Property Rights in a Canadian Mountain Ecosystem:

The Changing World of Natural Resource Decision-Making in the Arrow Lakes, British Columbia.

by
Greg Stevens

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Abstract

This practicum presents the results of property rights research conducted during the spring and summer of 1995 in the Arrow Lakes Valley of Interior British Columbia, Canada. The general purpose of the research was to document how decision-making authority over natural resources was distributed among stakeholders in a mountainous region in Canada. The specific objectives of this study were to: identify and describe natural resource uses in the Upper Arrow Lakes Valley; identify the stakeholders to these resources; describe the distribution of decision-making authority over them; identify instances of shared or overlapping decision authority; and derive recommendations for the inclusion of multiple property rights into natural resources decision-making in the area.

Fieldwork was based on an iterative use of semi-structured interviews, ongoing literature review, two site visits, non-parametric data analysis, field observations and a structured community survey. A variety of social science and rapid appraisal techniques were used to cross reference and triangulate research findings and a case study of the wild mushroom harvest was used to exemplify and direct the use of property rights analysis in resource management decision-making. The research identified eleven types of land and resource use classifications in the study area including forests, wildlife, parks, recreation, agriculture, water, hydro-electric reservoirs, wild mushrooms, hotsprings, settlement and mining. It was determined that all rights over natural resources were based primarily on state and / or private property control, several of the resource types demonstrate common property-like characteristics and one resource (wild mushrooms) was described as an open access resource.

Conclusions establish that the tradition of managing state property for single purpose uses is being challenged by growing multi-stakeholder involvement and demand for shared decision authority, at all levels of resource use. The detailed analysis of property right characteristics suggests that local resource users in the area of study have poorly articulated but growing input into decision-making processes. The analysis of the wild mushroom management strategy shows how property rights analysis allows for the formation of manageable groupings of stakeholders, identification of their specific motivations for management, and provides a broader framework for negotiations between stakeholders, beyond simple 'ownership' rights.

Acknowledgements

Thanks should go to so many people. Firstly, I would like to thank the project team for all of their support and guidance in the development of this research. In particular, I would like to thank the project leader, Dr. Fikret Berkes, Professor at the Natural Resources Institute, for providing the opportunity in the first place, for financially supporting the multiple field seasons and subsequent conference opportunities, and for encouraging the international and cross-cultural comparisons between this project and the complementary work completed in the Indian Himalayas.

Thanks also must go to my advisor, Dr. John Sinclair, Associate Professor at the Natural Resources Institute, for his invaluable guidance, constructive criticism and ongoing support throughout the entire practicum process.

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Chapter One - Introduction

The forested lands along the Arrow Lakes near Nakusp, British Columbia are an example of a multiple use resource that retains different, and often divergent meanings to many people. Through the last hundred years these lands have undergone considerable changes, both in physical usage, perceived value and in management. They have supported a diversity of lifestyles and resource-based industries through multiple cycles of extraction, economic booms (and associated busts), and episodic pattern of regional settlement (ARA, 1994; 1995; CORE, 1994, MoF, 1994). Recent history sees these very same forests as either neglected wilderness to be conquered, a source of export revenue to be retained, wasteland to be made productive, and / or prime wildlife habitat to be preserved (CORE, 1994; MoF, 1994; Wilson, 1973).

Each of these perspectives has typically been based on exclusive ownership and allocation of land to single purpose uses (Pearse, 1988). Values, however, like people, change over time, and in this once wild and independent land a new phenomenon has occurred; that of multiple use decision-making (MoF, 1994; CORE, 1994; MoE, 1995). There are no new lands to allocate for resource exploitation, and there is growing pressure for shared management and overlapping use of a limited set of lands that are already divided (CORE, 1994; MoE, 1994; Forest Renewal, 1995). In a legal sense, a multitude of partial use rights are starting to catch up to, and overlap, simple ownership rights (Ross, 1995).

This research provides an analysis of the physical, social and property rights changes that have occurred in the Arrow Lakes Valley. In a context of changing values, flexible practices and multiple preferences, property rights theory provides the framework for structuring stakeholder rights, duties and responsibilities and

extrapolating patterns of land-use, over time. Such an analysis implies not only an identification of the resource or land-use in question but an understanding of the different persons or groups laying claim to these resources and the extent of their decision-making authority. The area around Nakusp, B.C. is no stranger to change and land-use controversy and provides an interesting case study for such research.

1.1 Purpose

The purpose of this research was to document how decision-making authority over natural resources is distributed among stakeholder groups in the Upper Arrow Lakes Valley of Interior British Columbia, Canada. To this end, property rights research was used to relate rights over a resource to observed land-use practices. The full articulation of property rights is generally recognized to include the rights of access, use, management, exclusion and alienation (Schlager and Ostrom, 1993).[1] For the purpose of this practicum, the distribution of these five property right characteristics is used to go beyond the basic ownership types (State, Private, Common Property, or Open Access) to identify multiple layers of stakeholder rights and overlapping claims to the same landscapes. The detailed property right characteristics are then combined with historic land-use practices to extrapolate trends in decision-making, and to provide a base for making recommendations for natural resources management and planning in the region.

[1] A discussion of the use of these terms is provided in Chapter Two.

1.2 Objectives

The specific objectives of the research were:

1) To identify and describe natural resource uses in the Arrow Lakes Valley;
2) To identify the stakeholders of these resources (e.g. users, claimants, proprietors and owners);
3) To describe the distribution of decision-making authority over these natural resources, as held by each stakeholder group;
4) To identify patterns of overlap or shared decision-making authority;
5) To derive recommendations for the inclusion of property rights research in natural resources management and decision-making in the study area.

1.3 Terminology

Certain words are used throughout this research that may call for clarification. The word "stakeholders" for example, is used to describe not just the owners of a resource or resource area but the whole range of proprietors, claimants and users (see references to Schlager and Ostrom in Chapter Two) who are able to lay some form of claim. It is important to note here that many researchers would not consider a government agency, for example, as a stakeholder group. This term was chosen, however, as it is descriptive and inclusive in nature and broadly refers to the widest range of person's, players, actors and / or agents holding some form of 'stake' or 'claim' to the resource in question. The important idea is one of multiplicity.

Other contested words include the term 'Property Rights' itself. Chapter Two discusses this debate in some detail. Suffice it to say that the term is used as it reflects the widest range of stakeholder rights, interests, responsibilities and authorities over a given resource. From a management perspective, property rights refers to general patterns of ownership and the degree that these claims

express decision-making authority over a resource. Property Rights Holders, therefore, refers to those staking these claims (a.k.a. 'stakeholders'). In a sense, 'property rights holders' can be used interchangeably with 'stakeholders' when referring to less formally recognized claims to a resource-based benefit stream (i.e. *de facto* property rights). It is recognized that academic literature's register some disapproval over the use of almost any term but the terminology chosen in this practicum appears to be the most flexible and workable alternatives currently available.

1.4 Methods

This practicum presents the results of seven weeks of field work completed during the spring and summer of 1995, followed by further literature review, data analysis and debate over property rights theory, application and practice. The emphasis, throughout, is placed on the role that different stakeholders contribute to resource management and decision-making in the study area. Using primary interviews, available historical, statistical and empirical data and drawing heavily from regional planning and management documents, the research describes multiple land-uses in the area, identifies key players involved in making land-use decisions, articulates the distribution of the property right characteristics over these resources, and discusses relationships between overlapping rights and land-use practices. The Arrow Lakes region was chosen for case study research as information was available on multiple types of resource use, the scale was compatible with the companion research site in India and many resources were under significant pressures for change.

1.5 Delimitations & Research Context

This practicum was produced as a subset of an international, cross disciplinary project entitled "Sustainable Development of Mountain Environments in India and Canada" and was supported by the Shastri Indo-Canadian Institute through a grant by the Canadian International Development Agency (CIDA). The project was based at the University of Manitoba, the University of Delhi and the Indian Institute of Science, and was carried out in cooperation with the International Institute of Sustainable Development. The study team was led by F. Berkes, Principal Investigator; R.B. Singh, Chief Co-investigator; and J.S. Gardner, Senior Investigator.

The objective of the overall project was to develop environmentally, socially and culturally sustainable policies for use in mountain watershed ecosystems. More specifically, the goals of the project were:

1) To develop integrated methods best suited for the comparative study of land resource management policies in forested mountain watersheds;
2) To study the successes and failures of mountain environment resource management policies and their social, economic, and historical context as revealed in case studies;
3) To develop cross-cultural criteria for assessing sustainability in mountain environments;
4) To interact with policy-makers in resource management and sustainable development, so that policy implications of the study are communicated to the appropriate parties.

In 1994, the project analyzed land and resource use patterns in selected watersheds in the Upper Beas River valley in the Himalayas of Himachal Pradesh State. In 1995, the research team concentrated on companion analyses of the Columbia River Valley of Interior British Columbia in Western Canada. The joint Canadian-Indian team, which included expertise in natural resources, remote sensing, geography and anthropology, investigated the sustainability of mountain environments, the local socioeconomic system and the biogeophysical

characteristics of the surrounding watershed. In both Canada and India, the investigations come at a time of rapid social, economic, environmental and land-use changes. In India, these took the form of rapid economic change in which agricultural, grazing and forest land resources were adapting to the arrival of commercialization and regional and global economic integration. In Canada, environmental, social and land-use changes were competing with traditional attitudes and development of resource stocks, with local, regional and global pressures for more sustainable harvesting.

A series of technical reports was produced from this project. This practicum is an expansion of the ninth in the series entitled: "Property Rights in a Canadian Mountain Ecosystem: Land-Use, Stakeholders and Natural Resources Decision-making in a British Columbia Case Study," by Greg Stevens, Tech. Rep. No. 9 (May 1996). Of the three technical reports that pertain to British Columbia,[2] the other two are:

"Locally identified signs and signals of sustainability: Arrow Lakes Region, West Kootenay, BC," By Colin Duffield, Tech. Rep. No. 7 (May 1996).

"Sustainability in a mountain watershed ecosystem: Resource use in the Columbia River Valley near Nakusp, British Columbia," by Jay Anderson, Tech. Rep. No. 8 (May 1996).

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[2]The other reports in the series are as follows:

"Sustainability of a mountain watershed ecosystem in the Himachal Pradesh Himalayas: Background and overview," by F. Berkes et al., Tech. Rep. No. 1 (Feb. 1995).

"Tourism and risk from natural hazards, Manali, Himachal Pradesh, India," by J.S. Gardner, Tech. Rep. No. 2 (March 1995).

"Gender, class and the commons: A case study from the Indian Himalayas in natural resources management," by Kerril Davidson-Hunt, Tech. Rep. No. 3 (May 1995).

"The state, village and the commoner: Interactions in the management of a western Himalayan commons," by Iain Davidson-Hunt, Tech. Rep. No. 4 (June 1995).

"Livelihood security in mountain ecosystems: Coping and adapting in two Himalayan villages, India," by Laurie Ham, Tech. Rep. No. 5 (June 1995).

"Sustainability indicators in a temperate mountain watershed: Two villages of the Upper Beas River, Himachal Pradesh, India," by Colin Duffield, Tech. Rep. No. 6 (June 1995).

1.6 Organization of the Practicum

This practicum is organized into seven chapters. Following Chapter One, the Introduction, Chapter Two presents a discussion of the theoretical basis for property rights research and institutional analysis. Chapter Three provides an overview of the methods used throughout the research. Chapter Four reviews the geographical and socio-economic characteristics of the study area, followed by a more complete look at local land-use patterns as they have changed over time. Chapter Five contains the detailed property rights analysis of each of the major resource types as they relate to the different groups of stakeholders. Multi-stakeholder patterns of decision-making are also included in this section. Chapter Six summarizes the lessons drawn from the research findings and applies them to policy development for wild mushroom management in the study area. Chapter Seven concludes by discussing the research in context of overlapping or shared decision-making characteristics, developing some general conclusions and submitting recommendations for progressing this research into the future.

Chapter Two - Theory

As a practical core of sustainable development, natural resource management tries to balance the multiple attributes of a resource with the policies and practices used to manage it, over time. Natural resource decision-making, therefore, is a complex negotiation involving both environmental, economic and social parameters as well as the dynamics of stakeholder values, rights and perceptions as they interact over time. Property rights analysis is used in this context as a tool to pull these parameters together and identify the changing patterns of land-use and decision-making that guide natural resources use over time. These patterns may be identified in many ways, such as through an analysis of institutional arrangements (i.e. the identification of the governmental bodies, professional associations, community organizations or individual leadership that establish or guide 'rules of conduct'), through the comparison of *de jure* land-use rules (i.e. legislation, legal precedents or formal policy guidelines) with the *de facto* practices and customary actions actually followed by the stakeholders on the ground, or through simple description of the socio-geo-physical changes that the area has undergone (i.e. through some combination of statistical and empirical data analysis). All of these forms of pattern analysis are used to varying degrees throughout this practicum. It is by providing a framework for bringing multiple parameters together that property rights theory becomes useful as a precursor for natural resources decision-making.

2.1 Property Rights Theory

Following Bromley, property rights are essentially human constructs or conventions that describe a relationship between an individual or group (i.e. right holders), an object of value (i.e. benefit stream) and all others in respect to that object (i.e. duty bearers) (Bromley, 1989, 1992; Schlager and Ostrom, 1993). The

term 'benefit stream' refers to something of value against which a claim is laid. In this sense, a natural resource such as a forest, water, wildlife, or mineral resource can be valued in a variety of ways including the production of economic commodities, maintenance of ecological integrity and / or the spirituality imbued on it from society. The term 'rights holder' refers to the different individuals, groups or social institutions who lay this claim with a reasonable expectation of success (such as a private citizen, an organization, the state, a community group, or nobody). The term 'duty bearer' refers to the recognition by others as to the legitimacy and efficacy of these claims (articulated through various layers of rights, duties, laws, practices or customs).

The recognition of property rights in the context of duty infers a dependence on some form of authority system for ensuring exclusion and compliance. Such systems of authority - or property rights regimes as they are referred to by Bromley - indicate who, in any given situation, has the legitimate authority or sanction to act in a pre-determined way, who benefits from any given behavior, and how the 'rules' will be applied (Bromley, 1989, 1992). Although no one form of property rights proves itself to be superior to any other for ensuring sustainability in all cases, all forms of property rights recognize that an enforceable articulation of stakeholder values is a necessary precursor to managed decision-making (Bromley, 1989; Berkes, 1995; Becker, 1996; Schlager, 1993).

Taxonomically, property right systems (a.k.a: property right regimes) are typically characterized as either private property (*res privada*; rights and duties held by an individual); state property (*res publica*; rights and duties held by the government); common property (*res cummunis*; rights and duties held by some form of collective or group); or non-property (open access or *res nullius*; a situation in which rights and duties are not recognized to be held by anybody).

It is important to remember that the differences between these taxa refer to the social institutions and preferences that have evolved around a resource and are not, in any way, defined by the inherent natural or physical qualities of the resource itself (McKean, 1996; Bromley, 1989, 1992; Schlager and Ostrom, 1993; Becker and Gibson, 1996; Berkes, 1989, 1995).

Property Rights Continuum

Property rights can be seen to exist along a continuum between the black and white polarities of private property (representing pure atomistic decision-making) and state property (representing perfectly centralized decision-making), balanced by multiple shades of overlap. Both of the research sites (in India and Canada) fall somewhere in between these two extremes, with the Canadian case study tending to pit state authority in explicit opposition to individual freedoms, and with the Indian case study demonstrating a longer history of negotiated rights operating at a local-scale. Common Property is a special case where decision-making is shared by a group and seems to be more readily recognized to exist in longer established world traditions and cultures, rather than in the relatively modern North American governmental institutions of Canada and the United States. Irrespective of where they are found or what form they take, in all cases property rights regimes try to control open access situations and manage resources for the benefit of right holders and the exclusion of duty bearers, in the dynamic of a real world setting.

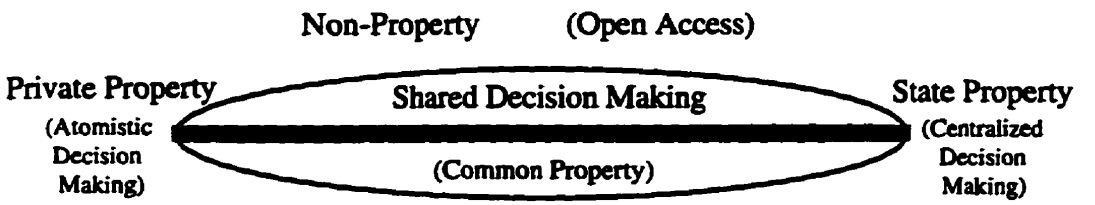


Figure 1: Property Rights Continuum

Private Property

In a private property regime, individuals have a right to undertake certain actions and uses that are acceptable to the general society and which are legitimized and protected by the state (Bromley, 1992). All others have the duty to allow these socially acceptable actions and uses, in context of certain governmental restrictions that protect the individual rights of other citizens (Bromley, 1992). Examples include individual land holdings used for agriculture, forestry, mining or livelihood support where individual actions do not contravene societal health and safety laws and / or torts such as nuisance and negligence. Private property relies on the interactive forces of atomistic competition to allocate wealth through a perfect, but typically short-sighted market system with a strong commodity bias.[3] This may in fact be effective at maintaining and managing both wealth and the transaction costs that keep an economy running, but runs into considerable problems addressing non-market valuation of scarce resources, managing fugitive or physically indivisible resources (such as air, running water and nature reserves), and recognizing the significance and stability of long-term time preferences and discount rates (Pearce and Turner, 1991; Randall, 1987; Anderson, 1991; Larson and Bromley, 1990)

State Property

In state property, the government, or its designated agencies, have decision authority over a resource and the right to determine various use and access rules, whereas individual citizens have the duty to observe these rules (Bromley, 1992). The government may either directly manage state-owned natural resources or lease them to groups and individuals who are thus given usufruct rights over

[3]See Pearse (1988), Anderson (1991) or Randall (1987) for a discussion of the economics of equity and the market economy. Please note, however, the continued misuse of the term 'commons' in their books, and their traditional market valuation bias.

aspects of the resource for a specified period of time. State property regimes are characterized by the separation of ownership and control (management) from actual use, in the sense that ownership resides with the citizenry at large (i.e. the state) and control resides with a class of bureaucrats (i.e. state departments), while use resides with a subset of the citizenry (i.e. recognized users) (Bromley, 1992). Examples in Canada included Provincial forests, parks, most highway and transportation infrastructure, law enforcement, military protection, wildlife management and most water resources. State property relates control and allocation of resources to a centralized and / or regional bureaucracy that typically biases towards large institutional demands and power relations.[4] Because of issues of scale, fluctuating societal values, market externalities, and problems of exclusion and enforcement, state ownership and management may address issues of stability but can become bureaucratic, politicized and unresponsive to local needs (Singh, 1993; Narayan, 1996; MoF, 1994; CORE, 1994). A typical question asked is "who is the public that the state represents?"

Common Property

Common property exists in the broadest sense when ownership and control are retained by a group with defined membership and management rules, and where no one individual has exclusive decision authority over the resource in question (Bromley, 1989, 1992; Berkes, 1989; McMean, 1996). Individual members have both rights and duties with respect to the use and maintenance of the thing of value, in context of the group. Non-members have the duty to abide by these rules. In a way, common property represents private property for the group (McKean, 1996) and tends to be effective when the resource in question is considered physically indivisible but claimable by many.

[4]See just about any book by John Kenneth Galbraith for a discussion on institutional power in this context.

In Canadian law, common property is not explicitly recognized as it is in many other countries (e.g. Switzerland, Norway, Sweden, South Africa, Japan...; Martin, 1988, 1992; Hess, 1996), but situations where property is controlled by a group without individual alienation authority do exist, and include community watersheds, local municipalities, private clubs, some cooperative organizations and all First Nations. Common property is characterized by an emphasis on local input into resource decision-making but becomes burdened with issues of cooperation, an inherent bias towards inclusion and problems pertaining to legitimate recognition by outsiders.[5]

Another issue with common property is definitional. Common property as a term has been misrepresented as implying everything from communist propaganda, to an uncontrollable retrogression leading towards sloth, idleness and misery, to a naively quaint but invariable path to failure (Goldman, 1996; Colby, 1991; Hardin, 1994; Pearse, 1988). Note the bias inherent in such statements, however, as simple observation finds that no one form of authority regime, neither the practice of the free market nor socialistic economies, appears to have managed the environment more or less sustainably than any other (Colby, 1991; Narayan, 1995, 1996; Singh, 1993).

Property Ideology

Ideological proponents preferring one property arrangement or another, continually make claims that their regime is better at managing a particular resource than any other, period. There is no irrevocable proof to sustain this

[5]See Berkes et al (1989) and Bromley et al (1989) for a discussion and examples of traditional common property situations. Charlotte Hess (1996) provides the most recent update to Fenton Martin's (1988, 1992) *Bibliography on Common Pool Resources and Collective Action*, which lists thousands of functioning Common Property regimes throughout the world. The references coming out of the "Workshop in Political Theory and Policy Analysis" in Indiana discuss this legitimization and inclusion issue as well.

claim, and in fact, there are ample examples of resource depletion and poor management practices taking place in each and every property rights regime (Colby, 1991; CBT, 1995; CORE, 1994; MoF, 1994; Hardin, 1968; WCED, 1987; Narayan, 1996). Larson and Bromley have analyzed the composition of some of these claims and concluded that the superiority premise upon which such doctrine rests is "inconsistent with both theoretical results and empirical observations" (Larson and Bromley, 1989).

The real question being faced in the property rights literature is not whether one regime contains characteristics which are inherently (and invariably) better than another, but which combination of institutional arrangements is most appropriate to effectively and sustainably manage resources within any given socio-physical setting (Becker and Gibson, 1996; Berkes, 1989, 1995; Bromley, 1989, 1992, Chambers, 1991; Freudenberger, 1994; Ostrom, 1990; Schlager and Ostrom, 1993). The search in any property rights ideology, therefore, is to find an effective, appropriate and oftentimes dynamic balance to real world change. In other words, neither complete privatization nor centralized control is necessarily preferable, except as each affects the reality of resource management in its own immediate social, economic and geo-physical world.

2.2 Tragedy of Non-Property

The real problem in many instances of resource depletion is the absence of effective management regimes necessary to maintain the sustained use of the resource base (Bromley, 1992; Hardin, 1968; Berkes, 1989; Becker and Gibson, 1996). When property rights and duties are not defined and benefit streams are available to anyone, in an effective 'free-for-all,' we have a situation of non-property (or open access to a resource). Under conditions of non-property there

is no accepted system for claims settlement, enforcement or exclusion, and all users are effectively uncertain as to how they may or may not benefit or be harmed in this system. Unfortunately, since there is no secure claim in a situation of non-property, "it is logically inconsistent to define these situations as property" (Bromley, 1989, 1992).

This is where the confusion comes in. Open access exists in any situation where no authority structure is recognized, and neither exclusion nor management is possible, thus leaving a situation where "everybody's access is nobody's property" (Bromley, 1989, 1992). By its very nature, an open access situation can effectively exist within any property regime when either the existing authority structure fails or the system is undergoing the uncertainty of change. Possible examples of non-property include such frontiers as the unregulated fisheries in the high seas, space exploration, and mining of the deep ocean floor. More pertinent examples occur when an existing authority regime devolves into an effective open access situation through ineffective management, non-enforcement of property rights, or changing use of the resource. Local examples include some traditional forest practices, new or 'unlegislated' resource definitions and some historical mining activities.

Definitional Furore?

The property rights debate has been notoriously controversial in the literature as it became bogged down by both definitional and paradigm problems. The locus of academic banter focused on Hardin's inappropriate 1968 'Tragedy of the Commons' terminology maligning the term 'common property' with the meaning of 'open access.' Using a descriptive parable, Hardin described a situation of individual rational behavior overexploiting an environmental resource, leading to overall depletion (and poverty) for everyone (Hardin, 1968, 1994; Goldman,

1996). This, in itself, is not inconsistent with what common property theorists would term non-property or open access, but because of confusing terminology, has led to gross misunderstandings and misguided academic furore (Goldman, 1996; Bromley, 1989, 1990, 1992; McKean, 1996). "If scholars use the same words or terms to describe fundamentally different situations, ideas or phenomena, then progress in understanding is impeded rather than advanced" (Bromley, 1989, 1990).

Hardin's lax language led to ideological high-jacking of the tragedy debate by private property enthusiasts who proposed that only the private property paradigm could save the world's resources from over-exploitation. As discussed by Bromley, this is simply ideological naiveté and ignores the fact that an open access or non-property situation can occur with compliance or legitimacy failures in any property rights system, including private, state or common property (Bromley, 1989 - 1992; Berkes, 1989; Schlager and Ostrom, 1993).

A Management Solution?

The corollary to the tragedy debate, however, is that any natural resource may be managed successfully given recognizable and enforceable property regimes that are appropriate to the existing social, environmental and economic dynamic (McKean, 1996; Becker and Gibson, 1996). These polemics have led to significant literature by the anti-tragedy school (Goldman, 1996) documenting instances of effective common property management regimes located around the world (Berkes, 1989; Bromley, 1989; Martin, 1988, 1992: Hess, 1996).

Non-property is recognized as a problem by all property regime theorists irrespective of their ideological stripes. Consistent with all of the property rights arguments is the notion that the non-existence of effective management institutions leads to tragedy by decreasing accountability, externalizing costs and

eliminating incentives to manage for the long-term (Bromley, 1985, 1989; Larson, 1990). The management question is not if one or another property regime can successfully manage a given resource, but whether any of these regimes can adapt to changes, pressures and demands associated with that resource. To his credit, Hardin's 1994 recantation of the term 'commons' as really implying 'unmanaged common' allows us now to harmonize his tragedy arguments with their historical nemesis (i.e. the 'anti-tragedy school' of Berkes, Bromley, Ostrom, Hess, McKean, etc....). Unfortunately, the damage is entrenched and misunderstandings continue.

Both the tragedy and the anti-tragedy school actually agree that the unmanaged 'free for all' nature of many natural resources can lead to environmental deterioration as the individuals benefiting from overuse are not necessarily burdened by the accrued social costs - thus leading to the tragedy (Hardin, 1968; McKean, 1996; Larson and Bromley, 1990; Bromley, 1989). Both arguments describe the problems associated with any property regime (i.e. private, public or common) when dealing with an open access free for all, and both schools admit that neither private property nor state property regimes are invariably adequate to do the job (Hardin, 1968, 1994; Berkes, 1989, 1995; Bromley, 1989, 1992).

2.3 Analysis of Property Rights Characteristics

The content problem of managing natural resources can be addressed by going inside the details of the property rights regimes themselves. Schlager and Ostrom hypothesize that the more complete the set (or bundle) of property rights held by any property rights holder, the more likely that they are to invest in resolving the problems associated with managed resource use (Schlager and Ostrom, 1993). What this means is that different rights or 'strands' in a property

rights bundle "may be distributed in various combinations among natural and legal persons, groups, and several publics, including the many units of government" (Ciriacy-Wanthrop and Bishop, 1975). The various combinations of these rights give different incentives for management to each stakeholder group (Schlager and Ostrom, 1993; Becker and Gibson, 1996; Bromley, 1989).

Schlager and Ostrom use a matrix to model the relationship between property rights holders and their detailed property rights holdings, where the full bundle of rights is divided into the categories of access, withdrawal, management, exclusion and alienation. **Access** refers to the right to enter a defined physical property. **Withdrawal** refers to the right to obtain the products of a resource. **Management** refers to the right to regulate internal use patterns and transform the resource by making improvements. **Exclusion** refers to the right to determine who will have access rights, and how that right may be used. And **Alienation** refers to the right to sell or lease management and exclusion rights (i.e. transferability) (Schlager and Ostrom, 1993).

Schlager and Ostrom further propose that, for operational purposes, the holders of these rights can be arrayed into groups based on the different 'bundles' of property rights that they hold. **Authorized Users** retain simply the rights of access and withdrawal. Although these rights are clear and compensable, authorized users lack the authority to devise the rules of management or to enforce the exclusion of others. Examples could include licensed hunters, fishers, and forestry workers. **Claimants** possess the access and withdrawal rights of authorized users, plus the more general rights of management. This means that they have a direct role in devising management rules, although they still have no authority in limiting access and withdrawal rights of users. Examples would include stakeholder groups contributing to resource management committees or forestry companies that devise their own

harvesting plans. **Proprietors** actually authorize who may access a resource and how resources may be utilized. They do not, however, have full alienation rights. Examples include area-based forestry companies that can manage the land but need permission to sell it, First Nations, and some community owned lands. **Owners** retain the authority to exploit and transfer all other rights. Ultimately this refers to the owner's ability to buy and sell the property parcel itself. Examples include private property held in fee simple, some instances of state property and legally recognized forms of common property.

	Access and Withdrawal	Management	Exclusion	Alienation
Authorized User	√			
Claimant	√	√		
Proprietor	√	√	√	
Owner	√	√	√	√

Table 1: Schlager and Ostrom Theoretical Property Rights Matrix

Alternative Property Right Characteristics

The dynamic of resource allocation is obviously not this simple and numerous other variations and combinations of property rights do, of course, exist. Bromley(1989), for example, mentions eleven characteristics representing a full bundle of ownership including the right to possess, the rights to use, the right to manage, the right to the income, the right to the capital, the right to security, transmissibility, absence of term, the prohibition of harmful use, liability to execution, and the right of residuary character. Harvey (1994), on the other hand, concentrates on a simpler four part bundle including the right to possess, the right to use, the right to the income from the thing and the right to deal with the thing in the sense of title, put up as security, etc... For the purpose of this research, the model of five categories of property rights, as previously described in Schlager and Ostrom and applied by Davidson-Hunt, in the complementary property rights research completed in the Indian Himalayan section of this project, was used.

2.4 Multiple Stakeholders and Overlapping Property Rights

The management argument to the open access problem summizes that identification of multiple stakeholder groupings, understanding of their incentives, and incorporation of all levels of right holders into natural resource decision-making can lead to the implementation of more effective management practices (Schlager and Ostrom, 1993). Since property rights and benefits are seen to be related, it stands to reason that if any given stakeholder has no say or control over land-use decisions they will find it difficult to invest their time, money and efforts into long-term care and improvement of these lands, unless they are able to capture some form of the benefits for themselves (Schlager and Ostrom, 1993; Bromley, 1992; MoELP, 1995; FPC, 1995; CORE, 1994; Freudenberger, 1994). If one subscribes to the belief that local users, claimants and proprietors can be as much part of the management solution, as the problem, then one can say that effective management of a natural resource depends on recognizing the practical contributions of all stakeholders to the decision-making process, accepting their ability to retain local benefits, and identifying their responsibility to manage long-term liabilities. Irrespective of the confines of whatever property rights regime they operate in.

In the international development literature it is noted that:

> ...while authors offer different lists of the conditions necessary for successful resource management....most analyses include three fundamental requirements; first, individuals from local communities must highly value a natural resource to have the incentive to manage it sustainably. Second, property rights must be devolved to those individuals who use the resource to allow them to benefit from its management. Third, these individuals at the local level must also have the ability to create micro-institutions to regulate the use of the resource" (Becker and Gibson, 1996).

This idea that community involvement is useful in project planning is quite widely accepted in the international arena, where 'beneficiary participation' is seen by the World Bank, for example, as "the single most important factor contributing to project effectiveness" (Narayan, 1996), and where "the average rates of return for projects that were based on adequate understanding and analysis of social conditions were more than twice as high as those for socially incompatible and poorly analyzed projects" (Cernea, 1991).

Here in Canada, the research is more empirical but shows that involving all the interested parties (i.e. users, claimants, proprietors and owners) in natural resource management processes ensures "that public values and technical feasibility are considered together during a consensus building process" and helps create increasingly "popular and workable results" (Fraser, 1996). According to Fraser (1996), in an ideal world, a balanced decision-making process would eventually develop between provincial level ministries and local institutions, with a strong network of community level management boards to provide landscape level expertise and commitment.

The Balance of Change

Typically, the evolution from one form of decision-making process to another gives insight into the social dynamic surrounding natural resource management in an area. From a property rights perspective, "when new things become scarce, when tastes and preferences change, or when relative prices change, it follows immediately that the old rules will no longer suffice and existing institutional arrangements are challenged to adapt" (Bromley, 1990). This process means that in settings of great change, the institutional (or property) arrangements that traditionally maintained law and order may become quite ineffective in dealing with the reality of new values and new stakeholders (Bromley, 1990). "New institutional arrangements are continually established to define the property

regime over land and related natural resources -- whether that regime be one we would call state property, private (individual) property or one of common property" (Bromley, 1990).

It is interesting to note that, in Canada, as the distribution of property rights over natural resources has evolved from an earlier predominance of singular and exclusive ownership rights to a more recent multi-faceted set of overlapping use rights, so too have management practices and definitions of 'legitimate' stakeholders changed. In the Canadian context, it seems that natural resources have traditionally been 'owned' and managed by the Crown (primarily via provincial jurisdiction with some federal influence) which tended to allocate portions of these resources through licenses, permits, statutes or outright sale to larger claimants and proprietors to be exploited and used for economic progress (e.g. profit for the company, taxes for the state, jobs for the community). The trend was for most natural resources to be managed independently of one another, based on isolated, project specific analyses of economic, or bio-physical, or political pressures (e.g. the stereotypical 'frontier mentality' of take it or leave it independence that was prevalent at the turn of the century - Colby, 1991; Ross, 1995; CORE, 1994; WCED, 1987).

With the environmental revolution of the 1970s and '80s, decision authority started to change as other stakeholders became increasingly aware of interlinkages and overlaps between natural resources and human well-being (CORE, 1994; Ross, 1995). Public or stakeholder involvement started to enter the management debate as the multiple faces of neighboring interests started to demand a say in the management of resources that involved them. The result of this evolution was the recognition and increasing incorporation of divergent multi-stakeholder values at all levels of natural resource decision-making (Narayan, 1996; NRTEE, 1994; Colby, 1991; CORE, 1994; Fraser, 1996).

Both the Commission on Resources and the Environment (CORE, 1994) and the Forest Practices Code (FPC, 1994) were part of the most recent evolution of regional level planning in British Columbia, and both involved considerable multi-stakeholder involvement at different levels. In terms of CORE, the state role, as owner of large yet indivisible natural resources, seemed to shift from decision maker to a skilled facilitator model, addressing broad policy issues as opposed to isolationist project criteria and emphasizing early stage planning as opposed to later stage mitigation (Fraser, 1996). In terms of the FPC, the encryption of numerous non-timber rights into legally enforceable and locally applicable forms demonstrated how legislation adapts to a changing social conscience (by extending *de jure* recognition of 'local practices' into formal and legally binding guidelines). Examples, such as CORE and the FPC both demonstrate different ways that the state may change from independently deciding the outcome to facilitating stakeholder involvement in resource-based decision-making through structuring an interactive process, acting in an advisory capacity and / or negotiating flexible solutions (Fraser, 1996).

The process of evolving rights is typical of any dynamic relationship involving human perceptions of values, benefits and responsibilities. Considering the traditional Canadian dichotomy of either simple state or private ownership, multiple stakeholder innovations to the property rights system are interesting to watch as the 'owners' of natural resources (typically the state) try to both manage input by local users at the same time as they try to retain full decision-making authority.

2.5 Summary

In the complex reality of natural resources management, the categorization of property rights by type has shown itself to be an effective means to identify the range of stakeholders, their values, preferences and rights, as well as the various roles that they play in managing and making decisions over a resource. To do this, property rights were grouped into the categories of access, withdrawal, management, exclusion and alienation. Different groupings, or 'bundles' of these rights were then tied to different benefits streams and incentives for management, with the note that such categorizations are by necessity flexible - and change is inevitable. The basic argument, throughout, is that natural resource decision-making and management needs to recognize and address the multiple layers of users, claimants and proprietary rights holders, above and beyond simple ownership, to be effective in managing resources in a changing world. Here in Canada, we appear to be adapting to a changing balance of multi-stakeholder perspectives in natural resources management.

Chapter Three - Methods

This research used a cross-section of data collection and analysis methods ranging from an iterative use of semi-structured interviews, ongoing literature review, multiple site visits, non-parametric data analysis,[6] field observations and a structured community survey. A variety of social science and rapid appraisal techniques were used to cross reference and triangulate data (Cernea, 1991; Chambers, 1991; Freudenberger, 1994).

3.1 Chronology of Research

Pre-Field Activities

Following a review of background literature, photographs and maps, an initial proposal and outline of natural resource and land-use issues was compiled and preliminary research methods were developed. These included a review and discussion of rapid appraisal techniques, the development and use of survey's and interview techniques and the role of qualitative vs. quantitative data collection in the research process. Much of this information evolved into Figure 5: Relative Intensity of Land-Use (Chapter Four). This figure is designed to visually represent relative relationships between resource uses in the region, and its formation allowed some of the following types of questions to be asked: how stable has forestry consumption been over time; when did agricultural activities peak; and was there a relationship between transportation and local tourism at the hotsprings, over time?

[6]NPDA or Non-parametric data analysis is a term referring to a variety of non-statistical techniques for looking at non-parametric data (i.e. data for which the analysis of parameters such as the mean or the standard deviation would prove meaningless). Examples used in various stages of this research will be described later but include the use of Historical Matrixes, Resource Use Calendars, Consultant Sorting and Priorization Exercises, Decision Grids and Pattern Analysis.

A preliminary site visit allowed familiarization with the research location and provided an introduction to local land-users and stakeholders to be interviewed during the later field season. During this time, local government and resource professionals were approached, introduced to the research and asked to participate. These contacts provided considerable expertise, volumes of background materials, perceptive insights into land-use practices and numerous consultant leads. Following this introductory visit, available background data were further reviewed, research questions were refined (see Appendix A) and the land-use overview was updated into usable form (see Table 2 in Chapter Four).

Field Season

The primary fieldwork took place during the summer months of July and early August of 1995. The first week of this period was used to establish a 'home base' at a local hotel, re-affirm initial contacts made earlier and to start the research process. This time was also used to collect a broad cross-section of reference data for the entire team to access when they arrived a few days later as well as to make preliminary arrangements for upcoming interviews. An interview style of data collection was used throughout the field season based on previously defined resource-based questions (see Appendix A). These interviews evolved over the field season as the researchers grew more experienced and the information gaps were targeted. Handwritten field notes were kept which were later transcribed into an interactive text-based computer search engine to facilitate further analysis. Data collection ranged from qualitative perceptions of key consultants, descriptions of general patterns and relationships between resources and stakeholders, physical review and retention of any descriptive studies related to the research topics, collection of maps and references and the compilation of an interview schedule.

During the second week, all five members of the research team were present on the site. Interviews with key resource users and management professionals were arranged and conducted as a group and extensive site familiarization trips were undertaken. A region-wide tour provided introduction to the physical landscape, the people living there and the resource related issues important to local land-users. A comprehensive list of consultants was developed and is available in summarized form in the Appendix B.

The third and fourth week of the field research season were used to conduct the bulk of the local interviews, to consolidate the various sources of information available, to follow up on leads and to assist each other in conducting research. Local newspapers were collected and reviewed for resource related content and the names of potential consultants, and all sources of secondary data were reviewed, copied or returned. Researchers regularly met to discuss methods and interview techniques, and to strategize approaches for ongoing data collection. Due to the international nature of the team, the opportunity was often taken to discuss the research from a cross-cultural perspective.

The final week of the research field season was used to consolidate and confirm findings. The historical overview was refined, final interviews and site visits were conducted, and a hard copy of all available information was retained, or copied where possible. During this last week, a community survey was developed and distributed. Although this survey did not add significant new information to the property rights research and is not included here, it did reaffirm existing findings and provided a useful focal point for more in-depth interviews with a wider cross section of consultants. Following all interview sessions, appreciation in both written and verbal form was extended to each consultant for participation and assistance in the research endeavors (see Appendix D).

Post Field Season

Following the research season, data were consolidated into files, reports were reviewed and the Canadian members of the research team reconvened in Winnipeg to discuss progress. All of the reported findings reflect a triangulation between recorded histories, personal interviews, literature review, government reports, statistical summaries and researcher observations. Follow-up research and report writing were carried out from Winnipeg. The findings were initially developed into a technical report (#9) and presented at the IASCP conference (International Association for the Study of Common Properties, 1996) in Berkeley, California. That report was then refined and expanded into this academic practicum.

3.2 Research Methods by Objective

1) Natural Resource Uses in the Arrow Lakes Valley

Multiple types of natural resource data (technical, statistical, observational and empirical) were collected from a number of sources, both primary and secondary. Of primary significance to the research was the "West Kootenay-Boundary Land-Use Plan," by the Commission on Resources and Environment (CORE, 1994) that had just been completed and disseminated the previous year. This broad-based land-use planning report extensively reviewed land-use profiles, multi-stakeholder interests, ecological and geo-physical landscape characteristics, resource management and valuation criteria in the West Kootenays region, and made numerous policy recommendations. Quite apart from the considerable management and decision-making information that it supplied, this report also provided a solid background in historical literature, resource histories, population dynamics and the multiple layers of land-use conflicts imbedded in the study area.

Other sources of secondary literature included current community and socio-economic profiles completed by the forestry industry in 1994, regional land-use plans and community profiles completed for the Arrow Lakes in the 1980s, and numerous articles, books and journals discussing regional capability and land-use trends following the flooding of the Columbia River system, in the late 1960s.

Thirdly, land capability and use maps were also collected. Again, because of the nature of the CORE planning process, considerable information on specific practices and activities was available in both electronic and digitally mapped form through the offices of CORE and the Ministry of Forestry. The technical content of this data was reviewed more intensively by another member of the research team, Mr. Jay Anderson (1996), for his complementary practicum research.

The local newspapers proved to be an invaluable source of "grassroots" natural resource and land-use information. Locally relevant issues were discussed on a weekly basis, with various viewpoints invariably noted and follow up references almost always provided. This local discussion allowed for a fine-tuning of the regional issues as they impacted individuals at a community level.

The fifth source of resource and land-use information came directly from consultant interviews. Local experts from the various government departments willingly participated in the surveys, provided both personal and professional insights into the land-use debates, supplied leads to other consultants, experts and citizens that they thought might be of use to us, took us on tours of their particular land-use operations, and, quite importantly, provided hard copies of the many reports available to them.

A sixth source of information came from field observations. The region was toured extensively by car, boat, off road vehicle and hiking expeditions into the surrounding areas. Activities, individuals and landscapes were noted in the field notes, with follow up visits and consultant interviews arranged as necessary.

2) *Identification of Stakeholders*

Using the CORE report as a starting point, initial categories (or strata) of land-users were identified and targeted for visits early on in the project. A preliminary site visit in May allowed for initial contact and consultation with the more prominent agencies, individuals and experts who had obvious ties to resource use in the area. This, of course, led to an ever expanding circle of leads, contacts and potential information sources, followed up on throughout the entire field season.

The identification of consultants proceeded in three simultaneous directions. First, official agencies (e.g. governmental offices, crown corporations and large resource-based industries) were approached several times to establish initial contact and arrange interview dates, to gather available information, and to solicit personal opinion. Second, resource related contacts and businesses were identified through local telephone books, newspaper articles and references from other people, and targeted for interviews. Third, random encounters were encouraged with local individuals, who were, on the whole, more than willing to talk and share their knowledge and insights.

3) *The Distribution of Decision-Making Authorities*

Semi-structured interview techniques were used, based on the survey instrument found in Appendix A. Each conversational interview evolved somewhat differently, of course, meaning that this same set of questions was refined and massaged, where needed, to fit the specific circumstances. Information was noted in the researcher field books and then later transcribed into usable text.

Throughout the research period, several policy papers became available to the research team. These were reviewed, summarized and compared to other sources (either written or otherwise). Comparative matrices (see Table 2 and Figures 3

and 4) were used with key consultants to get a ranking of historical events, as well as a view of their understanding of the events around them. These historical matrices were used to prompt further discussion.

4) Patterns of Overlap

After the field season ended, the researchers returned to their respective universities to review, summarize and discuss their findings. At this stage, triangulation of data types and sources became very important. Structurally, the historical land-use matrices provided the base line from which to proceed. These were then compared with statistically derived graphs of resource industry trends available from Statistics Canada data over the last fifty years (see Figure 6). From this comparison, a general pattern of land-use started to emerge. Each written and verbal source was then examined by its relation to these base patterns. Discrepancies were identified and reported wherever appropriate. All of the materials were then iteratively assessed for coherence and fit throughout the writing process.

To aid in clarity and to ensure accountability, initial summaries and write-ups were submitted, on an ongoing basis, to the project team responsible for supervising this research. Findings were presented and discussed monthly and then further revised as required. A technical report of findings was produced in May and presented to various audiences. Copies of this technical report were also sent to key consultants at the research location, with a request for feedback.

5) Recommendations

The ongoing discussions and presentations of this research allowed for a refining and simplification of the recommendations to their current state.

Chapter Four - Description of Research Area

This chapter includes geo-physical and socio-economic information on the study area. Patterns of resource use and land-use trends are also discussed.

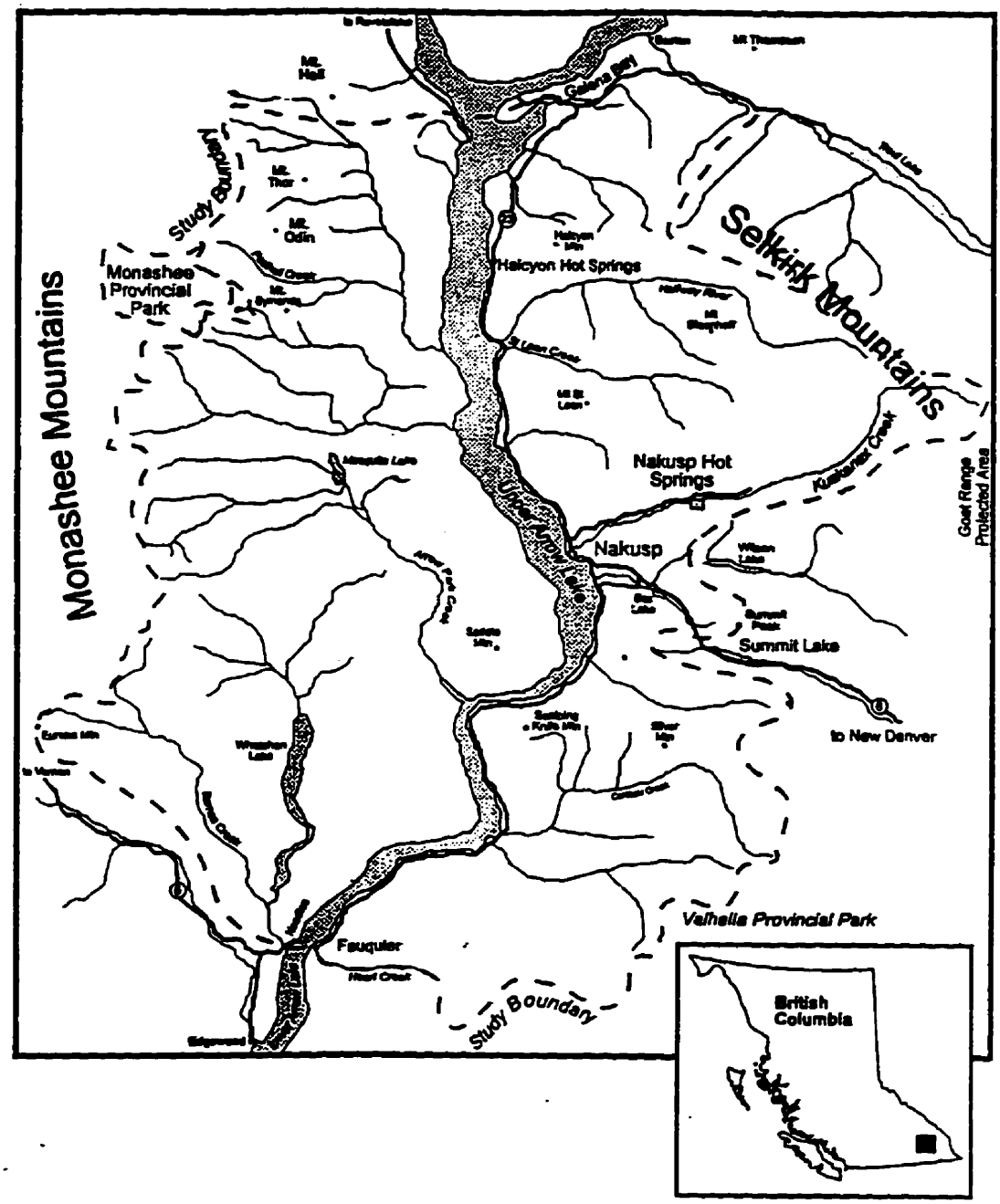
4.1 General Introduction

The study area is centered on the watersheds of Kuskanax and Wenseley Creeks and the Village of Nakusp, in the Upper Arrow Lakes Area of the Central Kootenay area of Interior British Columbia. Figure 2 is a map showing the relationship of the site to the surrounding region. The Arrow Lakes region lies between the Selkirk Mountain Range to the east and the Monashee Mountain Range to the west and is a subset of the Columbia River watershed, an area of ongoing historical, economic and hydrological importance presently being used as a primary upriver reservoir for U.S. flood control and hydro electric benefits. The Columbia River Reservoir is the central axis of the Arrow Lakes Valley which extends some 230 km. from Castlegar in the south, and about 100 km. to Revelstoke in the north. The reservoir ranges from one to two km. in width in most reaches.

Geography.

The area is a typical mountain environment characterized by vertical zonation of ecological and vegetative types. The vegetation changes from lush cedar forest to alpine tundra as the elevation increases. The topography varies from low lying, rolling hills of reasonably fertile soils near the valley bottom, to upper areas with high energy streams flowing through the heavily forested coniferous slopes of the neighboring mountains. The valley bottom elevation at Nakusp is

Figure 2: Map of Research Area



Source: Anderson, Jay. (1996)

about 440m. with the immediate valley side rising another 1500+ to peak elevations of ~2200m. At the research location on the east side of the valley, near Nakusp, the valley slopes are relatively more gentle, well forested and allow good connection to surrounding valleys. The higher Rocky Mountain Range further to the east supports small to medium sized glacier systems which act as important water sources for the Columbia River and its tributaries. As a hydro-electric reservoir, the water levels of the river system undergo a controlled fluctuation of 68 feet (~20 m.) per year (Wheeler, 1905; Wilson, 1973; CORE, 1994; MoF, 1994; Krutilla, 1967).

Climate

The climate of the area is characterized by a cool, snowy winter and a relatively warm summer. Valley level cloud cover is quite extensive throughout the winter months. The mountain topography results in considerable local and sub-regional micro-climatic variations over short distances (e.g. rain in town can quickly turn into several feet of snow a few miles down a side road). Mean annual temperature at Nakusp is approximately 7.3°C, with a mean maximum of 12.3°C and a mean minimum of 2.3°C. Mean annual precipitation is 601 mm. The distribution of precipitation is fairly constant year round, with a notable increase in precipitation days per month during the winter. Snowfall in the valley bottom at Nakusp is common from late November to early March, whereas rainfall is possible throughout the year. There is enough snowfall on the surrounding mountain tops to support a viable heliskiing operation daily, from December through to March. Vegetative growth is lush, providing the area with thick forest and extensive wildlife habitat (CORE, 1994; MoF, 1994; Wilson, 1973).

Population

The Village of Nakusp itself (pop. 1374) is located in the Regional District of Central Kootenay (RDCK: pop. 51073). The rural areas being studied roughly overlap RDCK, Subdivision A (pop. 7164), so Census Canada statistical information for these areas was reasonably combined with historical literature and historical interviews to identify population change information over time. These trends can be seen in Figure 3 and 4. Several things to note are the volatility of the local population vs. regional and provincial trends. This is accounted for by sporadic influxes of labour for short-term hydro-electric dam construction jobs in the late 1960s, high immigration during the generally prosperous 1970s, a gradual decline in residential populations in the 1980s, followed by a short growth spurt during the early 1990s mini-forestry boom (this latest growth is more regional than local).

The present population density of the immediate area of 1.1 person / km^2 is significantly lower than the BC. average of 3.7 persons / km^2. Overall, the population of the area has <u>not</u> increased very quickly and the population growth rate has been consistently lower than the growth for the province as a whole (Statistics Canada, 1961 - 1991; CORE, 1994; MoF, 1994; RDCK, 1980). No regional census data are available before the 1950s, but from qualitative sources it is known that the village started with the 1890s mining boom, grew quickly to around 1500 - 2000 people, stabilized and then gradually dropped to below 1000 people by the mid 1900s. Following a construction related growth spurt in the late 1960s, population change has been sporadic and is only recently starting to rise.

As noted earlier, the local population trends are very dependent on cyclical industrial growth. Figure 4 demonstrates quite clearly the volatility of the area population as people moved in and out of the region looking for work over the

Figure 3: Graph of Population Change

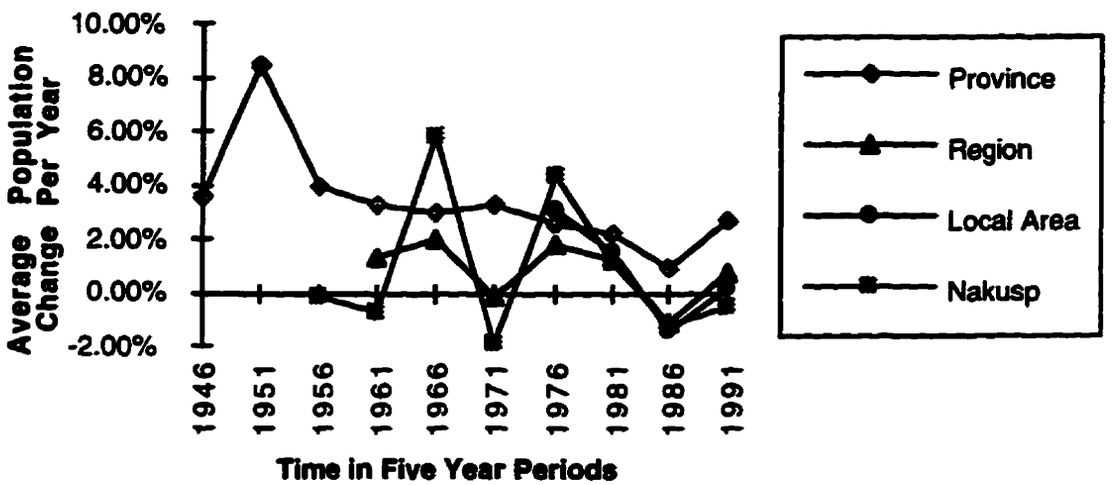
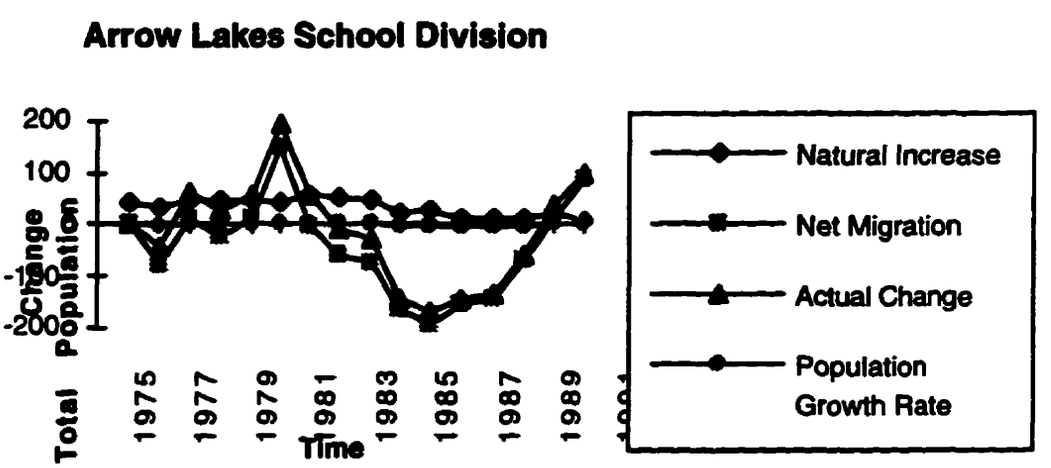


Figure 4: Detailed Graph of Population Change



last fifteen years. Net migration, for example, was high around 1980, probably related to a forestry boom. Furthermore, the mid 1980s saw out-migration of short-term resource workers as they followed jobs elsewhere, probably reflecting the bankruptcy of the local lumber mill. Another increase in migrant populations is apparent during the regional forestry surge of the early 1990s, and the local establishment of Pope and Talbot, the primary lumber mill for the neighboring Tree Farm License area. Natural population increases (relating the number of births to the number of deaths) during the same period, however, were in decline. This probably indicates that the migrant resource-based workers were not staying long enough to settle and raise families, whereas existing residential populations are getting older and not having as many children. Currently, influxes of retirees and urban refugees almost, but do not quite, balance the out-migration of younger people and traditional resource-based jobs in the area (MoF, 1994).

Economy

The Nakusp area of the Central Kootenays is a resource rich landscape with a wide range of resource users, varied land-uses and overlapping land-use jurisdictions. Historically, the local economy has been based on episodic extraction of abundant natural resources (CORE, 1994; MoF, 1994; RDCK, 1980), private land-use activities and small settlements. As an overview, Table 2 identifies major episodes of historic development, major events and / or significant factors that affected local land-use patterns. Figure 5 further demonstrates these trends in a more graphic way, showing the relative intensity of different land-uses, as they have changed over time. Both are based on a combination of personal interviews, historical trend charts and historical literature review and present qualitative land-use change information.

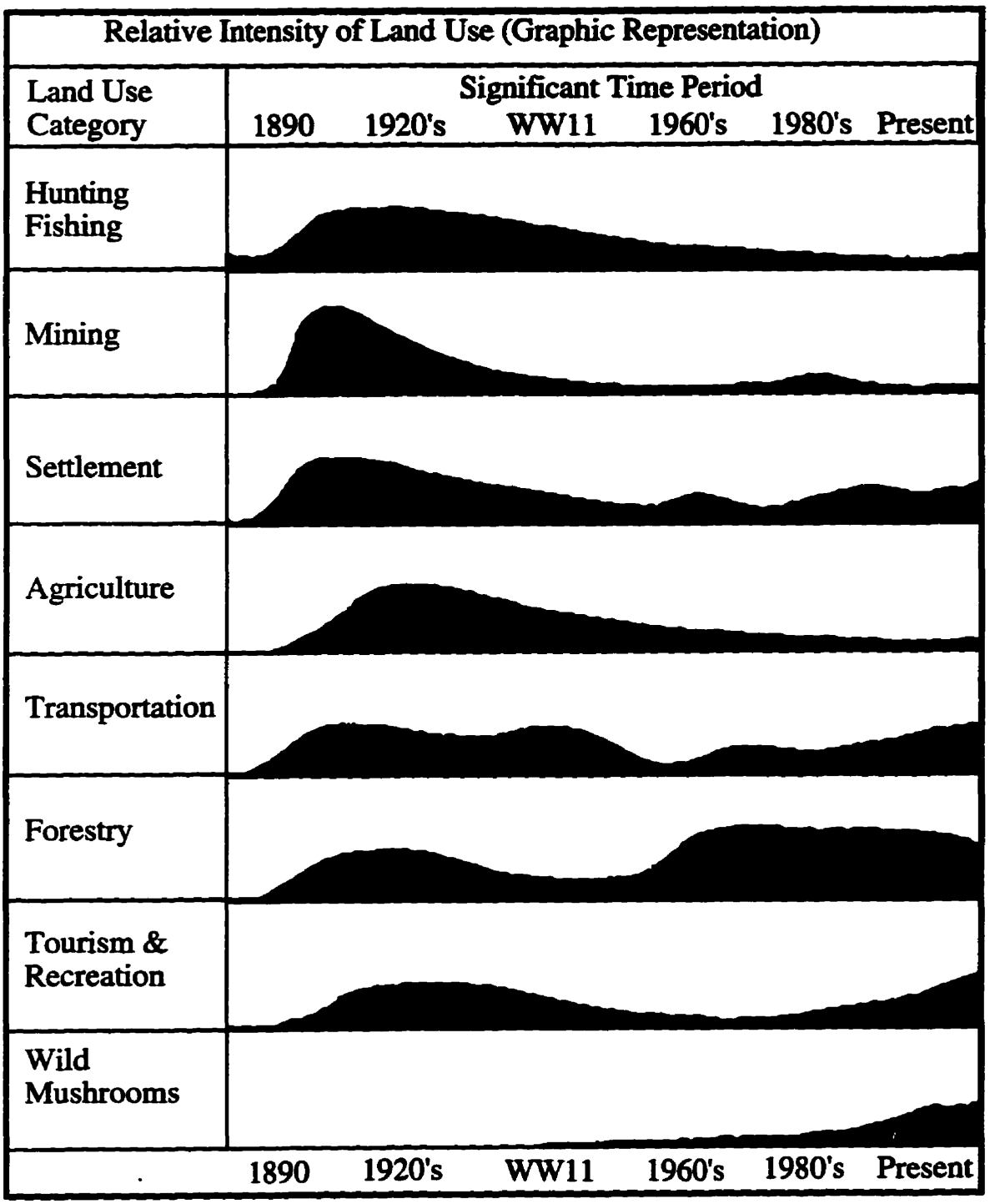
Table 2: Land-Use Overview

Land-Use Category	Significant Time Period	Major Event or Factor Influencing Land-Use
Traditional Land-Use	Pre-Colonial	Temporary usage for hunting, gathering, fishing
	"Nequ'sp""	Furs / Trade
	pre-1850s	Plague decimates population
Mining	1860s - 1930s	"Boom Town," "Frontier' Mentality
		Non-recognition of existing or past property rights
	1920	Industry collapses with drop in world price and increasing competition
	1980s - 1990s	A few local placer claims still being made (subsurface rights)
Settlement	1890 - 1920	Resource Town based on accessibility & trade, Transportation Nub
	1920 - 1950s	Episodic Development (Subsistence Economics vs. Resource Extraction)
	1964 +	Village Incorporated
	1970s	Squatters move in
	Now	Immigration of Retirees & Urban Refugees
Agriculture	1900s - 1930s	Land clearing for orcharding and farms (Private property)
	1930s+	Industry collapses with declining market access and seasonal lateness
	1950s	Subsistence economies
	Now	Farming and market gardens
Transportation	1860s	Exploration Route
	1890s - 1920s	Transportation Corridor (access by rail & boat)
	1930s - 1950s	Access by gravel roads and Steamboats, primarily
	1967+	Land appropriation, flooding and the building of new roads
Hydro	Pre 1960s	Periodic Flooding
		Negotiation of international flood control agreement
	1960s	Arrow Lakes Reservoir created and existing populations displaced & resettled (Controversial public consultation & compensation)
Forestry	1900s - 1940s	Local use for heating, building and railway ties
		Some Industry use (Poles, Matches, Shingles)
		Vast amounts of clearing and burning
	1960s+	Timber and pulp mills start and bring with them clear cuts & NSR lands
		Changing Technology and Harvesting Techniques
	Early 1990s	Evolving State Regulation & Management (Evolving Standards, practices and enforcement?)
	Now	Serious timber supply problems
Tourism Recreation	1900 - 1920s	Hot Springs, Hotels, and Steamboats have always been popular
	Mid 1900s-80s	Problems with isolation and poor access
	Now	Now catching overflow tourism (many local), attracted by high scenic beauty and peaceful atmosphere, driven by private investments
Parks		The age old question of preservation vs. conservation leads now to multiple use.
		Increasing recognition of non-consumptive land-use values and overlapping property rights.
		Public Participation increases through regional consultation and consensus driven planning processes (CORE)
	Present	Ongoing conflicts between individual, industrial and government values.
		Issues of overlapping jurisdiction and multiple use
		Evolving industrial base - forest consumption vs. protection vs. value added practices. Short-term vs. long-term values vs. jobs.
		Increased Public Participation and use of interactive Consultation Process (e.g. Community Groups, Round Tables, Multi-Stakeholder Workshops)

The original economic boom started with silver mining in the 1890s and lasted until the early 1920s. With the early mining and transportation frontier of the 1900s came a boat and bridge building industry, transportation infrastructure, some hotel and recreational activities and considerable populations of labourers, service providers and agricultural settlers. Nakusp served as a convenient transportation node for transferring ores from neighboring deposits from horseback to ship and / or rail-lines and boomed along with the mines (Barlee, 1973; CORE, 1994; Gardner, 1986). The local transportation, hospitality, and ship building industries thrived from the 1890s to the 1920s and a fledgling orchard and agricultural industry developed along the valley's fertile flood plains.

Early industries were episodic, however, and by the mid 1900s a regional depression brought the area to an economic standstill. Settlement and transportation still brought tourists, but the industrial base continued to erode. Over time, and particularly following the First World War, the local rail lines became redundant to neighboring areas, silver prices collapsed and the development of more efficient orchards and transportation routes elsewhere contributed to the area's depression (1930s to 1950s). Only local use forestry, subsistence agriculture, minor timber exports and wide-scale hunting of wildlife kept the area economy viable. Forestry use (exporting small amounts of lumber, shakes and poles) never really stopped during this period but did not boom again until the establishment of large commercial forestry facilities in the late 1960s. During the late 1960s, the Province and BC Power Authority created the Keenleyside Dam to provide downstream hydro-electric power generation and flood control. Local area residents were resettled, new transportation infrastructure built, and the region was expected to develop. This didn't happen to the extent expected (CBT, 1995; RDCK, 1980; BC Hydro, 1995), and the

Figure 5: Relative Intensity of Land-Use

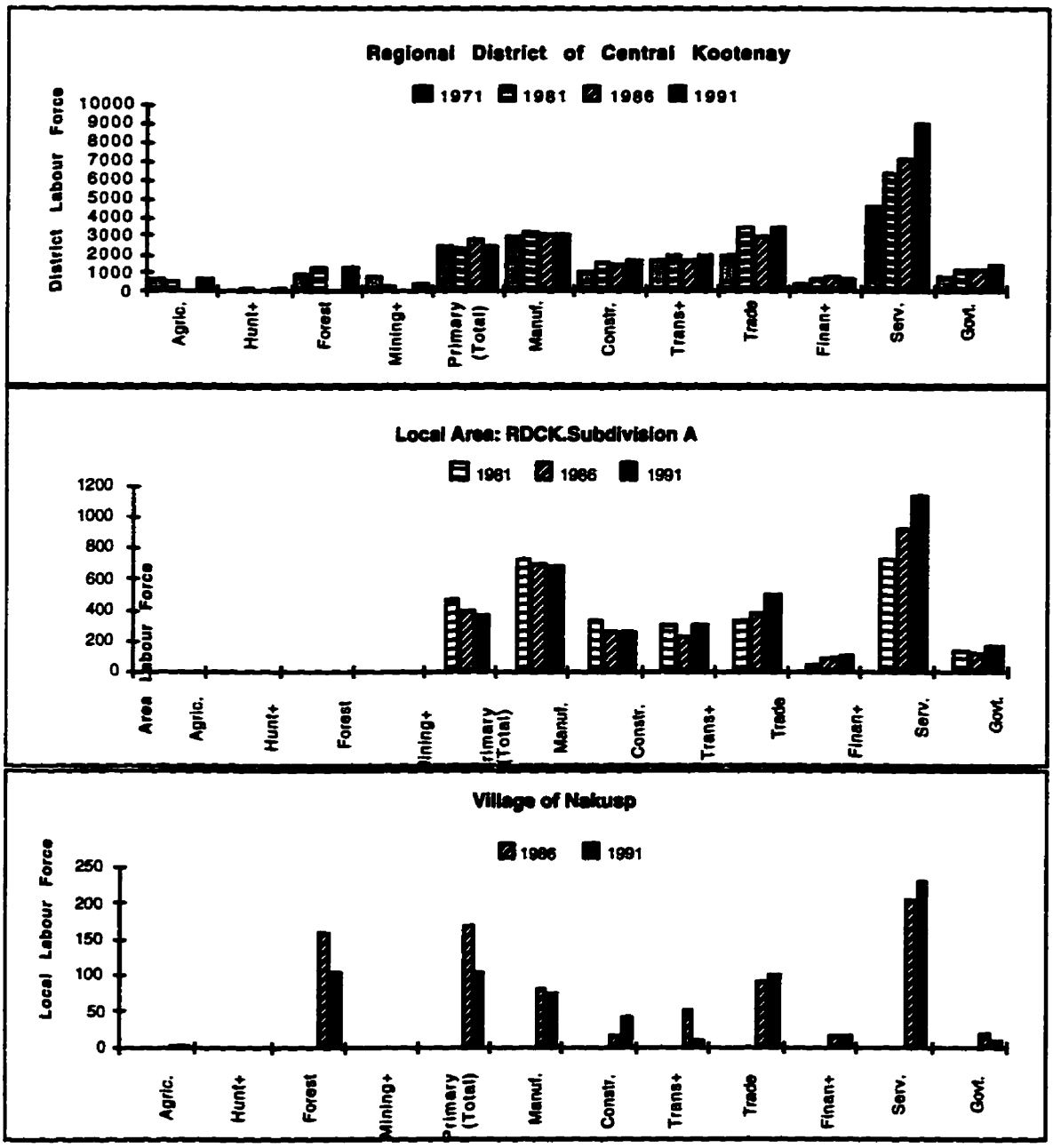


subsequent conversion of the valley from a natural river system into a storage reservoir led to considerable controversy and ongoing land-use conflicts that continue to be debated today (BC Hydro, 1995; CORE, 1994; CBT, 1995; Wilson, 1973; Waterfield, 1973).

Post 1960s saw the establishment of the ongoing commercial forestry industry. Current resource-based industries are heavily dependent on timber extraction, with only minor reliance on recreation and tourism, small-scale services, silviculture, wild mushrooms and some construction related activities (MoF, 1994; CORE, 1994). Even now, however, the forest industry itself is facing potential depression, as the timber base is being consumed more quickly than it is being regenerated (MoF, 94; TSA Review, 1994; CORE, 1994) leaving recreation, tourism and value-added forestry as potential growth industries.

Figure 6 complements these graphical representations by showing statistical changes in labour force distribution. Generally, primary industries are regionally stable but locally volatile. Whereas forestry jobs are increasing regionally, they are decreasing locally, reflecting the transience of the industry. No other primary industries are based in Nakusp. Local increases in construction and trade likely reflect an influx of retirees and settlers from other areas. The service and finance industries have not increased as significantly in Nakusp as they have on a regional or provincial basis, where they seem to concentrate in larger centres, and while government services have increased elsewhere, they too have been in decline in Nakusp.

Figure 6: Graph of Labour Force Distribution



4.2 Land-Use Overview

This section provides a more detailed look at major episodes of land and resource use.

First Nations (Pre 1890)

Prior to colonization in the 1800s, the area was used as a north-south transportation corridor for migrant aboriginal hunting and fishing groups. Apparently Nequ'sp was the name given to a large landing site at the mouth of what is now called Kuskanax Creek, where minor amounts of hunting, trapping and fishing activities took place (Bouchard, 1985). The area was connected by land to Kootenay Lakes to the east and by water to neighboring valleys to the south and north. By the mid 1800s these migrant populations were severely reduced by epidemics imported from the south (Wheeler, 1905; Bouchard, 1985). By the late 1800s, when the local gold and silver rushes started, there was apparently no noticeable aboriginal presence in the area (CORE, 1994; Bouchard, 1985; MoF, 1994; Wheeler, 1905). There are no First Nations reserves in this area nor has there been strong indication of traditional settlements since well before colonial times. There are presently three overlapping land claims on the general study area by different First Nations groups (Ktunaxa / Kinbasket, Shuswap & Okanagan) (CORE, 1994). The potential impact of these land claims is not part of this research.

Colonization And Mining (1890 - 1920)

When first Nakusp was settled by colonialists (1890s), the forest lands around it were considered vast and indestructible and provided ample supplies of timber for railways, construction, heating and fuelwood, not to mention the boat

building trade (Barlee, 1973; Mahood, 1990). As a centre for transportation and trade, ores from the surrounding silver mines were hauled overland to Nakusp, first by pack mule and then by rail (Barlee, 1973). From there, they were transferred via river boats to the processing mill in Trail BC, to the south. At this time, Nakusp was a thriving town of about 2000 people with good north - south access, inter-regional trade, an emerging agriculture industry and tourism (CORE, 1994; RDCK, 1980; MoF, 1994). The mining industry boomed, and the area settled quickly. In terms of forestry, timber harvest was inevitably close to some means of water or rail transportation and / or the forests were simply burned to the ground to ease prospector speculation (MoF, 1994; CORE, 1995; Barlee, 1973). This has present day consequences in terms of forest regrowth (MoF, 1994). Until the mid 1900s, forestry was of only minor importance to the area as a secondary industry. A considerable quantity of telephone-poles and cedar shakes and shingles were exported, but the primary forest harvest went to supplying materials for the local mining and construction industry and heat for personal need.

Orchards (1900 - Mid 1900s)

For a short time, Nakusp and the Arrow Lakes were well known for their orchards (CORE, 1994; Wilson, 1973; MoF, 1994). Many of the original settlers came to the area to set up farms. When they got there, they found fertile soils beneath the heavy forests. Following considerable clearing of valley bottom lands, a reasonable orchard industry developed by the early to mid 1900s. At one time, the fruit industry in the area was considered competitive with, if not preferable to, anywhere in BC (CORE 1994; MoF, 1994; Wilson, 1973). The climate was cooler, and the product ripened a little later than in the Okanagan to the west but apparently the quality was very good. With the advent of the east -

west railway systems from the Okanagan through the Roger's Pass to the north and the Crow's Nest Pass to the south, the industry suffered greatly. A cooler, damper climate, transportation difficulties, high costs and limited capacity to expand prevented the industry from capturing larger outside markets. Eventually the industry became viable only on a local-scale. After the low-lying orchards were flooded by the creation of Arrow Lakes Reservoir in the 1960s even this local industry collapsed. Today, only one or two local farms still operate commercially.

Subsistence Economics (Mid 1900s)

After World War One and the collapse of the silver industry economic prosperity and populations dropped in Nakusp, quickly at first but then steadily to a low of 992 in 1961 (CORE, 1994; RDCK, 1980; MoF, 1994). For a while, during W.W.II, the lakes were still used to transport troops from one area of BC to another, but by the late 1940s times were trying for the area. Ore prices were low, large-scale industry was essentially non-existent, agriculture was not thriving, less expensive transportation routes became available elsewhere and settlers (the ones who did not leave) shifted to more of a subsistence existence. To outsiders, the region was seen as being under populated and stagnant (Wilson, 1993), but to the local peoples it provided their chosen way of life. The valley offered them resources, livelihoods, natural beauty and independence, and beneath the apparent neglect of the landscape was a healthy and interactive subsistence economy that allowed diversity to prosper and thrive within private dreams. Most of all, it was a region which was permeated by social ways and standards which were not those of the urban majority of Vancouver or Victoria where decisions were made (Wilson, 1973).

The Pre-Flood Blues (1950 - 1964)

Along with the independence of the people was a minimum of formal organization. When BC Power Authority proposed the building of the Arrow (now Keenleyside) Dam and its related Arrow Lakes Reservoir, it had difficulty coming to terms with the local lifestyle. The developers strongly believed that the existing population was in the way, and should simply be relocated (Wilson, 1973; Waterfield, 1973). Since the area was clearly "uncultivated, unkempt and dotted with weathered houses of yesterday" (Wilson, 1973), there were few concerns, as the benefits of taming the Columbia River were seen to outweigh the costs. Furthermore, in a virtual catch-22, the perceived rural stagnation of the 1950s was accentuated by an artificially enhanced economic depression during the 1960s. With the newly introduced hydro-electric proposals threatening to evacuate and flood the whole region for downstream power production and flood control, no new money flowed into the valley and the economy sank even deeper (RDCK, 1980; Wilson, 1973).

Flooding of The Columbia River (1964-1971)

With no significant resource extraction opportunities, relatively poor road and rail access and no economic development activity, regional growth ground to a halt (Wilson, 1973). The burning of the last great river boat (The MINTO) in 1955, combined with the threat of converting the lake into a hydro electric storage basin, burdened the area with economic stagnation. In 1964, the Columbia River Treaty (CRT) was finally negotiated and despite considerable but ineffective local protests (Wilson, 1973; Waterfield, 1973), the Arrow Lakes section of the Columbia River System was dammed in 1969 and turned into the Upper Arrow Lakes Reservoir. What this meant, for many of the local population, was a forced uprooting and a complete re-establishment of their way of life

(CORE, 1994; CBT, 1995; Wilson, 1973). Most of the settled land was purchased or expropriated, local settlements were moved and new settlements, houses and roads had to be built. From a regional development perspective, the area did benefit from short-term immigration of hydro workers and construction jobs. Some of these people stayed, of course, but most left once the project was over. By the 1970s this local boom, too, had passed. Even today, thirty years later, there is ongoing debate over the values of creating this reservoir and many people interviewed still discuss whether it was worth the costs (CBT, 1995; BC Hydro, 1995; CORE, 1994).

Forestry (1960 - Present)

By the mid-to-late 1960s, full-scale forestry was starting in the area. The Celgar lumber mill was operating out of Castlegar, and a new era of commercial forestry had started. By the late 1960s, the forest industry had grown from the small-scale selective and railway styles of logging of the early-to-mid 1900s (Mahood, 1990), to the large-scale capital intensive and high production operations that are most common today. A new economic boom had started, salaries increased, access improved and people moved in and started to stay (MoF, 1994; CORE, 1994). For a short while, the area prospered as commercial harvesting practices were innovated, and profits soared. It was at this time that the large timber licenses (i.e. TFL's & FL's, etc.) were created to provide security of timber access to the large corporations operating lumber and pulp production facilities (MoF, 1994; Pearse, 1976; Mahood, 1990). The forest resources were still considered inexhaustible and extraction standards were lax (MoF, 1994; Mahood, 1990; CORE, 1994). Nonetheless, there was already some debate over the method, practice and management of forest resources (Valley Resource Society, 1970s). In terms of our specific study area, most of the old growth wood

in the Kuskanax watershed had already been logged or burnt by this time because of its proximity and convenience to town, but the industry simply expanded elsewhere.

For a variety of reasons, including economic pressures, changing regulations and standards and some internal inflexibility, almost all local forestry operations have recently been forced to change how they operate (MoF, 1994; Forest Renewal, 1995; CORE, 1994). Westar, for example, at one time the largest operator in BC, went bankrupt in the late 1980s and was sold to the present operator, Pope and Talbot. Today's contractors, instead of being independent, tend to be tied directly to large mills with little or no competition in price available to them. With the burden of constantly changing demands for different and expensive machinery being shifted increasingly onto them, several consultants confided that there seems to be no way to get out of debt to either the larger companies or the banks. Considering the decreasing age structure of the forests, changing environmental and social land-use requirements, harvesting difficulties and increasing concern for non-consumptive forestry and livelihood values (MoF, 1994 CORE, 1994; ARA, 1994), it appears that the forestry boom too, is starting to bust. Leaving considerable resource management and policy consequences in its wake.

Newcomers (1970s)

In the midst of the forestry boom was the local "hippie era" of the early 1970s. Large numbers of draft dodgers and other social refugees moved in and lived, or squatted, in the region. For a short while, the different cultures and economies co-existed. Traditional resource extraction industries on the one side, long established residents on another and the new "hippie culture" on the third. By the mid to late 1980s, the majority of the squatters had either moved on, or

become part of the community. The area still retains a relaxed free spirited charm, and increasingly, the economy has diversified with new populations of wealthy and / or retiring urban refugees moving in from the Okanagan and Calgary. Most recently (1990s) a significant number of German nationals started buying up river front property. If one thing can be said about this area, it is no stranger to change.

4.3 Summary

This chapter reviewed the bio-physical, economic and resource use changes that have taken place in the Upper Arrow Lakes Region of the West Kootenays, British Columbia. By comparing regional histories with personal interviews, further corroborated with secondary Statistics Canada information, a balanced and triangulated view of land-use patterns in the study area was developed. Significant periods of resource uses were discussed. The most obvious patterns show a strong history of episodic, or "frontier style" resource exploitation. As shall be seen in the next section, the physical reliance on natural resources remains, but the patterns and processes of decision-making related to them are changing.

Chapter Five - Property Rights Details

As the theory establishes, property rights research is based on the distribution of rights and responsibilities that a stakeholder, or collection of stakeholders, exhibit over a resource (Bromley, 1992; Schlager and Ostrom, 1993). Simply knowing the overall nature of a property rights regime (e.g. private property, state property, common property or non property), however, does not necessarily indicate how well, or poorly, a resource is actually managed. It is the recognition that different property rights holders (be they authorized users, claimants, proprietors or owners) value different and often opposing aspects of a resource (depending on their own combination of social, economic, or environmental preferences) that is important. Rights-based management, therefore, becomes as much about the distribution of decision-makers as about the decisions they each make. A detailed analysis of the distribution of individual property rights characteristics guides decision-making by identifying the benefit streams that each stakeholder taps into (i.e. are their values derived from economics, ethics or the environment). In British Columbia today, increasing articulation of multiple and overlapping land-use values is polarizing stakeholders, burdening users with conflict and changing the distribution of decision-making over natural resources in the province (CORE, 1994; CBT, 1995; MoF, 1994; Forest Renewal, 1995).

The following section presents the general types of land and natural resource uses located in the study area, and articulates the distribution of detailed property rights characteristics for each. Table 3 highlights details of forest resources and forestry-based decision-making processes (i.e. Forest Licenses, Tree Farm Licenses, Woodlot Licenses, the Small Business Forest Enterprise Program plus permits for local level activities such as firewood collection, Christmas tree cutting as well as minor roadside recreation areas). Table 4 covers regional-scale land-

uses and decision-making processes such as land-use planning, mining, wildlife management, agricultural lands, some economic development initiatives and the hydro-electric reservoir. Table 5 concentrates on more local level uses such as local hotsprings, settlement considerations, the local wild mushroom harvest and a local heliskiing operation. The natural resource management implications from this property rights and land-use information are also discussed.

5.1 (a) Crown Forests: Stakeholders

Forestry practices are the single largest concern for the local landusers in the Arrow Lakes Region (MoF, 1994; CORE, 1994; Arrow Lakes News, 1995 - 1996; Personal Observation). Forest practices are supervised by the Ministry of Forests (MoF) who administer the state legislation and are ultimately responsible for the management and alienation of all crown owned forest lands. These lands are managed under area-based Timber Supply Areas (TSA's), company run Tree Farm Licenses (TFL's), volume-based Forest Licenses (FL), privately owned Woodlots (WL), Small Business Forest Enterprise [Employment Training] Program (SBFEP) and general use permits (see Figure 7 for a more detailed map of area-based tenures in the study area). Smaller scale forestry on private lands is not regulated. Generally speaking, there are two major groups of timber-based forest users: large forest companies that require high volumes of forest products for the operation of their mills and processing facilities (FL & TFL), and smaller, local level forest users and companies (SBFEP, WL) that operate small operations or contract out to larger companies. Individual uses of the forest products are limited to minor cutting rights for firewood, Christmas trees, etc., through the granting of temporary permits.

Table 3: Forestry Property Rights

Resource Type	Stakeholder Group	Access	Use & Withdrawal	Management / Rule Making	Exclusion	Alienation
Forest License						
	MoF*	√	√	√	√	√
	Forest Company	√	√	@	@	x
	Contractors	√	√	x	x	x
	Employees	√	√	x	x	x
	Community Groups	√	x	§	@	x
	Local Users	√	x	@	§	x
Tree Farm License						
	MoF*	√	√	√	√	√
	Forest Company	√	√	@	@	@
	Contractors	√	√	x	x	x
	Employees	√	√	x	x	x
	Community Groups	√	x	§	@	x
	Local Users	√	x	@	§	x
Small Business Forest Enterprise Program						
	MoF*	√	√	√	√	√
	Local Users	√	√	@	@	x
Woodlot License						
	Private Lots	√	√	√	√	√
	MoF*	√	√	@	@	x
Permits: Cutting, Firewood, Christmas Trees +						
	MoF*	√	√	√	√	√
	Local Users	√	√	x	x	x
Grazing and Hay Permits						
	MoF*	√	√	√	√	√
	Local Users	√	√	x	x	x
Recreation						
	MoF*	√	√	√	√	√
	Local Users	√	√	§	x	x
	Community Groups	√	x	§	x	x

Legend	
√	Clearly Articulated Rights
@	Shared Legal Rights (*de jure*)
§	Customary Rights (*de facto*) Only
x	No Articulated Rights

Property Right Characteristics	
Access	• The rights to enter a defined physical property.
Withdrawal	• The right to obtain the 'products' of a resource.
Management	• The right to regulate use patterns and transform the resource by making improvements.
Exclusion	• The right to determine who will have access rights, and how that right may be used.
Alienation	• The right to sell or lease other rights (Transferability).

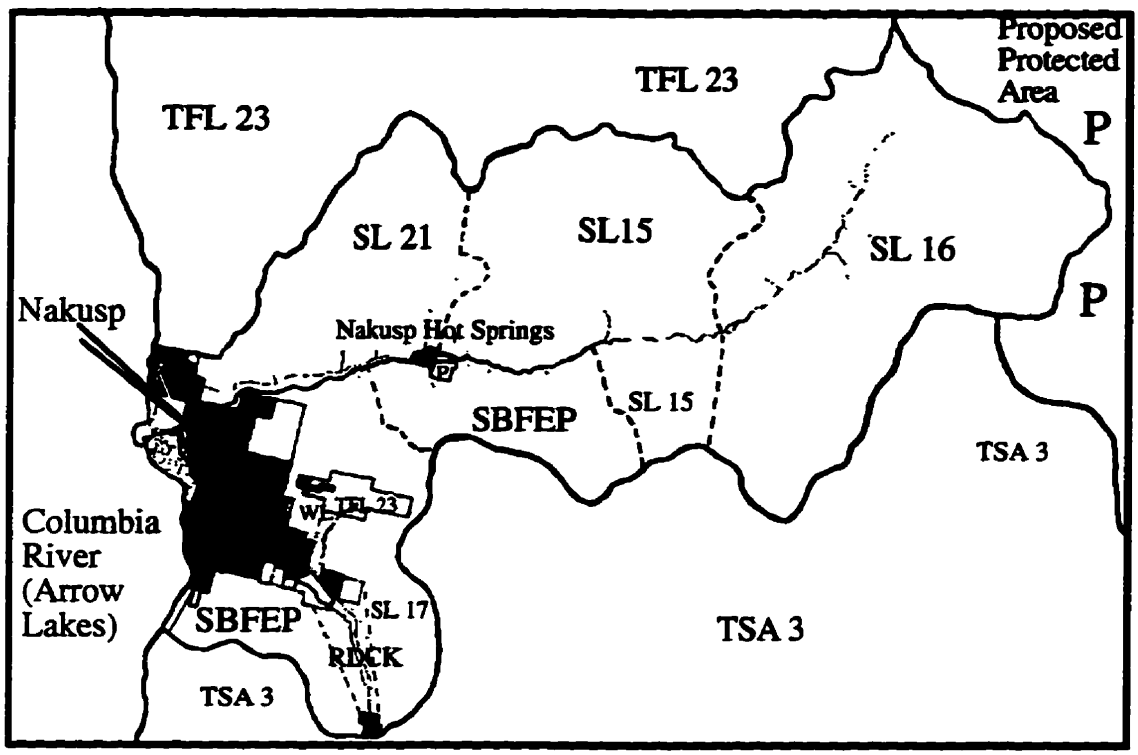
*NB: Many researchers would not consider a government agency as a stakeholder group. Please refer to the discussion in Section 1.3: Terminology, in Chapter One.

Forest License (FL)

A Forest License (FL) is a long-term volume-based tenure giving a specific company access and use of crown forested lands within a regional Timber Supply Area (TSA). The Kuskanax Creek study area lies in the Arrow TSA #3, which is managed by the MoF out of Castlegar, Nelson and a division office in Nakusp. The stakeholders in the FL areas include the MoF, the forest company (in this case, Slocan Forest Products), contractors and employees, environmental lobby groups and local land-users and area residents. Generally, the 'public' has an individual right to access crown land but they simply can not take anything out of it (no rights of withdrawal). Provincial legislation requires come degree of public participation in most forest management decisions but seems to classify most non-commercial or non-government involvement indiscriminately as the same 'public,' resulting in complex academic debates between special interest groups vs. 'legitimate' stakeholder recognition and involvement. This practicum groups classes of stakeholders by the type and the scale of their actual participation, either legalistically (*de jure*) or through practice (*de facto*).

In a Forest License, the forest company (Slocan Forest Products) negotiates use and withdrawal rights from the government to a specified volume of a certain tree species, over a limited period of time and location. Areas SL15, SL16, SL17, SL21 on Figure 7 are all licensed to Slocan Forest Products, located 50 km. to the South East, for supplying raw timber for production of soft wood dimensional lumber. This type of license is for a maximum of 20 years and defines the volume, type and methods of timber operation required. Since a FL is inevitably associated with a processing facility, it also tends to be large in extent. In the study area over 85% of the land base falls under this form of tenure. All other consumptive uses of trees are excluded by the crown (exclusion and alienation).

Figure 7: Detailed Map of Area-Based Tenures



LEGEND

Private Property
- Shaded (Including Municipality)

Forested Lands
- Tree Farm Licenses (TFL 23)
- Forest Licenses (SL 15, 16, 17, 21)
- Woodlot Licenses (WL)
- Small Business Forest Enterprise Program (SBFEP)
- Parks (P)

Regional District of Central Kootenay (RDCK)

Columbia River

In terms of management, the licensee must follow detailed use rules established by the crown (usually determined with input from other stakeholders at a regional level) with some input by the company (operational and management plans). These rules are legally binding and are intended to allow commercial harvesting to take place with limited environmental impacts for the duration of the license.

Local community groups have been quite vocal in their objections to historic forest practices and lobby the government extensively to apply and monitor a higher standard of commercial forest practice. The term 'lobby' is used as these groups do not consume resources (withdrawal) and ultimately have no direct say in the creation and application of management rules (management). They do, however, have potential clout in monitoring the application of these rules and acquiring rights to exclude certain areas from logging (exclusion and *de facto* management). These groups have been instrumental, for example, in creating the political climate for the establishment of the nearby Valhalla Provincial Park and the recently proposed Goat Range (White Grizzly) Protected Area located along the east boundary of the study area.

Employees and contractors are strictly users of the land in that they have no rights to make decisions over management, exclusion or alienation other than that dictated by the government or the company. Local users and municipalities do have local interests in these forests for small-scale consumptive and non-consumptive uses such as firewood, wildlife, and scenery values, as well as economic stability (jobs); but again, they are simply lobbyists with no identifiable rights of withdrawal and have no decision authority over management, exclusion or alienation unless they are directly affected by forest use decisions.

The government's role in all of this is to administer provincial forestry legislation. Many of the above mentioned rights are articulated in the recently enacted British Columbia Forest Practices Code (FPC), a Provincial Act that

recognizes some non-consumptive forest values such as recreation, visual qualities, cultural heritage and forest health (FPC, 1994) when making forest management decisions. These are each explicitly detailed in the regulations and guidelines and are reviewed by the companies, the MoF, and other stakeholders through open houses. If, through these reviews, concerns are brought up in writing, then the proponents must address them in some way and thus they may impact forest practices by requiring the proponent to alter which management requirements that it applies. During the late winter months, the local newspapers contain numerous announcements for public viewing of proposed forest development plans, silviculture prescriptions and different forms of management and operational plans throughout the area. At this stage, public viewing is for compliance, information dissemination and conflict avoidance and not rule-making or enforcement. Public participants only have actual rights for input into use (or disuse) of certain standards of practices if they are directly impacted by a harvesting proposal or are explicitly recognized within the legislation. Ultimately, the responsibility over decision-making is still held by the MoF and is articulated through the contracts negotiated with each company.

Tree Farm License (TFL)

Tree Farm Licenses (TFL) are slightly different from Forest Licenses as the company (in this case Pope and Talbot) has a more general authority over the land itself. A Tree Farm License is a long-term (25 year) area-based tenure for the management and utilization of crown timber outside of a TSA and can contain privately owned lands. Like a forest license, a TFL is designed for larger companies with processing facilities which must follow the same management rules as other forest users (directed by the FPC). In this case, however, they do have increased rights to exclude others from using the lands under their license, have more flexibility in operational area and, being area-based, retain more

security in land base. A TFL is still state property as the crown retains final decision authority over all rights, and both management and operational plans must still be approved through the MoF. The area in question is small in this study but is very extensive throughout the rest of the Arrow Lakes region.

Recently, local contractors went on strike against the area-based licensee (Pope and Talbot). Their issue was over how the costs of forest use and withdrawal are distributed, as they were not getting enough work to pay for their equipment costs. Although they may or may not disagree with other considerations of the new Forest Practices Code they took exception to being required to carry the burden of the changing infrastructure and equipment costs of implementing these new rules (Personal Interviews). Since there was little work for them during the year of this research (because of a surplus of stock imported that winter from Alberta) and there were high costs associated with upgrading equipment to meet rapidly changing forestry standards, the strike became an expression of their rights of use (with compensation) and was not associated with rule-making or management authority. Community, contractor, employee and local government rights are the same as in a Forest License.

Small Business Forest Enterprise Program (SBFEP)

Other uses of crown forests are at a more local-scale. Through the Small Business Forest Enterprise Program (SBFEP), the crown has established a system of supporting local level use of crown forests. This is an education and employment training program negotiated between the state and individual local companies to apply various degrees of forest management responsibility in their operations. The SBFEP is a short-term, volume-based license designed to provide opportunity for small companies to enter into forestry without the burden of long-term planning, reforestation and management requirements. Silviculture and management planning are provided by the Ministry of Forests (MoF). So too is

some degree of job training (the province's goal is to manage as much as 12-25% of the TSA under this initiative; MoF, 1994). Each negotiation is tailored to the individual capacity for land-use management exhibited by each company (individualized withdrawal and management). No collective negotiations, agreements or shared decision-making institutions were evident, and the MoF retains all rights and responsibilities for forest management, exclusion and alienation. The government simply distributes the costs and benefits of forest use and withdrawal on an individual basis, to individual land-users. All standards of forest use, as laid out by the Forest Practices Code including recognition of non-timber values, must be adhered to.

Woodlot License (WL)

The structure of the Woodlot License Program is exactly the opposite of the SBFEP. Private woodlots are private property that are, generally, not required to comply with state forestry regulations. Being private, individual land-use management and practices vary considerably from case to case, and since the Forest Practices Code does not apply to private lands, other land-users and groups have no legal authority over private land-use. In Woodlot Licenses therefore, the government gives incentives for the local woodlot owners to apply crown management requirements on their private woodlots by making crown lands available for private consumption if these private woodlot owners apply government standards and rules to their own lands. In this way, the state increases its management and exclusion authority over private land and the private woodlot owners profit from having more harvestable land available to them. Considering economies of scale, many small-scale operators appeared to appreciate having access to more wood in this fashion even if it does limit their individual freedom for rule-making. Opponents to forest logging point out an

apparent increase in deforestation on private forested lands over the last ten years. No Woodlot Association or other collective management institutions were found in the study area.

Permits, Grazing and Recreation

The MoF is also responsible for incidental permits for local use of crown forest lands for such things as firewood collection and cutting Christmas trees. These permits are strictly a means for the state to allow small-scale use of crown forests in an organized fashion that does not conflict with other users. Access to forested crown lands are generally open but a permit or license is required to cut just about anything.

In addition to supervising all of the above, the MoF is also responsible for grazing and hay rights on public lands. These rights are given to private individuals by the MoF to use state land for private ranching purposes. Use of the land for grazing and hay is of only minor importance in this area and is distributed like any other user permit on crown land.

Since the MoF is also responsible for recreation sites on crown lands, several local trails and picnic locations near the Kuskanax Creek are maintained by the MoF (e.g. Mount Jordan, Kimbol Lake and the Wenseley Creek rest sites). Anybody has the right to access these crown lands for non-consumptive recreation purposes, but no one has withdrawal rights. Other recreational opportunities, such as mountain biking, hiking and bird watching, are quite popular in the area. These recreation activities are fairly low key and do not require permits. Local community groups do promote 'safe use' rules and standards of conduct for recreational users. These are self-imposed and generally only socially enforceable. If a problem does occur, the crown may be asked to intervene by writing or enforcing a regulation.

Other Stakeholders

Other stakeholders in forestry operations include the federal government, who wants to have some say in land-use practices with only limited physical claim to resources in BC, per se. The federal government promotes its own values through the provision of money for environmental enhancement programs such as the Canada - British Columbia Partnership Agreement on Forest Resource Development (e.g. $300 million has been provided over the past five years, and $200 million is being provided over the next four - FDRA II). This money is made available to improve silviculture practices in the province and to decrease the backlog of Not Sufficiently Restocked (NSR) lands. The money goes toward stand tending, re-planting NSR lands, supporting better management and silviculture practices and identifying new or value-added forestry products and markets. This initiative recognizes that future timber harvests are expected to be less than past harvests (MoF, 1994; MoF, 1991) and implies, of course, that traditional property rights regimes have inadequately valued environmental management and reforestation practices in the past. It is important to note that the intent of this initiative is to support improved forest management and contribute to incremental wood supply (through silviculture) and <u>not</u> to displace the obligation of the landowner for long-term basic forest management (MoF, 1991). Essentially, the federal government is <u>buying</u> its way into historically inadequate <u>management rights</u>. Although no direct property rights are associated with this plan, standards of practice are, meaning that this project-based money directs the application of individualized management rights by targeting the stream of benefits associated with resource use itself.

5.1 (b) Crown Forests: Management Implications

Quite obviously, the interactions among stakeholder claims to forest resources are complex, and stakeholder values varied. The companies consume 'timber products' for profit and market share; the employees and contractors clamor for jobs to support their families and lifestyles, the federal government tries to buy into the industry for national export and stability reasons, the environmental lobbyists try to protect non-market and non-consumptive forest values and the province tries to balance all of these demands, along with tourism, watershed management, infrastructure and community development. One of the province's most powerful tools to manage these values is the new Forest Practices Code (FPC) guidelines to forest management.

The Forest Practices Code (FPC) is essentially a complex rule book. From an academic point of view, the FPC approaches property rights through increased legislation, detailed rule-making and explicit legitimization of recognized land-users. The emphasis is on the first three types of property rights, namely access, withdrawal and management. Because certain multiple use values, such as non-consumptive forest uses, recreation, visual qualities, cultural heritage and forest health are (recently) articulated and included in the new forestry legislation, the effect is that a wider range of individual user values are now being considered in operational forestry management decision-making. Generally speaking, the FPC regulations and guidelines increase the legitimacy of traditionally ignored non-consumptive land-use values through their explicit recognition and inclusion in the body of the 'rules' itself. The legislation is detailed, distinctive, and, although somewhat cumbersome, is based on articulating the rights and responsibilities of usage, as opposed to ownership.

Apparently, actual harvesting and silviculture practices have, in fact, been improving in this region since the late 1980s and early 1990s but have never been legally enforced (MoF, 1994; MoE, 1995; Personal Interviews). The FPC does not so much create new standards, then, but attempts to put these known and existing improvements into law and makes them available for all operations to follow. The intention is to create a set of standards and guidelines that is clear and applicable to everyone, irrespective of ownership, with an emphasis on rights and responsibilities of access, use and management as opposed to exclusion through ownership or alienation. The FPC is seen to legitimize social and environmental concerns over forest practices of the past and is generally accepted as an inevitable and useful, if overtly complicated tool for implementing management standards into modern day practice. A common consultant comment was that the FPC did not in fact create new standards but simply consolidated existing practices into commonly applicable rules.

5.2 (a) Regional Land-Use Planning: Stakeholders

Although the FPC is the most recent and explicit articulator of forest resource property rights, it only has authority over forestry on crown lands. The Commission on Resources and the Environment (CORE) on the other hand, is more regional in scope. The CORE was a recent regional-scale planning and land-use allocation process designed to integrate multiple values and a wide number of stakeholders and land-users into planning and decision-making over the whole West Kootenays area. As a process for dealing with land-use conflict, CORE involved eighteen months of public round-table discussions between 1992 and 1994 and tried to bring consensus and direction to regional land-use allocations. It essentially deals with the property rights of alienation and

Table 4: Regional Property Rights

Resource Type	Stakeholder Group	Access	Use & Withdrawal	Management / Rule Making	Exclusion	Alienation
Land-Use Planning (CORE)						
	MoELP*	√	√	√	√	√
	Stakeholders	√	x	x	@	@
	Local Users	√	x	x	x	x
Wildlife	MoELP*	√	√	√	√	√
	MoF*	√	x	§	§	x
	Trap Lines	√	√	@	x	x
	Local Users	√	√	x	x	x
	Wildlife Society	√	x	§	x	x
Columbia River						
	BC Hydro	√	√	√	√	√
	USA	√	√	√	√	@
	Local Govt.*	√	x	x	x	x
	Local Users	√	x	x	x	x
Mining	MoEMPR*	√	√	√	√	√
	MoELP*	x	x	@	@	√
	Local Govt.*	x	x	x	x	x
	Private Users	√	√	@	@	@
Agriculture	Farmers	√	√	√	@	√
	MoELP*	√	√	x	@	x
	Local Govt.*	x	x	@	@	x
Water Rights (Kuskanax Creek)						
	MoELP*	√	√	√	√	√
	Local Users	√	√	x	@	x
Economic Development Initiatives		x	x	@	x	x

Legend	
√	Clearly Articulated Rights
@	Shared Legal Rights (*de jure*)
§	Customary Rights (*de facto*) Only
x	No Articulated Rights

Property Right Characteristics	
Access	• The rights to enter a defined physical property.
Withdrawal	• The right to obtain the 'products' of a resource.
Management	• The right to regulate use patterns and transform the resource by making improvements.
Exclusion	• The right to determine who will have access rights, and how that right may be used.
Alienation	• The right to sell or lease other rights (Transferability).

*NB: Many researchers would not consider a government agency as a stakeholder group. Please refer to the discussion in Section 1.3: Terminology, in Chapter One.

exclusion, as opposed to use, access and management. Participants included resource users, companies, environmental groups, local governments and individuals (see Appendix C).

Commission on Resources and the Environment (CORE)

The round table process used by CORE involved the major stakeholders discussing land designations from a consensus perspective and the government acting, not as decision makers, but as facilitators providing information and support (shared authority over exclusion and alienation). This was unique to the province and for a year and a half the delegates hashed out land-use designations before finally presenting their solutions to the government department in charge, in late 1994. Unfortunately the group did not quite reach consensus on all matters before they had to submit their recommendations. Later, when the government produced its final plan it contained changes to the original consensus-based recommendation. These revisions, of course, were seen to point out the "failure" of the plan, and brought up numerous questions about both the integrity of the decisions and the commitment of the state to the process itself. Effectively the short circuited consensus-based process opened itself up to mudslinging and further polarization over regional land issues. Despite all of this, the strength of the CORE was in introducing a process and direction for regional planning and land-use allocation during a time of serious conflict between stakeholders.

To be fair, the local CORE process did actually succeed (to a certain extent) in re-partitioning the West Kootenays Region into land-use strata (or zones) - each deemed appropriate for different levels and types of resource use (exclusion & alienation). These zones ranged from fully protected parks that disallowed any consumptive land-uses through varying degrees of special and dedicated

management zones that required some degree of extra care, to integrated resource management zones that continued to allow traditional resource extraction developments pretty much as is (CORE, 1994). Although none of these zones fell within the immediate study area, the proposed Goat Range Protected Area is located adjacent to the study area to the east (see Figure 7).

Overall, CORE demonstrated shared decision authority over the broad property rights categories of exclusion and alienation but not the specifics of access, use and rule-making. Those were addressed more explicitly by the FPC. Since decisions over management and withdrawal were not under the mandate of CORE, existing negotiations among participants were apparently incomplete and effectively dropped when the consensus process was changed to an adjudicatory one. At present, nobody appears to know how the individual zones will actually differ in management criteria from each other or what, if any, land-use rules will be applied either through CORE or through the FPC. Both of these initiatives will definitely have an effect on forestry operations, however, as forest lands are re-assigned to other, non-forestry, uses.

Regional District of Central Kootenay (RDCK)

Outside of the FPC and CORE, there are numerous other regional-scale resource-based land-uses in the area. The Regional District of Central Kootenay (RDCK) plays a small role in the more settled parts of the study area, mostly near the reservoir itself. This planning jurisdiction is limited to zoning and providing building permits, protection from environmental hazards such as forest fires and runoff, managing the Agricultural Land Reserve (ALR) and overseeing industrial developments and/or log boom grounds and their associated landing areas (the latter are located close to the reservoir but are mostly outside of the study area). There is some talk of making a blanket designation of Forest Land Reserves

(comparable to Agricultural Land Reserves - see discussion latter in this section) for all regional district forest lands on both crown and private forested properties, but this has not yet been done.

Environmental Protection

From a regional perspective, well organized environmental and social organizations are adding pressures to the land-use debate. A very strong and highly focused environmental lobby group exists in a nearby valley. These organizations tend not to hold property rights outright, but, in combination with other provincial, national and international environmental pressure groups, they have had effective impact on regional-scale land-use initiatives such as FPC and CORE. Their input has extended to the point where large areas of nearby forests have been alienated from existing timber tenures and reassigned to parks. The recent protection of the Goat Range (White Grizzly) Area immediately adjacent to the study area is a prime example.

The goal of these organizations is to motivate the government to provide exclusive environmental protection to specific forested areas for wildlife and habitat protection (Valhalla Society, 1995). Their influence has been considerable and has resulted in an increased inclusion of environmental values in resource management decision-making province wide (e.g. wilderness protection standards in parks, forestry regulations such as FPC and regional planning processes such as CORE). Although they might not be successful in protecting every specific habitat that they lobby for, they have been successful in influencing environmental policy and are a strong voice that is being listened to.

Ministry of Environment, Lands and Parks (MoELP)

Even though it often occupies the same physical landscape as the Ministry of Forests, the Ministry of Environment, Lands and Parks (MoELP) is uniquely responsible for managing the fish, wildlife, parks and water resources in the area. Fishing in the Kuskanax Creek is limited to upstream of the falls located one kilometer above Gardner Creek (just below the hotsprings in Figures 2 and 7). This spatial limit is intended to protect areas of downstream spawning habitat. Fishing licenses are granted for limited withdrawal of all species over a designated time period (by the day, the week or the year) in a defined area, and serve to track pressures on fish harvest. They are not transferable and decision-making is held by the State.

The hunting season is monitored and regulated but applies no special limitations to this area. Hunting permits are individually bought by private users to allow the withdrawal of a limited number (bag limit) of a certain animal species (e.g. elk, deer, moose, bear, grouse and cougar) from a specific area over a set period of time (usually during the fall or winter months only). The government controls the number and content of these permits, based on species population trends and regional wildlife management strategies. Local level input into definition and management of these resources has been attempted by community conservation and wildlife groups but has not been successful. Ultimately, use, management, exclusion and alienation rights sit firmly in the hands of the MoELP (Wildlife Act). Since wildlife habitat and forested lands overlap extensively, the MoF may be consulted if land-use decisions affect forestry operations.

From a local perspective, even though the right to hunt is considered to be an individual right of access and use, the responsibility for management remains with the government. This polarization leads to management difficulties. Even though effort is sometimes made to soften the boundary between ownership and

management through public education and presentations, for example, very rarely is any actual management decision authority devolved. The result is that when an animal, such as a bear, wanders out of the forest (provincial jurisdiction) into the town (private or municipal jurisdiction) looking for food, as happened during the spring of 1996, only extreme solutions seem to be considered; either the province is called in to remove the animal (management by state) or it will get shot (management by citizens). If any damage has been done, then the burden of responsibility is aimed towards the provincial conservation officers for allowing their wild animals to endanger private property.

There are two registered traplines running through the study area. Trappers are licensed to access and withdraw wildlife species within their designated areas. They have no rights to restrict other users authorized by the government (no exclusion rights), and licenses are only transferable with permission from the licensee (limited alienation rights). Recently, however, since these users are now explicitly recognized in government forestry legislation, they may be allowed input into some management and exclusion decisions if they express (during public open houses) that their traplines are directly impacted by forestry operations.

Water Rights

Water rights present a slightly different scenario. Water rights are licensed by the MoELP on a first-use basis. Individuals are given a license to access and withdraw a certain amount of water from a defined area for a specific purpose. The MoELP retains the right to exclude all other users, but also promotes shared use and mediates disputes between users. Once the license is given (alienated) the government may not take it away without cause. In other words, an incomplete set of alienation rights is now held privately.

Water management decisions are based on water availability, the number and type of conflicts between users, available information and provincial and federal legislation to protect fish and fish habitat. If a licensee's use of the water creates damage to fish or fish habitat, for example, the crown has the right to apply its management rules and / or to exclude other uses. No immediate water license issues were raised by consultants but it became apparent that a potentially significant concern included the maintenance and monitoring of the Kuskanax Creek watershed (as Nakusp's alternative water supply during low water years). Other issues involved the watershed's carrying capacity for future residential development, maintenance and upgrading of local sewage treatment and the proximity of a proposed regional landfill site to the creek itself.

Columbia River Reservoir

A special case must be made for the water rights associated with the Columbia River Reservoir. In this case, the government has clearly retained all authority over its use, management, exclusion and alienation. By making this river into a reservoir the government demonstrated these rights in full. For example, in the late 1960s local people were required to physically remove themselves from their homes (with what many claim was inadequate compensation) and relocate in other parts of the valley. Despite the fact that local users have access to the reservoir they retain no authority over use, management, exclusion or alienation of the reservoir, and are clearly concerned that the now sixty eight foot annual vertical fluctuation in water level negatively affects shoreline stability, accessibility, visual appeal and environmental health. The international Columbia River Treaty, negotiated thirty years earlier, clearly gives withdrawal rights to downstream users for flood control and hydro-electric power generation. The social consequences of these actions are still being felt in water rights negotiations and dealing with BC Hydro today.

Economic Development Initiatives

An interesting side effect of the Columbia River Treaty negotiations is the Columbia Basin Trust, a less dramatic but potentially important player in practical land-use decisions in the valley. In 1997, the current downstream benefits agreement with Bonneville Power Corp. in the USA will be revised and some of the economic benefits to downstream users are to be repatriated back to the Province of BC. A total of 72 million dollars of these benefits are expected to be distributed through the Columbia Basin Trust over the next decade. This then becomes an economic development initiative that directs regional money toward individual and local land-uses.

The Columbia Basin Trust was formed as an amalgamation of local municipal interests to lobby the province for economic development funding from repatriated Columbia River Benefits. Their claim was that economic benefits had been extracted from the regional land base following past hydro-electric development initiatives and that "the impacts in the Columbia Basin [from these past developments] far outweigh the benefits the regions received" (CBT, 1995). It is past time, they said, for some of these benefits to be redirected back into the local economy, towards local residents (CBT, 1995). Their success in capturing these benefits in the form of the Columbia Basin Trust Fund was based on concerted cooperative lobbying of the province as a group (Arrow Lakes News). The projects that they sponsor will operate on a local level. There is considerable debate over how the benefits from downstream uses are to be actually re-distributed locally by the communities and peoples bordering on the reservoir. With historically poor recognition of local values and property rights, skepticism about equity issues is still apparent (Personal Interviews).

Agricultural Lands

Agricultural lands in the study area are privately owned. This means that private rights rather than state regulations apply to their use and management, and the individual land owners are quite free to do what they want (within legal health and safety limits, of course). There is one glaring exception. In BC, most of the arable lands have been designated into the Agricultural Land Reserve (ALR), based on soil capability. All of the agricultural lands in the study area fall within this category. In order to protect these lands from competing uses (e.g. settlement, industry or transportation) the province has designated almost all of British Columbia's high quality farm lands as ALR. What this means is that agricultural lands may not be easily subdivided or differently used without first being withdrawn from the ALR. The private land owners still retain alienation rights in that they may freely sell the land, but they are not permitted to subdivide it or sell it as building lots (i.e. they have lost part of their exclusion and alienation rights). In other words, although commercial agriculture is not generally considered viable in the study area (Personal Interviews), most existing farms and open areas will likely stay that way, as farms, for the above reasons. The fact that much of the valley's settleable land had been earlier expropriated by the province and is now under water makes this a contentious issue for many local people.

Mining

Mine claims do exist but are presently of only negligible importance in the study area. The Slocan area to the south-east is well known for lead and silver mines, gold is found to the north (and somewhat to the south) and a graphite deposit was recently found nearby (1980s). No major mining claims are presently operating in the study area. Some small-scale placer claims appear to exist near the mouth of the Kuskanax, but because of the recording mechanisms in place the researcher was unable to ascertain if these claims are current.

Mining claims are interesting as they exist on top of other tenures. In other words, ownership of the land does not mean ownership of the minerals under it. Nor does it mean that the land owner can control or prevent somebody else from accessing, using, managing, alienating the minerals there (MoEMPR, 1995). The Minister of Energy, Mines and Petroleum Resources (MoEMPR) retains exclusion and alienation rights over the subsurface resources in most areas, irrespective of whether they are under private or public property (some limitations do apply - see MoEMPR, 1995). Once a license is given (i.e., a placer claim is staked), then access to that land becomes assured, and the extracted subsurface resources become private chattel for the duration of the license, irrespective of private ownership of surface rights. Strict rules are in existence that determine how long an individual retains these rights (alienation is temporary), and these rights are not transferable. In the case of private property, some form of compensation must be given to the surface property owner, and a buffer zone (curtilage) is usually provided around dwellings and actively used lands. Only when the private use of the land causes environmental or financial damage to others may the government step in to regulate environmental management requirements. Some mediation services are provided by the MoEMPR when conflicts occur.

5.2 (b) Regional Land-Use Planning: Management Implications

With all of these regional-scale land-use pressures concentrating on a limited land area, the region is rife with turmoil. As discussed earlier, the province attempted to respond to this by facilitating a consensus styled decision-making process (CORE) between user groups over land-use designations in the area. With the area's history of private rights vs. state driven rule-making the idea of

sharing responsibility over decision-making appears to be a new and sometimes difficult one for many stakeholders and appears to take some getting used to (CORE, 1994; MoF, 1994; Personal Interviews). Furthermore, considerable concern was expressed that despite following shared decision-making intentions and being a commendable example of 'how to' develop consensus in complex land-use disputes, operational constraints such as time and financial limitations combined with questionable commitment to the process have prompted CORE to be criticized as cursory and less representative of local concerns than intended. Interestingly, with the recent changes in government, the process was labeled successfully completed and has subsequently been dropped.

CORE as Consensus Maker

As was discussed earlier, CORE, the regionally driven and inclusive land-use allocation process, originally approached property rights decisions from the management and alienation end of the spectrum. Through multiple stakeholder consultations, CORE attempted to use consensus decision-making to develop land-use designation and planning guidelines for future resource management decisions. In this case, the government role was to bring together disparate stakeholders, guide them through a joint decision-making process, provide information and structure to the talks and then implement any resulting consensus decisions into defensible land-use designations and planning guidelines.

> The environmental, economic and social principles shall be implemented and reconciled in neutral administered decision-making processes that are open to the participation of all interests. The processes shall promote decision-making through the building of consensus amongst diverse perspectives and stakeholders (CORE, 1994).

The intended benefits of such a process were that if consensus could be found on broad-scale land-use planning, and if a full range of values, users and needs could be accommodated, then a direction, or "blueprint for managing...the provincial landscape" could be provided to guide future decision-making (CORE, 1994). The results were both positive and negative.

In terms of positives, the regional process was considered good for values articulation, direction and priorization of general discussions, dissemination of information and dealing with some of the less complex issues (Fraser, 1996). In terms of negatives, the abandonment and adjustment of the original process for a more adjudicatory one during its final stages violated the existence of any public and stakeholder trust developed through the earlier stages (Fraser, 1996). Although, overall, CORE did result in the creation of a final plan, all progress on interim measures, consideration of alternative agreements, management guidelines and partnerships or the potential for open-bargaining in the future are seen to have been seriously curtailed (Fraser, 1996).

Regional Conflict Management

Instead of being 'almost successful,' the process ended up becoming highly politicized over legitimacy, representativeness, appropriateness and value. As a result of the short circuiting of the original consensus-based process, the property rights emphasis shifted to simple alienation and exclusion rather than the interactive rule-making and incentive-based management goals that it started with. Questions raised included the ability of delegates to represent local views, the commitment of both the participants and the government to follow through with the decisions themselves and the effectiveness of the process as a whole for actually resolving conflict (Fraser, 1996).

In contrast, in some circumstances the regional rule makers have taken it upon themselves to encourage and enhance local shared decision-making, not through setting the rules or buying management rights but through facilitating the conflicts that arise between users in the context of these rights. On a local level, water rights can be used to demonstrate this. In this case, the Ministry of the Environment (MoELP) has set itself up to act as mediator between disputants, as opposed to using an outside decision maker. The attempt is to distribute access to water rights equitably. It is true that the state has final decision authority and may ultimately be required to arbitrate a decision, but they apparently use this as last resort.

One difference between water rights and CORE is a difference of scale. CORE was an open ended bargaining mechanism deliberating over just about everything throughout the entire region. The water rights mediation, in contrast, is a case-and-site specific balancing of stakeholder rights and demands on an "as required basis." Both are mediated processes with the government trying to act impartially, but to different ends:

> Since impacts are highly specific...a scale has to be chosen that is large enough to deal practically with trade-off's, but intimate enough to be socially responsive to constituent communities...and reflective of natural [as opposed to administrative or political] relationships (Fraser, 1994).

Table 5: Local Property Rights

Resource Type	Stakeholder Group	Access	Use & Withdrawal	Management / Rule Making	Exclusion	Alienation
Nakusp Hotsprings						
	Local Govt.*	√	√	√	√	√
	MoELP*	√	√	√	√	√
	Local Users	√	√	§	§	§
	Local Business	x	@	x	§	x
	Tourists	√	x	x	x	x
Halcyon Hotsprings						
	Partners	√	√	√	√	√
	Users	√	@	§	x	x
St. Leon's Hot Springs						
	MoF*	√	√	√	√	√
	Users & Community Groups	√	§	§	x	§
Wild Mushroom Harvest						
	MoF / MoELP*	√	√	@	@	@
	Distributors	√	√	§	§	x
	Pickers	√	√	x	x	x
	Locals	√	√	x	x	x
	Community Groups	√	√	x	x	x
Heliskiing						
	MoELP*	√	@	√	√	√
	Company	√	√	@	√	x
	Local Citizens	√	√	§	x	x
	Tourists	√	√	x	x	x
Settlement	Local Govt.*	√	@	@	@	√
	Private Property	√	√	@	√	√
	RDCK*	√	@	@	@	√

Legend	
√	Clearly Articulated Rights
@	Shared Legal Rights (*de jure*)
§	Customary Rights (*de facto*) Only
x	No Articulated Rights

Property Right Characteristics	
Access	• The rights to enter a defined physical property.
Withdrawal	• The right to obtain the 'products' of a resource.
Management	• The right to regulate use patterns and transform the resource by making improvements.
Exclusion	• The right to determine who will have access rights, and how that right may be used.
Alienation	• The right to sell or lease other rights (Transferability).

*NB: Many researchers would not consider a government agency as a stakeholder group. Please refer to the discussion in Section 1.3: Terminology, in Chapter One.

5.3 (a) Local Level Issues: Stakeholders

Not all land-use decision-making comes from regional property right holders. Other players in the land-use debate include the local users of hotsprings, alpine skiing expeditions and private citizen welfare. None of these stakeholders necessarily owns the land directly but they still manage to exert influence over property rights and imbue multiple use values into local land-use management decisions. The way that they do this is different from their regional counterparts. On a local-scale (such as visiting the local hotsprings, the operation of a local tourist outlet, the collection of minor forestry products, or input into municipal affairs), the local users do seem to have some share of local decision-making authority. This, however, is usually on a small or *de facto* basis only.

Hotsprings

Take the area hotsprings for example. On a local-scale, there are at least four recognized sets of hotsprings dotting the surrounding hills, each uniquely used and each demonstrating different combinations of property rights. Of the three reviewed, one is municipally owned, one is privately owned and the third is on provincial forested lands.

Nakusp Hotsprings

The Nakusp hotsprings is privately owned by the Village of Nakusp and sits in the middle of a provincial park. The water comes from and returns to the park, but the pool itself is owned by the town. This is a hybrid association between the Village of Nakusp and BC Parks (an arms length division of the MoELP) that allows the village to promote and control tourism development at the hotsprings.

Local businesses, of course, are trying to gain access and use rights in order to tap into the tourism potential, but these are firmly retained by the municipality. If any environmental damage occurs, the MoELP retains some management and exclusion authority for habitat protection.

These hotsprings have been a local commodity for generations and with 60,000 visits per year are expected to be the backbone of future community development initiatives. Despite the fact that the municipality controls the private property rights, local users do have a long history of involvement in this resource and have considerable *de facto* input over how the pools are run. Through public discussion and pressure and a strong local affinity to the resource, the public may potentially have alienation rights through public outcry if the hotsprings were ever sold or poorly managed.

Halcyon Hotsprings

Halcyon hotsprings, on the other hand, located just to the north of the study area, is privately owned by a number of local investors. The site used to be the home of an historic hotel in the early 1900s and is now an undeveloped private property. The water still remains and, while some of it is piped to private residences nearby, the rest is funneled into two openly accessible pools. The owners are not exercising their control over access and exclusion rights and the pools are, effectively, free for public use. The users vary from day to day but include a core group of people who have no official rights but who take care of the place, rebuild the pools when they collapse and moderate other users (*de facto* management). They essentially manage it as their own but have no authority if the property is ever sold. The actual owners appear to be holding discussions with potential out of town developers so that these *de facto* use-based property rights may become a thing of the past.

Halfway Hotsprings

The third example is a group of hotsprings located on provincial forest lands. These fall completely under state authority but also include local individuals and community groups as users who periodically contribute to maintenance (e.g. the local boy scouts organize clean up campaigns once per year or so). Management and use guidelines are clearly based on social etiquette and a good neighbor policy of cleaning up after use and giving consideration to other users (*de facto* rule-making). As a community property, considerable public outcry would be raised if the immediate area were ever alienated or made available for logging.

5.3 (b) Local Level Issues: Management Implications

In terms of the hotsprings, each of the three examples demonstrate some degree of social (*de facto*) factors influencing resource decision-making. Unpaid and unsolicited maintenance by local users, social etiquette amongst the users, community clean up operations, and a strong local perception that these resources belong, to some degree, to the local community all help to articulate community rights. Alienation and exclusion are difficult, not because the local peoples retain legal ownership of any of these properties, but because the community uproar that could occur, if these resources were ever mismanaged or sold, would be considerable.

5.4 (a) Other Local Resources: Stakeholders

Wild Mushrooms

Considerable areas of crown (and some private) land are used for the collection of unregulated forest products, such as the *Matsutake* or Pine Mushroom. Since it is unregulated, the state, at present, has some theoretical rights to make management, exclusion and alienation decisions, but has not decided how best to articulate these rights (MoF, 1994) and is presently discussing whether to try to license the distributors, the pickers, or nobody (MoF, 1994). The users that come closest to retaining decision authority over this resource currently are the distributors. Their influence is through the economic incentives of buying and selling the mushrooms and price control, but they actually have no direct control over withdrawal or management. One distributor talked about trying to exert management and exclusion rights over other mushroom pickers in order to protect the resource, but since he retained no generally accepted or enforceable authority over this resource (over and above simple buying power), these efforts were independent and ineffectual. Users on private property have exclusive rights to do what they want. Other users (pickers) have no rights other than access and use. Picking of any products in park lands, for commercial purposes is strictly forbidden (but continues on a wide-scale).

With no effective management institutions (neither state, regional or local), the wild mushroom harvest can currently be considered an open access resource. This makes it a perfect candidate for further discussion. The issues surrounding wild mushroom management will be described in greater detail in the next chapter.

Regional Tourism

Tourism is a non-consumptive use of natural resources that is touted as the panacea of future economic development. Since the area has considerable natural appeal and recreation potential, it is blanketed with small-scale hotels, bed and breakfasts, camping sites, recreation areas and retail outlets catering to diverse tourism ideals. No general property rights are retained by the individual tourism operators in that they are almost totally dependent on broad natural values, tourist wildlife experiences and an area wide visual appeal, none of which they have direct control over and all of which derive from publicly owned forested lands and natural environments. These local users try to balance private and local rights to establish and run businesses with public and regional rights to lobby the government for non-consumptive forest and wildlife use.

Some controversy exists over the potential for this industry to influence local land-uses as tourism land values (e.g. beauty, natural experience and scenic qualities) are often in direct conflict with traditional resource extraction industries such as timber supply and mining (which are still currently relied upon locally for jobs). Tourism development initiatives and joint business ventures are not yet able to compete with the natural resource industries for shared property rights on an individual level, but they have been active on regional planning initiatives and have influenced the inclusion of visual quality values into forestry legislation.

Heliskiing

One specific tourism industry is heliskiing. A successful heliskiing operation is based out of Nakusp. The local operator (Kootenay Heliskiing) has exclusive recreational skiing rights (sole commercial access) to a broad area of high alpine slopes including eight locations within the study area. A multi-million dollar

industry, this winter sport makes non-consumptive use of mountain areas with open timber and is dependent on scenic beauty and quality of experience. As with most danger sports, the principle management guidelines are based on personal health, safety and liability insurance. Through negotiation with the government, the company retains exclusive commercial use and access rights to this particular resource, meaning that no other company can operate a commercial ski operation there. These rights are not transferable, and the company must comply with state environmental management and safety legislation (management). Commercial forestry ultimately retains the right to harvest these same areas but cannot limit commercial ski access. Private access for personal use is in no way affected by these commercial rights. Since they are a local business that solicits local input into yearly management plans, some decision authority over management is shared with local citizens at the annual public open house (possible *de facto* input into management).

Settlement: Village of Nakusp

In a general sense, the Village of Nakusp holds broad-scale authority for zoning guidelines (designating appropriate land-uses for different areas) on private areas within their municipal jurisdiction. The village also has the authority for supplying and operating basic services such as snow removal, parking, waster supply, sanitation and sewers. Every year, the village produces detailed zoning bylaws for specific land-uses, backed by a five year broad-scale planning (or vision) document. Any changes (and they are frequent) must undergo some form of public review ranging from simple posting of proposed amendments (e.g. for basic building permits) to full-scale community-wide public hearings for larger issues (e.g. changing the community bylaws to include the surrounding areas within village boundaries, as happened in 1995). Current pressures include providing adequate sewage treatment and waste disposal facilities, discussing re-

aligning highway access to downtown and lobbying the RDCK to allow subdivisions on agricultural lands.

Since many of the resource industry employees, contractors and business people are settled in the community itself, the Village of Nakusp does have a keen interest in the environmental, social and economic stability of the nearby watersheds. As the Kuskanax and Wenseley Creeks provide the bulk of the water supply, the town lives an ongoing debate between the needs to manage for environmental concerns such as run-off, siltation and erosion into their drinking water supply, consideration for the visual and environmental qualities that are essential for potential future tourism expansion and the very present desire to ensure that timber extraction jobs are available in a stable forest industry (the forests provide for major levels of employment and a stable, local tax-base). The village has no generally recognized property rights outside of its own eight km^2 jurisdiction.

Settlement: Private Lands

Private Lands are individually owned, operated and managed independently of each other at each owner's discretion. Generally speaking, management requirements are self-imposed (or imposed through the courts through the actions of torts and civil proceedings) or associated with municipal zoning bylaws. Land owners retain the full bundle of access, use, management, exclusion and alienation rights. Some individual private property rights have been given up to the municipality of Nakusp and the RDCK, for example, for zoning purposes in exchange for the municipal provision of basic services such as roads, sewage treatment and other utilities (management and exclusion). Internal management is based on an individual balance of personal beliefs, preferences, some social pressure, and compliance with external standards.

Alienated Crown Lands

Alienated Crown Lands are essentially private lands held by crown corporations and utilities. The crown itself is the user. Since the full bundle of property rights is retained by the user, these effectively become private properties, which must, however, comply with all state management regulations. Examples include the expropriated hydro lands near the reservoir, transportation and road corridors, telephone and electric line rights of ways. Public input is limited to input sessions and periodic public reviews.

5.4 (b) Other Local Resources: Management Implications

There appear to be four general categories of pressures influencing the distribution of property rights and local land-use practices in the study area. These include 1) government efforts at explicitly defining and articulating detailed use rights over specific lands and resources through legislation (e.g. FPC); 2) regional efforts to develop broadly acceptable planning guidelines for land-use allocation, from a consensus perspective (e.g. CORE); 3) project oriented economic development money stimulating local level land-uses, usually with strings attached (e.g. economic initiatives); and 4) *de facto* social interactions that still guide some public participation and land-use interactions on a local-scale (e.g. local level land-uses). At present, this latter category is seriously overshadowed by the other three.

Pressure for shared decision-making in natural resources management comes from several other directions as well. The first is intensive lobbying and public input by large, well organized regional public interest groups (e.g. lobby groups). These groups influence decision-making by articulating the social and

environmental values of non-consumptive forestry uses. They are powerful, regional and articulate. The second pressure comes from the external investment of money into the region (e.g. federal or provincial development money tied to specific land management or re-vegetation initiatives). The influx of external money affects decision-making by targeting the stream of benefits associated with land-use decisions directly. Both of these pressures tend to overshadow local management initiatives, which, as a general rule, are still poorly articulated. Local individual users, therefore, tend to be caught in the back draft of larger initiatives and often have difficulty finding the time, energy and money to participate in a regional level discussion (CORE, 1994; Columbia Basin Trust, 1995; Fraser, 1994). Sometimes, as in the case with the local forest contractors' strike, they also end up bearing the burden of changing property right costs.

Even though local resource management decisions appear to be driven much more by regional pressures than by local values, in some cases, efforts are being made to incorporate local level decision-making into resource management decisions, irrespective of absolute ownership. Examples include local input into the hotsprings debate, citizen involvement in local tourism and attempts by some stakeholders to contribute to the water rights debate. From the local-scale, regional interventions are sometimes seen as more of a burden than an asset.

Local management of resources is not always successful, however. Unsuccessful initiatives usually occur when the group involved is small or not generally recognized. Examples include the local gun and fishing club's proposal for local fisheries management or the local mushroom harvesters' attempts at environmental management - which were ignored by both regional decision-makers as well as by other users themselves. The ineffectiveness of these initiatives implies that even though these groups may have good knowledge, information or ideas, and may even be acknowledged stakeholders (to be

included in decision-making processes), they may not, in fact, have recognized authority among users to make representative decisions over shared property right regimes. Non-inclusion and non recognition in resource decision-making leaves local users frustrated and at the mercy of larger groups and outside economic, social and environmental pressures.

5.5 Summary

The state (the Province of British Columbia through its various ministries) retains primary decision authority over the full bundle of property rights on almost all natural resources in the study area, and allows access and withdrawal rights to registered users through the issuing and monitoring of a variety of licenses, permits and contractual agreements. This covers, generally, all aspects of forestry, mining, wildlife, parks, hydro, recreation and water rights. Even agriculture, which takes place primarily on private property, is significantly controlled by the state's exclusion rights, articulated through the Agricultural Land Reserve Act (ALR). No explicit common property regimes were observed and only one unmanaged resource was found (wild mushroom harvest).

In almost all cases, some degree of overlapping or shared decision-making authority was evident in the distribution of property rights over these resources. In some cases, management rights, for example, were not simply applied by the government, but negotiated between the stakeholders using the resource (e.g. SBFEP, WL), discussed with multiple stakeholders through public participation processes (e.g. FL, TFL, Recreation, FPC, CORE), or applied by external funding agencies (e.g. economic development initiatives, Forestry Renewal BC, Columbia Basin Trust). In other cases, exclusion rights became part of a negotiated licensing arrangement (e.g. Heliskiing, WL), were shared through multiple use (e.g. negotiated water rights, municipal zoning) or discussed and debated at

public open houses and land-use reviews (e.g. forestry open houses and meetings for CORE and the FPC). Very rarely were alienation rights shared, but even these are not always clearly articulated (e.g. they are completely missing with wild mushrooms, negotiated between stakeholders in water rights, or take the form of *de facto* decision authority through extreme public protest over timber harvests).

Examples of regional imperatives that dominate local land-use decision include the process of creating new forest practice rules, debates over environmental protection and large-scale regional economic development initiatives. Examples of local land-uses that still value *de facto* input include the hotsprings, local-level public meetings and some small-scale resource users such as local water rights or local tourism. Examples of regional initiatives that call for local participation include economic development plans such as the Columbia Basin Trust and the Forest Renewal Plan and community stakeholder meetings for public interest groups. Some of these demonstrate effective use of local decision authority through banding together to pressure external decision makers as a group, some of them do not.

Chapter Six - Wild Mushroom Management

This chapter draws on the general trends found in Chapter Five and applies them to managing the currently unregulated wild mushroom industry. The intention of this chapter is to examine how management decision-making for one particular resource - wild mushrooms - might be improved by property rights analysis. In terms of structure, the background and status of the wild mushroom industry is reviewed, then the current government management initiatives are assessed in terms of property rights, and finally, the management recommendations are discussed in light of the full bundle of stakeholder property rights and rights-based motivations for management. Wild mushroom harvesting was identified as a suitable case study to exemplify the relationship between property rights and the management of a resource since there were questions being raised over jurisdiction, the need for regulation of the harvest, the potential for wealth generation and ecological impact, as well as growing conflict amongst stakeholders.

6.1 Background

At present, the underground (unregulated) wild mushroom industry has an estimated worth of ten million dollars in provincial sales per year, involves access onto both state and private lands (which may or may not be by permission) and is completely unregulated and untaxed. The picking season in the Nakusp region, itself, is an intense three weeks in duration and is highly secretive, despite the influx of up to 1500 non-local pickers scrounging the surrounding forests for mushrooms worth as much as six hundred dollars apiece. With the average price being about twenty dollars per kilogram, there is the potential for individual profits to run as high as fourty thousand dollars per season, tax free (MoF, 1994; McLean, 1992, Personal Interviews).

The wild mushroom industry in British Columbia is relatively young, with the first reported exports of Pine Mushrooms (commonly referred to as *Matsutake*) to Japan as early as 1947. By some reports, these early exports were actually US mushrooms being exported through Canada to get a better overseas price with the Canadian industry not being said to proliferate until the early-to-mid 1970s (de Geus, 1992). The first real recognition by the province was during the period ranging from 1988-1992. At this time, growing conflict among various groups led to the convening of a wild mushroom committee and a preliminary wild mushroom discussion group based on a cross section of industry and government stakeholders (de Geus, 1993 & 1994).

By 1993, a draft report entitled Agroforestry Industry in British Columbia: Identification of Issues, Responsibilities and Opportunities for the Ministry of Forests, identified the growing conflicts occurring throughout the province and discussed the potential for environmental damage related to the commercial harvesting of unregulated timber resources in general, and pine mushroom harvesting in particular (de Geus, 1993). The publication of this report can be seen as a turning point in the wild mushroom management discussions as it explicitly articulated multiple resource use issues, specific ministerial responsibilities and the significance of both the formal and the informal economic opportunities found throughout the various "minor" forest product harvesting industries.[7]

[7]The term "minor" forest products is sometimes used in the British Columbia literature to refer to the relatively minor monetary value traditionally associated with non-timber forest products, in relation to lumber and pulp. These are also sometimes referred to as "agroforestry" products in this same literature (defined as "forest based products derived from a variety of plant and fungal species, the vast majority of which are not tree species. Agroforestry products include mushrooms, floral greenery, edible plants, berries, herbs, and medicinal plants"), and are recognized under the provincial Forestry Act as either "special forest products (typically including items such as yew bark, stakes, fence poles or other products derived from trees, with the majority based on salvage timber operations), or "unregulated products" (typically non-tree species such as mushrooms, medicinal plants, floral greenery, fruit and berries and some craft products). Apparently there are now over 211 recognized botanical forest products in British Columbia with a potential combined worth in the range of $100 million per year (Extrapolated from N. de Geus, 1992 - 1995).

As a result of these earlier initiatives, a 1994 government task force sat for two days to discuss specific wild mushroom harvesting issues from a government perspective, to set strategic and government management goals and to evaluate a range of options for managing the industry. Membership in this task force included seven individuals from the Ministry of Forests, three from the Ministry of Environment, Lands and Parks and one from each of the Ministry of Small Business, Tourism and Culture, Ministry of Aboriginal Affairs, Ministry of Agriculture, Fisheries and Foods, the Commission on Resources and the Environment and Agriculture Canada. No other stakeholders participated in this two day decision-making session.

In all, ten specific management strategies were proposed, ranging, in no particular order, from doing nothing, to licensing different players such as the harvesters, the buyers, the distributors or some combination of the above, to trying to eliminate the industry altogether. The task force also considered options based on the use of regulatory mechanisms to limit the volume, area or duration of the harvest. See Table 6 for an overview and comparison of these strategies.

Each of the ten wild mushroom management strategies was assessed by the task force for both positive and negative implications. Figure 8 summarizes the task force's preferred strategy, and represents the analysis that they did for choosing the most appropriate model. Details of the other proposed models can be found in Appendix E. In this analysis, particular attention was said to be paid to practicality in application, usefulness and reliability of the information and the strategies capacity to address known concerns (N de Geus, 1994). Statements protecting the rights of First Nations were also included. The final decision of the task force was to concentrate on licensing the buyers (to be reviewed within five years). Figure 9 provides a summary of the task force recommendations.

Table 6: Overview and Comparison of Strategies*

Summary of goals for pine mushroom harvesting that are achievable by each of the ten management frameworks considered in the workshop. A plus sign (+) indicates that the goal is achievable in the model. A minus sign (-) indicates that the goal is not achievable.

Goals	N									
	1	2	3	4	5	6	7	8	9	10
	Moratorium	Status Quo	Voluntary Compliance	License Buyer	License Harvesters	License Exporters	Licnese Harvesters & Buyers	Volume Quotas	Area Limits	Time Limits
• Pine Mushroom harvesting will be managed as an ecologically sustainable industry.	-	-	-	-	-	-	-	-	-	-
• Pine mushroom harvesting will be conducted in a safe, healthy, and responsible manner.	-	-	+	+	+	-	+	+	+	+
• Pine mushroom harvesting will be administered and managed efficiently and effectively	-	-	-	+	-	+	-	-	-	-
• Pine mushroom harvesting will be managed in such a way as to resolve resource use conflicts.	-	-	-	-	-	-	-	+	+	+
• Pine mushroom harvesting will be managed in such a way as not to infringe on First Nations' rights or prejudice treaty negotiations.	-	-	-	+	+	+	+	+	+	+
• Pine mushroom harvesting will be managed in such a way as to maintain and enhance regional economic sustainability.	-	+	+	+	+	+	+	+	+	+
• Model achievable and reasonable for current situation.				+						

*As found in Workshop Results: Pine Mushroom Task Force, 1994 (April), by the Pine Mushroom Task Force, British Columbia.

Figure 8: Pros and Cons of Model 4: Licensing Mushroom Buyers Only*

All Mushroom buyers under this management model would be required to purchase an annual buyer's license and disclose information. Information collected at buying stations would be specified by government and [would] form the basis for industry data.

At the same time, scientific research would be initiated in various locations in the province, with work carried out in close association with the U.S. Department of Agriculture and state agencies in Washington and Oregon. Increased enforcement of existing legislation, formation of an association, and distribution of educational material would also be required.

[Perceived] Advantages:

- provides a positive starting point and a reasonable approach to immediately address public concerns about the impact of mushroom harvesting on other forest resources;
- enables the assessment of the value of the pine mushroom resource versus that of other resources;
- supports scientific research to determine ecological impacts on the mushroom resource and other forest resources;
- requires the establishment of effective monitoring and enforcement procedures;
- supports an efficient and effective administration process;
- supports the increased enforcement of existing legislation;
- generates revenue for government through establishment of a license fee system;
- allows for the collection of reliable industry information;
- potentially maintains current employment opportunities and industry growth;
- potentially maintains current local and / or regional development;
- supports the formation of an industry association;
- supports the development and distribution of educational materials; and,
- requires the recognition of pine mushrooms as a valuable natural resource in land-use planning processes.

[Perceived] Disadvantages:

- does not directly regulate harvesting practices;
- provides no opportunity to check industry information, which is collected from only one level, and there is no opportunity to counter check information;
- may provoke reaction that government is restricting a growing industry;
- precludes the direct collection of income taxes from harvesters: and,
- does not resolve forest-use conflicts.

*As found in Workshop Results: Pine Mushroom Task Force, 1994 (April), by the Pine Mushroom Task Force. British Columbia.

Figure 9: Recommendations of The Pine Mushroom Task Force*

The task force's main concern was that the lack of information about the industry - scientific, economic and social - made regulation difficult. They concluded that the necessary data could be collected through licensing and concerted research efforts.

In summary, the task force recommended:

- All pine mushroom buyers should purchase a buyer's license.
- Increasing the enforcement of existing legislation governing litter, fire prevention, health standards, waste, wildlife, park protection and environmental protection.
- Developing then distributing educational materials (in different languages, as appropriate) through buying stations.
- Undertaking scientific research on the ecology of the pine mushroom.
- Facilitating the formation of a pine mushroom industry association.
- Providing opportunities for public participation - including First Nations - in the land-use planning process, pine mushroom resource management and harvest regulation.
- Recognizing constitutionally protected First Nations rights.
- Ensuring that the pine mushroom management framework adopted does not infringe on First Nations' rights.

The task force recommended their management strategy be in place for a five year period. The task force also expanded their recommendations to include all commercially harvested wild edible mushrooms.

* As found in Summary of Public Response: Pine Mushroom Task Force Recommendations, July 1995, by N. de Geus, Integrated Resource Policy. Province of British Columbia. Ministry of Forests

A summary of the task force discussions was made public in 1995, and public consultation was carried out through written surveys and public meetings. With only 54 out of a possible 3000 questionnaires returned, the usefulness of this public review process is highly questionable, and any conclusions based on the ~1.8% response rate (plus four written submissions) can not be considered reliable.

6.2 Property Rights Assessment

As far as the information on management recommendations indicates, the government decision makers acted as if they were the sole property rights holders of this resource. Constitutionally, the state is recognized as the formal 'owner' of land resources in the province and therefore has the fullest 'bundle' of property rights over wild mushrooms. This means that even though the industry already exists in an unregulated form, government agencies have legislated rights to take management responsibility over the resource (i.e. past non-action on the part of the government does not restrict its current property rights). The Forestry Act, for example, refers to wild mushrooms under the category of "unregulated forest products,' sometimes referring to them as 'minor forest,' 'agroforest' or even 'botanical forest' products (de Geus, 1992 - 95).

In their decision-making process, the task force also gave explicit recognition to the property rights of First Nations. In terms of action, however, First Nations have no direct property within the case study area (e.g. no actual settlements, several unresolved but conflicting land claims and a sketchy history of migratory use) and made only limited-to-negligible contributions to the task force management process itself. They may be recognized as rights holders, in other words, but have not contributed to decision-making. Because of this, it is unclear as to whether they will abide by any of the task force recommendations.

A secondary set of rights holders are the land-based tenure holders such as the local forest companies who may become affected by these regulations. Although not part of the task force, this group of indirect rights holders is critically important to management, but their only apparent contribution to the task force was through written submissions received during the public consultation process. The problem is that in a fully allocated system, such as exists in the Arrow Lakes, if an area gets set aside or becomes differently managed because of wild mushrooms, it may no longer be available for its current use - in this case timber harvesting. The provincial parks have already stated that no consumptive land-uses such as wild mushroom harvesting are allowed in their protected areas. This means that, of the crown lands available, wild mushroom harvesting must take place on either TFL (Tree Farm License) or TSA (Timber Supply Area) areas, both of which have other claims over them. Considering that the local forestry companies are currently loosing access to forestry rights through both CORE and the FPC, they are not likely to welcome even more restrictions placed on them through wild mushroom regulations.

Interestingly, neither the pickers nor the distributors were recognized as property rights holders by the task force. Even though these groups have been actively 'running' the wild mushroom harvest for approximately thirty years and have a considerable economic stake in the industry, the only recognition in the proposed recommendations is that the government will help them set up an association - implying that this association would become a contributor (and possibly even a property rights holder?) in future decision-making processes.

One of the tests of whether someone is a property rights holder is to assess whether or not they have a recognizable or compensable claim to a resource-based benefit stream - based on the rights of access, withdrawal, management, exclusion or alienation. This stems from Bromley's definition of property rights

carrying with them a corresponding duty of compliance. If the government has the right to manage, for example, all others have the duty to comply with these management regulations. Conversely, if a timber company has a compensable right to harvest trees (i.e. right of withdrawal), then regulations that restrict this right are not necessarily legitimate. Similarly, if a wild mushroom distributor has the right to develop the industry and to operate within sound and long established business practices, government regulations that aggravate or restrict that business may lead to conflict over compensation (based on possible rights of exclusion and alienation).

From a property rights perspective, the wild mushroom task force acted as provincial governments traditionally have when making natural resource decisions; as if it were the sole proprietor of a simple and unallocated resource. Early in the decision-making process, they listened to some industry groups to gather information and advice but did not include these 'players' in the actual decision-making. Neither recognized proprietors such as First Nations, indirect licensees such as the forest companies, nor recognized users such as pickers and distributors, were able to contribute effectively to the decision-making process. When this is combined with the government's own recognition that their current strategy does not regulate harvesting practices, provide reliable information, address the issue of taxation over an illegal industry nor resolve forest-use conflicts, and will likely provoke industry conflicts and non-compliance (see Figure 8), one is forced to wonder why the existing rights, and for that matter the decision-making capacities of the stakeholders themselves, were not considered more directly.

The only conclusion that can be drawn from this is that by not considering the overlapping and multiple layers of property rights acting on this particular resource, the task force only partly accomplished what it set out to do. They did lay out new recommendations and a structure to gather industry information, but they did not resolve issues over jurisdiction, management, conflict or reliability.

6.3 Rights-Based Management

The findings from the earlier chapters of this practicum indicate that property rights analysis can be used as a way of identifying stakeholders, organizing their interests and ascertaining their motivations for management. The prime lesson from this research has not been about what form of property rights regime is the most sustainable, equitable or efficient (i.e. common property, state property or private property) but how well do the property rights "bundles" of various stakeholders represent and contribute to their abilities to influence or manage a resource. Perhaps just as importantly, the question faced in this chapter might be whether recognition of these rights can lead to better resource management decision-making.

To address this question, the same wild mushroom management scenario will be examined, but this time from a broader property rights perspective (as established from Chapter Five). Based on this research, three stages in decision-making will be considered, including identifying possible stakeholders (along with their detailed property rights), discussing their motivations to contribute to wild mushroom management (in context of these rights), and the presentation of possible outcomes of a more interactive (and property rights-based) negotiation process.

Since the intent of this chapter is to demonstrate the possibilities of how property rights analysis might contribute to natural resource decision-making, the following discussion of each stakeholder's interests and motivations are the author's interpretations only. They are used to illustrate a process of management decision-making and are in no way intended to define, limit or perfectly describe the motivations of any specific stakeholder.

Stage One - Identification of Stakeholders and Property Rights

The reports available identified the various stakeholders reasonably well. These included wild mushroom harvesters, mushroom buyers and distributors and the various government departments already identified. The timber industry and general public were apparently represented through the public review process (through their written submissions and returned questionnaires, respectively - de Geus, 1995). Some government researchers, local land management staff and gatherers of other non-timber forest products also contributed their input. First Nations representatives were "welcomed to participate" and seem to have been present at the earlier workshops in 1992, and possibly even the public open houses in 1994, but were noticeably absent from the written questionnaire summary in 1995 (de Geus, 1995).

As to be expected from a competent grouping of professionals, issues identification was carried out adequately. Major issues identified include ecological concerns, resource use conflicts, government revenue concerns, difficulties in administering the harvest, social and economic concerns, health and safety concerns, resource ownership concerns, agency cooperation concerns and First Nations concerns. Each of these seems to have been discussed to varying degrees in the "advantages and disadvantages section" of each management strategy (see Appendix E for a more complete inventory of the wild mushroom task force decision framework).

In terms of property rights details, the state has potential legal rights to access, withdrawal, management, exclusion and alienation but is only now in the process of articulating these (refer back to Table 5: 'Wild Mushroom Harvest'). The distributors have been articulating customary withdrawal and management rights over this industry for decades (through their business decisions), but have no formal property rights recognition. All others are simply users, who are allowed access and non-consumptive use of most crown lands, at their own discretion.

Stage Two - Stakeholder Motivations

Harvesters

The harvesters category can be broken down into three distinct groupings: professional harvesters, casual harvesters and local harvesters. All have a generally short-term interest in profit-taking. The professional and casual harvesters are perfectly mobile and move with the season as it oscillates around the province. They understand the industry as flexible, highly dependent on climate and perhaps even fickle in terms of location, volume and price. The professionals are interested in the mid-term health of the industry, in the sense that they often come back the next year, but they have no long-term commitments and only *de facto* rights of use. They also know that each season is independent and difficult to predict, and prefer to profit in the short-term. They would be reasonably open to management solutions that limit other people's participation, but not their own. Since they are also the experts on the ground, a balance could potentially be exchanged between their detailed knowledge of location, volume and habitat for formal rights of withdrawal and the management limitation of others. Educational materials are likely a non-starter with this group.

The casual harvesters, on the other hand, are non-committed free-riders. They come along for the fun-of-it, make some short-term money but have no long-term commitments. They would probably be willing to follow rules, if they were enforced, but their interest in the industry is more infatuation than commitment. From an industry perspective, they are probably seen as cheap labour by some and as unnecessary competition by others. From a property rights perspective, they retain no rights, and are likely to be the first group to be excluded following almost any strategy.

Local harvesters are a completely different story. They look at this industry with some amusement. As long as the "outsiders" stay off local lands, fill the hotels and cause minimal fuss, the locals accept the intrusion as an interesting opportunity for business and tourism. Most local harvesters partake in the industry on a casual basis, and have not yet evolved any recognizable institutional capacity or local mushroom management institutions themselves. In fact, the industry is still so secretive and new to them that they are not sure quite what to make of it all. Given a little understanding and education, they might be willing to commit to the long-term management point of view. Educational material might work with them as well. On the other hand, since the crown forests around them have never been "theirs" in the first place (i.e. they have retained no management, exclusion or alienation rights to state forests), with management decisions typically being determined by governments and other outsiders, it might prove difficult to get this group's commitment to manage other users of the resource, particularly on non-private lands.

This leaves an interesting dilemma. Local harvesters profit from the short-term influx of outsiders profiteering on the local resources (free for the taking) at the same time as they are privy to potential resource depletion, invasion of their privacy and even direct conflicts with outsiders. It is true, then, that they have

the potential for long-term management of this resource, and even some possible property rights, but since this particular resource has never been considered theirs anyway (i.e. they belong to the government), why should they care?

Buyers and Distributors

A second grouping of players are the buyers and the distributors. These are generally business people committed to the industry for both profit and market share. Their commitment is relatively high but so is their risk. They are the most susceptible to the fragile volatility of the annual harvest but are also mobile and powerful. Currently, this grouping runs the industry. As risk-takers, they constantly balance their yearning for profit with the stability of the market. Since they essentially have access to a free good and have existing customary rights over management and exclusion, they are not keen on "indiscriminate" government controls. They could, perhaps, be approached to limit consumption if the proposed management guidelines guaranteed them stable long-term returns. Buyers and distributors do want a predictable and conflict free industry, of course and, as they describe it, "everyone wants a level playing field" (de Geus, 1992).

By solidifying or perhaps even encouraging the exchange of distributor management rights over practical industry operations for market information and exclusion of outsiders, the government might be able to negotiate a sharing of industry control and gather some of the detailed volume, location and price information that they need for long-term harvest predictions. Without solid biological and environmental data, however, harvest fluctuations are hard to predict, and without industry controls on everyone else, as well, resource managers would be hard pressed to convince this particular group that short-term production limits are beneficial to the industry (i.e. the classic prisoners dilemma).

Forest Industry

Another current tenure holder over the areas where mushroom harvesting occurs is the forest industry. These companies have area-based rights to timber harvesting, and, although this does not give them explicit rights to non-timber products such as the mushrooms, it does put their existing withdrawal and management rights at risk. For the most part, they see the proliferation of non-timber industries as a potential threat to their own profitability. Unless a way can be found for them to buy-in to this industry and profit from this type of diversification, their motivation would be to not support it. There-in lies the key: They are clearly existing (but indirect) tenure holders who will likely try to gain compensation as they are weaned out.

First Nations

It is not clear what the role of the First Nations will be. They are both users, possible proprietors (as tenure holders) and recognized owners of some nearby lands. At present, nobody knows for sure how First Nations are subject to provincial rules on crown land and the arguments are both volatile and political. Irrespective of definitions, however, they do have a stake. As users / harvesters they would want to gain employment from the work, as proprietors they would want compensation for changing tenure agreements, while as owners they would want to exert decision-making authority and their rights of alienation. Being land-based, they have motivation to commit to long-term management practices, if they are recognized.

Government

Finally, the government. Various departments of the "state" have differing interests in this industry, but as responsible agents for the province (i.e. the legal "owners" of most provincial land resources), government concerns include everything ranging from sustainability of the forest ecosystem to forest resources

use issues, land-use planning, the economics of harvesting, administration of the harvest, revenue generation, general socio-economic factors, health and safety issues, questions of ownership and jurisdiction, interaction and cooperation between agencies, conflict management, recognizing First Nations needs and providing balance to the industry overall (de Geus, 1994).

Fundamentally, the government players are interested in the stability, equity and manageability of both the industry and the decision-making process. They are, therefore, both stakeholders and facilitators. In this particular case, as owners of the resource, they have the right to take responsibility over it and make management decisions that affected other players (i.e. exert their rights of management, exclusion and alienation). They are in the process of figuring out how to do this. Their specific short-term interests include managing the waste and litter problems left by other players, providing both fire and habitat protection services throughout the region, hauling out way-faring and lost pickers through expensive search and rescue operations, protecting wildlife and environmental values and generally trying to be benevolent managers for just about everything. As facilitators, they are concerned with equitable income distribution, industry stability and controlling conflicts. As facilitators, they are also caught in the un-enviable dilemma of not having the information to make long-term decisions, but still having the responsibility to balance and compensate multi-stakeholder interests. Their motivations are, understandably, toward simplicity and keeping the peace.

In this particular process, the government role boils down to both managing the balance between all of the other players and then managing the balance between all the other players and themselves. From the reports available, it seems that the government-as-stakeholder and the government-as-facilitator roles have been operating at cross purposes. They do appear to have held some early multi-

stakeholder meetings to discuss issues and develop management strategies - but apparently they only included other stakeholders in defining the issues, not in resolving them. In other words, they jumped to the self-directed management and goal setting stage (based on their own proprietary interests) without recognizing other stakeholder roles and motivations.

Stage Three - Possible Negotiations

It is fairly clear from the earlier parts of this chapter that the wild mushroom task force did not pay particular attention to the full bundle of stakeholder property rights discussed here. This directly aggravates the imbalance between the property rights that stakeholders perceive that they have, and the duties of others to respect these rights. Since one useful indicator for recognizing poorly balanced property rights is the existence of conflicts, it is not surprising to find them in this case study. Some examples found in the wild mushroom industry include allegations of people setting forest fires to promote future production opportunities, deterioration of habitat from inappropriate harvesting activities, littering of campsites, problems of mass sanitation, physical confrontations and the expense of search and rescue operations when pickers get lost.

Would a more interactive rights-based process of stakeholder negotiations more adequately address the issues behind such conflicts. And would such a process address the expressed needs of both the government and the non-government stakeholders involved in wild mushroom management in the research area? The answer is a qualified yes. The recognition of multi-stakeholder property rights is a precursor to incorporating these rights, and the right holders, into the decision-making process. Without getting into the details of interest-based negotiations or the application of conflict resolution models in natural resource decision-making, the following issues are discussed from an interactive perspective.

Issue One - Usable Information

All of the task force reports recognized a need for more data on the physical parameters of harvest volume, location, timing, and potential revenue for the wild mushroom industry in British Columbia. This information was specifically needed before long-term management decisions could be effectively made. The chosen management strategy opens the possibility of accessing this information through the buyer's licenses, but recognizes limitations on the reliability of the data collected this way. It also proposes undertaking some form of ecological research on all forms of commercially harvested wild edible mushrooms in British Columbia. This is certainly a good idea, but begs the question of whether reliable industry information is truly unattainable, or is it simply unavailable to the government? The fact that it is not currently in their hands could simply indicate that the government has not found the motivation to access it yet.

Without presupposing actual stakeholder knowledge, rights-based decision-making premises that, if industry information exists, it would most readily come from the industry itself (i.e. from the stakeholders on the ground such as the harvesters, buyers and distributors). Harvesters, for example, are likely to have considerable but disperse knowledge of specific locations, habitats and income levels, but use secrecy to limit outsider access. In this case, governments are unwanted outsiders. Harvesters also see government influence as a meddling tax grab and a potential restriction on their rights of access. Buyers and distributors, similarly, are likely to have financial information but need to be motivated through market stability arguments to share it. The government departments, on their part, have a wide ranging list of goals and interests but limited resources to reach them with. With cooperation, the government could possibly track location and quantity knowledge if it could overcome harvester and distributor distrust.

One solution, therefore, would be to negotiate a trade. Use industry licensing of both the pickers and the buyers to limit and control outsiders, thus providing them the benefit of stable market access in exchange for the sharing of specific resource information through detailed, widespread but individual industry surveys. Perhaps information could be exchanged for picking rights. As observed in the reports, data accuracy would be suspect without recourse to confirmation, of course, but the pooling of all of this ground level information could easily be complemented and enhanced by the proposed scientifically valid baseline research. The benefit to all players would be improved harvest predictability and stabilized market access. If there were a fee attached to these licenses it should be directed towards, and used for, the baseline research. The currently proposed option to require buyers to purchase a license is fatally flawed by not being driven by compensation for knowledge and cooperation but by a misguided notion of uni-directional, non-accountable revenue generation.

Issue Two - Enforcement

A second issue concerns enforcement. How could mushroom licenses, or other industry regulations, be enforced considering the vast areas and considerable numbers of people involved? Even the government recognizes that the act of supervision and enforcement by 'outsiders,' such as themselves, is prohibitively difficult (de Geus; 1992 - 95). The task force quite accurately recognized that the small number and high visibility of the buyers makes them fairly easy to identify. Licensing this group, therefore, would be administratively simple. Simple perhaps - effective perhaps not. Is there an opportunity, therefore, for internal compliance?

Since the industry is time sensitive, buyers' motivations are for both a large number of reliable but low priced pickers and a large percentage of market share. As discussed earlier, if the government can regulate market access (i.e. use licensing to limit outsiders) and improve harvest predictability through amalgamating harvester and buyer knowledge, perhaps they could use this to negotiate with the buyers to manage the harvesters themselves.. The buyers, in turn, would likely show preference to professional harvesters who migrate with the season and are relatively efficient, productive and reliable, leaving most casual and some local harvesters out of the picture. Most local harvesters would not care as long as they retain the indirect spin-off economic and recreational benefits associated with this industry. Even though there would always be a demand for some casual pickers, a reduction in their numbers might reduce the land-use, littering, search and rescue and personal conflicts associated with the current large, untrained and unprofessional workforce. Since these motivations address recognized government issues, there might be some reason to negotiate. It must be remembered that the motivation for the buyers to regulate their harvesters exists only if they retain some rights to influence the regulations themselves.

6.4 Discussion

The purpose of working through these stages has been to demonstrate a process, rather than to describe specifics. How accurate or predictive this analysis has been, in other words, is secondary to highlighting the potential usefulness of the process in natural resources management situations. Some background material, on the application of interest-driven management processes in developing long and short-term natural resources management solutions, can be found in the works of Conner (199?), Fisher (1996) and Fraser (1996).

The existing process started off well with issues identification and data acquisition but gave no consideration to property rights. With no recognition that stakeholders, with their diverse bundles of rights, could be involved in decision-making, and effectively no stakeholder contribution in forming balanced management recommendations, the current management strategies are sadly lacking. Inherent in a rights-based approach to decision-making is the explicit necessity for participant feedback and cross fertilization of ideas. If the management process had included all the players, understood their motivations (based on property rights) and worked towards balancing their interests, it is not unreasonable to expect that such a decision-making process would have evolved into a more sustainable and credible resource management strategy.

According to their reports, the task force proposal recommended that the government license only the buyers, conduct separate ecological research, distribute educational pamphlets, somewhere find the money, personnel and political will to increase policing of enforcement legislation (e.g. for compliance with fire, litter, health, waste, wildlife, parks and protection regulations), become a big brother to any new industry associations, recognize and try not to infringe upon the rights and values of just about anybody, particularly First Nations, and resolutely provide opportunities for public participation.

A rights-based process, on the other hand, suggests that the whole industry be managed, not just one stakeholder (e.g. the buyers). Such a process also suggests that all property rights holders are stakeholders and that successful management involves negotiating a balance between their rights, motivations and interests (e.g. trade industry knowledge and operational capacity for harvest management and market stability). Specifically, the new management strategy would use licensing to limit both the buyers and the harvesters, but also to gather information for improved harvest predictability. Fewer harvesters would mean

reduced need for more enforcement, thereby reducing the source of the infractions. The scientific research would be used to complement industry derived knowledge, not as a substitute for it. Educational material would need to be targeted and purposefully distributed to specific stakeholder groups to be useful, and a forum would necessarily be set up to negotiate stakeholder input into the management strategy itself.

From this research, it can be argued that the use of some form of a property rights analysis allows for the formation of manageable groupings of stakeholders, identification of specific interests, values and 'buy-ins' beyond simple 'ownership' rights and provides a broader framework for negotiations between stakeholders. It is fundamental to remember that, logically, when a stakeholder action impacts on a resource, it is prudent to consider both the action, the actor and their property rights in developing management strategies for this same resource. It appears that different versions of multi-stakeholder decision-making are making headway into the resource management arena in the research area - such as interactive public participation processes, regional-scale land-use planning processes and even land and resource-based conflict resolution situations - but these are definitely not universally applied. By allowing for a richer pattern of stakeholder commitment to a resource, property rights analysis is, hopefully, one more tool for balanced natural resource decision-making.

6.5 Summary

The research from the previous chapters was applied and focused into a property rights analysis of the wild mushroom resource. The proposed state-derived management recommendations were assessed from a property rights perspective, and stakeholder rights and motivations were identified and

discussed. A speculative analysis was conducted on how the proposed wild mushroom management scenario might change if detailed attention to property rights had been included in the decision-making process. It was pointed out that the emphasis of this chapter was to understand the process of applying property rights considerations to management decision-making, not the specific speculations. Having said this, it was also quite clear that a rights-based management process would likely lead to a significantly different wild mushroom management scenario than the one currently proposed by the wild mushroom task force.

Chapter Seven - Discussion and Recommendations

7.1 Management Patterns in the Arrow Lakes

With its history of cyclical resource extraction, changing land-use regulations, physical resource limitations and overlapping property rights, it is no surprise that the land-use debates in the Arrow Lakes region of the West Kootenays are both tumultuous and complex. Essentially, the area has undergone a series of economic booms, each based on simple resource extraction over a relatively short period of time (e.g. mining, agriculture, hydro-electric reservoirs and forestry). The property rights and management requirements guiding these past resource industries typically started off simply and have grown increasingly complex and integrated as environmental and social consequences appear, and as more stakeholder values have been included in the decision-making process. Over time, social pressures over zoning, safety, alternative resource values, conflict management, environmental protection, and shared access have started to express themselves and increasingly complex management rules have developed. The proliferation of new regulations, public open houses and consensus-based planning processes are examples of how this evolution of property rights and management values have changed.

The purpose of this practicum has been to document and discuss how natural resource decision-making is distributed among property rights holders in the Arrow Lakes region. The specific objectives of the research were to:

1) Identify and describe natural resource uses in the Arrow Lakes Valley;
2) Identify the stakeholders of these resources (e.g. users, claimants, proprietors and owners);
3) Describe the distribution of decision-making authority over these natural resources, as held by each stakeholder group;
4) Identify patterns of overlap or shared decision-making authority;
5) Derive recommendations for the inclusion of property rights research in natural resource management and decision-making in the study area.

To do all of this, the baseline information found in Chapter Four and Five describing the area, its resources and its people can be used as background. The property rights details found in Chapter Five, however, provide the basis for later discussion and deserve to be looked at more closely.

Overall, the state is the formal and underlying 'owner' of all land resources in Canada, and over the years has allocated packages of land and related access, withdrawal, management, exclusion and alienation rights to various users (e.g. through a combination of discrete licenses, permits, or contractual agreements for each resource). Under this system, natural resource management and regulation tend to relate to "products" such as hardwood, softwood, woodchips, alternative forest products, animal species, water supply and,...more recently, the less tangible qualities of wilderness experience and habitat protection. In general, stakeholders have been managed (with varying degrees of success) under direct state supervision. In this context, the recent intensification of usage, diversification of values, and simple congestion of overlapping property rights has led to a degeneration of discrete ownership rights, an increasing complexity in decision-making and towards a proliferation of resource-based conflicts[8] (CORE, 1994; MoF, 1994; Fisher, 1996).

Recent provincial initiatives have emphasized two overriding approaches, or patterns of decision authority to dealing with resource-based disputes (Objective 4). The first was by articulating stakeholder rights and responsibilities and providing more explicit land-use guidelines than had existed before (e.g. the Forest Practices Code). The second pattern was to guide resource users through broad-scaled planning initiatives and, through a formal consensus process, provide direction to regional planning and decision-making (e.g. CORE).

[8]The content of recent conflicts in the research area include forestry practices, environmental protection, land tenure debates, land appropriation and the participation process itself.

As a means of resolving resource-based property right concerns, however, neither approach is perfect, and significant problems still exist in the implementation of each. Both address a trend towards increased user involvement in the land-use decision-making process by identifying a wider range of stakeholders and including some of their non-consumptive resource values in the discussions. The common ground between the two processes has been increased recognition that overlapping property rights play a role in shaping land-use decision-making. They have both been regional in scope, involved large-scale consultation with a wide cross-section of users, and they were both state driven - involving the government coming to terms with physical depletion of its resource inventory, an increasing demand for local control by the various stakeholders and the maturation of strong, non-consumptive stakeholder groups (based on both environmental and social values).

The differences in the approaches, however, appear from within the distribution of their property right characteristics; the former, the Forest Practices Code (FPC) is based on explicit rule-making directed at the rights of access, use and management, and the latter, the Commission on Resources and Environment (CORE) addresses the property rights of alienation and exclusion. Generally speaking, the FPC is seen as being pragmatic but overly complex as it explicitly defines detailed rules of use and management. CORE, on the other hand, while initially interesting and innovative, is seen as having become sullied in problems of legitimacy, timeliness and politics. The result of these two approaches, in combination, has been increased recognition of stakeholder rights, partial legitimization of non-consumptive forest values in resource decision-making and the preliminary introduction of an allocation and dispute resolution process that might prove capable of providing direction for future land-use decisions.

Expanding even further on Objective 4, one thing that becomes apparent from this research is that there is increasing discussion on how to share decision authorities over complex and overlapping land-use jurisdictions, in the case study region (CORE, 1994; MoF, 1994; MoE, 1995). The reason for this is that "the issues are simply too complex, interactive and volatile for any one stakeholder to develop well informed, balanced and comprehensive plan[s] for the region" (CORE, 1994). In the context of predominantly state driven property rights, strong demands are being made for increasing local control and sharing of decision-making powers with resource users themselves (CORE, 1994; FPC, 1995). Current property rights processes increasingly require some degree of public participation and review (MoE, 1995; CORE, 1994) and tend to be oriented towards shared use and management responsibilities, as opposed to absolute ownership and exclusion. In fact, exclusive ownership over natural resources under any property rights regime appears to be becoming more of a rarity than a common practice.

In order to derive the recommendation demanded by Objective 5 there was a need to focus the property rights analysis more deeply on one specific resource - in this case wild mushroom management. Although admittedly speculative in nature, Chapter Six served the purpose of demonstrating how property rights analysis can be incorporated into natural resource decision-making. The conclusions of this chapter were that traditional management processes were very narrowly defined by state ownership rights and inadequately fulfilled their role. The proposed rights-based decision-making process was broader in scope, identified non-ownership rights (such as the rights of access, withdrawal, management and exclusion), as integral to incorporating stakeholder motivations into resource management decision-making and resulted in significantly different management recommendations.

Effectively, the rights-based management argument states that defining the natural resource management problem adequately includes identifying the players and incorporating them into decision-making. This is done through the use of both detailed property rights analysis to identify the stakeholders and their rights, and some form of interactive decision-making process to enable these rights to be transacted or exchanged. The process, itself, becomes a forum for balancing a full range of property rights, thus leading to a more flexible management solution.

All of the property rights and land-use initiatives discussed in this research demonstrated some degree of shared decision-making. None was exclusive in either a theoretical or a practical sense. All were overlapping. State property, for example, was increasingly sensitive to public opinion and pressure to recognize multiple resource values. Private property was rarely, if ever, independent of public, cultural or regional economic incentives. Common property did not exist as such, but almost all resources displayed some common property-like characteristics (i.e. shared authority over jointly used resources) and open access resources appeared to become managed resources as soon as they demonstrated significant economic or social benefits.

When planning natural resource management strategies in the case study area, therefore, one would be wise to consider the evolving nature of natural resources decision-making in the British Columbia mountain environment as they move towards recognizing multiple use values, increasing levels of stakeholder involvement and overlapping property right jurisdictions. The use of interest-based decision-making processes combined with detailed property rights analysis tools might be one solution for doing this.

7.2 Recommendations

In light of the clear shift towards overlapping property rights and the theoretical potential for local land-users, claimants and proprietors to play a role in the sustainable management of natural resources, the following recommendations are put forward for discussion:

1) Ongoing and future decision-making processes should try to explicitly recognize the detailed property right characteristics of all stakeholders impacted by resource management initiatives.

2) Ongoing and future decision-making processes should actively integrate these property right holders into their structure through the use of multi-stakeholder participation and multi-party negotiations, as opposed to being a passive forum for simple input solicitation.

3) If a consensus process is to be used again in this region, care should be taken to ensure that it has potential to succeed through the provision of training in the process, recognizing and negotiating within a context of the broad-based property right characteristics, delegating adequate authority to the decision makers and working on a local, as opposed to a regional-scale.

4) The establishment and strengthening of local micro-institutions should be encouraged in the region as a means of recognizing community level property rights and building local resource management capacity.

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Appendices

Appendix A: Sample Research Questions

Appendix B: Personal Communications

Appendix C: Composition of CORE Table

Appendix D: Letter of Appreciation

Appendix E: Pine Mushroom Task Force Framework

Appendix A: **Sample Research Questions**

Socio-demographic information
- How long have you lived here?
- What factors helped you chose this area?
- What is your age group, general occupation, educational level, income range, etc. ?

History of resource usage and change
- What are the different resources that are used in the area? How, and for what purpose, are they each used?
- Who are the users? How has this changed over time?
- How do people use the surrounding Forests? Trees? Mountains? Rivers? Other resources? How does these land-use vary at different times of the year?
- How have land-uses changed over time? (forests, water, harvesting, agriculture....)
- Who has the responsibility for long-term care and management of this resource?
- How are these decisions made, and how have they changed over the years?

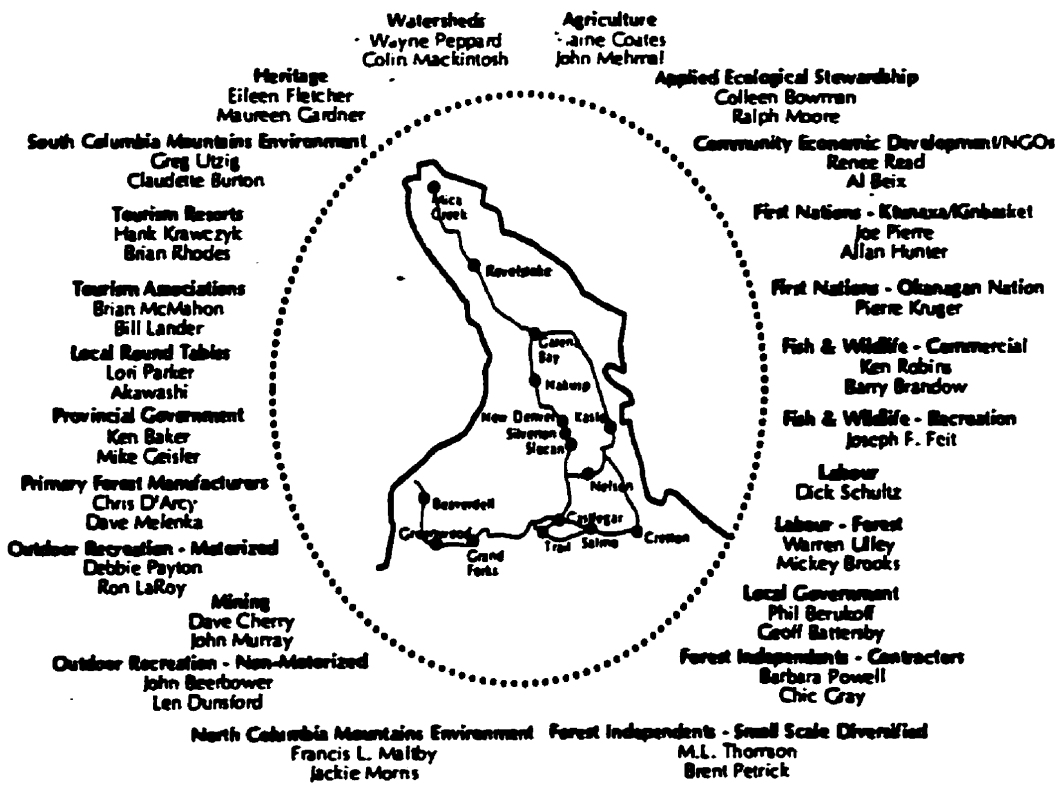
Property rights, property institutions
- Do you own any land in the area? What are your vested interests in this area?
- Who else uses this land or resource? For what purposes?
- Who actually owns the land? Who uses it?
- Who decides who can use this land and how is this decision made? Enforced?
- How clear are the boundaries? How have the boundaries changed over time?
- How do people's rights to land holdings differ? How do your responsibilities differ from your neighbors? The governments? The Companies?
- Are there any communally owned lands in the area? How are they managed?
- What government rules apply to your use of this area? Do these rules have any influence on your land-use practice? What other types of rules are there?
- Who has good access to this 'resource' and who has limited use or is excluded altogether? How has this changed over time?
- Do you, or have you ever participated in making or implementing land-use regulations? Do you take part in public open houses? Public reviews?

Issues and conflicts
- What types of conflicts exist around different resource uses?
- What happens when there is a conflict?
- How have these changed with time?
- If contradictions exist between formal (*de jure*) and informal (*de facto*) management practices, which do you follow? Which does the community follow?
- In your opinion, is this resource use sustainable? Why?

Appendix B: **Personal Communications**

Stratification of Consultants	**# of Individuals**
• Ministry of Forests (MoF), Field Office, District Office, Regional Office	12
• Ministry of Environment, Lands and Parks (MoELP)	8
• Ministry of Energy, Mines and Petroleum Resources (MoEMPR)	2
• Village of Nakusp, Mayor, Council Members, Chamber of Commerce	7
• Regional District of Central Kootenay: Area K, Director, Planning Office	5
• Pope and Talbot, Director, Planners, Employees, Silviculture	7
• Loggers	6
• Contractors	5
• Citizens of Nakusp	15
• Environmentalist, Valhalla Society	6
• Kootenay Heliskiing	3
• CORE: Commission on Resources and Environment	2
Total:	78

Appendix C: **Composition of the West Kootenay-Boundary Regional Negotiation Table**



Appendix D: **Letter of Appreciation**

Dear ,

"DHANDYABAD." Thank you again for your input into our research project this summer. I think that I speak for everyone on our team when I say that the field season in the Nakusp / Arrow Lakes was an overwhelming success, as well as a highly enjoyable experience. The community was helpful, the people friendly and the landscape beautiful. Who could ask for more!

Now that the fun part of research is over, we are all back at our desks sifting through the materials that we collected this summer. Your input on land-use in the area is an integral part of our data, be it in the form of reports that were made available or local perceptions that you shared. Both sides of the story are important and we hope to use your input wisely. I hope that now, in the writing and review process, we are able to do your assistance justice. Thanks again for your time, patience and the interest that you have shown us as we write about your community. Furthermore, please remember that should you require any further information or clarification about this study please feel free to contact me at the Natural Resources Institute.

Sincerely

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SECTION FIVE

Proposed Framework

The third step of the task force was to identify potential pine mushroom management frameworks and to evaluate them based on whether they achieve the goals and objectives identified in Section 4.

The task force felt that achievement of the goals and objectives before fall 1994 is not realistically attainable. The difficulty of developing regulations for pine mushroom harvesting is compounded by two factors: the lack of scientific data about the effects of harvesting on forest and mushroom ecology; and the lack of social and economic information on the pine mushroom industry.

Given these gaps, task force members decided that at the very least, any management framework recommended should provide the following information about the industry:

- the volume of pine mushroom harvested;
- the locations where pine mushrooms are harvested;
- the time of year pine mushrooms are harvested;
- the number of harvesters operating;
- the value and grades of pine mushrooms harvested; and,
- the potential revenue to the government.

In all, 10 management framework models were proposed and evaluated. All of them were one of three types: management frameworks based on:

1. establishment of a moratorium on commercial harvesting of pine mushrooms;

2. continuation of the status quo; and,
3. management of the pine mushroom industry via:
   - non-tenure based options; and,
   - tenure-based options.

The task force rejected the first two types of management frameworks, as these options do not satisfy the goals and objectives of the task force members. These management frameworks are, nevertheless, discussed below, along with those that address feasible management options for the industry.

Moratorium

Under this type of management framework, a moratorium would be established for a set period of time until scientific research had been completed and scientists could verify sustainable harvesting levels. Researchers generally contend that a minimum of five years is required to undertake such studies.

MODEL 1 Moratorium on commercial harvesting

Advantages:

- permits the development of scientifically based harvest levels;
- addresses public concerns about the impact on forest resource;
- enables assessment of the value of the pine mushroom resource versus that of other forest resources; and,
- eliminates forest user conflicts.

Disadvantages:

- eliminates potential for revenue generation for government;
- eliminates employment opportunities and industry growth during the length of the moratorium;
- affects local and regional development; and,
- does not support scientific research to determine ecological impacts on the mushroom resource and other forest resources.

Continuation status quo

The commercial harvesting of pine mushrooms is now occurring without any understanding of the impact of harvesting levels on either the ecology of the mushroom or the overall ecology of the forest resource.

Government does not have reliable statistics on the size and scope of the industry to be able to evaluate the industry's significance compared to that of more traditional forest resource uses. This lack of information currently prevents incorporation of the pine mushroom resource into integrated resource management.

MODEL 2 Status quo

A second management framework involves maintaining the status quo until adequate ecological, social, and economic information is available to establish a comprehensive regulatory framework for the pine mushroom industry.

Advantages:

- maintains employment opportunities; and,
- maintains local and/or regional development.

Disadvantages:

- continues to be an unaddressed public concern;
- impedes assessment of the value of the pine mushroom resource versus that of other forest resources;
- precludes the direct collection of income tax from harvesters;
- eliminates potential for revenue generation for government;
- does not support scientific research to determine ecological impacts on the mushroom resource and other forest resources;
- does not resolve forest user conflicts; and,
- provides no opportunity for government to address concerns.

MODEL 3 Status quo plus voluntary industry cooperation

Under this management framework, voluntary participation by the industry would provide government with baseline economic and social information on pine mushroom harvesting. This framework supports the development and distribution of educational materials, establishment of scientific study areas, and consultation with stakeholders and First Nations. It also requires the increased enforcement of existing legislation governing, for example, litter, fire prevention, health standards, waste, wildlife, park protection, and environmental protection.

Advantages:

- partially enables the assessment of the value of the pine mushroom resource versus that of other forest resources;
- partially supports scientific research to determine ecological impacts on the mushroom resource and other forest resources;
- supports increased enforcement of existing legislation;
- maintains employment opportunities and industry growth;
- maintains local and/or regional development; and,
- potentially supports formation of an industry association.

Disadvantages:

- continues to be an unaddressed public concern;
- precludes the direct collection of income tax from harvesters;
- eliminates potential for revenue generation for government;
- relies on potentially unreliable volunteered industry information; and,
- does not resolve forest-user conflicts

Management pine mushroom industry

Non-tenure based option

These options would not limit harvesting activity but would provide government with the opportunity to obtain valuable data on the resource, the industry size and rate of growth, the number of harvesters, problems within the industry, and potential growth areas.

MODEL 4 License mushroom buyers only

All pine mushroom buyers under this management model would be required to purchase an annual buyer's license and disclose information. Information collected at buying stations would be specified by government and form the basis for industry data.

At the same time, scientific research would be initiated in various locations in the province, with work carried out in close association with the U.S. Department of Agriculture and state agencies in Washington and Oregon. Increased enforcement of existing legislation, formation of an association, and distribution of educational material would also be required.

Advantages:

- provides a positive starting point and a reasonable approach to immediately address public concerns about the impact of pine mushroom harvesting on other forest resources;
- enables the assessment of the value of the pine mushroom resource versus that of other forest resources;
- supports scientific research to determine ecological impacts on the mushroom resource and other forest resources;
- requires the establishment of effective monitoring and enforcement procedures;
- supports an efficient and effective administration process;
- supports the increased enforcement of existing legislation;
- generates revenue for government through establishment of a license fee system;
- allows for the collection of reliable industry information;
- potentially maintains current employment opportunities and industry growth;
- potentially maintains current local and/or regional development;
- supports the formation of an industry association;
- supports the development and distribution of educational materials; and,
- requires the recognition of pine mushrooms as a valuable natural resource in land-use planning processes.

Disadvantages:

- does not directly regulate harvesting practices;
- provides no opportunity to check industry information, which is collected from only one level, and there is no opportunity to counter check information;
- may provoke reaction that government is restricting a growing industry;
- precludes the direct collection of income tax from harvesters; and,
- does not resolve forest-user conflicts.

MODEL 5 License harvesters only

Under this model, commercial harvesters would be required to purchase a license to harvest pine mushrooms. The task force estimates that between 5,000 and 10,000 harvesters are involved in the industry. Regulating this sector of the industry could thus potentially yield numerous data sets on the industry, but the task force believes it would be administratively onerous to do so.

Advantages:

- provides a mechanism to regulate harvesting practices, with appropriate penalties;
- partially addresses public concerns about the impact of pine mushroom harvesting on other forest resources;
- enables government to collect income taxes directly;
- supports increased enforcement of existing legislation;
- potentially generates revenue for government through the establishment of a license fee system;
- does not restrict employment opportunities and industry growth;
- does not restrict local and/or regional development; and,
- potentially supports the formation of an industry association.

Disadvantages:

- prevents the assessment of the value of the pine mushroom resource versus that of other forest resources;
- precludes the establishment of effective monitoring and enforcement, given the large number of harvesters;

- hinders the establishment of an efficient and effective administration process, given to the large number of harvesters;
- does not resolve forest user conflicts; and,
- does not provide enough data to support regulations for harvesting practices.

MODEL 6 License exporters only

The licensing of pine mushroom exporters would enable the government to collect industry information via the accumulation of required company reports.

Advantages:

- enables the assessment of the value of the pine mushroom resource versus that of other forest resources;
- requires the establishment of effective monitoring and enforcement procedures;
- supports an efficient and effective administration process, given the low number of exporters;
- generates revenue for government through the establishment of a license fee system;
- allows for the direct collection of reliable industry information;
- maintains employment opportunities and industry growth;
- maintains local and/or regional development; and,
- has province-wide application.

Disadvantages:

- provides no opportunity to check industry information, which is collected from only one level;
- continues to be an unaddressed public concern;
- precludes the direct collection of income tax from harvesters;
- does not resolve forest-user conflicts; and,
- does not support scientific research to determine ecological impacts on the mushroom resource and on other forest resources.

MODEL 7 License both harvesters and buyers

Under this model, both commercial pine mushroom harvesters and buyers would be required to purchase an annual license. Buyers would be required to disclose information to government as specified by the conditions of the license. The license would neither be area nor volume based and would be applied on a provincial basis.

Advantages:

- provides a mechanism to regulate harvesting practices, with appropriate penalties;
- partially addresses public concerns about the impact of pine mushroom harvesting on other forest resources;
- enables assessment of the value of the pine mushroom resource versus that of other forest resources;
- supports scientific research to determine ecological impacts on the mushroom resource and other forest resources;
- enables government to collect income taxes directly;
- supports increased enforcement of existing legislation;
- potentially generates revenue for government through the establishment of a license fee system;
- allows for the direct collection of reliable industry information;
- does not restrict employment opportunities and potential industry growth;
- does not restrict local and/or regional development;
- supports the formation of an industry association; and,
- supports the development and distribution of educational material on, for example, responsible harvesting methods and health and safety.

Disadvantages:

- precludes the establishment of effective monitoring and enforcement, given the large number of harvesters;
- hinders the establishment of an efficient and effective administration process, given the large number of harvesters;
- does not resolve forest-user conflicts; and,
- does not provide enough data to support regulations of harvesting practices.

Tenure-based options

These options would impose a limit on the level of harvesting. They are generally not considered to be achievable at this time, given the lack of information about the resource and the industry and the lack of a supporting government regulatory infrastructure.

MODEL 8 Volume-based harvesting quotas

The establishment of volume-based harvesting quotas would permit continued harvest at ecologically sustainable levels.

Advantages:

- provides government with a process by which to collect income tax from harvesters;
- supports increased enforcement of existing legislation;
- potentially generates revenue for government; and,
- improves ecological sustainability.

Disadvantages:

- prevents the assessment of the value of pine mushroom resource versus that of other forest resources;
- does not support scientific research to determine ecological impacts on the mushroom resource and other forest resources;
- requires considerable scientific research to support model;
- may increase forest-user conflicts;
- precludes the establishment of effective monitoring and enforcement; and
- requires the establishment of an efficient and effective administration process.

MODEL 9 Area-based harvesting

Under this tenure type, exclusive commercial harvesting rights would be assigned by particular forest areas.

Advantages:

see comments for Model 8 - Volume-based harvesting

Disadvantages:

- requires considerable work to determine tendering and award system.

see comments for Model 8 - Volume-based harvesting, also

MODEL 10 Time-based harvesting

With this type of tenure, time windows to harvest mushrooms would need to be established. The intent would be to limit the harvesting period to a portion of the fruiting season of the pine mushroom.

Advantages and Disadvantages:

see comments for Models 8 and 9

Task force members discussed and evaluated all 10 models on the basis of how each one addressed the range of issues identified in Section 3. As a result of this evaluation, Model 4, license mushroom buyers only, appears to address the most issues of any of the other models considered. Table 2 shows that Models 4, 8, 9, and 10 appear to meet the highest number of the management framework goals developed by the task force. The latter three, however, which are all tenure-based options, are not considered to be practicable at present because of their reliance on an extensive information-based regulatory systems.

Obviously, various combinations of the 10 models could be applied, such as licensing harvesters, buyers, and exporters, or establishing area-based tenures in some areas and no tenures in other areas. Nevertheless, the 10 models represent the key elements of all of the potential suggestions for addressing the issues.