposed to basing that stance on an objective evaluation of the variables involved. In some cases, the strength of those culturally conditioned value assumptions is such that decision makers will overlook active external inputs in favour of an "I know what is in the best public interest" approach.

It is important that such underlying value assumptions are not allowed to become prescriptive in the context of land use suitability or resource allocation decisions. Sometimes decisions have to be reached on the basis of future interests, avoidance of subtle but critical physical impacts, or non-materialistic rationales. Allowing culturally propagated value assumptions to dominate decision scenarios severely limits the chances of such alternatives being objectively considered. In the final analysis, it is of great consequence that decision theorists realize that understanding decision outcomes must inevitably involve more than just the awareness of problems that can occur in the actual decision process, and of the relative influence of overt attitudes. Very real indicators of why decisions were made in a

certain way can often be found in societal assumptions, values, traditions, and past practices. Though such deep underlying rationales are often exceedingly difficult to isolate, particularly in conflict issues, some indicators of their nature may be found in analyzing traditional responses to similar issues and associated decision precedents.

3.3 PROCEDURAL INFLUENCE: LIMITING FACTORS IN THE DECISION MAKING PROCESS

3.3.1 The Concept of Rational/Economic Man

Dyckman (1961) states that the "norm" of economics is to be rational, and that economics is a "science of rational action." Downs (1957) points out that "economic theorists have nearly always looked at decisions as though they were made by rational minds" (p. 4). The latter description allows for the concept of rationality to be extended, as Downs does, to describe the economic decision process as being one of: "calculating the most reasonable way for the decision-maker to reach his goals, and assuming that this way will be chosen because the decision-maker is rational" (p. 4). Braybrooke and Lindblom (1963), Kates (1962), Simon (1957), March and Simon (1958), Marschak (1950), White (1961), Lindblom (1959, 1968), Audley (1967), Brown (1970), Edwards (1954), Blazek et al. (1974), Taylor (1965), and Janis and Mann (1977) have all addressed the subject of rational/economic man, from the point of view of several different disciplines. That which has, in effect, become the paradigm of "institutional economics"—the concept of rational man—forms one of the most essential assumptions of normative decision making theory. That assumption is that rationality is, as Kates (1962, p. 55) points out:

> the ability to choose clearly and consistently those alternative courses of human behavior that are most appropriate towards attaining some end or goal.

Simon (1957, p. xxvii) furthers this definition by clarifying an additional component to the assumption of economic man. He states:

> [Economic man] has a complete and consistent system of preferences that allows him always to choose among the alternatives open to him; he is always completely aware of what the alternatives are; there are no limits to the complexity of the computations he can perform in order to determine which alternatives are best; probability calculations are neither frightening nor mysterious to him.

Needless to say, it is this underlying assumption of man's rationality, critical to the normative approach, which generates a great deal of debate amongst decision theorists. On the basis of some conceptual works on the subject (Braybrooke, 1965; Colwell, 1972; Lindblom and Cohen, 1979; Edwards, 1954; Blazek et al., 1974), the roots of the theory of rational/economic man are traceable back into the history of social science. In much the same way as man's evolving anthropocentrism developed out of the divergence of science and mysticism, so too did the concept of rationality. Philosophical discussions involving man's place in the universe always included the presence of man's rationality as a basic characteristic which separated him from other biological entities on the planet. An inherent belief in the rationality and intellectual capability of man pervaded the realm of the social sciences throughout recent decades. That economics, which has its roots in that same philosophy, and which had its fundamental philosophical principles first postulated by the likes of John Stuart Mill, James Mill, John Dewey and Jeremy Bentham, was injected with an *a priori* concept of "rational man" is not surprising. That this concept of rational man would come to be of principal importance to the problem of giving rigour and scientific principle to the study of economics is also not surprising. In fact, much of subsequent economic theory generated from the original philosophical roots of economics has been dependent on the assumption of man's rationality.

That the assumption of rationality is of great importance in the normative approach to decision making is evident in the need within that approach to be able to define analytically, simulate, and mechanically reproduce the decision process. Objections to the assumption of man's rationality have taken two main forms: (1) a basic objection to the

philosophical and/or psychological assessment of the degree of man's rationality; and (2) an objection to the assumption that because man has a certain capability for rational action, he employs that capability to its maximum degree in the decision process.

Purveyors of the former type of objection, headed by Simon (1957), Edwards (1954), and Lindblom (1959) and most decision theorists in the fields of psychology and sociology, are unified in their questioning of the degree of man's rationality. Their objections focus on the comprehensiveness aspect—the suggestion of near omniscience that seems to be purported in economic theory, with respect to man. They argue that man is, in some well-defined instances, capable of rational action; but that in many cases the complexity of the situation with which he is faced surpasses the ability of man to assimilate, organize and conceptualize the necessary information for rational action. In much the same way as the assumption of man's high degree of rationality has been questioned in the context of economic theory, it can also be questioned in terms of his biological limitations. If he is acting as purely economic man, under conditions of limited scope, limited information, and ideal lack of pressure and risk, he may, indeed, be capable of rational choice. That the degree of uncertainty in almost all of his knowledge, and the limits of his scope to gather, process and understand relevant information, prohibit him from claiming anything even approaching comprehensive rationality, is the major contention of that group of theorists mentioned above.

The latter type of objection, which is not wholly independent of the former, is that the nature of decision processes limits the applicability and dependability of man's rationality. In short, this means that the nature of many decisions involves a voluminous amount of information, often of a highly technical nature, an adequate system for gathering and analyzing such information, a scale by which a set of alternatives can be weighed and compared, and the means to eliminate alternatives and choose the best. Further, it is recognized that the presence of influencing factors such as perception of goals and

objectives, qualitative as well as quantitative considerations, conflict, stress and tension, limited time-frame, funding, and a whole spectrum of other variables in the decision process, preclude the possibility of rigorousness through rationality. This means that for rationality to be a guarantor of rigorousness in the decision process, all factors and variables, both internal and external, must be capable of being rationally examined, weighed and taken into account. Proponents of the latter type of objection, including White (1961), Kasperson (1967, 1971), and Lindblom (1968), point out that the volume, complexity, and qualitative/quantitative dichotomy of cultural variables, economic variables, and information involved in most decision processes severely limits and conditions the extent to which man can behave in a comprehensively rational manner.

A further problem inherent in the assumption of rational/economic man—a problem expounded by Simon (1957a, 1957b)—is that it entails yet another assumption about man's desire to maximize his satisfaction in making a decision. Simon refutes the position that man is fully and completely rational, as he is made out to be in economic theory, and charges that some internal and external factors involved with decision making, such as preconceived ideas, biased or narrow thinking, or overt external pressures, limit the degree to which man can operate in a rational manner. However, Simon is quick to point out that it is just as inaccurate to assume, as many behavioralists do, that any given decision is solely the product of such influences. As such, Simon maintains the existential belief that man's rational actions allow him not to be completely at the mercy of the tides of influence, yet he recognizes that influence limits the degree of man's rationality.

Within this concept of "bounded rationality," Simon (1957b, p. 199) sees an implicit assumption of optimization, as opposed to maximization of satisfaction for man as decision maker. In his own terms:

> the first consequence of the principle of bounded rationality is that the intended rationality of an actor requires him to construct a simplified model of the real situation, in order

> to deal with it. He behaves rationally with respect to this model, and such behavior is not even approximately optimal with respect to the real world.

The result, in Simon's analysis, is that man tends to seek satisfaction or solutions that "will do," rather than "best" courses of action. This concept he refers to as "satisficing." Lindblom (1959), in positing his theory of "disjointed incrementalism"—decision making as a series of adaptations of a marginally incremental nature in which decisions are a composite of minor policy changes aimed at simplification and relevancy —shares Simon's distrust of the theory of "maximization." He too feels that the concept of rational/economic man involves unworkable assumptions about man and the nature of the decision process. Though some have taken exception to the view that man employs a satisficing approach to decision making, a survey of the literature since Simon first posited this idea shows, as Kates (1962) verifies, that few have taken exception to Simon's attack on the assumption of rationality.

Advances in normative modelling are continually being made, and attempts at simulating not only informational inputs but behavioral variables as well will continue to occur. However, in cases of resource and environmental conflict, where behavioral and socio-cultural variables are often highly subtle and complex, the normative approach severely limits the representativeness of the decision process. As such, influencing factors play a very important role in most environmental conflict reduction decisions. As a result of this analysis, it is also clear that the degree of rationality employed by decision makers in dealing with such conflicts is by no means comprehensive; decision makers operate, it would seem, within the limits of bounded rationaltiy. That this, in turn, limits their ability to try to choose the best course of action, and conditions them into seeking a *satisficing* alternative through a process of incremental choices, seems to be the most accurate theoretical analysis of decision maker behavior.

3.3.2 The Availability and Type of Source Data

In reviewing the concept of rational/economic man, it was noted that one of the factors that militates against the comprehensiveness of man's rationality is the amount and type of information available to him in the decision process. As Simon (1957a) points out, it is often the case that the first step a decision maker must take in approaching a problem is to simplify it into a format with which he is capable of dealing. This occurs simply because of the sheer complexity and volume of pertinent information that is often available to him. Depending largely upon the availability of such information, and the ability of the decision maker to understand, assimilate and use that information, a given problem will vary in the degree to which it must be simplified before becoming comprehensible. Lindblom (1968, p. 13) argues that this simplification process is virtually unavoidable:

> A wise policy-maker will not even try for completion. To clarify and organize all relevant values, to take an inventory of all important possible policy alternatives, to track down the endless possible consequences of each possible alternative, then to match the multifold consequences of each with the statement of goals—all this runs beyond the time and energy that a decision-maker can afford to devote to problem solving, and in fact beyond the information that he has available.

In the face of a virtual explosion of scientific and technical information in the past few decades, the amount of available information for any given problem surpasses the synthesizing abilities of the human decision maker many times over. The type of source data is also virtually unlimited in many problem types. In some cases, of course, there exists a shortage of accurate knowledge—a situation which has led to examples of poor decision making occurring. However, it is a much more prevalent occurrence that relevant, easily accessible, and readily analyzable information is overlooked and ignored as a result of the penchant of decision makers to simplify the problem as much as possible.

Where the most important problem arises in many cases of land use suitability and resource allocation decision making, is in what types

of information are chosen as being relevant, and in what amounts or to what degree of complexity. The study of biological and ecological phenomena in recent years has multiplied tremendously, and with it the information base available for resource management and land use capability decisions has expanded correspondingly. As such, the data base must be sampled, since time and decision maker expertise often militate against a more in-depth approach. The relative importance which the decision maker assigns to certain types of information will affect and, in some cases, skew this sampling process. Thus, variables or unknowns which are felt by a decision maker to be of importance to an issue may receive more attention and a more in-depth research effort than those which he may not perceive to be as important. In this way, professional decision making, which often involves a large amount of analysis, may differ in an important way from organizational or political decision making which tend to be more susceptible to irrational influences. As the level of objectivity and expertise of the decision maker is increased, this tendency to precondition the research effort should lessen; although this may not always follow. Unfortunately, some resource, land use, and environmental decisions are cast by decision makers who may not be aware of the necessity for objectivity due to a lack of expertise. Even given the presence of an information provider, in the form of the government bureaucracy, the nature of the institutional arrangements involved between advisory bureaucrats and political decision makers often severely limits the objectivity and expertise of information thus obtained.

If Lindblom's analysis is taken as being accurate, it may be the case that the so-called "wise policy maker" will not even attempt a comprehensive information search prior to decision making; but will, instead, confine himself to what he sees as being relevant and consequential information. Clearly, the decision maker's own perception as to what is relevant will limit the search process in this type of case. Similarly, that which others who have influence over him see as being relevant information will also condition his perception, and thereby

condition the information search process. These factors will be explored further in the section on active influence; as the pressure brought to bear by "vested interests" external to the decision process will be seen to be the most important in conditioning amount and type of information considered.

As previously mentioned, as far as availability and type of source data is concerned it is seldom the case that a lack of information plagues a decision maker. Rather, an over-abundance generally invokes sampling methodologies that are critically affected by influencing factors. Thus, while ecological detriments resulting from certain types of resource exploitation may be recognized and verified through research, the importance of such detriments may not occur to a decision maker who is more concerned with policies that ensure short term economic gain for a given social group. As Blazek et al. (1974, p. 8) summarize this concern:

> The economist is able to endow the benefits, and sometimes also the hazards, of his propositions into suggestively precise quantifications which enable him to appear impartial to branch-oriented interests, leaving the figures to argue in his place, as it were. . . . To decision-makers, who are concerned with the care of the human environment, this kind of reasoning is all the more acceptable since the results of economic growth become manifest in the immediate future and are conspicuous physically.

In short, it is seldom the degree of accuracy, depth, or availability of information that limits the objectivity, representativeness, and appropriateness of land use suitability or resource allocation decisions; but rather the way in which decision makers choose to utilize that information in the course of the decision process. The latter can be conditioned by hierarchy, power structure, and information sharing processes.

3.3.3 Institutional Arrangements and Decision Maker Expertise

As was alluded to previously, both the nature of the institutional constraints on the decision process, and the position and expertise of

the decision maker, can condition both the decision process and the decision outcome. Institutional arrangements can affect the process in two distinct ways: (1) as a framework in which the process takes place, and (2) as channels through which external influence can be brought to bear on the decision process. In the case of the former, such arrangements constitute an integral part of the decision making process, providing directional and contextual guidance. In their latter role, as channels for influence, institutional arrangements can qualitatively and quantitatively define such factors as: degree of public involvement, decision maker responsibility, interest group input, and the involvement of members of the government bureaucracy and the private sector who have expertise in the issue at hand. The effects of institutional arrangements on influence will become evident through consideration of the various primary forms of external pressure in the next section. How the institutional framework conditions decision making process *per se* is the concern of this section. The important consideration, in this sense, is the setting and context of the decision, and the links that exist between decision makers and their sources of information.

In order to assess the direct effect of institutional structure on governmental decision making, it is necessary to analyze briefly that structure as it appears in the provincial context. Doern and Aucoin (1971), Crook (1975), Dwivedi (1974), Pearson (1974), Munro (1961) and MacNeill (1971) have all contributed to the analysis of general governmental policy frameworks, and Munro (1961), Lee (1978) and Mitchell (1975) have given close consideration to specific institutional arrangements and their effect on specific decision processes.

In context of British Columbia, some decisions are affected by jurisdictional constraints coming from both the federal and provincial levels. Carr (1961) and Laskin (1961) have reviewed these constraints in terms of agriculture and water resources; and Sewell (1971) and Swainson (1976) have also examined the effects of jurisdictional considerations and institutional constraints on problems of water resource

management. Of importance in the context of this thesis are those decision types which fall essentially within the provincial jurisdiction, such as wildlife management, forestry, mining, and similar resource management areas. In such cases the provincial institutional structure, and sometimes the municipal structure, are the sole edifices which circumscribe the resources decision process.

The provincial structure consists of elected representatives—members of the Legislative Assembly—backed up by non-elected government employees in the civil service. Within the ranks of elected representatives, some are given the responsibility of a particular portfolio—such as health, forests, environment, and so forth—in which they are seen to serve in the position of decision maker. Ministries under such portfolios are structured bureaucratic organizations in which expertise and information provision functions are pooled. Smith (1976) offers a comprehensive insight into the functions of the British based political system, upon which the structure of the provincial government is founded. In his analysis, power not only accrues to the decision maker (elected representative) but also to the top ranking officials of the bureaucracy, many of whom, in the case of British Columbia, are political appointees. This insight is valuable since it points to the presence of two or more potential actors in the actual decision process, only one of whom is directly and immediately accountable to the public. Clokie (1944) points out that as well as the individual positions of responsibility with respect to the decision process, the presence of a "party" system also conditions policy. Each political party adopts a broad basic set of political and economic values, to which public opinion is added, in producing a synthesis of public support for a fundamental set of politico-economic values and public opinion on a given policy issue. This arrangement, of course, is founded upon the democratic assumption that the public, or some form of majority of the public, is rational to some extent with regard to the best interests of society. It is the function of the bureaucracy, as Niskanen (1971) points out, to provide a pool of expertise and an information search capacity, in order to

ensure that public opinion is tempered with economic, socio-cultural, scientific/technical, and environmental reality.

Unfortunately, with regard to the effect of this institutional structure on the decision making process, several points can be raised, when dealing with land use suitability and resource allocation decisions: (1) that elected decision makers are generally responsive to the wishes and demands of their constituents—especially where those wishes are geared to political and economic rationales which are in keeping with the philosophy of the elected decision maker or his party; (2) that the political nature of the top ranks of the bureaucracy may condition the type and extent of information, dealing with benefits and detriments associated with potential courses of action, that is taken into account in the decision process; and (3) that the public at large are more likely to demand responses that increase economic benefits and gratification, than responses that limit such benefits in favour of long term environmental protection—that is to say that selfishness rather than selflessness tends to be an underlying rationale behind public demands. In considering these points for a moment, some further observations are warranted. With respect to decision maker responsiveness to demands that are in keeping with his own or his party's economic philosophy, it is very evident that the most pervasive issue in all governmental policy affairs is economics. Elections are still won and lost over economic issues and matters of economic policy, even though environmental platforms are gaining in political importance. As such, most decision makers are of the opinion, as are most political parties, that economic policy constitutes an intrinsic and unquestionable tenet in the political process; and therefore economic values tend to receive more favour and attention from decision makers right from the outset. That decision makers must somehow protect and further the philosophy of economic growth, even where important environmental problems are occurring, is an *ipso facto* principle of government decision making. As such, significant bias can precede the analysis of land use suitability and resource allocation issues, and severely affect the outcome even in the face of

clearly definable benefits and detriments. With respect to the political nature of the higher ranks of the bureaucracy, this fact provides a link between decision maker and bureaucrat which can, and sometimes does, conjoin their interests in an issue. This in turn can ensure that information which is clearly counter-productive from the point of view of certain political interests, is sublimated or overlooked in the decision process. Also, the bureaucracy which Weber (1947) saw as being "devoid of all passion or hatred," may play the role of a vested interest in decision processes, while still appearing to serve the best (economic) interests of the public. This tendency will be explored further in the next section. Finally, members of the general public are often geared to the belief that their own best interests are best served by policies that ensure economic growth, even where environmental destruction may result. This can mean that a decision maker who is strictly acting in good faith and fulfilling his responsibility to the public may enter the decision process with a pro-economic bias right from the start.

It is not easy to assess the system of interaction that exists between elected representatives, their researchers, party advisors, and bureaucrats. What is clear, in this analysis, is that a major potential for preconditioning the decision process and its resultant outcome exists, given the number of actors involved, the partisan interests that may be present, and the method and degree of information transfer. This can occur strictly as a result of the nature of the institutional arrangements within the context of which decisions are made. Thus, the provincial institutional framework seems to provide a loose framework within which attitudes and political values can act as screening mechanisms on incoming information, thereby potentially biasing the decision process irrevocably prior to its actual culmination.

Of importance to this analysis is the notion of expertise. There are, within the provincial context, no specific requirements that decision makers possess any degree of technical expertise in the area of their portfolio. As an elected representative and following a democratic

principle, decision makers are technically only present to ensure that decisions are cast in the best interests of the public whom they represent. As such, anyone can run for political office, and technical background is of little importance to political success. That a decision maker brings not only his own personal political and economic view, but also a background that may be entirely unrelated to his position to his office seems of little concern in modern society. It is felt that expertise resides in the ranks of the civil service, and that decision makers can obtain all the information that they will require from that source. The absence of decision maker expertise in technical aspects of an issue can, and often does, lead to decisions resting heavily on bureaucratic influence and preference. Of more importance, perhaps, than the lack of expertise of decision makers with respect to the technical aspects of their portfolio, is the lack of expertise of many decision makers in the actual technical process of decision making. As the analysis in Chapter 2 demonstrates, decision making can be a highly complex procedure of goal and problem identification, alternative consideration, and alternative selection. That many political decision makers are unskilled in this process is a factor which can have serious ramifications in terms of depth of analysis undertaken. Lack of decision making expertise can and often does lead to: over-simplification of the problem, the application of inaccurate or inappropriate models, and consideration of only a narrow band of alternatives. This does not imply that such things cannot occur in the case of skilled decision makers. However, as Miller (1970) points out with respect to professional decision making, lack of attention to the critical importance of objectivity and thoroughness in any of the steps of the decision process can lead to inaccuracy, bias, superficiality, and misconception. That decision makers who may lack the required skills often have the final say in matters of public decision making opens another door to the possibility of reduced rigour and objectivity.

Janis and Mann (1977, p. 15) point out that man as decision maker is not a mathematical calculating machine but rather a creature:

> beset by conflict, doubts and worry, struggling with incongruous longings, antipathies, and loyalties, and seeking relief by procrastinating, rationalizing, or denying responsibility for his own choices.

Smith (1976) and Loasby (1976) agree that decision maker inexpertise or ignorance is likely to bring more inaccuracy and less rigour to the decision process, thereby increasing the uncertainty of each step of that process. Smith also recognizes that such lack of expertise in both the actual process of making decisions and in some of the technical aspects of the problem area, when coupled with institutional considerations such as political commitment, party manifesto, and economic policy, can result in severely limited and skewed decision rationales.

3.3.4 Habitual, Conscious and Unconscious Modes of Choice

Kates (1962), Churchman (1961), Lindzey (1960), and Firey (1960) have all reviewed the influence of habitual and conscious choice, as well as unconscious choice, processes in decision making. The continuum which they posit from unconscious, to habitual, to conscious decision making closely resembles the continuum which Simon (1960) ranked for "programmed" through "non-programmed" decisions. Unconscious choices do not fall within the context of this thesis, as they usually take the form of trivial and small scale decisions in which no real problem is perceived and no alternatives are reviewed in a conscious manner. As Kates (1962) remarks, resource and land use decisions, and for that matter the whole realm of man/environment conflicts, seldom involve unconscious decision making.

Habitual choice, or that which Simon refers to as programmed decision making, represents the arena of routine or repetitive decision making; or resorting to traditional or repetitive behavior in the face of uncertainty. In issues of land use suitability, the highly controversial nature of the options involved often makes reliance on traditional solutions a particularly attractive option for the harried

decision maker. The problems inherent in resorting to habitual modes of choice or to reducing the conflict to a programmed decision type are twofold: (1) the original tranditional decision outcomes or past experiences upon which the decision maker is relying may not have resulted from a thorough and objective problem analysis, leading to a repetition of a bad policy over and over; and (2) the new conflict may involve variables which do not appear on superficial inspection, but which dramatically alter the context and nature of the decision from previous decision types, leading to solutions that are in fact inapplicable to the new decision scenario.

Within the realm of conscious choice—a realm favoured by normative theorists—Churchman (1961) points out that decision makers are not subject to their own free choice, but rather a hybrid of their own predilections and the summation of external influences acting upon them. While conscious choice involves the standard notions of problem identification, search for alternatives, and the weighing of outcomes; procedural influences (such as those considered in this section), and active external influences (such as those to be considered in the next section), can impose a large measure of critical importance or weight on a given decision. When the stakes are high, as it were, the tendency to fall back on prior policy and habitual choice modes may be greater. The seriousness of a potential mistake in a high profile decision situation may lead a decision maker to rely on a "tried and true" course of action. Thus high profile issues in which the levels of conflict and uncertainty are high may intimidate decision makers in their efforts to create "new policy to meet new problems." The result can be alteration of the perception of the problem such that it is made to fit a "model" taken from a previous problem analysis. Clearly, if this is to occur, the particular aspects of the new problem, for which no traditional solutions may present themselves, are likely to be "modified" or ignored, in favour of a more familiar problem analysis. As Simon (1960) comments, all decisions are programmed to a degree by procedural and external influences. The degree to which such programming inhibits the recog-

nition and conscientious analysis of *new* variables, however, is the crucial factor in determining how relevant policy responses are to the actual problem in question.

3.3.5 Time Frame, Tension, Risk and Uncertainty

Though external factors can influence the time frame which is actually available, or which is perceived as being available, to decision makers; time frame is an important part of the decision process, even when such external influences are virtually absent. Downs (1967, pp. 183-84) points out that:

> high time pressures usually spring from either crisis or deadlines. The former are normally of exogenous origin, but deadlines are usually deliberate, hence they can be manipulated to exploit the effects of time pressure.

Deadline determinants are related to: (1) perceived significance of an issue compared to other issues pending; (2) amount and availability of information; (3) amount of time a decision maker wishes to spend on an issue; and (4) degree to which full maximization or mere satisficing is sought. If the deadline is alterable, that is to say if none of the above factors limit the time available for a given decision process, and if external pressure is low, decision makers may defer decisions through a variety of institutional channels. The most common of such channels, in the context of federal and provincial politics, is referral to committee; or in cases where major policy issues or policy redefinition are involved, a commission of inquiry. The invocation of a moratorium, under the pretext of in-depth study of an issue, is not an unusual form of decision deferral. In such cases, decisions may be deferred until a wider information base and better evaluation of alternatives is gained, although this need not necessarily be the case. Internal pressure, however, relating to the time and effort a given decision maker feels he can spend on an issue, immediately narrows the information base and limits the alternatives considered.

If internal or external pressures are high, as is often the case with the presence of perceived conflict or crisis, time frame is shortened. External influence provided by conflict, where pressure is being brought to bear on the decision maker due to the "crisis" nature of the issue, will be examined in the following section. Internal influences on the time frame are generally imposed by competing items on the agenda, degree of satisfaction sought, and allocation of resources by the decision maker. When deadline setting as a result of such internal factors occurs, the tendency to satisfice or make do rather than maximize is increased; the tendency to limit alternatives considered is increased; the tendency to abbreviate information considered is increased; and the tendency to rely on habitual or traditional solutions is also increased. Thus, internal time factors can condition both the decision process and the outcome.

Tension is most often created as a result of external influences on the decision process, however it can occur to some degree in the context of meeting internally prescribed deadlines. Tension may heighten the awareness of the decision maker and galvanize him into action more quickly, but its end result is to reduce generally the thoroughness and effectiveness of the decision process (Simon and March, 1958). Lewin (1935) suggests that the search process will be more "vigorous" under deadline pressure, however in the majority of cases it will also be less fruitful. Deadline setting is often influenced by decision maker perception of the problem and its importance; underestimating degree of importance often yields deadline tension as his resources are spread too thinly.

Deadline pressure and resultant tension influences the degree of risk and uncertainty which a decision maker is willing to tolerate in his decision. Scott and Mitchell (1972), Kates (1962), and Janis and Mann (1977) have all discussed risk and uncertainty in decision making, and a substantial literature base relating uncertainty to utility exists. Of prime importance to the actual decision process is the observation by Scott and Mitchell that risk involves the probability

of non-satisfaction, and that under deadline pressure the tendency to tolerate the risk of non-satisfaction is greater. This means that the high-probability-of-success outcome may often be traded for a lower probability-of-success outcome in order to complete the decision and "get it over with." The tendency to attempt to satisfice rather than maximize is thereby increased. By the same token, the degree of uncertainty under which the decision maker is willing to operate when a perceived deadline is to be met is generally much higher than it might be if he had an unlimited time frame for the decision process. Archer (1964, p. 271) describes uncertainty as follows:

> Uncertainty in decision theory describes all shades of knowledge of the probability distribution of the states of nature ranging from near accurate estimates based on objective experience to an extreme case where no knowledge exists. . . . Uncertainty varies from the extreme of no information up to but excluding the condition of risk in which the probability of the states of nature is known. Short of risk condition exists uncertainty.

As implied by this description and verified by Scott and Mitchell (1972), risk implies some knowledge or perception of possible unacceptable decision consequences, but it is based on some degree of certainty about some of the information involved. Uncertainty, on the other hand, implies lack of understanding or knowledge of the information base to some extent, and thus involves much less dependable premises. The willingness to accept uncertainty in decision making, like the willingness to accept risk, increases with the imposition of deadlines and resultant tension. Deadlines can be artificially imposed and still increase decision maker acceptance of uncertainty. This often occurs because of a desire to rationalize minimization of effort expended on research—in short, to justify making a decision in the face of inadequate knowledge in order to escape the demands of in-depth review and research, and to get on with other things. That all decisions are cast under some degree of uncertainty is an unarguable fact; that many are cast under an unnecessary degree of uncertainty, with an unjustified acceptance of risk, is an unfortunate and unacceptable consequence of the nature of the decision making process and its participants.

3.4 ACTIVE INFLUENCE: THE IMPORTANCE OF EXTERNAL SOCIAL AND INSTITUTIONAL INVOLVEMENT

3.4.1 The Participating Public: The Weight of General Opinion

In much the same way as decision making theory has expanded in the recent past, the emphasis on the participation of the public in the governmental decision making process has increased radically. Lobbying and interest group pressure have long been key factors in the matter of influencing notably decision outcomes, and this type of participation has occurred in a wide variety of decision domains for several decades. The involvement of the general public—as in those individuals who are concerned about and/or affected by a given issue although not aligned with any particular interest group stance—is a relatively new phenomenon. In the last two decades a major realization about the importance and necessity of public input into decision making has forced governments to design structures and institutional arrangements to provide for such public involvement. The catalyst for this heightened "apparent" responsibility to public concerns was undoubtedly provided by the environmental awareness movements of the 1960s. There can be no doubt that provision for public input into decision making has increased markedly. The degree to which this increased access influences the process and outcome of decision making, however, is less clear. Sewell and O'Riordan (1976, p. 2) comment that:

> there are now opportunities for a wider spectrum of the public to participate in many phases of the decision-making process and to offer their views on a broad range of issues.

Arnstein (1969) posits a "ladder of citizen participation" in referring to the degree to which public involvement can be seen to actually influence decision making. The "eight rungs" of participation range from "manipulation" to out-and-out "citizen control." Her analysis, like that of Umpleby (1972) who addresses not only the possibility but the desirability of public involvement, leaves a great deal of doubt as to

the issues of: (1) how much citizen involvement is practical and advantageous; and (2) what degree of influence should the public have in the decision process. Most theorists on the subject of public participation —notably Bishop (1970), deCocq (1969), Fanning (1975), Irland (1975), Gale (1972), Lucas (1976), O'Riordan (1971, 1977), Morley (1972), Burch (1976), Wood (1976), Heberlein (1976), Fagence (1977), Elder (1975), Sewell and Coppock (1977), Sewell and O'Riordan (1976), Wengart (1974, 1976), Burke (1968), Caldwell et al. (1976), and Wilkinson (1974)—agree that the concept of public involvement is desirable and necessary in the decision process, although none would assert that the extreme notion of citizen control, as posited by Arnstein, would be a desirable situation. Since so much effort has been directed at setting up and enhancing structures and channels for public participation; and since so many theorists have been principally concerned with achieving participation where none previously existed, the question of what *degree* of public involvement is desirable has received far less attention. Generally, advocates of public input have a "more the better" point of view. However, it is clear that the influence of public opinion cannot be allowed to dominate decision scenarios completely—not if other variables are to be considered meaningful.

In fact, there seems to be little cause for concern about too great a degree of public involvement in most decisions, at least for the present. Few cases can be cited, at this point in time, where the level of public involvement has been high enough or pervasive enough to precipitate complete concession to general public opinion. However, the structures and arrangements for public participation are now expected to be present, especially in the case of land use and environmental issues; and the public have come to expect that their opinions will not only reach decision makers but that they will provoke some consideration and concessions in the decision process.

As Simon (1957a), Lindblom (1968) and other decision theorists have acknowledged, decision makers tend to simplify decision situations in order to analyze and understand them. In this context, increased

public input provides yet another complicated variable—a complex factor which must be taken into account in the decision process. Thus, public participation can and often does add complexity to a given issue. In fact, Lindblom's assertion that decision makers must simplify the decision situation in order to comprehend it, if accurate, should mean that cases can occur where public involvement is solicited and then abruptly and summarily ignored. Indeed, some cases do occur in just this type of format—public opinion is pronounced, inputs are invited, and the final decision is cast with little or no concession to the public interest. Recent political decisions about major energy projects and developments in national parks serve as examples of this type of decision making. If, in such situations, public opinion is weighed against other important variables and is compromised on that basis, decision outcomes in which public inputs are not reflected to any great degree may be justifiable. It is a tenet of representative democracy, however, that government decision makers are supposed to be receptive to public opinion, and failure to countenance public opinion in decision making must at the very least result in publicly stated rationales and justifications. Notwithstanding this, examples of decision makers ignoring major public opinion and offering little or no justification for doing so are not uncommon.

One of the fundamental assumptions of Western democratic society is that the public knows what is in its own best interests. While this is an admirable principle, there are instances where it is clearly untrue. That which may be regarded as being in the public interest may only seem to be so, as a result of lack of accurate long term prediction, lack of knowledge, and dependence on short term value assumptions. As Blazek et al. (1974) comment, economic rationales nearly always appear to be in the best public interest, even though they may serve to worsen the public interest in environmental terms at some future time. In cases of land use or environmental conflict, a majority of the public may well opt for environmental degradation in order to obtain economic prosperity; yet environmental "experts" may argue strongly against such

a course of action. As such, public opinion must be tempered in the decision process with inputs from such sources of expertise. By the same token, however, such expert opinion cannot be considered without public input. As Pierce and Doerksen (1976) argue convincingly, expert opinion is often neither representative of the public "good" nor particularly flexible in adjusting to new inputs.

Given that public participation in governmental decision making is increasing, the key issue becomes the degree to which it influences the decision process; or the degree to which it is allowed to influence that process. It has already been stated, and reaffirmed by Chapin and Deneau (1978), that in the majority of cases the first impact of public involvement is to add complexity to the decision. It provides another major variable which must be taken into account. As a source of influence public involvement can be very persuasive, although generally not as persuasive as input from organized interests, unless general public opinion is particularly unified in a given case. Milbrath (1965) and Smith (1976) rightly point out that vested interests generally receive more attention from decision makers than do individuals—an observation substantiated by Teniere-Buchot (1976), Lucas (1976), O'Riordan (1976), Burch (1976), Lowe (1977), Pross (1975), and Eckstein (1971). As will be considered in the next section, this effectiveness of special interest groups relates to factors of political and economic pressure, judicial or legal standing, and ability to rally support through the media and channels of mass communication. The general public, however, if given the chance to make their views known, expect that their input will strongly affect the decision maker. This is not misguided optimism —external influence constitutes one of the greatest sources of pressure for the decision maker, and hence one of the primary factors in conditioning his perceptions and decision actions. The general public, when allowed to express an opinion, are often surprised, however, by the seeming lack of attention their concerns receive in many instances. Part of the reason for this is the fact that the concerns of individuals do not carry the "weight" of those expressed by interest groups.

O'Riordan (1976, p. 68) points out that there is a need for some mechanism whereby public opinion can be assessed and weighed. In his words:

> Environmental choices must be made in the context of public preferences for certain outcomes. One problem here is the lack of an adequate research mechanism for measuring such preferences.

As stated, public input can exert a very significant degree of influence on the decision process. In order to do so, however, certain key requirements must be met. Firstly, adequate institutional arrangements must be present to allow for public input—especially the opinions of those who are not aligned with particular vested interests. Secondly, some format or agreed mechanism for establishing weight for inputs must be present, such that individual interests are not immediately overlooked in favour of vested interests. Thirdly, public input must be genuinely sought by decision makers, and institutional arrangements for public involvement must be used; paying "lip service" or "going through the motions" with respect to the concept of public participation is as unacceptable as is outright denial of public involvement. Fourthly, public input is virtually meaningless in the face of government commitment to a given social or economic policy stance; environmental and biophysical values will never be given a proper weighting if decision makers are irrevocably committed (consciously or unconsciously) to a given rationale or course of action. As a corollary to this, government-knows-best attitudes and biases towards given interests or values can make a farce out of solicited public input. Finally, if public involvement is to be solicited, then the responsibility is there to either take that public opinion into account in the decision outcome *or* actively and openly explain the reasons why that public opinion was not taken into account or was overruled by other variables. In decision situations where all of these requirements are satisfactorily met, public involvement can exert meaningful influence on the decision process. Where these requirements are not met, opportunity exists for critical disregard of public opinion and non-representative decision making. By the same token, however, public involvement should not be allowed to dictate decision outcomes completely in most cases.

3.4.2 Lobbying: Attenuated Public Opinion from Interest Groups and Affected Parties

Unlike the involvement of the general public, the presence of special interests in the decision making process creates a greater potential for manipulation and redirection of decision outcomes. Citizen participation, as stated previously, can be realized in two ways: (1) independent input through general forums such as public hearings, voting during elections, and correspondence to decision makers; and (2) "aligned" input of organized groups of individuals who possess a commonality of "interests," through similar channels or by lobbying. The former type of input and its relative significance to the decision process has been reviewed to some extent in the preceding section. The latter type constitutes the "crux" of influence, in that interest group input generally forms the most intensive, opinionated, and focussed source of pressure brought to bear on the decision process.

Like citizen participation, interest group theory has a wide number of advocates, resulting in a voluminous literature base. A concise summary of the pre-1951 literature is contained in Ehrmann (1958), while a good post-1951 review of the history of public interest groups, reasons for them and why people joint them, their influence on policy making, and their future is presented by Truman (1971). In the Canadian context, the most important aspects of interest group theory can be found in the works of Brownstone (1968), Clague (1971), O'Riordan (1970), Draper (1975), Thorburn (1964), Pross (1975), Dawson (1960), Corbett (1953), Doern (1969), Hannam (1953), Sewell and Burton (1970), Kernaghan (1969), van Loon and Whittington (1971), and Presthus (1971). Of importance in the context of this thesis are three main factors relating to interest group inputs: (1) the nature of interest groups and the type of pressure they apply; (2) how interest group pressure is manifested in decision situations; and (3) what degree of influence interest group pressure is likely to have on the decision process.

As previously stated, interest groups are not a new phenomenon in the policy making arenas of Western society. Berry (1977) rightly points out that an awareness as to their role and importance has increased markedly in the recent past, as has the amount of interest group lobbying in major land use issues. Pross (1975, p. 2) offers the following definition of "interest" or "pressure" groups:

> organizations whose members act together to influence public policy in order to promote their common interest.

Berry (1977, p. 7) offers a somewhat different description:

> a group that seeks a collective good, the achievement of which will not selectively and materially benefit the membership or activists of the organization.

These two definitions point to the most obvious observation about interest groups—that some are formed out of altruistic motives, while others are formed to serve the personal or subjective interests of group members. Thus, organizations such as the Sierra Club, National Audubon Society, and various nature and wildlife federations in North America express and lobby in favour of interests which their members view as being in the best interests of man and the environment in global terms. Other lobby groups, such as trade unions, energy consortia, and entrepreneurial associations, support and argue for policies which are not intended to represent the public good, but rather the best interests of their membership. As well as this "motivational" dichotomy, interest groups also admit of differences in size and influential ability. A continuum can be posited ranging from loosely organized groups of concerned citizens to tightly organized, well-funded organizations capable of intensive lobbying on a national or international scale.

Literature on the origins of interest groups, as reviewed by Truman (1971) and Olson (1970), centres on two philosophies whose original proponents were Bentley (1949) and Salisbury (1969). Simply put, Bentley argues that interest groups come about as a result of individuals "undergoing a disturbance that alters their relationship with other groups or institutions" (p. 271). Salisbury disagrees, holding that

interest group formulation results from an "exchange" or derivation of benefits for individuals if they cooperate on an interpersonal basis. Either or both of these theories may have some merit. It would seem that Salisbury's analysis fits well with the observable behavior of private interest groups, and that Bentley's proposition fits better with the public interest group concept.

No matter what their cause or origin, interest groups invariably carry more political weight than do individual citizens. If decision makers, who pride themselves on their responsibility to the public good, can be convinced that an interest group has that public good—and not just their own misanthropy—in mind in voicing their demands, their likelihood of being influenced by that interest group can be high. Clearly, size and numbers represented can also increase the influential ability of pressure groups. Representing a large number of people and having the funding available, through that large membership, to wage large scale campaigns and lobbies and effectively utilize the media are benefits enjoyed by large scale interest groups. Such benefits often prove very influential with respect to government policy decisions.

In considering interest groups in general, several points should be borne in mind: (1) that interest groups vary in two "dimensions"—their size and lobbying impact, and their motivation for becoming involved in the policy process; (2) that private and public interests are both often being actively sought in policy situations, particularly in the arena of environmental conflict; and (3) that interest groups and special interests are not all external to the policy process—political parties can be seen, in a very important sense, to be special groups acting in their own best interests in addition to those of the general public. As previously mentioned, factors of size can increase influence. Also, private interests are generally less well received by decision makers than are public interests, however the former are often represented under the guise of the latter in environmental policy issues. The presence of a "party interest" also means that other groups whose inputs concur with party policies are more likely to be influential in the decision process (Jones, 1961).

Influence is obtained as a result of a variety of factors. The first of these is access. Berry (1977) argues that access, which some theorists believe to be the most important factor conditioning degree of influence, may not be the most critical factor in this regard. However, he accepts that access, if well used, can prove very important in gaining influence. By "well used" he means that access can be exploited most fully when an interest group appears to represent the public good. Smith (1976) agrees with this opinion, adding that "an image of expertise, cooperation, respectability and representativeness" (p. 67) adds to the degree of effectiveness of access. Milbrath (1970) comments that it is in the best interests of the pressure group to "resemble a doctor upon whom the decision maker can depend" (p. 412), thus acting as a reliable information source offering "objective" information to the decision maker. In addition to gaining actual access to policy makers, the success of which can also depend heavily on the attitudes of those policy makers to interest group input (Wahlke et al., 1969), pressure groups can utilize a "broad program of propaganda designed to convert the public to the views of an organized minority" (Schattschneider, 1969, p. 189). In this analysis, "pressure politics is a method of short-circuiting the majority" (p. 189). Interest groups can also take advantage of doubt or inexpertise on the part of decision makers and/or their advisors. Schattschneider insists that pressure groups can prevail even against the public majority in some cases. In addition to subverting or influencing public opinion to their favour or merely outvoicing it, Bone (1958) points out that interest groups can influence policy makers prior to elections through nominations, election strategies and inputs, campaign financing, platform influencing, and infiltration into political parties. Dawson (1969) asserts that "constant contact and friendly relations with civil servants" (p. 100) can also contribute to the success of access and degree of influence obtained.

The degree of influence special interest groups have on the decision making process depends largely on the nature of the decision

situation as well as the stance of the groups involved. Schattschneider (1942, p. 193) holds that pressure groups can be so influential that they, in effect, can control policy outcomes. In his words:

> Indubitably all minorities and interests have a right to organize and to agitate in order to persuade the majority. That is legitimate, but pressure politics is a device by which organized minorities may control public policy without persuading the public.

Zeigler (1964) and Latham (1952) argue that the more organized a group is, the greater the influence it will have. Berry (1977), Gable (1970), Wahlke et al. (1969), Bone (1969), and Pross (1975) agree that interest groups are most influential with respect to three basic areas: (1) campaign and pre-election influence, pressuring those who are seeking office; (2) indirect influence, in convincing the public to their cause; and (3) direct influence, in actually confronting decision makers who are in office. Milbrath (1965) correctly points out that the mere fact of being organized and voicing special interests loudly does not guarantee any degree of influence. Gable (1970) agrees, commenting that influence can only be brought to bear if all the factors are favourable —if decision makers are receptive, interests voiced seem to represent public opinion, other interests are effectively barred or undermined, and all channels for bringing pressure to bear are utilized to their fullest possible potential. In the final analysis, it may well be the case that the observations of Jones (1961) represent the most critical factor in conditioning the degree of influence obtained: the degree of influence rests largely, if not wholly, on the receptiveness of the decision maker(s) to the inputs made and the degree to which they agree with his own perception of the variables of the policy issue.

The last area in which the degree of interest group influence can be conditioned, with special reference to environmental issues where matters of legality are important is in the nature of the "standing" that the group has with respect to judicial processes. Lucas (1976) describes *locus standi* in terms of the rights of litigants to judicial hearing. He points out that it relates largely to the degree to which

the complainant has been personally aggrieved or suffered losses as the result of a set of circumstances or a policy decision. Historically, in both Canada and the United States standing has been the privilege of larger, more organized interests; although in Canada the privilege is still much less easily attained. If legal contentions are involved, the standing accorded to larger groups can result in their achieving critical degrees of influence over policy makers. Progress in attaining environmental standing for smaller groups and individuals, coupled with renewed emphasis on freedom of information, means that, in a legal sense, interest groups are gradually gaining influence in a real way. Clearly, however, many environmental and land use decisions do not involve any specific infringement of rights such that issues of legality arise. In such cases, interest groups must rely on a different type of standing—their influence in the community, with the public, and with decision makers.

In terms of land use suitability decision situations, interest group effectiveness is severely limited by socio-economic, socio-cultural and environmental assumptions. If true objectivity exists in the decision situation, such that economic variables and ecological variables receive the same degree of favour, interest group input will simply become one *factor* to be considered in the decision process. If underlying assumptions and preconceptions exist on the part of decision makers, interest group input that is somehow aligned with those assumptions will generally carry a great deal of influence in the decision process. Unless environmental interest groups can persuade decision makers that they represent a major segment of public opinion—and thereby a major segment of the *voting* public—special economic and private interest groups will generally receive more attention from political decision makers. This is just as true in the case of individual citizen participation in land use suitability decisions, although the degree of influence obtained will seldom be as high as that obtained by special interests. Influence obtained in either case, however, relates much more to the attitudes and receptivity of decision makers

to certain types of input, than to major differences in the tactical or influential abilities of different interest groups.

3.4.3 Media: Role and Influence

Mass media, particularly those forms such as television, radio, and newspapers, have two broad functions with respect to government and society: (1) to relay information about government policies and programs to the public; and (2) to relay the concerns of the public—public opinion—to the government. Fisher (1973, pp. 79-80) perceives ten roles of media, falling roughly under these two main functions. These roles are:

A. Communicate to the Citizens:
   1. As a reporter - providing an accurate record of events.
   2. As a watchdog - reporting instances of error or wrongdoing on the part of government officials.
   3. As a critic - giving an independent view of government performance.
   4. As a forum - presenting a wide variety of views on a given issue.
   5. As an aid to citizen action - providing information about decisions citizens may wish to affect.

B. Communicate from the Citizens:
   6. As a megaphone - helping citizens communicate by providing access.

C. Communicate to the Government:
   7. As a reporter - providing the government with data.
   8. As a critic - criticizing officials in a way that their subordinates cannot.

D. Communicate from the Government:
   9. As a megaphone - explaining government policies and decisions by providing access.
   10. As an aid to government action - helping to implement government policies and decisions.

Much of the literature generated about mass media is directed at the analysis of how much information is being provided to the media—and thus to the public—by government sources. In other words, the emphasis

has traditionally been on the degree to which the public is properly informed of government policies and decisions. Kraus and Davis (1976) offer an excellent review of classical information and communication studies, with particular reference to media influence on the election process. Brown (1976), Robertson (1972), Strouse (1975), Fox and Wible (1973), Ingram (1973), Fagen (1966), Pepinsky (1970), Schoenfield (1975), McHale (1976), Cohen and Christensen (1970), and Claxton and McDougall (1975) review the role of media as a transporter and purveyor of government information. Rankin (177), Thomas (1976), Roberts (1977), Relyea (1977), Williams (1977) and Riley (1977) offer critical analyses of problems of media and the public obtaining government information, through examinations of the "freedom of information" situation in Canada and the United States. In the provincial context in Canada, despite the lack of specific freedom of information legislation, public environmental awareness and the persistence of environmental groups tend to ensure that government responsiveness to environmental concerns does not decline. Political decision makers often find that their popularity declines rapidly in cases where the public feels that vital information is being withheld. As such, politicians often utilize media channels to justify their policies. This is not to say that freedom of information legislation is not critically needed—many environmental issues are still adversely biased by the tendencies of governments to withhold or manipulate important information. However, what is implied here is that it is those aspects of media involvement *other* than government provision of information which constitute the major sources of media influence on decision processes. From Fisher's analysis, those aspects are: (1) the role of the media as watchdog and critic; (2) media as a public forum; (3) media as a reporter of events; and (4) the role of the media in aiding citizen action. Of these four, the roles of the media in reporting events and as a public forum are critical in ensuring that communication exists between government and citizen. In other words, information must flow if citizen and government awareness of each other's views and activities is to occur. More importantly, however,

the media play a role in watching for government errors or wrongdoing, offering critical analyses of government policies, and providing access for interest groups and/or public input. It is in these three areas that the media take on an ability to influence the decision process, and thus become an important factor in that process.

Like freedom of information, influence generated through the media will depend to a large extent upon how thoroughly and objectively an issue has been researched, the extent to which it catches public interest, and the number of people who are made aware of it. In other words, the accuracy and availability of large amounts of information concerning a given issue will contribute to a broader and more complete picture of that issue. Unfortunately, as Brown, Brown and Rivers (1978) and Rubin (1977) point out, advocacy and sensationalism tend to sway the objectivity of media reports. Thus, depth of media coverage often relates to the degree of public interest an issue is likely to generate. By the same token, however, the greater the degree of public interest, the greater the tendency toward advocacy journalism (Brown et al., 1978). In this regard, Lippmann (1965, p. 358) comments:

> News and truth are not the same thing, and must be clearly distinguished. The function of the news is to signal an event, the function of truth is to bring to light the hidden facts, to set them in relation with each other, and make a picture of reality on which men can act.

In the final analysis, the objectivity of the media and the accuracy of media coverage cannot be guaranteed, particularly in the case of "high degree of interest" types of issues. Thus, in many environmental and land use issues, surveys of media content are not likely to provide accurate indications as to the fundamentals of those issues. Often media sources are linked directly to governments and involved with advocating or promoting land use policies of a political nature. Media surveys in such cases can, however, provide a picture of entirely different phenomena—public attitudes toward the issue, and interest group stances and involvement. Berelson (1952), Holsti (1968), and Budd (1967) outline the techniques of content analysis of media communica-

tions, and provide some indications as to what types of conclusions can be drawn from such analyses. The fact that media objectivity and depth of analysis may not be as great as one might expect can lead to problems, as public opinion and interest group input is often formulated and expounded on the basis of media coverage of an issue. Thus, the media can influence the decision process in two basic ways: (1) conditioning public opinion and thereby public response to government decisions or policies, through the coverage presented; and (2) directly influencing decision makers as a result of acting as a forum for the presentation of public opinion and interest group input.

In a sense, the media act as a channel for influence and, at the same time, a source of influence. The former is accomplished when various media channels are utilized by the public and by interest groups in making their views known to government; the latter when the media, through watchdog and critic roles, offer active analyses and criticisms of government policies. In either of these roles the media exert considerable influence on decision makers. In the first instance, media coverage of public opinion and interest group viewpoints makes those opinions publicly obvious and particularly conspicuous. For this reason government response to such public opinion and interest group demands also becomes publicly conspicuous. In the interests of popularity and political image, decision makers cannot often afford to be seen to be at odds with such public sentiments. By the same token, media criticism of government policies provides a large sector of the public with alternative views to those being forwarded by government sources. In this way the media can be instrumental in conditioning and altering public opinion and reaction to a given issue.

In the case of land use suitability and resource allocation issues, media influence takes on several dimensions, of both a positive and a negative nature. In a negative sense, media concentration on sensational or "newsworthy" items can redirect public attention away from the crux of an issue, leading to public input being directed at incidental factors rather than the core of that issue. In such instances public input often

"misses the point." On a similar vein, lack of depth in media coverage may lead to similar misapplication of public input. In a positive sense, media coverage of land use and resource issues provides a forum for non-governmental "experts" to shed light onto such issues, and often ensures that views that are not aligned with popular governmental policy stances are also presented. Of course this assumes that the media function in an uncontrolled and impartial way, which in fact is seldom the case. As such, environmental variables are more likely to be given coverage in the media than in government statements and/or special interest group inputs. Media also ensure continuing public awareness of environmental issues, by keeping such issues prominently displayed before the public. Finally, media involvement increases the necessity for decision makers to be accountable, by keeping the pressure for information, rationales and justifications continually on them. As channels for influence, the media are more important than institutional arrangements for public involvement, due to ease of access and numbers of people reached. As a critical reporter of events, the media can appear to represent the best public interest, in much the same way as interest groups often do, and thereby directly influence the decision making process.

3.4.4 *Function and Deportment of the Bureaucracy, Governmental and Non-Governmental Experts*

The concept of representative democratic decision making rests heavily on the existence of a bureaucracy to provide decision makers with information, and the existence of suitable lines of communication between the former and the latter. In its ideal state, the bureaucracy is merely an administrative and information producing organization, bereft of political partisan orientation. Weber (1947, p. 334) describes the ideal bureaucracy as:

> the specialized, salaried, career-oriented, administrative hierarchy dealing without "hatred or passion," serving clients and customers according to the general rules formulated by vote, legislative or administrative fiat.

Weber (1947), Blau (1956), Merton (1957), Bensman and Rosenberg (1963), March and Simon (1958), Downs (1967), Kernaghan (1973), Hummell (1977), and Holcombe and Price (1978) have analyzed theoretical aspects of bureaucracy from a normative standpoint. Brown (1976), Hebner (1969), Madeiros and Schmitt (1977), March and Simon (1971), Doern and Aucoin (1979), Johnson (1978), Morley (1976), Wandesforde-Smith (1971), Self (1972), Kernaghan (1968, 1976), Hannigan and Kueneman (1977), and Niskanen (1971) offer behavioral perspectives of bureaucracy as it functions.

In regarding these normative and behavioral analyses, one point becomes clear: the structure, responsibility and behavior of a theoretical government bureaucracy often differs markedly from that of a functioning government bureaucracy. In other words, functioning bureaucracies may bear little resemblance to their ideal theoretical counterparts. Thus, while it can be instructive to review theoretical aspects of bureaucracy, it is actually in the realms of functioning bureaucracy that the most useful insights about bureaucratic influence on decision making can be gained.

In brief, the ideal bureaucracy, as characterized by Weber, encompasses a definite structure, a chain of command, unbiased information provision, specialization of function, and fixed rules of action (Madeiros and Schmitt, 1977). Weber (1947) states eight requirements of ideal bureaucracy. As restated by Blau (1956, pp. 28-32) these are:

1. The regular activities required for the purpose of the bureaucratically governed structure are distributed in a fixed way as official duties.
2. A specific sphere of competence . . . has been marked off as part of a systematic division of labour.
3. The official is subject to strict and systematic discipline and control in the conduct of his office.
4. All operations are governed by a consistent system of abstract rules . . . and consist in the application of these rules to particular cases.
5. The organization of offices follows the principle of hierarchy; that is each office is under the control and supervision of a higher one.

6. Officials are subject to authority only with respect to their impersonal official obligations.
7. Candidates [for bureaucratic positions] are selected on the basis of technical qualifications. In the most rational case, this is tested by examinations or guaranteed diplomas certifying technical training, or both. They are *appointed*, not elected.
8. Being a bureaucratic official constitutes a career. There is a system of promotions according to seniority or to achievement, or both.

While these ideal conditions exist to a limited degree in most government bureaucracies, other more important factors come into play in a functioning bureaucracy which limit or alter these ideal states irrevocably. Merton (1957) argues that for individuals to work towards a common goal they must be constrained and influenced by organizational rules and strictures. He contends that the formulation of such organizational rules and regulations becomes an overriding concern of bureaucracies—a process he terms "the substitution of organizational means for organizational ends" (p. 199). Michels (1949) contends that the hierarchical structure of bureaucracies concentrates power in the hands of top officials, resulting in leaders who are insensitive, unassailable and indispensable. Mannheim (1941, p. 53) offers perhaps the most poignant criticism, however, in contending that "the capacity to act intelligently in a given situation on the basis of one's own insight into the interrelations of events" is overthrown in bureaucracies, in favour of what he terms "functional rationality." The latter he describes as:

> a series of actions organized in such a way that it leads to a previously defined goal, every element in this series of actions receiving a functional position and role.

This effectively destroys spontaneous and original thinking, and stultifies creativity.

Another more popular and equally valid criticism of bureaucracy can be viewed in the tendency of bureaucrats to defend their positions and actions when faced with being held accountable—such defence

mechanisms inevitably result in actual lack of accountability, immunity to constructive criticism, and insensitivity to their own inadequacies and the need for change (Hebner, 1969). Other general criticisms include the predominance of "red tape," organizational ineptitude, questionable promotion policies, slowness of action, lack of definitive clarification of responsibility and accountability, and the bureaucratic tendency to create work where none exists and expand the work to fit the time available.

In regarding the functioning bureaucracy, the most important question becomes: how does the bureaucracy perform with respect to the formulation of policy and the execution of decisions, with particular reference to the resolution of land use and resource allocation issues? In a theoretical sense, the role of the bureaucracy in this regard is to act as a policy advisor to decision makers. In representative government, it is recognized that appointed officials should not make policy decisions; that their role is to merely advise elected officials in that task. Katz and Danet (1973) recognize that this "relationship of bureaucracy to society" is far more important than the mere awareness of "what goes on inside bureaucracies." Niskanen (1971, p. 5) agrees, commenting that:

> much of our contemporary confusion derives from a failure to bring bureaucracy to terms with representative government and free labour markets.

Madeiros and Schmitt (1977) postulated four basic roles of public bureaucracy: (1) making or formulating public policy; (2) administering policy and delivering services; (3) representing public values and ideals; and (4) educating with respect to public policy. In short, the major function of bureaucracy is to formulate public policy—a process which involves the employment of a large number of individuals with specific expertise to gather and analyze data, collect and collate findings, and present these in a policy package to decision makers, in the political arena. Unfortunately, it is in the four areas listed by Madeiros and Schmitt that functions of the bureaucracy can be misinter-

preted and misdirected. The making or formulation of public policy can and often does become confused with the process of *deciding upon* public policy. Thus, on small scale or relatively insignificant issues, decision makers may defer the actual decisions about course of action to senior level bureaucrats. In consideration of the fact that politicians often view environmental problems as "small scale" or relatively "insignificant" issues, this practice might be exceedingly unwise, particularly with respect to the question of responsibility to the public. Senior level bureaucrats, though some may be political appointees, are not particularly accountable to the public. In the case of environmental issues, a lack of understanding of complex economic and ecological variables may lead a politician to defer the responsibility for a decision to his "expert" advisors in the bureaucracy—a move which can effectively end the meaningfulness of public input.

Similarly, though theoretical bureaucracies are supposed to be devoid of special or vested interests (without "hatred or passion"), such factors as the perpetuation of the bureaucracy, promotion, power, prestige, job security, and personal or professional biases can and do affect policy formulation. This is to say that these factors can become, in effect, vested interests on the part of bureaucrats, leading them to bias their policy recommendations, and to put their own interpretations on management issues. Sometimes, such biases are restricted to those of influential individuals, while at other times they become overriding departmental or ministerial preferences. Thus, it is not uncommon for departments responsible for the management of fisheries and/or wildlife to display an orientation in keeping with that of a "rod and gun" club; or for ministries responsible for mineral resource or forest management to resemble private industrial entrepreneurs in their outlook and stated objectives.

In this sense, with respect to the last two roles of bureaucracy listed by Madeiros and Schmitt, there is a danger of bureaucracies not only "representing public opinion, values and ideals" and "justifying public policy," but "interpreting" and "determining" public values and

ideals as well. Thus, bureaucratic influence over decision makers may include bureaucratic interpretation of what is in the best interests of the public—a situation that can be manifested in the presentation of severely skewed or biased policy advisory information packages to decision makers. Also, the "educational" role of the bureaucracy can be employed as a propaganda source by decision makers who wish to justify unpopular decisions and placate the public. In the same way, the potential exists for decision makers to display data and information supplied by the bureaucracy to the public as evidence of thorough decision analysis. This can occur whether or not that information was *actually* used in policy decision making.

To some extent, decision outcomes can also be biased by decision maker reliance on bureaucratic expertise. It is not uncommon for bureaucracies to employ people of questionable expertise, despite Weber's theoretical assumptions about hiring and promotion. In addition, it is not uncommon for bureaucracies to place individuals with specific expertise in a given field in job functions unrelated to that field of expertise. Thus, the "expert" guidance provided by bureaucrats to decision makers may be somewhat less than expert. This situation can sometimes be tempered by decision maker reference to sources of non-governmental expertise. Such sources exist in academic institutions as well as the private sector. Davies and Hey (1975), Driver (1972), Gianos (1974), Roberts and Sullivan (1976), Sewell (1975) and Slayton and Trebilcock (1978) offer analyses of the role and importance of professional or expert advice in the decision making process. Often such non-governmental expertise is readily available to decision makers on a consulting basis; yet the degree to which such consultation takes place with respect to many issues does not appear to be high.

Because of problems with the impartiality and expertise of government bureaucrats, in some situations, non-governmental expertise can at the very least offer a different point of view—something that should enhance the decision process. Such additional input, however, can once again contribute to the complexity of the decision—a situation which

often leads decision makers to overlook the possibility of soliciting and obtaining additional "expert" advice. Also, because of the connections between decision makers and bureaucrats, the potential for a "tell me what I want to hear" relationship between the two is quite apparent. In this sense, the role of the bureaucracy as a policy justifier rather than a policy advisor seems to offer a potentially useful escape mechanism for the harried decision maker.

The significance of these observations to the decision making process can be summarized in a few key points. Within the bureaucracy itself—as a function of its structure and its operational behavior—exists the potential for policy advice to be incomplete and/or selectively biased. In the relationships between decision makers and bureaucrats the potential exists for the advice of the latter to be ignored, misinterpreted, or deliberately misused, by the former. The increasingly complex nature of ecological and economic variables in land use suitability decisions may necessitate increased specialization and compartmentalization in the bureaucracy. This, in turn, can lead to loss of organizational goals and fragmenting of issues, in favour of individual or departmental goals or interests (Meyer, 1972). This increasing complexity of issues can also result in the bureaucracy coming to represent such an authority on environmental policy that elected decision maker actions become, in effect, mere endorsements of bureaucratic policy proposals. The highly technical nature of much of the information presented is often beyond the understanding of elected decision makers, leading to a tendency to defer to bureaucratic proposals. Also, the amount of time and money exhausted in drawing up a policy proposal can lead a decision maker to endorse that proposal, rather than expending even more time and money in soliciting and reviewing alternative proposals. Finally, lack of freedom of information for the public about projects and undertakings of the bureaucracy can lead to policy proposals being "internalized" and drawn up with little or no public input.

With respect to land use suitability decisions, a very real potential exists for: (1) bureaucratic endorsement of party policy; (2) presentation of data that are supportive of a particular decision maker's policy bias; (3) presentation of data that are supportive of vested interests within the bureaucracy; (4) reliance on the input of governmental experts only—leaving out the testimony of non-governmental authorities; (5) internalized policy proposal formulation with little or no public input; and (6) reliance and emphasis on the inputs made by the bureaucracy to a greater degree than on those made by the public. As Dawson (1969) comments, interest group "friendly relations" with bureaucrats can be of great help in ensuring that their views are represented and taken into account in the decision process. This indicates the degree of influence bureaucrats can have over decision makers.

The degree of influence that bureaucracy has over the decision process, while not often overtly obvious, is no less critical than that of the public and interest groups. In reaching land use suitability and resource allocation decisions, important variables are often suppressed by decision makers; while other important variables are often suppressed long before they even reach the attention of decision makers. As a result of the structure and department of the government bureaucracy, the chances that such variables will be suppressed in the policy formulation stage are high, if those variables contradict policy proposals drawn up by the bureaucracy. The implications of this potential censorship to the degree of merit and responsibility of many government decisions is obvious—information can be edited and manipulated prior to its even arriving before the decision maker.

3.4.5 The Importance of Conflict or Crisis

Conflict and the stress of crisis are subjects that have been widely analyzed in the literature of a variety of disciplines. The behavioral sciences, most notably sociology and psychology, have been responsible for insights into the nature of conflict and those factors

which tend to precipitate conflict, and into social and environmental conflict reduction techniques. Though a substantial literature base exists on conflict and conflict reduction, much of the literature is generated in academic circles. This means that, much like the contributions of non-government experts, conflict reduction theory is not commonly read or commonly utilized in localized or small scale government decision making situations. As such, though this literature may be applicable to government decision making on an international scale, it often does not enter in a realistic manner into such situations, and generally does not represent a major factor in such processes.

Conflict, however, is often present in government decision situations, particularly in the environmental arena. Mack and Snyder (1957), in reviewing contributions to the literature by Bernard (1950), Chase (1951), Coser (1956), David (1951), Rose and Rose (1954), Singer (1949) and Wright (1951), offer some insights into the diverse nature of "conflict." In considering an *in toto* description of the parameters of the concept of conflict, Mack and Snyder (1957, p. 8) make several points that are relevant to land use suitability decisions. One of the areas they mention is individual/environment or group/environment conflict, which can involve human and non-human entities. Man/environment conflicts and land use suitability conflicts are considered to be primarily "social" conflicts, since they stem from disagreements over the use, management, or interaction of man, land and resources. Secondly, they point out that conflict often arises from resource scarcity. In their terms:

> resource scarcity is a condition in which the supply of desired objects (or states of affairs) is limited so that parties cannot have *all* they want of anything.

Thirdly, conflict behaviors are, as they see it:

> those designed to destroy, injure, thwart, or otherwise control another party or other parties, and a conflict relationship is one in which the parties can gain (relatively) only at each other's expense.

Fourthly, and perhaps most importantly, Sheppard (1954, p. 325) notes

that:

> Conflict relations always involve attempts to gain control of scarce resources and positions or to influence behavior in certain directions; hence a conflict relationship always involves the attempt to acquire or exercise power (power is defined as control over decisions).

In addition to these descriptions, which can be seen to apply directly to land use suitability decisions, Mack and Snyder comment that such interactions often involve "ideological conflict" or conflict over "conceptions of the desirable." Coser (1968) and Aubert (1963) consider conflict to be an "existing state of antagonism between two or more parties over a matter involving values or interests" (p. 232) It is in this sense that attitudes and preconceived assumptions play an important role in conditioning conflict responses. Conceptions of the desirable may only involve factual analysis to a very limited degree—perceptions and attitudes may simply override even the most difficult to refute scientific propositions. In such cases, conflict reduction decisions in which the course of action taken is in obvious opposition to the major data and research findings presented, can occur—often to the dismay and amazement of those who have laboured to identify factual aspects of an issue.

Bergstrom (1970) identifies three main conflict response types: (1) elimination of conflict; (2) reconciliation; and (3) elimination of one of the parties to the conflict. In cases where conflict can be seen to be of a social type—between individuals or groups of individuals—emphasis is generally placed upon the elimination of conflict or reconciliation. If one side of the conflict issue is not strongly identified with particular individuals or groups, as is sometimes the case in environmental and land use issues, a greater potential exists for reliance on an "elimination of one party" schema. Thus, in the past, environmental tradeoffs have constituted a popular solution to man/environment conflicts. Even in the face of increased environmental awareness, this type of conflict reduction orientation is still prevalent in resource, land use, and/or environmental issues. As opposed to

conflicts of interests that occur in assigning and balancing resource *uses*, conservation versus exploitation conflicts often consist of interests versus values. Exploitation arguments are generally based upon monetary or economic interests; while preservation arguments are often based upon qualitative moral or aesthetic values. It is in this respect that land use conflicts become the most difficult to resolve without incurring major concessions on one side of the issue or the other. Even reasonably sophisticated procedures such as cost/benefit analysis often fail to reduce the gap between interests and values.

Thus, attitudes and value assumptions play two key roles with respect to conflict reduction decision making: (1) to condition perception of the actual conflict; and (2) to condition the perception of what conflict reduction methodologies are potentially applicable to a given conflict situation. Value based assumptions can narrow the field of conflict reduction options, particularly if a decision maker is biased toward conflict elimination alternatives, as opposed to conflict avoidance or conflict suppression alternatives. Both of these attitude types can be influenced and conditioned in a major way by external factors such as public and interest group input, bureaucratic involvement, and media coverage.

In addition to the importance of value assumptions and attitudes, the presence of conflict has other effects on the decision process. As mentioned earlier in this chapter, conflict or perceived crisis shortens the time frame within which a decision maker feels he must act. This has the effect of reducing the comprehensiveness of his search for alternatives, and thus reducing the quality of the decision process. This "time pressure" situation also heightens the acceptability of make-do alternatives, and increases the perceived acceptability of major tradeoffs. The necessity to act generally involves the greatest potential for irrational decision behavior (Scott and Mitchell, 1972). Conflict and crisis stress, though they can be internally generated in the decision process, are generally manifested as external pressure.

Interest groups often use techniques of heightening or exaggerating the conflict aspects of a situation, in order to pressure decision makers. Bureaucrats also tend to manipulate the degree of crisis perceived by decision makers in order to get policy proposals accepted quickly. Both interest groups and bureaucrats utilize the presence of conflict to pressure the decision maker in such a way that he does not have time to assess other alternative options, particularly when those other options are opposed to those being forwarded by the former. Thus, conflict can be used to overrule or eliminate selectively less vocal interests or other sources of expert input. Use of the media by citizens and interest groups can further both public awareness of conflict, and the seriousness of the conflict as perceived by the decision maker. If a crisis can be maintained or if a conflict can be manipulated to appear to be very serious, external influence can be more readily and persuasively brought to bear on decision makers. If interest groups or citizens can manipulate the general public into perceiving a conflict to be a serious one, as well as channelling their own views to decision makers, the whole weight of public opinion can be brought to bear. This technique is used most successfully by groups seeking "reaffirmation" or "habitual" decisions—preserving the *status quo*. Groups seeking innovative solutions to conflicts are generally more successful if they can play down the urgency of the situation and the need for quick decisions. In so doing, they will allow decision makers to consider in a theoretical way a wider range of options, in a more in-depth manner.

Conflict is important in yet another more holistic sense in that it is often the presence of conflict over land and resource use and allocation that initiates the land use suitability decision process.

Unlike market competition in the area of land and resource use, which is resolved in most instances by criteria of economic worth to society and pricing mechanisms, conflict over certain types of land use generally involves very polarized qualitative values about how a given parcel of land should be utilized. It is this element of conflict—this clash of ideals, aspirations, and subjective opinions—which forms

the crux of many land use decisions. As such it is also the nature of such conflict which causes the land use decision process to be so inherently difficult and complex.

The decision process as it often occurs with respect to land use issues and the major types of influence acting on that process have been examined. The importance of that analysis becomes clear in examining a particular example of such a decision process—a decision aimed at the reduction of conflict over land allocation through assessment of land use suitability. The case study which follows exemplifies land use decision making in a complex conflict situation and identifies important aspects of that process and the influences that are present in the face of such conflicts.

3.5 SUMMARY

It was the intent of this chapter to analyze critically behavioral influencing factors in decision making; those passive, procedural, and active inputs which bring influence to bear on the decision process. The importance of such behavioral considerations, as well as the obvious difficulties they present, were considered in examining the nature of influence.

There can be many subtle and overt factors both within and outside the actual decision process which can have a critical effect in terms of the direction and outcome of that process. Clearly, it is not feasible to attempt to isolate and categorize such influences in an exhaustive manner. The *major* sources of such influence can be isolated and examined, as was attempted in this section.

Just as there can be problems with resting decisions on normative assumptions, a heavy reliance on certain types of behavioral influence can raise major difficulties in understanding and hence predicting the decision process. Behavioral influences, as divided here into three general types, can be seen to influence passively or subconsciously premises and evaluations; to affect "procedurally" decision processes

in terms of quality and quantity of inputs considered and the use of those inputs; and to pressure decision makers actively and openly into valuing certain inputs and alternatives above others.

Such influences were seen to emanate from: (1) value assumptions, perceptions and attitudes—the whole realm of preconceived orientations; (2) problems with the scope, quality and objectivity of the process by which decisions are reached; (3) and the desire of the general public, interest groups, the media, and the bureaucracy to condition and redirect decision outcomes.

As such, decisions which are based solely on inputs which have been forwarded by those with vested interests in the decision process are not likely to result in objective or equitable decision outcomes. Such outcomes are likely to be critically skewed in favour of the strongest or most forcefully articulated of such interests.

The degree of influence present in land use decisions tends to depend upon the scope of the decision—in terms of what and whom it will affect—and the number of interested parties who have a particular concern relating to the specific situation. The case study analyzed in the following chapter assesses the sub-District Crown land planning process in terms of several basic areas of concern. Firstly, the Crown land planning process is compared to the "classical" decision making process, especially with respect to the formulation of goals and objectives and consideration of possible alternative courses of action. Part of this analysis focusses upon the amount of normative/behavioral influence that determined the goals of the process. Finally, the types and amounts of behavioral input into the planning process are identified and assessed in terms of the degree to which such passive, procedural, and active influences may have affected the outcome of the process.

CHAPTER 4

CROWN FORESHORE PLANNING IN LADYSMITH HARBOUR, BRITISH COLUMBIA: A CASE OF LAND USE SUITABILITY DECISION MAKING

Practical examples of land use and resource allocation decision making are rife in British Columbia; and as the prominence of resource issues increases in terms of public awareness, such decisions become increasingly visible and critical. Decision making with respect to land and resource issues takes place on many levels. Some issues are highly political and involve decision making in a "public forum" sense, where bargaining, lobbying and intense active influences can dominate both the process and its outcome. Generally such issues are large in scale and highly visible to the public, thereby generating much interest and concern. A whole realm of decision making theory—much of which does not appear in the context of this thesis—has been generated in explaining the complex processes of public choice and political bargaining that occur in such high profile land use issues.

Other land use decisions of a much less prominent nature are occurring in British Columbia on a regular basis, however; and, though they may not generate a high degree of public or political interest, such decisions often constitute exceedingly important choices about future land and resource uses. Such decisions are frequently made at the bureaucratic level and can be of a relatively small scale. The cumulative effect of such decisions, however, is considerable in terms of the allocation of the provincial land and resource base.

Crown land planning is one example of bureaucratic land use suitability decision making that is being carried out in British Columbia. As it typifies decision making of the type that has been reviewed in Chapters 2 and 3, Crown land planning has been chosen as a case study focus for this research.

The case study selects an example of land use suitability decision making—the Ladysmith Harbour Crown Foreshore Plan—and analyzes it in terms of the preceding theory as follows:

(1) The planning process is examined as a particular type of decision making.
(2) The planning process as it specifically relates to foreshore land use is reviewed.
(3) The case of foreshore planning in Ladysmith harbour is presented and examined in terms of the relative weighting of behavioral inputs in the process.

The case study is analyzed through review of government documents and files on the planning process, and through interview research conducted with the participants in the planning process. Because the process is subjective and value laden it is very difficult to obtain definitive answers about problems with the process and how inputs were balanced. Strong indications as to problems and insufficiencies, however, are obtained through an in-depth review of the process and interviews with the participants, as well as by comparison of stated goals to goals achieved.

4.1 PLANNING AS A LAND USE SUITABILITY DECISION PROCESS

With increasing demand for many resources, decreasing supply and corresponding conflicts over the allocation of such resources, decision making must somehow anticipate such conflicts before they become too severe. This process of anticipatory decision making is the essence of planning—the relative weighing of resource values and land use suitability prior to conflicts becoming irreconcilable.

Planning is rapidly becoming the standard for land use suitability decision making in British Columbia; and is now being applied to areas of existing competing uses as well as areas where uses are still relatively sparse. In the former case, the thrust of the planning process

must be towards mitigating existing conflicts, anticipating future demands, and, where possible, de-emphasizing certain uses in favour of others that are more suitable. In this context, suitability would refer to optimized land use and maintenance of resource quality and supply. In the latter case, the possibility of a greater normative or prescriptive component generally exists, in that optimum uses are more freely prescribed if existing levels of use are negligible.

The essence of resource planning is, as in any decision process, the identification of goals and objectives, the search for alternatives, an evaluation of alternatives, and an outcome which establishes use suitability designations for a given period of time. As with any other decision process, certain types of behavioral considerations can play major roles in dictating decision outcomes. The degree to which such considerations are present can change from situation to situation. Certain prescriptive inputs are often sought with respect to baseline biophysical characteristics of the plan area—identifying land use and resource capabilities and ascribing some measure of value to such capabilities as independently of "demand type" behavioral influences as possible—and in projecting future needs and demands. More overt behavioral considerations tend to enter the process in the determination of socio-economic factors, public needs, bureaucratic mandates, political expediency, and current demands on the resource base. In some cases, behavioral inputs aimed at guaranteeing future resource and/or environmental quality are strongly forwarded; a case in point being the presence of environmentalists in many resource decision processes. Such behavioral inputs directed at predicting or anticipating future needs or desirable states are not always present, however; and such concern for future needs must often be prescribed independently of direct input. It is often the case that behavioral inputs into the decision process are heavily anthropomorphic and concerned with current states of affairs.

The degree to which such behavioral inputs condition decision outcomes is an important concern. The continued supply, maintenance and

quality of the resources involved may well be jeopardized if certain behavioral considerations are allowed to dictate decision scenarios completely—except in those cases where such considerations are well balanced in terms of current and future needs. An example of demand type behavioral considerations dominating decision scenarios exists in the province of British Columbia with respect to the over-utilization of forest resources. Current and impending supply problems and predicted timber shortfalls indicate that in the past, short term demand overshadowed the need for long range sustained yield management. Such situations in which short-sighted immediate gains have dominated resource decision making demonstrate that reliance on "immediate want" behavioral inputs does not always result in effective resource decision making.

Planning as a decision process is being carried out within various government agencies, and, more commonly, on an inter-agency basis. The Ministry of Forests, as an example, has a legislated mandate (*Ministry of Forests Act*, 1978) to undertake integrated resource planning for forest lands—to account for forestry, fisheries, recreational, wildlife, aesthetic and cultural/historical values. This involves the Ministry taking a lead role in coordinating inputs from other agencies in the land use suitability decision process. The "integrated management of resources" (IMR) process is an example of this. Other government agencies are also carrying out planning processes in determining resource use allocations and allocation frameworks, in accordance with their specific mandates. One of the most important areas in which this land use suitability decision making process is being emphasized is in the determination of optimum uses for unalienated Crown lands—the responsibility for which falls to the Ministry of Lands, Parks and Housing.

4.2 DECISION MAKING IN THE ESTABLISHMENT OF FORESHORE LAND USE SUITABILITY DESIGNATIONS

Much of the Crown land in British Columbia is utilized for forest production, with roughly 36% of the land base under Provincial Forest

designation. Another 6% is privately owned land; 4% is in Provincial Park status; and a further 1% is federally owned (Indian reserves, railways and parks). The remaining 53% is unreserved Crown land that is maintained and administered as a public trust under the auspices of the Ministry of Lands, Parks and Housing. While the majority of such land is upland, a comparatively small but exceedingly important amount is lake and coastal foreshore—the area of land below the high water mark (Province of British Columbia, 1979).

Because of its unique qualities, its diversity of possible uses, its riparian importance, its sensitive nature and limited supply, the foreshore is of particular significance with respect to the province's interest in ensuring optimum land use. Over the years, foreshore use has become diversified; and, as with other parts of the land base, such utilization has increased to the point where major conflicts are occurring.

In much the same way as the Ministry of Forests now attempts the integrated planning of forest lands, the Ministry of Lands, Parks and Housing has adopted a planning mandate under the *Land Act*. The intent is to improve Crown land and foreshore allocations by first determining land use suitability designations, by which allocation decisions can be guided. Land use suitability decisions are made in accordance with the following broad principles:

(1) that the planning process should increase the effectiveness and efficiency of day-to-day Crown land and foreshore allocation, management, and development decision-making.

(2) plan policies should further long-run benefits over short-term gains.

(3) plan policies should maintain future options.

(4) the public good takes precedence over individual gain.

(5) allocation, management and development guidelines and policies should be founded on the inherent biophysical capabilities of the land base for various uses, within the context of long-term socio-economic needs.

(6) planning is a dynamic process.
(Province of British Columbia, 1979, Sec. 2-A, p. 3)

The final overall emphasis of the planning process is to provide a resource allocation framework which maximizes the long term economic, social, and environmental benefits to British Columbia.

The land use suitability decision process occurs on several areal scales—from provincial to regional, sub-regional, district, and sub-district—according to the size of the area to be planned and the relative importance of the area (i.e., its context). Though the scale of the area under study may vary, the land use suitability decision process involves similar principal elements in each case. This can be seen in a review of the main elements of the various levels of Crown land use planning. The most common scale for such decision making thus far in British Columbia is the sub-district Crown land plan—the land use suitability decision process applied to a particular foreshore (harbour, sound, bight or bay) or upland (valley or corridor) area. The sub-district plan is "the most comprehensive planning activity, identifying areas for Crown land development within the Ministry" (Province of British Columbia, 1979, Sec. 2-A, p. 3).

The Crown land plan involves several key components:

(1) A summary of the methodology, alternatives, evaluation and findings of the process.

(2) Location of area, description of the process, background information, goals and objectives, and planning mandate.

(3) The methodology to be used in researching and evaluating land use suitability alternatives.

(4) Inventory of biophysical and land capability data, existing uses, demands and potential future uses, public needs and other agency interests—utilizing public involvement.

(5) Analyses of data and resolution of findings with goals and objectives and conflict-reduction requirements.

(6) A concept plan or plans, one of which will represent the "best" or "optimum" plan for adoption.
(Province of British Columbia, 1979, Sec. III-C, pp. 4-6)

Final designations are made for recreation, range, forestry, conservation, environmental protection, agriculture, industrial use, commercial and residential development, or further planning. The process thus

becomes a systematic decision exercise by which land use suitability designations are made—attempting to assign optimum areas for given uses and reducing user conflicts.

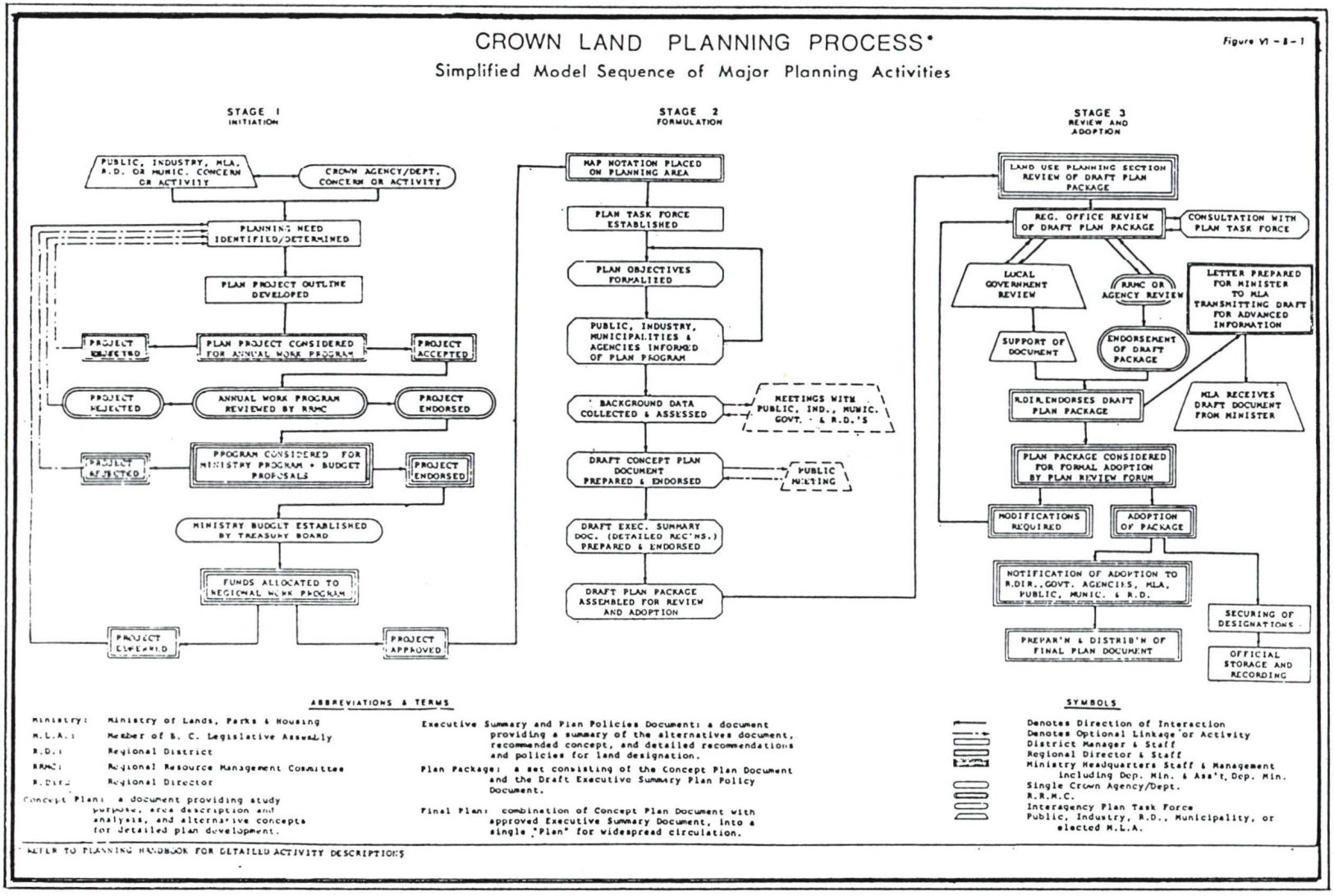
The actual decision is documented in Figure 4-1. Basically, once a plan is felt to be required for a given area, several basic steps are followed:

(1) Establishing an inter-agency task force or decision-making group.
(2) Selecting and identifying goals and objectives.
(3) Informing the public of the planning program.
(4) Collecting and collating data.
(5) Public meetings and input sessions.
(6) Draft concept plan drawn up.
(7) Public meetings on draft concept plan.
(8) Draft executive summary prepared.
(9) Draft plan submitted for review and approval.
(Province of British Columbia, 1979, Sec. III-C, p. 3)

This process tends to occur over a number of months—producing a set of land use suitability designations that are subject to periodic review.

The sub-district planning process for the foreshore of Ladysmith Harbour is analyzed in this case study, in order to assess the relative effect of passive, procedural and active influences on the weighting and balancing of various behavioral considerations in the plan. This particular foreshore plan was prepared by the Vancouver Island Region, Regional Operations Division, Ministry of Lands, Parks and Housing in 1981.

The intent of the plan is to provide a framework for the efficient and equitable allocation of foreshore to certain uses; and for environmental conservation and the preservation of future use options. The objective in the decision process was to utilize a multi-agency/public input planning schema to assess the limits, capabilities, and uses of the foreshore in the harbour; to balance these; and to decide on the optimum locations for uses and guidelines for projected uses and demands.



Source: Province of B.C., Ministry of Land,s Parks and Housing, *Planning Handbook*, Sec. III-C, p. 3.

FIGURE 4-1: CROWN LAND PLANNING PROCESS

4.3 LADYSMITH HARBOUR: THE STUDY AREA

4.3.1 Historical Background

Located approximately 32 kilometers south of the city of Nanaimo, on the southeast coast of Vancouver Island, Ladysmith Harbour has been subjected to over a century of intensive utilization for various purposes. Dating back to the late 1800s, those uses include coal storage and transshipment, log storage, oyster production, recreation, tourism and moorage. Also, residential development has gradually increased around the harbour—particularly on the west side where the town of Ladysmith is located.

Historically, coal shipments were the first main industrial use—occurring at the same time as the first oyster farming operations in the harbour prior to the turn of the century. Some time later the harbour was utilized for the storage of logs as the forest industry began to develop on Vancouver Island. As the population on the southeast coast began to increase, so too did the recreational use of the Ladysmith inlet. Though coal is no longer shipped from Ladysmith, all of the other historical/traditional uses of the harbour remain today, each attempting to maintain viability. As a result of the apparent incompatibility of some of these uses, as well as the ever-increasing demands being placed upon the harbour's finite land base, conflicts between uses have been increasing in severity for many years. These conflicts are schematically represented along with the major harbour uses in Figure 4-2.

The need for some type of planning was recognized more than a decade ago by people residing in Ladysmith, and this need was communicated to the provincial government. In response to demands made by the Ladysmith Harbour Citizens Association, some initial recommendations were made regarding improvements to existing uses. No formal planning effort was forthcoming prior to 1973. In that year a one-year moratorium was placed on allocation of foreshore pending a management plan—

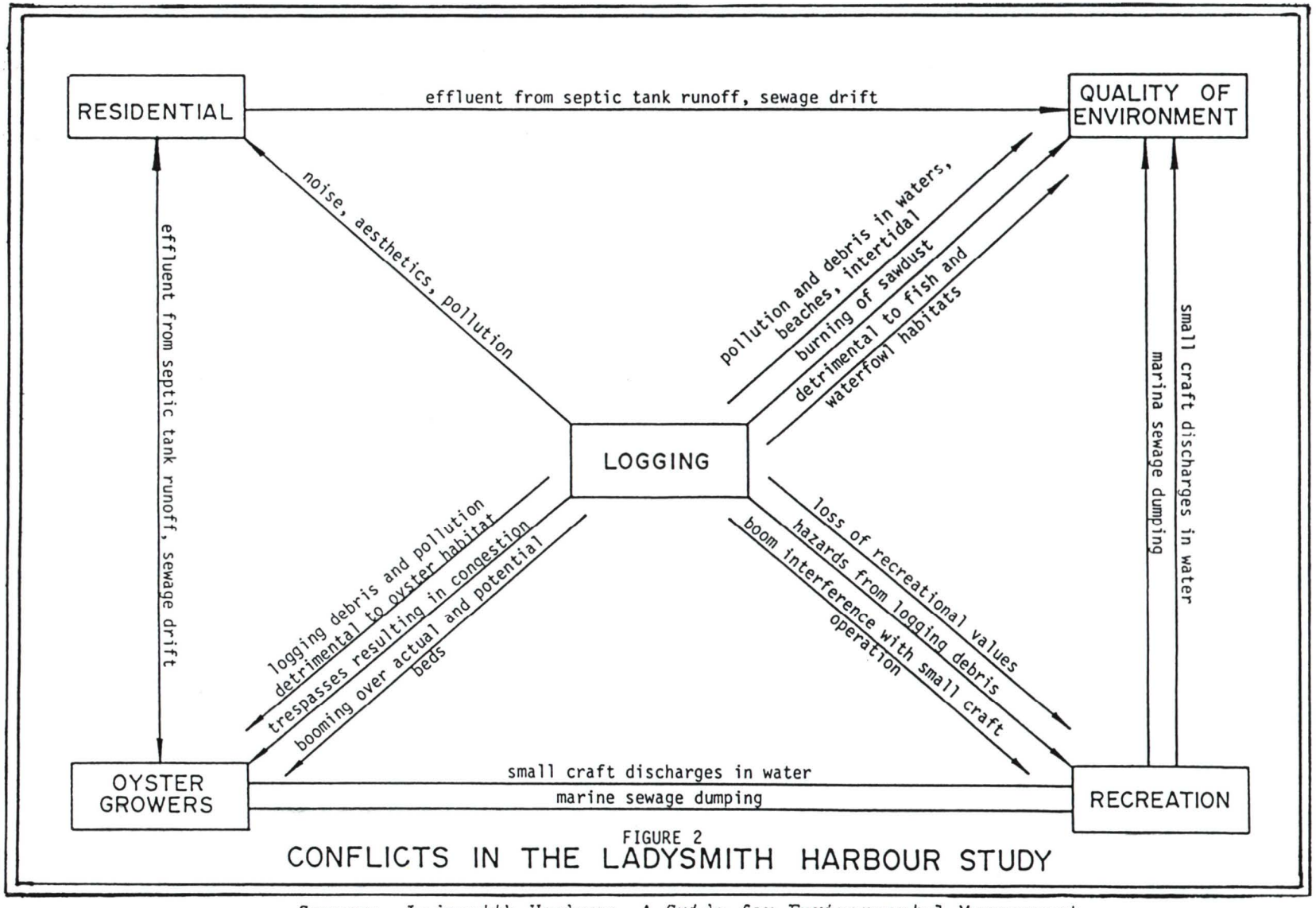


FIGURE 2

CONFLICTS IN THE LADYSMITH HARBOUR STUDY

Source: Ladysmith Harbour, A Guide for Environmental Management of Foreshore Resources, 1976.

FIGURE 4-2: CONFLICTS IN THE LADYSMITH HARBOUR STUDY

to be undertaken by what was at that time the Land Management Branch. To assist in this endeavour, an Advisory Committee consisting of harbour users was formed.

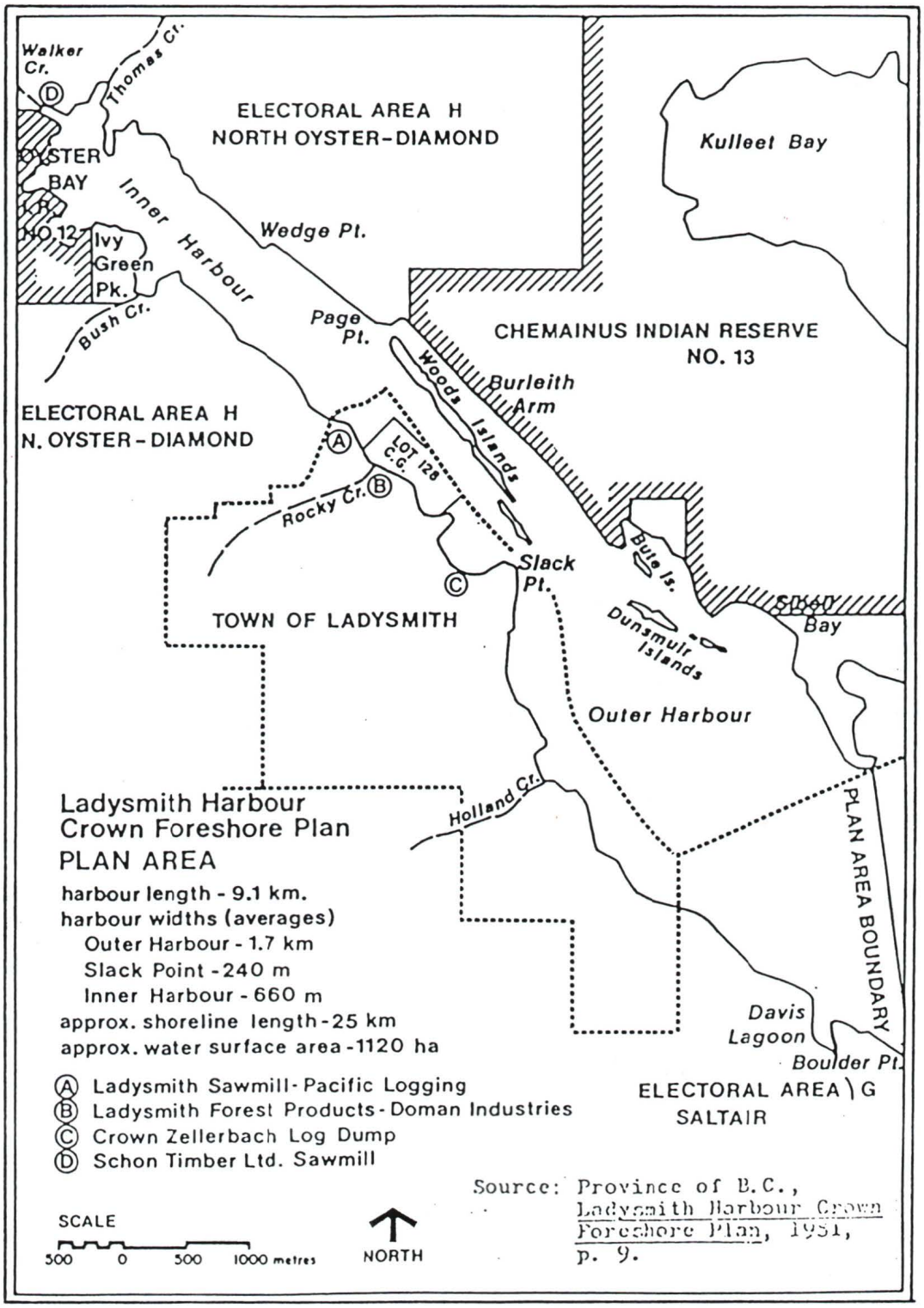
In 1975 the Sector report was completed, entitled "Ladysmith Harbour—A Planning Study." This report formed the basis of the management plan that was formally produced by the Land Management Branch in 1976, entitled "Ladysmith Harbour: A Guide to Environmental Management of Foreshore Resources." This document made some very pointed recommendations about land use and foreshore allocations in the harbour, and about proposed changes to existing harbour uses. From an environmental point of view the document was both comprehensive and pragmatic; but it received criticism for recommending changes to the socio-economic status quo in the harbour.

In 1978 an "Interim Management Plan" was adopted for the harbour and utilized pending the completion of the "Ladysmith Harbour Crown Foreshore Plan" in 1981. For the purposes of the latter study, the Advisory Committee was revitalized and restructured, and an inter-agency planning team was formed. The 1981 plan became the final management plan for the harbour, integrating the "Guide for Environmental Management of Foreshore Resources" and the "Interim Management Plan."

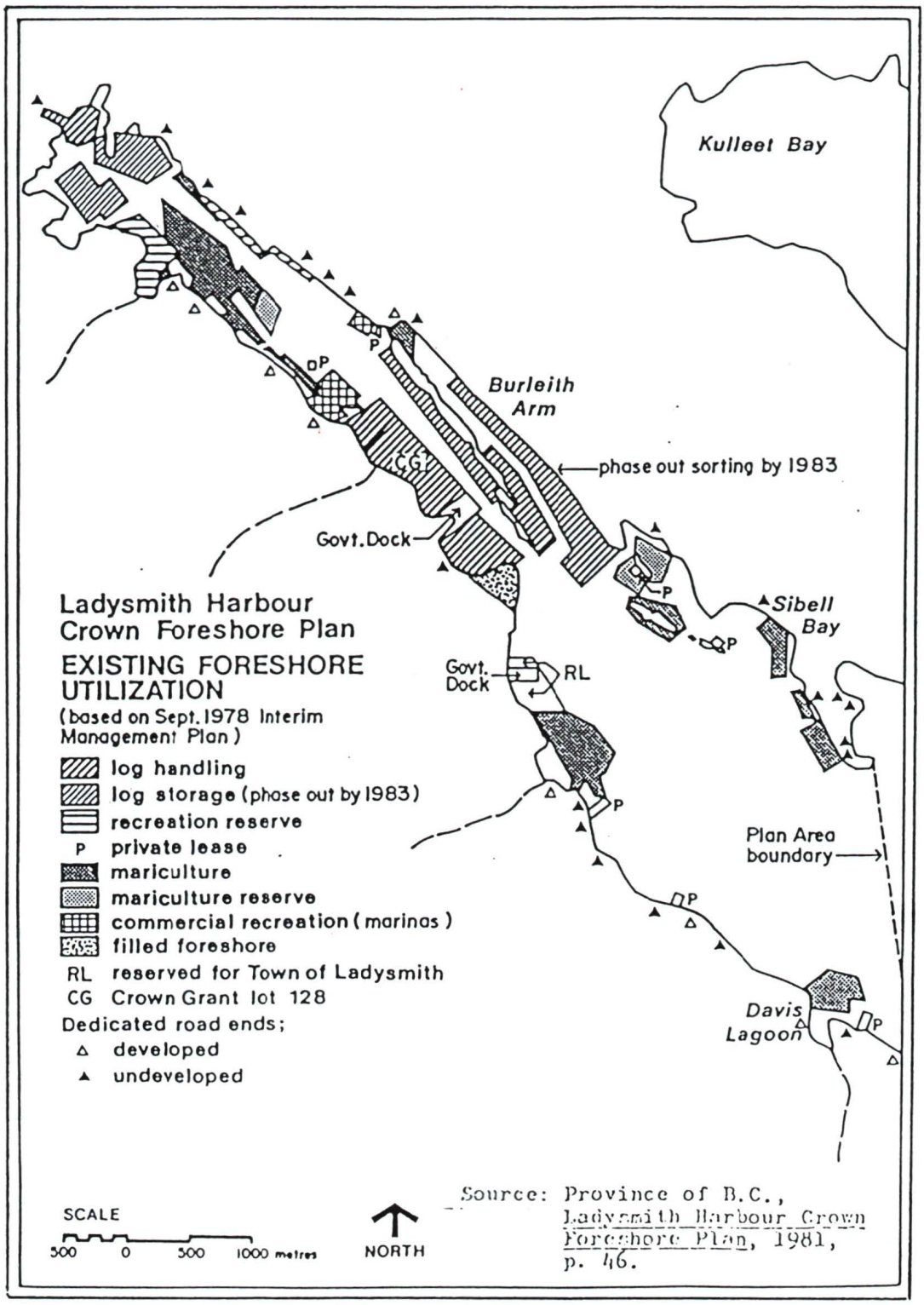
4.3.2 Plan Area

As depicted in Map 4-1, Ladysmith Harbour is basically a long, narrow inlet with no river or major estuary at its head. Instead, the harbour has six major creeks emptying into it, and an aquafer—the Cassidy aquafer—which allows ground water inflow near the head end (Province of British Columbia, 1981).

On the west side of the harbour, occupying a full third of the total 25 kilometer shoreline, is the town of Ladysmith. Map 4-2 depicts the existing foreshore and harbour uses and their locations. The principal uses are outlined in Figure 4-3, showing the number of leases (tenures), the actual area covered by each use, and the percentage of



MAP 4-1: LADYSMITH HARBOUR CROWN FORESHORE PLAN AREA.



Source: Province of B.C., Ladysmith Harbour Crown Foreshore Plan, 1981, p. 46.

MAP 4-2: EXISTING FORESHORE UTILIZATION.

FIGURE 4-3: SUMMARY OF CURRENT FORESHORE ALLOCATIONS (based on Sept. 12, 1978 Interim Management Plan)

Purpose	No. of Tenures	Area (Ha)	% of Total
Mariculture	26	79.86	29.7
Log handling	10	155.55*	57.9
Commercial	2	6.54	2.4
Private	8	1.02	0.3
Institutional	2	7.94	2.9
Shellfish reserves	2	17.75	6.6
TOTALS	50	268.66	100.0

*Includes approximately 16 hectares of Crown Granted Water Lot 128.

Source: Province of British Columbia, *Ladysmith Harbour Crown Foreshore Plan*, Ministry of Lands, Parks and Housing, 1981, p. 45.

the total harbour area (268 hectares) under tenure which each type of use occupies. It should be noted that in the plan, existing uses (committed areas) are estimated to cover about 24% of the total harbour area (±1100 ha), meaning that a quarter of the harbour has been committed to various uses for various terms of duration. This fact may have particular significance in terms of the outcome of the plan and consideration given to alternative land use scenarios. The area encompassed by the plan is the inner harbour from the harbour head to Slack Point, and the outer harbour from Slack Point to the line running between Sharpe Point and Boulder Point at the mouth of the harbour. The study area is depicted in Map 4-1.

The methodology of the land use suitability decision process is fixed by the Ministry of Lands, Parks and Housing planning guidelines, and has been briefly alluded to in an earlier section (see Figure 4-1). In the case of Ladysmith Harbour, two previous studies were enlarged

upon in arriving at some aspects of the final plan. As previously mentioned, these were the "Guide for the Environmental Management of Foreshore Resources" (1976) and "An Interim Management Plan" (1978)—both of which were compiled by the Ministry, under its former title, through the efforts of multi-agency committees.

In response to the perceived need for a plan to guide foreshore resource and land use allocations, a task group or decision making team was established. The task group had representation from the following agencies and concerned parties:

(1) Ministry of Lands, Parks and Housing
   - Regional Operations Division
   - Land Programs Branch
   - Parks and Outdoor Recreation Branch
(2) Ministry of Forests
(3) Ministry of the Environment
   - Marine Resources Branch
   - Fish and Wildlife Branch
(4) Government of Canada, Department of Fisheries and Oceans
(5) Cowichan Valley Regional District
(6) Ladysmith Harbour Management Advisory Committee*

The task group collected, collated and analyzed data on: biophysical aspects of the study area; existing uses and demands; and projected uses and demands. This process was augmented by meetings with the public, harbour users and other interested parties. The final decision process, however, was left to the Regional Planner in consultation with the Regional Director.

A draft concept plan was drawn up and was presented for public review, comments and input in public information sessions. On the basis of this modified concept plan, a final plan was drafted, presented for approval, and adopted. The plan relies heavily on previously amalgamated data, as well as information that was readily available; and does not

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*Local citizens, interest groups, and various harbour users.

contain a comprehensive preliminary data investigation. The 1976 and 1978 studies were utilized heavily in this respect. The final version of the plan was officially adopted on May 15, 1981.

4.4 REVIEW AND ANALYSIS OF THE LAND USE SUITABILITY DECISION PROCESS FOR LADYSMITH HARBOUR

4.4.1 Research and Evaluation Methodology

In determining fundamental information about the Ladysmith Harbour planning process, two basic research methodologies were utilized. Initially, a comprehensive literature review was undertaken covering the available information sources relevant to the study. These sources included all available files on Ladysmith Harbour maintained by the Regional Operations Division; the "Guide to the Environmental Management of Foreshore Resources" (1976), "Ladysmith Harbour—A Planning Study" (1975), "Interim Management Plan" (1978), and the Cowichan Valley Regional District Official Settlement Plan for North Oyster-Diamond. Also, the "Ladysmith Harbour Crown Foreshore Plan" (1981) was utilized extensively. Other background information was gained through various contact people with whom the author had dealings while employed by the Ministry of Lands, Parks and Housing (1981-82), including other planners, former employees, and employees from other regions. The specific information about the design, conduct and process of the Ladysmith Harbour land use suitability decision process was gained through the use of interview research, involving the members of the inter-agency planning team and the Ladysmith Harbour Advisory Committee.

The interviews were conducted in late February and early March 1982 and were based on a questionnaire of twenty-five questions focussing on: (1) the purpose of Crown land planning; (2) the weighting of normative and behavioral considerations in setting plan goals and objectives both in ideal plans and in the Ladysmith plan; (3) the assessment of alternative decision scenarios that occurred; (4) the

role of passive influence; (5) the degree and type of procedural influence; (6) the amounts and sources of active influence; (7) the methodology of projecting future uses and demands; (8) the context in which the decision process was undertaken; and (9) the relative success of the plan in achieving its intended goals and objectives.

The interview questionnaire, a copy of which appears in Appendix A, utilized a structured format and focussed on open-ended responses. In this way, answers to very specific questions about the decision process were obtained with definitive positive or negative responses; while the interviewees were not unduly restricted in terms of the additional comments or background information that they wished to mention. The questions were designed to elicit definitive responses, and vagueness and overlaps were avoided. All questions were asked in the same way to all respondents, and additional explanation of certain questions was carried out in the same way each time. At the same time, however, respondents were encouraged to make comments other than those forwarded in response to the specific questions; and all respondents took the opportunity to speak for a few minutes at the end of the interview about their views on the planning process in general. At that time the specific questions were considered by the interviewer in terms of the type of information that the respondent felt was important—this double-checking of the questions against the general views of each respondent reduced the possibility of bias through selective questioning. In this way it was ensured that respondents were not being forced to give uncharacteristic responses by having to answer inapplicable or irrelevant questions.

The questionnaire utilized in the research was pre-tested twice on mixed groups of government employees and lay public individuals; and as a result was revamped several times. The final version was used in interviewing seventeen available respondents out of a total of twenty-two. Results were tabulated by positive and negative response for each question. Comments not related to specific interview questions were listed and grouped to provide additional strong indications about issues

not covered directly by the questionnaire. The results were conjoined with information obtained through the literature review to yield the particular observations contained in the following decision analysis.

4.4.2 Ladysmith Plan as a "Classical" Decision Making Process

4.4.2.1 Normative and behavioral considerations in the establishment of goals and objectives. As a result of the literature review of the Ladysmith plan, files and background reports, it is clear that the Ministry of Lands, Parks and Housing has a very strong interest in assigning some of its own goals and objectives for the decision process —independently of local public or interest group demands. The first five questions of the interview were also geared to isolating the degree of such normative "prescription" versus behavioral "reaction" in the setting of planning process goals and objectives.

The overall goals of the Ministry with respect to land use planning are very broad—establishing a land use planning process involving other agencies, levels of government, and the public; aimed at optimizing *long term* economic, social, and environmental benefits to British Columbians (Province of British Columbia, 1979, Sec. II-A, p. 3). Before these goals are distilled for the planning process, some initial problems can be isolated.

As land use planning becomes more and more prevalent in British Columbia, and as the need for such planning becomes acute, most government resource agencies have adopted some kind of land use planning program. Lands, Parks and Housing; Forests; Environment; and Municipal Affairs have all adopted planning goals, many of which are obviously intimately related and overlapping. The obvious problem that this creates is that of single agency planning or "planning in isolation." Thus Lands, Parks and Housing is planning with the maintenance of high quality environment in mind, but no overall mechanism exists to ensure that such planning is coordinated with the environmental protection

efforts of other Ministries—other than inter-agency planning team input and the Regional Resource Management Committee forum, both of which have had some major operational and representational drawbacks in the past.

The need for comprehensive land use planning, demonstrated clearly in Ladysmith Harbour as a need for a holistic harbour management plan, can lead resource agencies such as Lands, Parks and Housing to overstep their planning mandate in attempting to resolve environmental, socio-economic, and resource allocation conflicts. Unfortunately, there is no single agency or mechanism in the province which provides comprehensive coordination of land use planning programs and projects. The forthcoming *Land Use Act* has been proposed in recognition of this need; but does not, on first review, seem to deal with the problem of coordinating *provincial* land use planning.

As such, those goals and objectives stated in the Ladysmith Harbour plan may not all have been within the power or mandate of the Ministry to achieve. The primary goal of the plan—normatively prescribed by the Ministry—was "to devise a framework of land use suitability to make future foreshore and land use allocations efficient and equitable." All seventeen respondents, when questioned at the outset about the purpose of a Crown land plan, saw this as one of its primary objectives. In addition to this "efficient allocation framework" objective, the Ministry effectively prescribed six additional goals and objectives for the planning process. Respondents unanimously agreed that dependence on lobby and interest group input to ensure environmental quality and/or economic viability was an unsatisfactory approach to planning; and all pointed out that such goals should be guaranteed in some manner by the Ministry, and then modified in the context of local needs and demands. The six additional goals or objectives that were established by the Ministry were:

(1) To preserve, protect and *improve* the environmental quality and integrity of the harbour;

(2) to support the existing economic base and to *enhance* diversified and environmentally compatible employment opportunities;

(3) to maintain and *enhance* the opportunities for recreational use of the harbour;

(4) to obtain the resolution of existing and potential foreshore use conflicts;

(5) to ensure that plan designations for foreshore are compatible with upland uses and potential adjacent foreshore uses;

(6) to designate foreshore use in a manner that attempts to minimize the use's impact on the harbour's water quality and to identify means by which water quality may be improved. (Province of British Columbia, 1981, pp. 15-16)

These goals were drawn up in direct response to the problem definition which was given for the harbour as follows:

(1) Increased demand for foreshore for various uses.

(2) Declining water quality.

(3) Increased conflicts between uses—specifically log storage, mariculture, tourism, and recreation.

(4) Lack of guidelines for making future allocations.

Interestingly, the specific goals established for the planning process are largely incompatible. For example, the goals of maintaining the current economic base of Ladysmith and enhancing the harbour's environmental quality are not reconcilable. Similarly, maintaining and enhancing the current economic base while providing for and enhancing recreational and tourist use of the harbour are also largely incompatible aims. *Changing the economic base over time* and seeking such improvements to environmental quality and recreational use might provide a reconciliation of such goals; *but* changing the existing economic base or recommending that it change was *not* an intent of the politicians, the Ministry, or the planning team. Thus, the goals of the planning process basically constituted a set of "motherhood" objectives, few if any of which were realistically attainable without major changes to the status quo in the harbour. The attitude of the Ministry and the planning team towards this alternative is examined both in the following section and in the discussion of the role of passive influence later in this chapter.

The decision process was definitely affected by the choice of goals and objectives. Firstly, the goals were not capable of being

realistically achieved; the Ministry did not have the power or authority to attempt to achieve improved environmental quality; and the Ministry did not really have the mandate to institute or recommend major changes in land use in Ladysmith Harbour. The decision process lost viability at this initial stage by laying down impossible and mutually incompatible goals. If the goals had been more realistic and compatible, the plan might have had more success. Responses to the assessment of the success of the plan yielded 88% agreement that the plan succeeded in drawing lines around existing uses and documenting them with minor adjustments but failed to resolve the major issues which were alluded to in the plan goals and objectives. A total of 76% of the interview respondents added the unsolicited response that the plan was, in their view, a "dismal failure."

The planning process recognized the need to make some effort to maintain and enhance environmental quality, economic stability, and tourist/recreational use of the harbour. Unfortunately, the incompatibilities between these goals were not recognized; and the type of weighting given to certain behavioral influences ensured that the adjustments necessary to make the goals compatible were never attempted.

4.4.2.2 Assessment of alternatives. Though all the members of the planning team and advisory committee were aware that several very different alternative land use scenarios could theoretically have been proposed for Ladysmith Harbour, 82% of the respondents stated conclusively that *one* alternative—and only one alternative—was given consideration in the Ladysmith Harbour decision process. The remaining 18% claimed that other alternatives—such as phasing out log storage over time, devoting the harbour to mariculture, or emphasizing recreation and de-emphasizing industry—were considered, but were dropped at the outset as being unlikely or impractical. Thus, a single concept plan became the focus of the planning process. When asked if the consideration of a wider number of alternatives would have produced a more satisfactory plan, 64% of the respondents felt that it definitely would have improved the process in terms of objectivity and comprehensiveness.

Of the remaining 36%, the majority agreed that alternative scenarios would not have helped *because* there was a distinct unwillingness to disturb the status quo in the harbour. In other words, the majority of respondents felt that in an ideal situation, with no overriding commitment to the status quo, more alternatives should have been considered; and that a better result in terms of objectivity and comprehensiveness would have been obtained had this occurred.

In this respect, both the planning team and the advisory committee only debated the relative merits of a compromise concept plan. The public were only given one option for the harbour upon which to comment in the public information sessions.

4.4.2.3 The effectiveness of chosen alternatives in meeting goals and objectives. The effectiveness of the plan is hard to define for two basic reasons. Firstly, it has only been in place for a few months and its relative success or failure will not really become apparent for some time. Secondly, there are many possible criteria by which one could assess effectiveness. Some observations are possible, however, with respect to plan goals and objectives.

All respondents to the questionnaire agreed that *if* the intention of the plan was to merely document existing use and poll current users about their intentions with respect to harbour use for the next five years, so that future allocations could be worked in and around existing uses, then the plan had succeeded. The majority (82%), however, agreed that this was only a minor intent of the plan, and that in terms of other stated goals and objectives, the plan would accomplish very little towards water quality improvement, environmental enhancement, recreational enhancement, or the viability of the mariculture industry. A full 94% of the respondents felt that the plan did protect the forest industry use of the harbour.

It was noted that the planning process was severely constrained by an unwillingness—or a legal or functional inability—to alter the status quo in the harbour. If status quo was taken as *a priori* and unalterable, then the plan probably accomplished all that it could have.

If, however, the aim was to assess objectively and comprehensively optimum land use categories, regardless of historical or current use precedents, then it was felt that the plan did not accomplish that aim to any great degree.

The fact that the plan does not seem capable of meeting several of its stated goals and objectives is partly a function of the fact that those goals and objectives could never be properly realized—given inherent incompatibilities—and partly a function of the fact that several of the goals had to be immediately compromised if existing uses and levels of use were to be protected.

4.4.3 The Effect of Behavioral Influence on the Ladysmith Plan

4.4.3.1 Passive influence. In Chapter 3 reference was made to the role of passive influence in determining the goals, procedure and outcome of decision scenarios. On the basis of the literature search and the interview results for the Ladysmith Harbour planning process, it would appear that the strongest influence acting upon that particular decision was passive or "assumptive" in nature.

Though there were highly polarized value assumptions present on the part of interest groups in the Ladysmith case, 88% of the interview respondents admitted that there was an overwhelming value assumption held by the Ministry and members of the planning team right from the outset of the process. That value assumption was that the existing use patterns in Ladysmith Harbour and the current economic base were constant and unalterable in terms of considering any other possible alternatives for the harbour. Though there were very strong active influences both in favour of the existing harbour situation and in favour of major changes to that situation, this deep-seated passive assumption that whatever happened in the harbour, existing uses—particularly the forest industry—were sacrosanct and could not be altered in any major way, seemed to have more effect than any other single variable in

dictating the plan outcome. That plan outcome was recognized by 94% of the interview respondents as a reaffirmation—with minor adjustments—of the status quo.

It was this assumption, that existing uses must be maintained and protected, that made the goal of environmental enhancement virtually unattainable; the goal of enhancing recreational use highly improbable; and, perhaps surprisingly, the goal of mitigating existing user conflicts virtually meaningless. A large number of those interviewed (76%) felt that it was the level of existing use—existing legal agreements, riparian and historical rights, tenures and traditional uses—which most severely constrained the plan in trying to assess land use suitability. However, existing use patterns, even if guaranteed by legal or riparian rights, can and do change over time, as economic conditions, environmental constraints and public values and demands change. As such, this constraint should not be treated as a barrier against determining optimum land use, nor a factor militating against planning for future change.

More serious than the level of existing use was the perception of members of the planning team that such change could not be either anticipated or proposed, that existing use was a "given" that must be worked around. If the maintenance of economic stability had been focussed upon rather than the maintenance of current economic contributors, the viability of the tourist and mariculture industries might have been given far greater consideration. The interview respondents, by way of additional unsolicited input, indicated (70%) that the potential of the mariculture industry had not been fairly assessed, due to the assumption that the forest industry would continue to be the economic mainstay of the Ladysmith area, even though the industry outlook is poor and timber supply is declining.

In short, socio-economic rationales co-opted environmental considerations in the planning process due to an unwillingness or inability on the part of the planning team to view the problem in isolation from their own value assumptions about short term economic viability. This factor similarly limited the degree to which the planning team assessed

long term strategies and potentials for the Ladysmith Harbour area. More importantly, this factor immediately conditioned the decision process at the outset by eliminating from consideration other alternative scenarios that implied major land use changes. This initial assumption about what could be done in the harbour resulted in all other possible scenarios being rejected at the start, and left the planning team with a practical range of choice of one option in the form of a slightly adjusted status quo.

4.4.3.2 Procedural influence. On the basis of the literature covering the planning process—particularly background files and correspondence—and responses to five interview questions related to process or procedure, the relative importance of various procedural influences was assessed.

Four basic procedural influences were examined: the rationality of the decision makers; time or funding constraints; institutional arrangements constraining the decision; and inadequacies in data or information. Irrationality or inconsistent actions on the part of the planning team with respect to data considered was not found to be a factor in conditioning the decision outcome. Interview respondents were unanimous in stating that there were no visible instances of irrational or inconsistent decision making; and information in the plan and background files confirms that the process was objectively and fairly carried out in this respect. Part of the reason for this, as identified by interview respondents, was the fact that there was considerable planning and decision making expertise on the planning team; as well as considerable expertise with respect to particular resources and aspects of land use capability. This expertise was evident due to the fact that the planning team was composed primarily of bureaucrats whose areas of specialization were particularly relevant to the Ladysmith Harbour case. The final plan was not considered to be a political decision, but the result of a technical decision making process.

Time and funding constraints were evident in reviewing the background correspondence and files on the Ladysmith Harbour planning

process. Artificial time constraints were imposed by the Ministry in a desire to "get on" with the management of the harbour foreshore and to get a plan in place as quickly as possible. Funding constraints were evident in terms of limiting the acquisition of extra data needed to resolve the environmental (water quality) degradation issue. Interview respondents (88%) indicated that time constraints limited the comprehensiveness of the plan by: causing the assessment of projected uses to depend too heavily on the views of current users; limiting the alternatives considered and weighed; limiting the type and amount of environmental data considered; and lessening the degree to which the plan attempted to assess the possibility or potential for major land use changes in the harbour. Another time constraint which was identified was the term of the plan—five years. A full 82% of the interview respondents commented that the time frame of the plan was too short to really allow for a "plan" that focussed on land use suitability. The five year term requirement added to the tendency of the plan to emphasize unduly maintenance of the status quo in the harbour.

Funding constraints were perceived by 70% of the respondents to limit the comprehensiveness of the plan. Specifically, funding constraints which limited the collection and analysis of conclusive environmental quality data related to water quality deterioration were considered to have the greatest limiting effect. It was felt by a majority of respondents (88%) that conclusive data on the cause of deterioration of the harbour's water quality would have had a major effect on the outcome of the plan; and that time and funding constraints were the chief cause of these data not being collected and analyzed.

Institutional arrangements used in the planning process were analyzed with respect to three main components: the use of an inter-agency planning team; the use and make-up of an advisory committee; and the nature and type of public involvement program that was utilized. Respondents unanimously agreed that the use of an inter-agency decision making team was a good concept and in terms of this arrangement affecting the objectivity or comprehensiveness of the plan, only 18% felt that

it may have resulted in somewhat too much emphasis being placed upon the concerns of the bureaucracy. The remaining 82% felt that the use of an inter-agency planning team was a desirable approach, with the exception of the factor of preconceived ideas about socio-economic variables—the passive, value assumptive influence that was reviewed in an earlier section.

The advisory committee approach was criticized by 70% of the respondents. Half (52%) of that group felt that the presence of a civil servant as chairman of the committee reduced the objectivity and scope of the committee's input into the planning process. The other 48% of that group commented that the demand that the committee reach its recommendations on a full consensus basis rather than a majority basis undermined the committee's ability to make recommendations in a rational manner. Also, 40% of the total group of respondents felt that being constrained to an advisory committee compromised their lobbying ability to a large degree. Given the values present on the advisory committee were extremely polarized—responses to this question produced unanimous agreement on this point—the use of an advisory committee with a consensus "proviso" seemed to reduce the effectiveness of interest group inputs. In addition, 48% of the respondents volunteered their feelings that certain personalities on the committee and the planning team caused problems by disrupting the process and imposing unwarranted time restrictions for recommendations.

In general, the public information sessions were not felt to be properly timed and, in the view of 52% of the respondents, such sessions were poorly prepared. Another 18% cited inadequate Ministry policy and procedural understanding of public involvement as a factor in reducing the effectiveness of such sessions. Problems with public involvement, however, were considered by 76% of the respondents to have had no real effect on the comprehensiveness or objectivity of the plan. The majority of those respondents felt that objectivity and comprehensiveness were undermined by other factors, such as preconceived value assumptions, prior to the public being asked to comment on plan proposals.

Inadequacies in data or information focussed on lack of comprehensive environmental data, specifically the reason for degradation of water quality in the harbour. A full 100% of the respondents cited a critical lack of data on the reasons for water quality decline. Agreement was also high (88%) with respect to the assertion that more detailed and conclusive water quality data would have definitely affected the outcome of the plan, in terms of indicating the need for immediate changes to certain types of existing harbour use. It was generally felt that conclusive information on water quality decline would have led to the plan being less accepting of the status quo in Ladysmith Harbour. Another area of data inadequacy identified by 88% of the respondents was in the matter of projecting future uses for the harbour. These respondents felt that the plan had focussed too heavily on subjective data provided by current users as to what they would like to be the case for the plan term, and not heavily enough on data dealing with trends in the forest industry, tourism, mariculture, regional economic policy, public values, resource supply and other such overall determinants of where certain uses could realistically expect to be heading. It was agreed by those respondents that this inadequacy made the plan focus unduly on maintenance of short term socio-economic status quo for the harbour.

Finally, the absence of a major foreshore plan for the whole east coast of Vancouver Island was pointed out by 88% of the respondents to have been a contributing factor in the plan's emphasis on the status quo. This group felt, unanimously, that the presence of a major coastal plan would have clarified the options available should major change be considered for the harbour, by identifying other log storage, mariculture, recreation and sensitive environmental areas and allowing their relative benefits and drawbacks to be weighed into the planning process.

In total, procedural influences were identified as major contributing factors in conditioning the plan outcome towards the status quo. However, they were not felt to be as effective as passive/assumptive ideas about socio-economic variables were, in terms of biasing the plan.

Time and funding constraints and lack of conclusive water quality data were cited as very evident weaknesses which tended to limit the objectivity and comprehensiveness of the plan. Had these two factors been less of a problem, a much less "status quo plan" would have resulted—according to 82% of the interview respondents.

4.4.3.3 Active influence. In keeping with the theoretical elements of active influence covered in Chapter 3, four main sources of such influence were considered with respect to the Ladysmith Harbour decision process: public and interest group input; the role of the media; the presence of government employees—the bureaucracy; and the presence of conflict.

Four questions were asked in the interview sessions with respect to these areas of active influence. The responses were analyzed in conjunction with two questions asked previously in the interview regarding the balancing of normative and behavioral considerations that *should* occur in a plan, and that *did* occur in the Ladysmith Harbour plan. In the latter two questions respondents were asked to indicate on a line graph or continuum that point at which an ideal plan should balance normative intentions with behavioral reactions; and then to indicate on the same line the point at which the Ladysmith Harbour plan balanced normative and behavioral considerations. The four questions about active influence related degree of active influence to the degree of acceptance or rejection of the status quo in the plan.

It was found that those respondents who felt that the Ladysmith plan was far more behaviorally reactive than they felt it should have been (70%), were unanimous in stating that the presence of conflict and lobbying by the timber industry caused the plan to reflect the status quo. Those respondents who felt that the plan was more prescriptive than it should have been (34%) felt that the strongest and most effective lobbies and the presence of conflict emphasized the need for major land use changes, and that the actual plan ignored these considerations. Thus, respondents who felt that the status quo lobby was most effective felt also that the plan listened too much to these inputs; while

respondents who felt that the lobby for change was the strongest, felt that the plan did not listen enough to these inputs.

Public and interest group input was conjoined in this case since unaligned public opinion was neither overt nor particularly vocal in the Ladysmith case. Of the responses to the question of whether interest group input emphasized change or the status quo, 88% of the responses indicated that the most *vocal* lobby was the environmental lobby, advocating major land use changes for the harbour. The majority of those responses, however, also indicated that the most *effective* lobby was the lobby that advocated maintaining the status quo—that of the forest industry. Most respondents who felt this way (34%) maintained that the passive decision maker assumptions about the inherent necessity of maintaining the socio-economic status quo led to the less vocal status quo lobby being given far greater empathy and consideration in the planning process.

Hence, while active public and interest group lobbying may be expected to have a great deal of effect on a decision process, the realization that lobby inputs which are somehow aligned with decision maker preferences tend to receive greater consideration and concessions was demonstrated very clearly in the Ladysmith plan.

The role of the media in the Ladysmith Harbour planning process was felt by 88% of the respondents to have been largely neutral. Media coverage emphasized reporting the progress of the decision process, with only minor sensationalizing of the polarized viewpoints present in the issue. It was agreed by a majority of the respondents (94%) that the media had no noticeable influence in recommending major change or maintenance of the status quo.

The reaction of interview respondents to the presence and role of bureaucrats in the planning process was mixed. Nearly half (46%) of the respondents to the question of whether bureaucratic influence emphasized change or the status quo felt that the government employees were particularly biased towards the status quo and influenced the plan in that direction. The other 54% claimed that the bureaucratic influence was

aimed strongly at precipitating change in the harbour and did not have much influence in this regard. On further analysis, the split was explained by the fact that the former group of respondents was referring almost exclusively to the provincial government employees involved, while the latter group was rating the orientation and influence of the local government employees—Regional District and Town of Ladysmith representatives. Regardless of this fact, the relative influence of the bureaucracy was not judged to be high, except in terms of the socio-economic value assumptions that the provincial employees seemed unable to overcome.

In response to the final type of active influence considered—that of conflict—94% of the respondents were adamant that the presence of significant user conflicts caused the plan to focus on shuffling existing uses and trying to mitigate existing user conflicts, rather than proposing large changes in harbour use. It was felt that the presence of such conflicts should have indicated a need for major land use changes, but almost all respondents felt that conflict had resulted in the exact opposite occurring—a deference to the status quo. It was felt by 64% of the respondents, however, that the reason conflicts did not stimulate an effort to make changes was that the bias of the planning team towards protecting the status quo was so strong that even critical conflicts could not overcome it. As such, all mitigative mechanisms suggested were drawn up with preservation of the status quo very much in mind.

4.4.4 Decision Making in the Assessment of Land Use Suitability in Ladysmith Harbour: Conclusions

In analyzing the planning/decision making process in the establishment of land use suitability designations in Ladysmith Harbour, it is apparent that several conclusions can be drawn with regard to the process and its attempts to follow viable decision making procedures; the weighting of various behavioral considerations; and the relative importance of different types of passive, procedural and active influence.

At the outset the Ministry of Lands, Parks and Housing recognized the need to attempt to guarantee certain desirable future states-of-affairs for Ladysmith Harbour. Unfortunately such prescription was based upon a normative approach whereby perceived needs and demands from a regional and provincial point of view were distilled into predictable requirements for Ladysmith Harbour. Environmental quality, reduction of user conflicts, and maintenance of economic viability were all goals of the process that were established independently of overt behavioral inputs—in the sense that all of these would have been prescribed even if no strong environmental lobbies, industry lobbies, or high levels of complaint about user conflicts were present in the Ladysmith case.

Problems were immediately introduced into the Ladysmith case by stating goals and objectives that only could have been achieved by instigating major land use changes and water use changes in the harbour, in a planning process that had neither the intention nor the mandate for making such sweeping alterations. The range of choice open to the planning team was then immediately narrowed to a practical choice involving basically one option, as a result of a perceived inability to recommend major land use changes on the part of the planning team. In essence, the goals and objectives of the process were undermined quite severely by the overwhelming value assumption on the part of the Ministry and the planning team that whatever happened in the harbour, the economic status quo had to be maintained. More than any other single factor, this initial sweeping assumption distilled a wide theoretical range of choice down to a decision process intent on making minor and relatively ineffectual adjustments to the status quo. In this sense, the environmentally responsible intent of the plan was basically co-opted by a strong behavioral influence of a passive/assumptive nature at the outset.

As a result of this critical passive influence, the decision process was undermined with respect to alternatives considered as well as goals and objectives sought. Because the theoretical range of choice was unwittingly narrowed down to a highly constrained practical option,

only one alternative scenario was given consideration. That single alternative had all current users basically in their existing locations and no major land or water use changes proposed. Minor adjustments to try to alleviate some of the more intense conflicts were evident. In effect, however, the critical conflicts—between logging, tourism, mariculture, and recreation—are still unresolved in the harbour despite the fact that the plan has been adopted. The choice of only one alternative or concept plan undermined the validity of active influence as well, in the sense that the public, media, interest groups and other agencies were never given innovative concepts to consider. Rather, they were told that major changes were impossible and then asked to confine their comments and inputs to small adjustments to all existing uses.

Some procedural problems had a relatively critical effect in terms of decision outcome. While some problems were noted with institutional arrangements—particularly on the advisory committee—the important influences of a procedural nature seemed to be time and funding constraints and inadequate data. These two factors were linked; and results showed that most participants viewed the direct effect of time and funding constraints as decision making in the face of inadequate information. A severe lack of conclusive data on declining water quality was noted and strongly reiterated by all those involved with the planning process. Not being able to pinpoint conclusively the reason for declining water quality was a principal factor that undermined the comprehensiveness of the plan, in the view of most respondents. It was felt that determining a source of water degradation might well have provided a strong enough case for changes to at least one existing use to overcome the planning team's overriding unwillingness to alter the status quo. In short, if declining mariculture potential could have been linked conclusively to log storage, a very strong case for major land use change would have been evident—one which would have required far greater assessment of alternatives.

Active influence—that type of influence which is generally expected to be the most effective in conditioning decision outcomes—did not seem to play a strong role in conditioning the Ladysmith Harbour planning process. Polarized interest group lobbies demonstrated that it is not always the case that the most vocal lobby obtains the most concessions. The environmental lobby in Ladysmith was judged by all respondents to be far more active, organized, vocal and insistent than was the industry lobby; and the former had a far greater active participation. Yet that lobby, which was in keeping with the preferences or preconceived assumptions held by the planning team, was far more successful in realizing its demands than was the environmental lobby, whose case was viewed sympathetically by the planning team but dismissed as extreme and unrealistic.

The media and the bureaucracy actively influenced in favour of both polarized interest group stances at different times—sometimes advocating land use changes and sometimes the status quo. Overall, neither seemed to have much effect on the process, other than in the area of passive value assumptions.

Conflict, one of the reasons the plan was undertaken, should have been the one factor which militated strongly for land use change. If the conflicts had been greater or the reasons for the conflicts more accurately understood, the initial status quo bias of the planning team might have been overcome. Without such information, conflicts were treated somewhat as "ideological conflicts," and, as such, were more susceptible to preconceived assumptions. Because of value assumptions, *reconciliation* of conflict was sought, even though strong arguments in favour of *elimination* of one of the parties to the conflict were made.

4.5 SUMMARY

The Ladysmith Harbour Crown Foreshore Plan was chosen as a recent practical example of land use suitability decision making, involving all the major aspects of a small scale bureaucratic decision process.

The case study focussed on a decision analysis which initially explained the links between resource planning and resource decision making; reviewed the decision methodology for making foreshore land use suitability designations; and then actively assessed a particular example of land use decision making in British Columbia.

This decision analysis focussed upon reviewing all available literature sources connected to the Ladysmith Harbour case, informal discussions with other planners, and a structured interview research methodology aimed at particular aspects of the decision process—administered to those involved in the plan.

It was concluded that the process was biased to a large degree from the outset by a very strong passive socio-economic value assumption which limited both the scope and comprehensiveness of the decision and the viability of active inputs. Lesser conditioning factors were also noted, including time, funding and data constraints and the present of conflict.

As a result of these factors, the Ladysmith plan failed to achieve most of its stated objectives—with the exception of merely documenting existing uses and providing a framework for guiding future allocations. In terms of assessing land use suitability comprehensively, however, the plan did not accomplish this, as a direct result of an unwillingness to project changes to existing harbour uses. With all minor revisions taken into account, the foreshore use situation in Ladysmith Harbour with the plan in place remains virtually unchanged from that situation which precipitated a planning need in the first place. Given this fact, it is not surprising that the traditional conflicts and pressures that have plagued the harbour for the past decade are still present in the harbour; and, from all indications, still will be present at the end of the plan's five year term.

CHAPTER 5

DECISION MAKING IN THE ASSESSMENT OF LAND USE SUITABILITY: RESEARCH CONCLUSIONS AND IMPLICATIONS

Increases in the use of natural resources as a result of growing demand on behalf of an expanding population are making many land use decisions critically important. More than ever, future requirements—particularly in the area of maintaining environmental quality—are becoming necessary considerations in the land use decision process. As such, decisions must account for future needs as well as present uses and demands. Where many former land use choices were guided merely by current public wants, present day and future land use decisions will have to consider land and resource quality and supply concerns as well as such demands.

Because of the growing importance of land use decisions, land capability or suitability for certain types of use is now often being assessed prior to uses being allocated. This is done in an attempt to ensure at least partially that uses take place in the most suitable or optimum land areas; and in an attempt to reduce use incompatibilities and conflicts. Such land use planning seems to recognize that some future-oriented behavioral factors must often be included, especially in determining environmental quality and resource supply; but also that some strong current overt behavioral factors must also be considered to some extent in land use decisions. It is in determining the relative weighting of these various types of behavioral inputs that many land use suitability planning programs seem to run into difficulty.

In reviewing a comprehensive literature base in the area of decision theory, a definitive set of steps was identified for decision making; and this basic process was reviewed in Chapter 2. This process involved the fundamental steps of problem definition, goal formulation, alterna-

tive selection, alternative evaluation, and outcome. It was found that this process could be viewed from two fundamental orientations: the normative approach, which attempts to reduce all variables to definable inputs and then predict what outcome *should* occur; and the behavioral approach, which identifies that outcome that *will* occur given certain types of influence acting on the decision process. From a normative point of view, problems associated with attempting to prescribe ideal outcomes include difficulty in assessing and defining all variables—particularly those of a non-quantifiable nature—and difficulty in positing a scale for weighing alternatives. From a behavioral point of view, three essential problem areas were isolated: passive influence or problems with preconceptions and value assumptions; procedural influence or limitations imposed by problems with process *per se;* and the weighting of active influence in the form of interest group, media, conflict, and/or bureaucracy pressure.

Given the analysis of decision making as a process and the relative strengths and weaknesses of normative and behavioral approaches, a case study of land use suitability decision making was assessed. The case study—Crown foreshore planning in Ladysmith Harbour, British Columbia—was chosen as an example of land use decision making in which a tendency towards normative oversimplification and various problems associated with balancing behavioral inputs are evident. For the purposes of the research it was hypothesized:

- That improper weighting and balancing of strong passive, procedural and active influences acting on the decision process is more likely to precipitate land use suitability designations that reaffirm or rationalize existing biophysical states and existing uses, than designations which reflect potential or projected biophysical states and projected uses and options.

On the basis of the theoretical analysis and the case study, several broad conclusions and implications can be forwarded.

The case study findings verified the research hypothesis; but, surprisingly, not in the way that might have been anticipated. Current emphasis on the importance and degree of influence of interest and lobby groups tends to lead to the prediction that active influences will have the strongest effect on decision outcomes. In the Ladysmith case, it was found that despite the presence of active influences it was actually passive influence that conditioned the outcome irrevocably towards the status quo. Procedural influence was found to have a partial effect in constraining the decision, but not to the extent that decision maker initial assumptions and preconceptions did.

The case study demonstrated the need for consideration of future resource supply and needs in the decision process. To ensure a regional or provincial context, to maintain and protect future options, and to ensure that even variables that do not receive active lobby support are considered, some less overt behavioral inputs must be recognized. The case study pointed to the fact that such a process could not be undertaken realistically in a normative manner, as subtle and complex behavioral variables and non-quantifiable values play a major role in ensuring a responsive decision outcome.

It can be concluded that in the Ladysmith case the theoretical range of choice, as discussed by White (1961), was immediately narrowed to a practical range of choice involving only one real alternative course of action. This occurred mainly as a result of decision maker value assumptions, and partly as a result of time, funding and data constraints. The value assumptions responsible were strongly related to those reviewed in Chapter 3, and were of a socio-economic nature. As Blazek et al. (1974) pointed out, so pervasive are socio-economic assumptions about the immutability of the economic system that decision makers cannot at times conceive of any alternatives to that system or to its component parts. This deeply instilled mental barrier becomes obvious when a case such as the Ladysmith Harbour plan is reviewed—the assumption that change cannot occur is largely subconscious, yet it is pervasive in terms of narrowing the theoretical range of options considered.

As such, the Ladysmith case was largely a case of habitual decision making. As Kates (1962) and Firey (1960) comment, such narrowing of the theoretical range of choice most often produces decisions which reaffirm or rationalize existing states of affairs. With very minor changes this status quo situation was reaffirmed and rationalized in the Ladysmith Harbour case.

Several considerations should be addressed in future land use suitability decision processes, as a result of this research. Firstly, as briefly mentioned in Chapter 4, there is an obvious need for coordination of land use planning in British Columbia, such that single agency planning mandates are interconnected in producing holistic land use plans involving a variety of resource uses. Problems with the Regional Resource Management Committee (RRMC) approach—the function of which is not supposed to change with the forthcoming *Land Use Act*—have resulted in poor coordination of land use planning. Some form of land use planning agency that is responsible for taking various single agency planning proposals and integrating them, and then ensuring that holistic land management plans are instituted is probably the best approach. Such an agency would avoid the "vested interest" problem of lead agency planning as it now occurs; but would have to be more than a committee or secretariat in terms of its power to implement planning strategies. Many of the problems with current land use planning efforts, such as the Ladysmith Harbour plan, could be overcome if such an agency were in place and functioning properly.

A second recommendation arising from this research is that all resource agencies, and most particularly the Ministry of Lands, Parks and Housing, critically examine their planning programs in terms of what such programs are really accomplishing. Planning, in the true sense, involves much more than simply drawing lines around and rearranging existing land uses. It involves analyzing trends in supply and demand, public values, and environmental requirements, and *projecting* these into the future. In this way, it should anticipate changes in the economic base and in resource supply such that alternatives can be emphasized

long before critical "downturns" and employment shortages occur. In short, planning assumes foresight, and to date such foresight has been largely overshadowed by short term gain in many planning efforts. Unfortunately, that which currently provides socio-economic gain may well not do so in twenty-five years time, and allowances for this contingency should be made in advance.

A third recommendation on the basis of this research is that biophysical capability and environmental quality should perhaps be the baseline by which land use planning is guided. In other words, short term socio-economic demand cannot continue to be used as the sole rationale for deciding land use. Rather, the inherent capability of the land must be taken as basic, and greater emphasis must be placed upon behavioral considerations aimed at maintaining land quality. If environmental quality and resource and land supply are to be ensured—and they must be ensured—then these must become the foundations of land use planning. Even if such standards are not the most actively forwarded inputs into the planning process, their overall importance to the well-being of all human enterprise may make it necessary to ensure that they are given a greater measure of importance in land use decision making. Overt behavioral influence and the forums of active input can then be assessed in deciding which *compatible* use will occur, once capability and carrying capacity have been determined. If land use capability does not take on this measure of importance, attempts at meeting ever-increasing demands will result in severe environmental degradation, depletion of resource supply, and inevitably major ecosystem collapse.

Fourthly, and perhaps most importantly, land use planners, the public, politicians and resource agency bureaucrats must come to the realization that socio-economic systems are dynamic and subject to change. In short, myopic anthropomorphism and the view that industrial society and the type of economy upon which it rests are immutable and unchangeable must be overcome. All economic systems can and do change over time, and the current economic system, with its incompatibility with principles of ecology, is already showing signs of major change as

the Western world moves into a post-industrial phase. As such, land use planners and decision makers must free themselves from their over-powering socio-economic assumptions if land use decisions are to be made objectively, and if such decisions are to accomplish the anticipatory function that is the *raison d'être* for planning.

It is hoped that the findings, conclusions, and recommendations of this research will aid in the progression of land use planning in British Columbia from a "response-to-crisis/response-to-demand" exercise to a holistic, coordinated anticipatory decision process based on resource supply and maintenance of environmental quality and responsive to both current and future needs.

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APPENDIX I
INTERVIEW SCHEDULE

INTERVIEW SCHEDULE

1. Name and Affiliation:

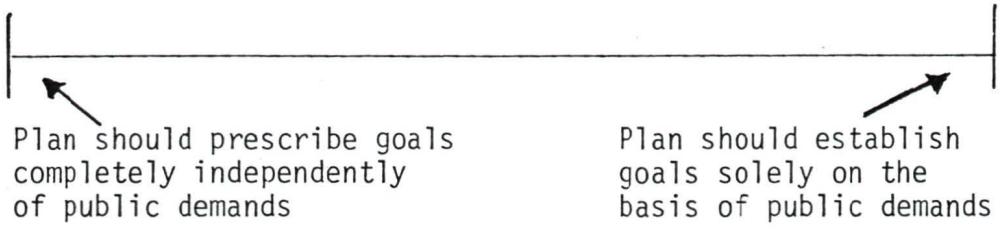
2. What, in your view, is the purpose of a Crown land plan?

3.(a) Do you think that the *goals and objectives* of a Crown land plan are established *solely on the basis of reacting to demands* made by the public, interest groups and/or other government agencies?

(b) If "not", do you think that some of the *goals and objectives* of such a plan are established *independently of any direct input and/or pressure* by the public, interest groups, and/or other government agencies?

(c) Do you think that the Crown land planning process *should* attempt to *prescribe certain desirable goals and objectives*—such as maintaining a high quality environment—even if those particular goals are *not actively demanded* by the public, interest groups, and/or other government agencies?

(d) The line (continuum) below represents the whole range of possibilities between *completely prescribing goals* and *completely reacting to demands and pressure in establishing goals*. Mark with an "X" the point on the line at which you think the Crown land planning process *should* fall:



(e) In the preceding question, you marked with an "X" the point at which you felt the planning process *should* fall. If you were to mark the *Ladysmith Harbour planning process* on the same line, would you put it in the same place? (if not, mark with an *):

4.(a) Theory suggests that once goals and objectives are established in a planning process, *alternative courses of action should be formulated and examined*. In your view, did the Ladysmith Harbour planning team formulate and assess *several possible land use alternatives* or *one single alternative* (i.e., concept plan)?

(b) Do you think that a more satisfactory result would have been obtained if the planning team had presented and assessed *several possible alternative scenarios* or conceptual plans for Ladysmith Harbour? Why?

5.(a) Were there any strong *values or value conflicts* evident on behalf of members of the planning team, or on behalf of the public, interest groups and/or other agencies involved (i.e., strong environmental protection values versus strong economic development values)? Please identify:

(b) Do you think that the planning team made any of its land use designations more on the basis of *subconscious or deep rooted value assumptions* than as a result of information considered?

(c) Did the presence of *strong values and/or value assumptions* affect or reduce the objectivity, comprehensiveness or open-mindedness of the plan (i.e., *did value assumptions bias the plan* in a certain direction from the start)?

6.(a) Did the planning team (collectively or individually) ever act *irrationally or inconsistently* in assessing information or in formulating land use designations?

(b) Were there any *time or funding constraints* which limited the comprehensiveness or objectivity of the Ladysmith Harbour plan? If so, how?

(c) Did the *institutional arrangements* used in the planning process (i.e., inter-agency planning team, advisory committee, public information sessions, etc.) seem to limit the comprehensiveness or objectivity of the plan?

(d) Were there any obvious *inadequacies in data or information* that affected the comprehensiveness of the plan?

(e) Question 6. parts (a), (b), (c) and (d) referred to specific problems related to *procedure* in the Ladysmith Harbour planning process. Did any of these factors—irrationality, time/funding constraints, institutional arrangements, or data inadequacies—seem to cause the plan to focus more heavily on providing for existing uses (i.e., maintaining the status quo) than on providing for possible or potential future needs? Please specify:

7.(a) Did the *involvement or pressure applied by the general public or special interest groups* cause the plan to focus more heavily on providing for existing uses (i.e., maintaining the status quo) than on providing for possible or potential future needs?

(b) Did *media (i.e., newspaper or television) coverage* of the planning process cause the plan to be more sensitive to the demands of current users than to the projected needs of potential future users?

(c) Did the *presence of other government agencies* in the planning process cause the plan to focus more heavily on providing for existing uses uses than on providing for possible or potential future needs?

(d) Did the *presence of conflict between users* cause the plan to be more sensitive to providing for existing uses and reducing existing conflicts, than to providing for future use possibilities and options?

8. Do you think that the assessment of future or projected uses and needs that was undertaken by the planning team produced an accurate picture of what *should occur in the harbour over the next five years*, or merely a picture of what *current users would like to be the case for the next five years*?

9. Do you think that the goals of the planning process were compromised because of an unwillingness to make *land use projections that would imply a major change in the status quo* in Ladysmith Harbour?

10. Do you think that the absence of a major foreshore plan for the whole east coast of Vancouver Island tended to cause the planning team to focus more heavily on maintaining existing uses than on proposing new and innovative alternatives for Ladysmith Harbour?

11. In Question 2 you were asked what you thought was the purpose of a Crown land plan. Do you think that the Ladysmith Harbour plan fulfilled that purpose? Why, or why not?

12. Other comments?

APPENDIX II

INTERVIEW RESPONDENTS

Inter-Agency Task Force:

1. Jamie Alley
   Ministry of Lands, Parks and Housing
   Regional Operations Division, Victoria, B.C.

2. Doug Berry
   Ministry of Lands, Parks and Housing,
   Nanaimo District, Nanaimo, B.C.

3. Bill Munn
   Ministry of Lands, Parks and Housing,
   Parks and Outdoor Recreation Division, Nanaimo, B.C.

4. Tom Walker
   Ministry of Forests, Duncan, B.C.

5. Doug Morrison
   Ministry of the Environment
   Fish and Wildlife Branch, Nanaimo, B.C.

6. Geoff Chislett*
   Ministry of the Environment
   Marine Resources Branch, Victoria, B.C.

7. Bo Martin*
   Ministry of Municipal Affairs
   Parliament Buildings, Victoria, B.C.

8. Rod Bell-Irving*
   Federal Department of Fisheries and Oceans
   Habitat Protection Division
   Pacific Region, Vancouver, B.C.

9. Ron Smith
   Cowichan Valley Regional District, Duncan, B.C.

10. Derek Pratt
    Cowichan Valley Regional District, Duncan, B.C.

Ladysmith Harbour Management Advisory Committee:

1. Doug McColl (Chairman)
   Ministry of Lands, Parks and Housing
   Regional Operations Division, Victoria, B.C.

2. Jamie Alley (Recording Secretary)
   Ministry of Lands, Parks and Housing
   Regional Operations Division, Victoria, B.C.

3. Frank Jameson, Mayor
   Town of Ladysmith, Ladysmith, B.C.

4. B.F. Russel, Director Area "H"
   Cowichan Valley Regional District, Ladysmith, B.C.

5. Mrs. Patricia Irvine
   B.C. Oyster Growers Association, Ladysmith, B.C.

6. Ira Griffiths
   Fishing Industry, Ladysmith, B.C.

7. George Stickle
   Recreation Operators, Ladysmith, B.C.

8. George Shepherd
   Ladysmith Harbour Citizen's Association, Ladysmith, B.C.

9. Keith Power*
   Ladysmith Chamber of Commerce, Ladysmith, B.C.

10. R.D. McBride
    Ladysmith Harbour Timber Operators Association, Ladysmith, B.C.

11. Monty Mosher
    Ladysmith Harbour Timber Operators Association, Ladysmith, B.C.

12. Ray Bradford, Harbour Master
    Ladysmith, B.C.

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* Not available for interviews

VITA

Surname: MOYSE Given Names: GEOFFREY STUART

Place of Birth: CALGARY, ALTA. Date of Birth: January 6, 1955

Educational Institutions Attended,
with Dates of Entering and Leaving:

UNIVERSITY OF CALGARY, CALGARY, ALTA.	1971 to 1973
UNIVERSITY OF VICTORIA, VICTORIA, B.C.	1973 to 1976
UNIVERSITY OF VICTORIA, VICTORIA, B.C.	1977 to 1982
	____ to ____

Degrees, Diplomas, Etc., Awarded,
with Dates and Names of Institutions:

B.A.	1976	University of Victoria, Victoria, B.C.

Honors and Awards:

Home Oil Company Ltd. Academic Scholarship, 1977/78

Publications:

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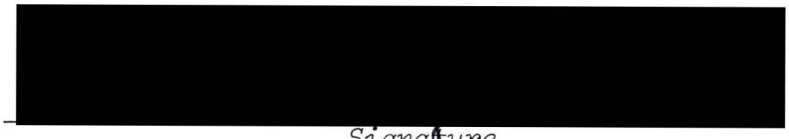
Title of Thesis/Dissertation

DECISION MAKING IN THE ASSESSMENT OF LAND USE SUITABILITY:

THE CASE OF CROWN FORESHORE PLANNING IN LADYSMITH HARBOUR,

BRITISH COLUMBIA

Author 

Signature

GEOFFREY STUART MOYSE

Name

August 5, 1982.

Date