

**INTEGRATED NATURAL RESOURCE MANAGEMENT -- A
QUESTION OF PROPERTY INSTITUTIONS?**



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ABSTRACT

Natural resource management is commonly described as a means to achieving environmental conservation. An approach favoured by academics and managers alike is that of integrated management. As a process which extends across resource disciplines and sectors, within and between government and private organizations, and with aims set for social and economic change, integrated natural resource management has been difficult to achieve. Several reasons are possible; however, property institutions appear to be of foremost influence. Drawing upon a field study during which the Inuvialuit's (a Canadian Inuit society) common property system, the Canadian government's state property regime, and the private property of citizens were evaluated, a conclusion is reached: prevailing property systems greatly influence the achievement of integrated natural resource management. The common property system of the Inuvialuit fosters an integrated approach, one which is less likely to emerge under state or private property regimes.

Environmental conservation is considered the popular outcome of natural resource management; however, the thesis proposes that such management strives neither for conservation nor preservation, but rather for environmental rehabilitation: redirecting, mediating, and repairing the human uses and impacts within the natural environment. Whether integrated natural resource management leads to better environmental rehabilitation outcomes is beyond the scope of this thesis. However, it does appear that societal values are closely linked to achieving environmental rehabilitation and that the aims of environmental rehabilitation can likely be achieved under any one of the three property institutions: common, private, or state.

INTRODUCTION

The belief that the natural environment needs to be managed and that humans are the agents by whom this management should be accomplished is age-old. Today, the need for and means of natural resource management are described in terms of ecological approach, integrated methods, and sustainable development. These terms continue to breed the misconception that humans manage nature -- that it is all a matter of manipulating the characteristics and behaviours of plants and animals. Natural resource management, however, should rightly be called "human management," for its influence can only be directed at the characteristics and behaviours of humans. Failure to understand and address the needs of this fundamental observation is perhaps basic to the fact that there many more examples of environmental degradation than there are of real environmental conservation.

The problem is that the theoretical and historical frameworks on which Canadian natural resource management are based have received little examination. Research in the management of natural areas tends to focus on components of the natural environment. Ecosystem science is really a subfield of wildlife biology, using scientific method that applies to nature but not to people. Social science is preoccupied with studying human behaviour and has no method for studying natural areas. *There is no science for studying the relations between natural areas and processes, and human institutions and behaviours.*

Human attitudes and behaviours toward natural environments are expressed primarily as components of two variables: societal values and property institutions. Societal values represent how a relationship is perceived; property institutions represent how these perceptions are defined in terms of use, access, and ownership. A study of property institutions would therefore provide a link between economics (what is valued) and human behaviour (what is acted upon) toward the natural environment. Such a study has been undertaken in this paper, in which property institutions are assessed for their influence on integrated natural resource management.

RESEARCH METHODS

The field study began in the northern community of Nain, Labrador (April 15-May 15), and later moved to Inuvik and Tuktoyaktuk, Northwest Territories (NWT) (May 20-August 15). During the time spent in Nain, the author participated in several hunting trips and kept a detailed diary which was later analyzed in conjunction with the field study notes accumulated in the NWT. Many observations made in Nain directly support the findings and discussions of the Inuvik report. The work completed in the NWT included 14 days spent in the hamlet of Tuktoyaktuk (June 26-July 10) and 75 days in the town of Inuvik (May 20-June 25; July 11-August 15). While in the NWT, interviews were completed with 41 respondents representing the three categories of property institutions (i.e., common, private, state). See Appendix A for a listing of organizations represented throughout the interviews. All empirical research and analysis was undertaken using qualitative methods (cf. Kirby and McKenna, 1989).

A literature review, begun prior to the field study and carried out more extensively thereafter, provides legal, economic, anthropological and philosophical perspectives to the field analysis.

DEFINITIONS AND EXPLANATIONS

There are several terms which make the discussion of natural resource management difficult. First, one must understand what a natural resource is, whether and how it would differ from a natural environment, and how humankind influences or "fits into" these definitions.

Natural Resource and Natural Environment

The Field Study established diverging definitions of the concept of "natural resource." Non-aboriginal¹ interviewees consistently defined a natural resource as anything which was not human-made and that was of some use. It therefore included such things as oil, gas, wildlife, and fish. Inuvialuit² interviewees identified a natural resource as being anything that was not built; it was the general environment. They included lichens, berries, caribou, water, and air in their definition as well as people's knowledge about natural resources.

In popular terms, the "natural environment" is understood to include all elements of the universe which are formed by nature (as opposed to being formed by humans and thus being artificial). The question arises, to what extent are humans not part of the natural environment? Separating humans and their activities from that which is considered natural is one way in which humans have altered and, in many cases, severed the emotional and rational connection with the natural environment. Indeed, separating humans and their constructs from that which is natural was crucial to the development and widespread acceptance of Western science (Worster, 1977). Including human beings in the definition of "natural environment" is important, for humans are part of the scene. "The objective of resource management must be to create a whole that contains, respects and expresses the presence of humans" (Dorney, 1987: 208). The Inuvialuit definition of "natural resource" seemed to make no distinction with the "natural environment." Defining "natural resource," in an all-encompassing way as the Inuvialuit do, is appropriate to encouraging an integrated approach to natural resource management. Therefore, no distinction is drawn between a "natural environment" and a "natural resource."

The goal of natural resource management is more correctly identified as environmental rehabilitation rather than environmental conservation or preservation, because it occurs "after the fact." Management activities are

¹ Aboriginal is defined to include Canadian citizens who are Inuit, Indian or Métis (as defined in the Constitution Act of 1982) unless specified otherwise. Non-aboriginal includes all those Canadian citizens not identified as aboriginal.

² Inuvialuit is the common name of the native residents of the Mackenzie Delta, NWT in the area covered by the Inuvialuit Final Agreement.

concerned primarily with the "control of impact" and the "fixing-up" of natural environments. *Rehabilitation* means "to restore to a condition of good health, ability" (Webster's Dictionary, 1989). By concerning itself with the natural environment only after it has been influenced by human activity, natural resource management primarily strives to accomplish *environmental rehabilitation*.³

PROPERTY INSTITUTIONS AND ENVIRONMENTAL REHABILITATION

Property is both a right and an institution. It is a concept that is controversial because it underlies the means and actions of a whole society, and these purposes change over time; as they change, controversy arises about what the concept of property is doing and what it ought to be doing (MacPherson, 1978). Property underlies absolutely every aspect of economic activity and thereby every aspect of human liberty (Harper, 1974).

As a right, property may be defined in both legal and moral terms. Many would say that the right of property holds its foundation in the basic presumption of an individual's right to life (e.g., MacPherson, 1978; Proudhon, 1970). This right to life is not simply to mere existence, but to a fully human life: a good life. Therefore the right to property exists in such social guarantees of human society as the Canadian Bill of Rights, and in recently-proposed amendments to the Canadian Constitution. Property thus becomes a legal right when it carries with it an enforceable claim of legal dimensions. Enforceability, however, is not the sole characteristic of a legally-sanctioned right, for enforceability depends on society's belief that it is a *moral right* also. Property is an enforceable claim because it is believed to be a moral *human right* (MacPherson, 1978).

Property rights predominantly focus on what the common law calls "real property": a holder's relationship to a parcel of land (Scott, 1983). Real property is landed property⁴, and excludes rights related to other properties of personal possession (e.g., rights associated with the ownership of a car, house). Land is almost the only natural resource which humans have been able to sufficiently appropriate for exclusive human benefit (Yandle, 1983).

³ Environmental rehabilitation applies not only to the natural resource management goals of an already altered environment (e.g. a clear-cut forest) but also to a planned alteration of the environment (e.g., the forest that will be cut). Once a decision has been made for the active interference of humans in a natural environment then the process of natural resource management begins.

⁴ *Landed property* refers to any part of the earth's surface which can be defined and owned by humans (Scott and Johnson, 1983). This presently includes continental earth surfaces; continental subsurface rights; river, stream and lake bottoms; land locked or semi land-locked water bodies; beach and continental shelf areas. As the system of property becomes more sophisticated in its means of boundary definition and enforcement, landed property may evolve to include rights to such factors as air masses, ocean waters, and migratory wildlife.

Therefore, property rights in general have come to be synonymous with landed property rights, although it should be remembered that land is but one of many things to which humans can and have assigned property rights; some of the other things are other humans (slavery), other animals, manufactured goods, and intellectual reasonings.

A property institution is a political and social entity to structuring the relationships between people and between people and resources, in this case *natural* resources. Property institutions derive their meaning from their particular structuring of rights (Bromley, 1991). Hence, there are four classifications of property institutions: private, state, common, open access. Each of these institutions acquires distinguishing characteristics as defined by two factors: public perception and governmental legitimization. Public perception is the primary means by which public society determines what is scarce and what is valuable (Bromley, 1991). A resource which is, for example, perceived by society as being valuable will be favoured to the management of the property institution which can best secure its equitable and long-term use. Security is a function of legitimization, a feature which is largely determined by the government in power. For example, the Canadian government for many years refused to discuss the concept and arrangement of a common property system as part of aboriginal land claims. Land claims such as the Inuvialuit Final Agreement, which contain the notion of common property management, are dependant on the Federal government's continuing respect and support. The Federal government through its manner of treatment and discourse has a powerful influence on legitimizing a property institution.

The institution of property is different from mere possession, which characterizes the social relations among primitive and non-human societies. The fact that all forms of life are instinctively propelled toward food which they possess and ingest, is what LeFevre (1966) believed to define a property relationship. LeFevre failed to draw a distinction between property and possession. The distinction lies with the fact that humans have what no other sentient being has: political institutions. Institutions have been sanctioned with the power to enforce the ideals of human society. What distinguishes property from possession is that property is a claim which will be enforced by society (Harper, 1974). Possession, which describes one creature's physical power over another, establishes only the presumption of ownership. Property establishes exclusivity of ownership via an enforceable claim.

Private Property

Private property is the most familiar property regime and includes not only individual, but also corporate ownership arrangements. Under a private property institution it is usually a single individual who makes management and investment decisions. Private property is the primary institution of capitalist countries and, indeed, is a prerequisite in the development of capitalist markets. Since the 1700s and through to present times, private property continues to be considered the basis of liberty in the developed countries of the world (Ryan, 1987).

State Property

Property to which the state (i.e., government) has ownership and

management control is generally defined as state property. State property includes such areas as natural parks, aboriginal and military reservations, and federal/provincial crown lands. It also includes lands not directly managed or controlled by the state (e.g., oil or mineral leases). Resources which are indirectly managed or controlled through lease to groups or individuals are termed usufructuary rights⁵ and are established for a specific period of time (Bromley, 1991). Such arrangements remove most managerial discretion from the user (or leaser), generally convey no long-term expectations, and therefore continue to be classified as state property.

State property (often commonly referred to as public property) should not be confused with public goods. A public good is defined as anything (i.e., natural or artificial) whose consumption/use by one individual does not reduce its amount or availability for any other individual (Fisher and Krutilla, 1974). A public good (e.g., ground water, the atmosphere) can therefore come under the management of any one of the four property institutions.

Common Property

Common property situations are really the private properties of a group. Under such a regime of group ownership, the behaviours of all members of the group are subject to accepted rules, with actions being closely monitored by all group members. Common property situations have a cultural context which is compatible and indeed necessary for the effective continuance of such a regime. Common property also has a built-in structure of economic and non-economic incentives that encourages compliance with the rules and conventions established by members. Many of the lands held in common by aboriginal groups fall under such a property regime.

Common property is often described as utopian, as incompatible with the good of society and the individual, as retarding development, as arbitrary, and as unjust (Dietze, 1963). It is a controversial concept mainly because it is based on a different philosophical basis of traditional views as opposed to Western scientific and capitalistic management systems. Furthermore, countries which sanction private property often refuse to legitimize and protect different property regimes.

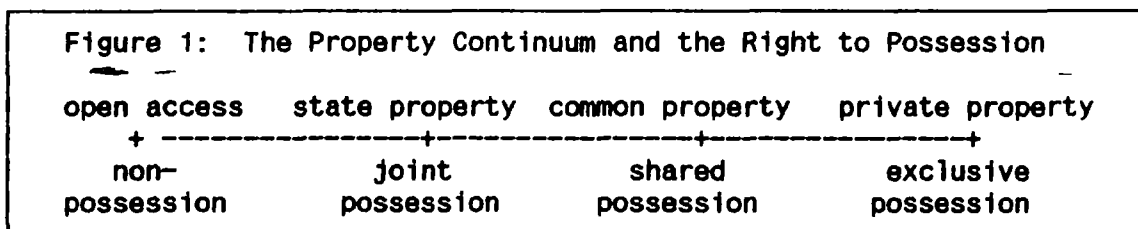
Open Access

The last category of property, open access, is frequently confused with that of common property. What distinguishes an open access regime, however, is the complete absence of property rights. This would be true for such regions and resources as the high seas, global air masses, etc. Similarly, natural resources which are subject to the rule of capture (e.g., oil and natural gas) which belong to no one until they are in someone's physical possession are considered open access resources.

⁵ *Usufructuary right* is the right of enjoying all the advantages derivable from the use of something which belongs to another, as far as is compatible with the substance of the thing not being destroyed or injured (Webster's Dictionary, 1989).

Essential to all property regimes, except that of open access (which by its very definition excludes it), is a system of authority that ensures the enforceability of rights. Effective enforcement means the existence of clear intentions, legitimate rules and credible threats (Bromley, 1991). Intentions are commonly stated in policy documents or legal statutes. The Inuvialuit, for example, have their intentions outlined in the Inuvialuit Final Agreement. Legitimacy in rules speaks to both the internal management regime and the external nation state(s). The Inuvialuit have numerous by-laws on the books and these address both Inuvialuit and nation state concerns for the natural environment. The last element for effective enforcement is that of credible threat; it means the use of sanctions against all those who defy the rules of property institution. When any one of the three key elements of the authority system breaks down (i.e, clear intentions, legitimate rules, credible threat), the property regime essentially degenerates to one of open access.

Viewed in a property continuum (Figure 1), the property systems can be readily contrasted by their varying rights to possession. Important in understanding property systems is that there are not just four different kinds. Rather there are a multitude of property systems all along the property continuum, ranging from characteristics of open access to those of private property.



Property Institutions: An Examination of Their Evolution

There are generally three views as to the origin of property institutions in general: (1) that property institutions are purely cultural artifacts (e.g., Jorgensen, 1990; Pejovich, 1972; Scott, 1988; Usher and Bankes, 1986); (2) that property institutions evolved spontaneously as did the concepts of language and money and that the development of property rights was part of the natural evolution of human society (e.g., Bromley, 1991; Demsetz, 1967; Lefevre, 1966; Letourneau, 1901; Marriot, 1985; Scott, 1983); and (3) that property institutions evolved as a means to economic efficiency and societal law and order (e.g., Lord, 1985; Paul and Dickman, 1990; Riches, 1982; Stevenson, 1991; Yandle, 1983).

The difference between the first two views for the origin of property institutions is one based primarily on definition. Cultural characteristics are commonly defined as pertaining to allocations of time and resources while societal characteristics include those elements which represent a change in norms, ideals, values, etc. (Riches, 1982). Earlier, property was defined as being a means to organizing the relationships among people in regard to resources of perceived value; therefore, property is a societal characteristic.

The third view gives property as a means to economic efficiency. Human labour being the predominant feature of prevailing economic systems, the third perspective therefore suggests labour as the basis of property.⁶ Labour, however, is a means to *possession* not necessarily property. Furthermore, if labour is all that counts, then humans would be sanctioning thievery and warfare (Schmid, 1987). Rather, it is argued that property derives its content and validity from the choices that society makes in regard to what efforts should count (i.e., be rewarded) and which should not. It further emphasizes the origin of property institutions as being a component of societal evolution.

The Evolution of Property Institutions in National Society⁷

Canada shares numerous characteristics with other developed countries⁸ of the world, but the most fundamental of these are capitalism and democracy. Capitalism is based on the concept of private property; and it is the ideal of democracy which legitimizes the reign of the private individual in a market economy. Agriculture is what many researchers believe prompted the evolution of the English (Anglo-Saxon) property system; and it has been proposed that private property is the "myth" on which democracy is based.

It is a common view in societies of Anglo-Saxon origin that the development of fixed agriculture is closely tied to the development of property institutions in natural resources. It is with agriculture that it became necessary to regulate the right to landed property (Letourneau, 1901). Property rights in agriculture secured tenure, gave incentive to labor, and increased productivity (Ryan, 1987). As agricultural property became organized and transferable by inheritance, it also became increasingly alienable and divisible. The division of land for agriculture had other benefits as well: social evolution, primarily through the subordination of nature to humankind (Pejovich, 1972). It led the way toward commerce (for the invention of monetary systems of exchange soon followed that of efficient agriculture) and innovation. Soon land, labour, and capital formed jointly the basis of the production process in capitalist markets. Today, land is no longer a direct input to the market system; rather, it is an indirect commodity, important because all other activities of capitalist society take place upon it (Goldberg, 1974).

⁶ John Locke was the principal advocate of the popular notion that property derived its foundation in labour (i.e., that the investment of time and effort by an individual gave them ownership or property rights).

⁷ *National* refers to the property system predominant in southern Canada. It is a system which shares common roots with the Anglo-Saxon view of property.

⁸ Developed countries are those having a high standard of living and which have, through capital and skilled labor achieved the full development of resources and industries. Examples include Canada, United States, Great Britain, Western Europe, Japan, etc.

While capitalist markets have their basis in private property, it is democracy which gives the system of private property legitimacy. More correctly, democracy is based on the *myth* of private property. A myth is an analogy which helps to simplify the world (Innes, 1990). Myths are created from a collection of shared images, symbols, characters, and modes of action within a society; they represent ideals. The institution of private property is such an ideal. As an emerging nation in the mid-1800s, Canada sanctioned the farmer as the ideal citizen (Innes, 1990). The farmer was perceived as politically independent, responsible, economically productive, morally respectable. When the first Europeans arrived and settled in Canada, there was no necessity to defining property rights and establishing property institutions, because the land and its resources appeared to be of infinite quantity. However, as settlement continued, pressure to allocate land and natural resources mounted and property institutions and rights became established. The myth of the "good farmer" prevailed and farmers were granted large sections of land at generous prices. Even today, when farmers represent a small proportion of Canadian society,⁹ agricultural subsidies continue; they are supported by public rhetoric regarding the family farm.

As Canada has become more urbanized throughout the twentieth century, a new version of the myth has been formulated (Innes, 1990). In this version, the "good farmer" has been transformed to include the suburban home owner. While suburban home owners no longer make a living from the land, they are still the symbol of independence, social responsibility, family life, and personal success.

The shared meanings of property in North American society are deeply embedded in social policies. The farmer and the suburban home owner are part of the shared images of society representing not only the values held in property, but the vision of democracy itself. The very words by which the farmer and the suburban home owner are described are also commonly employed in the description of democracy: political independency, social responsibility, economic productivity, moral respectability are central to society's view to democracy (Innes, 1990). Property and the right to property assures the citizen a stake in the system. Indeed, there are other means to achieving a democratic society than by private property (co-ownership or common property, for example). The institution of private property is popularly seen as a way of maintaining a democratic society because it is associated with myths that were central in the early years of nationhood in North America.

During Canada's ongoing constitutional discussions of the 1980s and early 1990s, a call has been made for the revision of the Canadian Charter of Rights and Freedoms (1982), to include an individual's right to property (Freeman, 1991). The request for greater definition of individual property rights emphasizes that the paradigm of private property continues to be central to right-wing democratic society in Canada.

⁹ In 1990, 3 to 4 out of every 100 Canadian families was a farming family. In 1885, 60 out of every 100 families farmed (Canada Year Book, 1990).

The Evolution of Property Institutions in Canadian Aboriginal Society

There are generally two views as to the origin of a property institution in natural resources among the aboriginal peoples of Canada: (1) that an institution of property has always existed and is evident in the hunting territories and the sharing of meat in aboriginal societies (e.g., Cummings, 1974; Letourneau, 1901; Scott, 1988; Usher and Bankes, 1986); and (2) that an institution of property began developing only recently, as southern society increasingly encroaches on traditionally used lands and waters (e.g., Altman and Peterson, 1988; Riches, 1982).

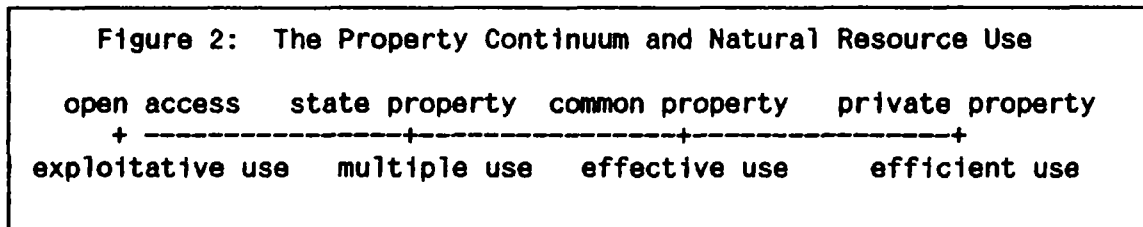
The first view is commonly held by those who make no distinction between the concepts of property and possession. As previously defined, property is possession plus the acknowledgement of such possession by a society which will defend individual or group possession. Reports of land ownership, tool ownership, and kill ownership have been readily taken as evidence that an institution of property exists in land and natural resources. Ownership of tools is primarily a means to identifying the killer of an animal and allows the hunter the right to distribute the kill. Ownership of tools motivates hunters to hunt (Altman and Peterson, 1988). Property in land is thought to exist by some writers because hunter-gatherer societies had to ask for permission before entering neighbouring lands (Riches, 1982). This action of requesting permission is more related to establishing whether newcomers had hostile or friendly intentions. The designation of tribal (or band) territories were really a means to describing hunting ranges and thereby the regulation of competing hunting activities. These observations give examples of aboriginal use of force in order to secure possession. Property is much less an element of force and more one of administrative procedure, given to regulating human relationships and summarizing the values of the collective. It is very difficult to generalize the concept of property across various aboriginal societies, however, it can be summarized that hunter-gatherer societies contain primarily examples of possession, not property.

That the institution of property is recent in Canadian aboriginal societies appears to be a more correct view in light of the definitions provided earlier. Contemporary land claims are based on traditional use and occupancy studies, which are hardly representative of a society's values and relationships. Many factors external to the traditional lifestyle (e.g., commercial resource development, the demand for fish and animal resources in Canada and abroad, and non-native demands for land ownership) are pressuring aboriginal peoples to define themselves in terms negotiable with national society. It has been a matter of the natives fitting their views into those of national society and not vice versa. Native land claims have, until recently, been settled because the political pressures were enormous and the economic consequences tremendous. For example, the James Bay Northern Quebec Agreement was settled while a multi-billion dollar hydro-electric project in the region was imminent. The Inuvialuit Final Agreement was settled during a time when multi-billion dollar oil exploration projects in the Beaufort Sea were being discussed. One possible exception to the trend of economic pressures, which characterize most aboriginal land claim agreements, is the recent agreement-in-principle for the Nunavut land claim in Canada's eastern Arctic (Delacourt, 1991). The Nunavut claim appears to emphasize social benefits. Although economic benefits may ensue, they seem not to dominate as they have in past land claim negotiations.

The Institution of Property and Environmental Rehabilitation

There is no easy differentiation to be drawn between aboriginals and non-aboriginals with regard to what is commonly termed environmental conservation and what has herein been described as environmental rehabilitation. The challenge is to forego the tendency to select a property institution or society for its *apparent* influence on conservation/rehabilitation and instead to interpret people and their relationships among each other and toward natural resources. It is people who are the important variable; there is nothing inherent in a resource or a society which determines absolutely the nature of the property institution (Gibbs and Bromley, 1989); rather, it is the human-human and human-nature relationships which determine a society's potential to achieve environmental conservation/rehabilitation.

Studying and interpreting people and their interactions in and with the natural environment should be central to the regulation of human-nature interactions and property institutions. Environmental policy is really concerned with altering the actual and presumed property institutions within a society (Bromley, 1991). What environmental policy does is redefine certain variables along the property continuum in order to redirect, control and mitigate human actions toward and within the natural environment. In Figure 2, for example, natural resource use can be contrasted along the continuum ranging from exploitative use to efficient use.



Property institutions, being concerned primarily with human relationships, necessarily require that environmental managers study people. A survey of natural resource or wildlife managers, however, would demonstrate that it is not people who are studied, but rather wildlife and wild habitat. In 1990, for example, of the 194 papers published in the Journal of Wildlife Management, only two related to people.¹⁰ Environmental managers consistently pay little attention to the economic and social conditions which influence human relationships with the natural environment.

Characterized by differences in economy and social values the property systems of aboriginal and non-aboriginal Canada continue to evolve and establish qualifying trends. Co-management (e.g., the Inuvialuit Fisheries Joint Management Committee, composed equally of government and Inuvialuit) is

¹⁰ One examined the survival of pheasants in relation to hay-cutting practices, while the other monitored changes in coyote movements due to military activity.

a powerful example of the two societies merging with respect to property institutions. In Southern Canada, failure of the capitalist market system to provide adequate environmental controls, indifferent response from government intervention and increasing concern of Canadians for effective natural resource management are pushing for alternative institutions (Chopra *et al.*, 1989). As attitudes change, property institutions must change.

INTEGRATION: A KEY ELEMENT IN NATURAL RESOURCE MANAGEMENT

Integration is a process that serves to bring together a wide range of needs and values into the decision-making process. Management is a term which refers to the way in which people relate themselves to material and natural resources (Williams and Hunn, 1982). Natural resource management is therefore really "management" of human uses of the natural environment. The natural resource management-utilization relationship is a complex web of activity, bringing numerous variables into the management context (Cocklin, 1988): physical, biological, economic, institutional, moral, social and, technological.

The concept of integrated resource management is most explicitly defined by Mitchell (1986) who details four characteristics unique to this approach. First, integration requires that the plan or program have more than a singular purpose, that it be achieved through a variety of means, and utilize various strategies for the involvement and collaboration of participants. Secondly, integration requires the blending of various resource sectors. The third requirement states that resource management be utilized as a mechanism for social and economic change. And lastly, throughout the entire process, one must strive for accommodation and compromise.

Mitchell's ideas for integrated management share a certain commonality with similar approaches.¹¹ Vallentyne and Beeton (1988), for example, discuss integrated management in terms of an ecosystem approach, key characteristics being synthesis (integrated knowledge), a holistic perspective (one which considers various systems and their interrelations), and actions which are anticipatory and ethical with respect to the global environment. Using a metaphor, Vallentyne and Beeton describe the conventional approach to management like a "house" (external and detached) whereas the ecosystem concept is much more like a "home" (internal and inter-connected). What becomes evident is that integrated management is as much a state of mind as it is a management skill.

Using the ideas of Mitchell (1986) and Vallentyne and Beeton (1988), a series of indicators have been defined to more fully describe the framework of integrated natural resource management supplied by Mitchell. Table 1 summarizes the relevant components and their objectives.

¹¹ Other authors who have written about the idea of resource integration: Anderson (1985) (multiple objective planning); Osherenko (1988) (co-management); Vallentyne and Beeton (1988) (ecosystem approach to management).

Table 1: The Components and Indicators of INTEGRATED NATURAL RESOURCE MANAGEMENT

<u>Component</u>	<u>Indicators</u>
<p>Multiple Purpose <i>(fulfilling multiple objectives as defined by agency(ies) within similar resource sector)</i></p>	<p>-Nature of inter and intra-departmental (disciplinary) involvement (coordinated and collaborative vs. disjointed action when conceiving, designing, implementing policies, programs, projects; multi-disciplinary vs. single-purpose activity).</p>
<p>Multiple Means and Strategies <i>(how objectives are realized)</i></p>	<p>-Range of actions considered (direct vs. indirect action; multifaceted vs. singular approach; dynamic vs. static; functional and adaptive vs. rigid).</p>
<p>Multiple Participant Strategies <i>(by whom objectives are accomplished)</i></p>	<p>-nature and pervasiveness of public and private sector interaction/involvement when conceiving, designing, implementing policies, programs, projects (nature and function of institutional/community committees, boards or other liaison strategies).</p>
<p>Blending of Resource Sectors <i>(fulfilling multiple objectives as defined by agencies of different resource sectors)</i></p>	<p>-definition of "resource" (selective [restrictive] vs. comprehensive). -definition of resource area in which direct and indirect concern is held (multi-sectoral vs. single sector activity). -data management (multi-sectoral vs. single sector analysis)</p>
<p>Mechanism for Social and Economic Change <i>(why objectives are put in place)</i></p>	<p>-type of policies instituted (reactive vs. proactive) -definition of management goals (focused and selective vs. broad and vague) -definition of conservation goals (defined in social and economic parameters vs. biological terms only). -consideration of alternative types of resource development to meet management goals</p>

... continued

Table 1 (continued)

Accommodation and Compromise <i>(the human setting in which it all takes place)</i>	-decision-making capacity (consensus vs. adversarial) -type of forums for discussion (joint committees, boards, vs. highly selective, exclusionary membership groups). -problem solving strategies (technical data gathering vs. interactive discussion vs. use of power [e.g. decision made predominantly by head of department with little or no data gathering or discussion] in decision making process). -capacity to cope with change (stable and flexible vs. unpredictable and unadaptable)
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<u>Sector</u>	<u>Discipline</u>
RESOURCE SECTORS: Renewable Resource	-flora -energy (solar, wind) -fauna -soils -water -air
Non-renewable Resource	-energy (hydrocarbons) -minerals -geologic (landscape)
Human Resource	-culture -politics -society -legislation
Economic Resource	-money -institutions -technology

The first component, "multiple purpose," is aimed at encouraging agencies of a similar resource sector to collaborate and coordinate their efforts to accomplish their objectives jointly. A resource sector is defined as one of four elements: renewable resource (to include consideration of flora, fauna, water, air, soils, and solar/wind energies); non-renewable resource (to include consideration of hydrocarbon energies, minerals, geologic, and landscape resources); human resource (to include consideration of cultural, societal, political and legislative resources); and economic resource (to include consideration of monetary, technical and institutional/administrative resources). Multiple purpose thus means agencies of the same resource sector but of different disciplines becoming involved in shared objectives.

"Multiple means and strategies," the second component, means

consideration and implementation of a range of methods and actions to serving the management objectives. For example, multiplicity in approach may be achieved using benefit-cost analysis, social impact assessment, and public participation in defining and implementing strategies. It also means addressing strategic options and considering the means to implementing the methods. For example, public participation can be sought via special departmental committees, commissions or task forces.

The third component, "multiple participant strategies," describes by *whom* objectives are achieved. It includes participation on both political/bureaucratic levels and within the local/regional public community.

The resource sector(s) within which an agency defines itself along with the content and strategies of its data management tells of an agency's sectoral bias. These factors are indicators of the fourth component, the "blending of resource sectors." This component is concerned with whether an agency strives to define and accomplish its objectives across resource sectors. For example, natural park agencies are thought to be multi-sectoral because they are concerned with both renewable and non-renewable as well as human resource disciplines.

The fifth component, "mechanism for social and economic change," involves assessing and understanding why certain objectives are important and to whom and what their potential for change is targeted. Policies which aim for change must necessarily be *proactive* rather than *reactive*. Reactive policies accept and adopt the basis of change already created by other organization(s) rather than initiating change themselves. Proactive management results from "make-it-happen" policies (Lang, 1986:48).

"Accommodation and compromise," the final component, involves consideration of both methods and strategies. It encourages consensus decision-making, use of joint committees, multiple data gathering methods (e.g., quantitative, qualitative), and structures which are stable and flexible. Stability gives certainty whereas flexibility permits modification.

SOCIETAL CHARACTERISTICS - THE KEY TO INTEGRATION

Notes From the Field Study

The Field Study allowed for a number of variables related to landed property and natural resource management to be assessed across three property regimes: state (crown), private and, common. All these property systems are legally recognized in Canada by statutes of law. Legal recognition is really a means by which society distinguishes a property institution from mere possession.

The Field Study sought to document popular perceptions of the three property institutions. Table 2 summarizes the legal, cultural, and natural resource management variables assessed by the Field Study. The table further provides an interpretation of each variable under the three property institutions examined and allows for comparisons and contrasts between the

Table 2: Three types of property regimes and the variables assessed regarding respective property institutions and integrated natural resource management.

<u>Variable</u>	<u>State Land outside Settlement Region</u>	<u>Private Property in town</u>	<u>Inuvialuit 7.1(a) & 7.1(b)</u>
Nature of the property right	-exclusive and transferable	-non-exclusive and transferable	-exclusive and non-transferable
Access rights	-all persons (unrestricted)	-designated individuals only (restricted)	-all Inuvialuit beneficiaries & designated individuals only (restricted)
Use rights	-all persons (restricted)	-designated individuals only (restricted)	-all Inuvialuit & designated individuals only (restricted)
Type of natural resource rights	-exclusive(state) -preferential (Inuvialuit)	-exclusive(state) -preferential (individual)	-exclusive (Inuvialuit)
Way of defining property	-resource for economic and strategic benefit	-an economic entity	-a means to controlling development
Existence of rules	-legal	-legal -some social	-social -legal
Participation in rule/policy determination	-relevant gov't departments -selective Inuvialuit input	-municipal councillors	-selected Inuvialuit
Means to rule enforcement	-by wildlife and land regulators -by courts	-by courts -by town management	-by neighbours -by community -by Renewable Resource Committees -by courts
Ways of monitoring and influencing behaviors of others	-hunting licenses -public information -fines	-security surveillance -community watch groups -fines	-hunting quotas and boundaries -community observations -fines

<u>Variable</u>	<u>State Land outside Settlement Region</u>	<u>Private Property in town</u>	<u>Inuvialuit 7.1(a) & 7.1(b)</u>
Right to enforceable decision-making	-Various federal departments: DIAND, EMR, F&O, RR, EC -respective dept. Ministers	-municipal councillors -mayor	-select community members -Chairperson - IGC, IRC, and RRC's
Management goals	-economic and strategic benefits -multiple use	-efficient use	-equal access -preserve for future use -economic benefits
Inter and Intra-departmental activities	-single-purpose	-single-purpose	-multi-disciplinary
Management actions	-singular approach	-singular approach	-multi-faceted approach
Maisson Strategies	-management and planning committees	-advisory boards	-community corporations -management and planning committees
Public and Private Sector Involvement	-public sector consulted for implementation -some consultation with private sector for implementation	-public sector consulted for implementation -other private companies consulted for implementation	-Inuvialuit consulted for conception and implementation
Way of defining natural resource	-anything which maintains the potential for economic rent (use)	-something which can be used by humans	-all of nature including berries, caribou, and even people's knowledge about the natural environment

...continued

<u>Variable</u>	<u>State Land outside Settlement Region</u>	<u>Private Property in town</u>	<u>Inuvialuit 7.1(a) & 7.1(b)</u>
Definition of resource area of most concern	-non-renewable, renewable	-economic, human	-renewable, non-renewable, human, economic
Data management	-multi-sectorial (renewable, non-renewable)	-multi-sectorial (human, economic)	-multi-sectorial (renewable, non-renewable, human, economic)
Type of policies	-broad, reactive	-selective, reactive	-broad, reactive
Way of defining conservation goals	-future use -multiple use	-efficient use	-controlled use -community welfare
Alternative types of resource development considered	-tourism -subsistence hunting	-tourism	-tourism -recreation -subsistence harvesting
Decision-making process	-adversarial	-adversarial	-consensus
Means to dispute resolution	-decision by Minister -public hearings	-decision by mayor -public hearings -community consultation	-community consultation -public hearings -decision by IGC, IRC, EIRB or arbitration board
Problem-solving strategies	-use of power	-use of power	-interactive discussion, data gathering, use of power
Capacity to cope with change	-unadaptable	-unpredictable, unadaptable	-stable, flexible

Source: Information was gathered from interviews completed in Inuvik and Tuktoyaktuk, NWT, May to August, 1991.

...continued

** The Settlement Region is composed of 7.1(a) and 7.1 (b) and Federal as well as Yukon and Northwest Territories government lands (See map in Appendix B).

** Inuvialuit 7.1(a) lands are fee simple lands including rights to subsurface resources. 7.1 (b) are fee simple, surface rights only.

** Nature of Property Right means whether the agency has exclusive or non-exclusive rights to designating access and use; and whether the land can be sold by that agency (i.e., transferable vs. non-transferable).

** Restricted and unrestricted in reference to access and use indicates whether there are specific rules of who can enter the lands and how the lands can be used. Typically there are no rules pertaining to *who* is allowed access but in most cases potential uses are carefully controlled.

** Inter and Intra Departmental Activities, Management Actions, Liaison Strategies, Public and Private Sector Involvement, etc (i.e., all the remaining variables listed) refer to discussions in Chapter 4 regarding further explanation.

**DIAND, EMR, F&O, RR, EC are abbreviations for the following: Department of Indian Affairs and Northern Development; Energy, Mines and Resources; Fisheries and Oceans; Renewable Resource; Environment Canada.

**IGC, IRC, RRC's, EIRB are abbreviations for the following: Inuvialuit Game Council; Inuvialuit Regional Corporation, Renewable Resource Committees, Environmental Impact Review Board.

institutions.

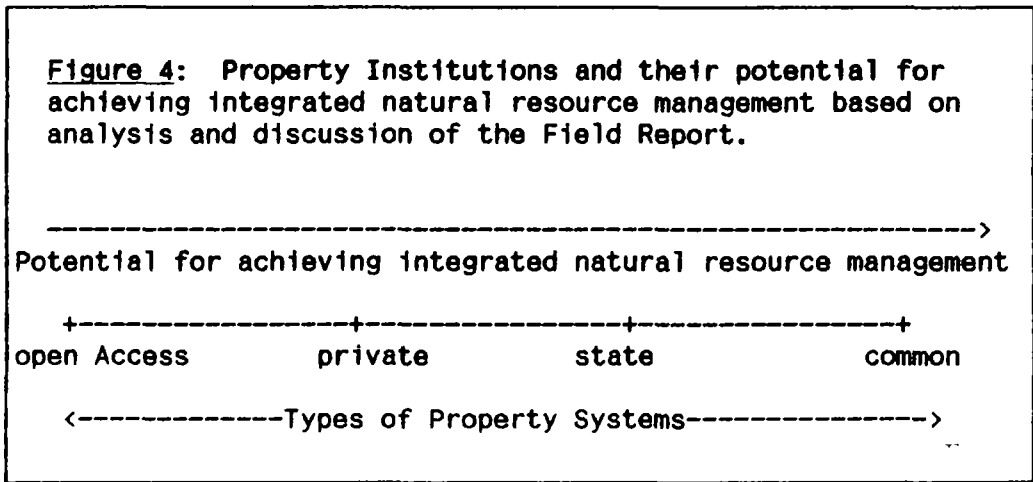
An overview of the legal property variables assessed immediately highlights two differences. First, the power to designate access and use rests with the respective owners in all but the case of private property. This is because private property is closely controlled by the municipality and many zoning and by-law restrictions impinge on the owner's freedom to designate access and use. Second, it is only under the Inuvialuit property system that lands cannot be sold. The IFA does not allow the Inuvialuit beneficiaries, either individually or collectively to sell their lands. In the remaining three legal variables, significant differences arise only with respect to the number of individuals allowed access and use. The Field Study found the Inuvialuit to hold a negotiable, less protective position with regard to the access and use of their lands, than the more defensive position maintained by private property owners. Although interviewees mentioned several rules as to their personal use of state lands, none had ever encountered or was aware of access restrictions to state property.

The next six variables concern how the legal property situation is interpreted within the respective societies. The difference between the systems becomes more complex and some significant characteristics are highlighted. Rules, for example, under the Inuvialuit system tended to be more social than legal, whereas the private and state systems were highly

dependant on legal rules. Although the Field Study found that the number of explicit formal rules within the Inuvialuit system to be increasing, adherence to implied social rules was still much greater than under other property systems. Similarly, differences in rule enforcement and decision-making capacities showed greater community involvement within the Inuvialuit structures than the private or state systems. Private property systems differed from state structures only by showing greater social rule development and enforcement.

Natural resource management variables are covered in the remaining 15 variables. Again, primary differences between the systems emerged regarding the frequency and persistence of social involvement. For example, participation in community committees for various matters is present only with the private and Inuvialuit property systems. Input to state property management was typically absent. Similar observations were noted with respect to rights of enforceable decision-making. Direct individual participation in decision-making was absent under the state, present under private, but most prevalent under the Inuvialuit property system. In summary, the Inuvialuit property system continually includes methods and strategies which highlight community (Inuvialuit) participation.

Reflecting on the societal differences highlighted in the Field Study, it appears that the capacity to achieve an integrated approach to natural resource management is influenced by prevailing property institutions. On the basis of the Field Study, and other conclusions drawn from the literature, property institutions may be ranked with regard to their potential to achieve an integrated approach to natural resource management. Figure 4 represents such a ranking exercise. The property continuum and its ranking was derived by comparing the variables of property institutions in Table 3 to the indicators of integrated natural resource management in Table 1.



What this conclusion argues is that the *potential* for integrated natural resource management increases under a common property system and decreases under a state or private property system. The property variables most relevant to the context concern, the nature of the property right (degree of exclusivity and transferability), the number of people to whom access and use

rights are granted, as well as the number of people to whom the capacity of enforceable decision-making is granted. It is recognized that the concept of integrated natural resource management is nothing more than a tool. It is related to the concept of environment rehabilitation (conservation), but in no way guarantees it. Indeed, environmental rehabilitation can be achieved under any one of the property systems, but the likelihood that it is achieved in an integrated manner increases as one moves toward common property management on the property institution continuum.

The co-dependence which exists in the Inuvialuit society is further reflected in their common property arrangement under the Inuvialuit Final Agreement. Common property systems, by their very nature, reinforce existing participatory, people-oriented management systems. By linking the well-being of the individual with that of the community, a common property system necessarily dictates an integrated approach to natural resource management. By structuring the management of the natural environment to an autonomous governing body, isolated from individual and community, the Federal Government discourages participatory management.

CONCLUSION

Integrated resource management is a concept likely to be at the forefront of resource issues in the coming decade. Though it has appeared in various literature for many years, only recently have there been examples of its active implementation. In trying to define the barriers to its successful use, I have discovered two factors which appear central to the integrated model: property rights and societal values. These factors are exemplified, perhaps most clearly, in the Canadian North where aboriginal and national management regimes coexist and in many instances overlap.

The Inuvialuit provide a good example that common property management systems are a viable and worthwhile means to environmental rehabilitation. If the redefinition of property institutions from the existing system of individual ownership to one of shared ownership is a possible solution, it must consist of more than just the arbitrary setting of boundaries by the courts. It must begin with a view to land as a wholesome entity which includes human beings as part of the scene. Land must become more than an economic unit, an item of commerce. Already more than 40 years ago, Leopold (1949) discussed the particular dilemma humans face, emphasizing that the land-relation is still strictly economic, entailing privileges but not obligations. Redefining property rights in integrated terms means defining not only the allowable benefits but also the ensuing obligations.

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¹² This is a shorten bibliography. For a full listing of all references used please refer to the thesis document of the same title.

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APPENDIX A

ORGANIZATIONS REPRESENTED IN INTERVIEWS/MEETINGS

Arctic Institute of North America - University of Calgary
Beaufort Sea Steering Committee
Environment Canada - Canadian Park Service - Prairie and Northern Region
Environment Canada - Conservation and Protection - Inuvik Office
Environmental Impact Review Board - Inuvialuit Joint Secretariat (IJS)
Environmental Impact Screening Committee - IJS
Esso Resources Canada Ltd.
Fisheries and Oceans Canada - Inuvik Regional Office
Fisheries Joint Management Committee - IJS
Government of the NWT - Economic Development and Tourism
Government of the NWT - Department of Renewable Resource
Hamlet of Tuktoyaktuk
Hunters and Trappers Committee - Inuvik
Hunters and Trappers Committee - Tuktoyaktuk
Indian and Northern Affairs Canada - Northern Affairs Program
Inuvialuit Communications Society - Inuvik
Inuvialuit Land Administration - Tuktoyaktuk
Inuvialuit Harvest Study - IJS
Inuvialuit Regional Corporation - Inuvik
Labrador Inuit Association - Nain, Labrador
Newfoundland Fish and Wildlife - Regional Office, Goose Bay, Labrador
Okalakatiget Society - Nain, Labrador
Town of Inuvik
Wildlife Management Advisory Committee (North Slope) - IJS

