



The Role of Indigenous People in the Governance of Natural Resources

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The Indigenous people of British Columbia occupied and used the areas natural resources for thousands of years before contact with Europeans who came to colonize the area. During that time they created governance processes for determining natural resource use, with the major natural resources being timber products for buildings, fences, canoes, clothes and ropes; salmon and other finfish including oolichan; many plants and roots including berries, mushrooms, and camas bulbs¹; oysters, clams and other shellfish, marine mammals including whales, seals, and sea otters and land animals. While these resources were abundant, their uses all faced limits for their sustainability over time. The responsibility for resource use decisions evolved over time and there is a good understanding as to how those decisions were made immediately prior to and during the early days of contacts with Europeans.

Following colonization virtually all governance responsibility for natural resources was taken away from indigenous peoples and monopolized by the Provincial and Federal governments. Now with increasingly favourable court decisions on behalf of indigenous peoples, their role in resource governance is being restored. It is clear that their role will be going beyond “consultation” following Provincial and Federal decisions and First Nations are likely to return to being the major decision-maker in many of their territories and involved in co-management with the Provincial and Federal governments in others. This will be a major change for British Columbia. It will also require changes in how First Nations traditionally managed natural resources to meet new interdependencies among both resources and resource users.

There are two main objectives in this report. First is to present a brief history of the governance of natural resources by indigenous peoples followed by the impacts of colonization. This history includes how colonization and the British Columbia government deprived indigenous peoples of their economic base as they were excluded from both use and governance of natural resources.

¹ The extent of indigenous peoples’ harvesting of plants and roots is not generally known. Chapter 5 in *Secwepemc Peoples: Land, and Laws* (Montreal and Kingston: McGill-Queens University Press, 2017) provides such a description.

This history concludes with a brief description of court decisions that are restoring both uses and governance authority to First Nations.

The second objective is to examine the characteristics of successful, sustainable, natural resource governance more closely using a framework developed from the analysis of over 5,000 cases of natural resources governance by communities, including indigenous communities. Both the traditional practices of First Nations and how the increasing role of First Nations resulting from court decisions are analyzed to identify how the increased role in natural resources governance by First Nations will fit in British Columbia. Our conclusion is that, while recognizing the increased complexity of resource interdependencies, the inclusion of First Nations and their local knowledge of resource use situations can result in improvements in the governance of natural resources within British Columbia for mutual benefit.²

TRADITIONAL GOVERNANCE

There were differences in basic governing structures of different nations within British Columbia. The basic governing structure for indigenous peoples on the Northwest Pacific coast, including Haida Gwaii, was the “clan”, also referred to as the “house” in Gitksan and Wet’suwet’en territory. While multiple clans also comprised “nations” (Gitksan, Wet’suwet’en, Nisga’a, Tsimshian, Tlingit, and Haisla, for example) the clan played a basic role. The definition of “clan” in this context is an extended family plus and non-related members who have been accepted into the clan and function as one of its members. In the southern coast and interior, for the Secwepemc for example, the basic governing unit was comprised of multiple extended families residing in a contiguous area; the Tkemlups (Kamloops) for example. In the recent book, *Secwepemc People*, the term “tribe” is used to describe these multi-family groups³. Multiple tribes made up their nation, for Kamloops, the Secwepemc. Within clans and tribes there were a variety of ways of selecting a chief and in addition to the chief there were people who held special titles, indicating their responsibility and competence for different aspects of the community's resources.⁴ The fact that marriage was always to someone outside their clan also

² Indigenous peoples have always used natural resources in British Columbia. Frank Cassidy and Norman Dale, in *After Native Claims: The Implications of Comprehensive Claims Settlements for Natural Resources in British Columbia*. Institute for Research on Public Policy and Oolichan Books, Halifax and Lantzville, B.C. 1988, provide evidence and many examples that contemporary First Nations are resource users, not preservationists.

³ Designations for different indigenous groups have varied over time. In this report the term clan is for governing units based on the extended family, tribe for a governing unit based on multiple families, and nation for a larger inclusive group usually designated by a common language. *Indian Act Bands* are usually made up of multiple clans with their main reserve at the site of their winter village or tribes at the site of their main village. Many land claims actions are being advanced on behalf of nations, which as tribal councils may also have undertaken governing responsibilities.

⁴ Much more detail on leadership and trust relationships between resources and beneficiaries is provided in Ronald L. Trosper, “Resilience in Pre-contact Pacific Northwest Social Ecological Systems, *Conservation Ecology*. 7(3)2003 and *Resilience, Reciprocity and Ecological Economics: Northwest Coast Sustainability*. New York,

created personal relationships among different clans as did intermarriage among members of different tribes.

Clans and tribes held traditional territories where the chief or title holder, in their role as trustee or steward, had responsibility for specific resources or the territory in general. There was no land or body of water near land without a person clearly responsible for it. In addition to the responsible leader, most persons were born with a connection to part of the landscape, both through their mothers and their father's clan or tribe. These were the members to whom the leader was responsible. Some parts of the landscape, the rivers for example, had multiple trustees or stewards because they flowed past many families' lands and fishing stations.

The tying together of clan or tribe, territory and named responsibility for territory or individual resources resulted in a "property" based resource governance system and there was a very well-developed sense of "property"⁵. However, there is a debate on whether territorial lands were property in the same way it is viewed in contemporary society and economy.

There are three different "rights" generally associated with property. One is the right to use. Second is the right to exclude others from its use, and third, is the right to transfer the property, either temporarily or permanently, to another user. All three rights depict how property is generally characterized in contemporary society. That was not the case for indigenous lands and resources.

The most important property held by a clan or tribe was its geographically defined territory. That territory could include an area of land where the members had exclusive right to harvest timber (used for houses, canoes, bark was woven into clothes and ropes); products such as berries, mushrooms, camas bulbs and other plants; animals such as deer and other fur bearing animals; and for the Northwest indigenous peoples, salmon from rivers or, in some cases, salmon from specific sites along a river where other clans had similar rights at other nearby sites. Occasionally clans within a larger group or nation would go together and construct fish weirs on a larger scale where the combined efforts of more than one clan made such shared investments worthwhile. Beach areas where shellfish were found were also usually the property of a clan. There were also open access areas such as for salmon at the mouth of a large river where members from many clans or even several groups had the right to fish, but without the right to exclude others.

Routledge. 2011. Marianne and Ronald Ignace provide a similar description for the role of "resource stewards" (yecwminmen) in *Secwepemc People: Land, and Laws*. Montreal & Kingston: McGill-Queens University Press. 2017.

⁵ While this report is concerned with territory and natural resources, it is important to recognize that "property" in Northwest Coast indigenous culture include not only physical property but art (masks for example), stories, songs, and descriptions of historical events. Totem (story) poles are one way clan history and stores were told and preserved.

While we identify the land areas from which clans or tribes harvested the natural resources as property, most had only two of the three characteristics of property rights: the right to use and the right to exclude others from use. The clan chief or trustee-steward for the property did not have the right to transfer the property to someone else. The property could be viewed as being held in trust for both current and future clan members—and there was no way to obtain consent for a transfer from future members.⁶ This did not mean, however, that once a resource was harvested that that resource or product (a canoe, dried salmon or a fur for example) could not be traded. Most indigenous groups had extensive trading relationships with other clans in their group, and most importantly, with people from other tribes or nations. One exception to the lack of the right to alienate property was that it appears that clans owning a particular fishing location could rent out that spot to another clan or group after they and clans in their own group had harvested sufficient salmon for the season. There were also cases where clans and tribes would allow members from other clans or tribes to use a resource, especially if there was a marriage relationship between them. It was also common to allow others to enter into the oolichan fishery where the number of oolichan was in excess of what the groups whose territory it was would need because the season was very short, and oolichan oil did not store well and was not easy to package and transfer for trade.⁷

Clans and tribes had a variety of approaches for assuring sustainability of their resources. Most important was the responsibility of the chief or trustee-steward for a resource to know patterns of resource productivity and the amount that could be harvested. Some clans and tribes also had religious ceremonies to honor the resources as having spirits of their own. This, in turn, contributed to resource sustainability as when the first runs of salmon were not harvested and allowed to proceed up river to spawn. The attributes of spirits to resources (including trees), however, did not preclude harvesting and human use of the resource; they did however, provide for a respect of the natural environment and an ethic that resources should not be wasted. This ethic was important and has a similarity to a family saying grace before every meal in recognition that the food comes from a source greater than themselves.

In addition to clan and tribal based property there were commons, that is, areas where multiple groups but usually only those within a nation, had the rights to harvest with none having the right to exclude other members. This was the case for the mouths of rivers where many salmon runs

⁶ The “trust” nature of property has come up over and over regarding native ceremonial artifacts such as masks and robes, where while the collector claims to have purchased the items, no one had the right to sell them as they belonged to future members of the family as much as to current ones.

⁷ While property was not generally alienable, the missionary W. H. Collison describes purchasing a longhouse for his residence and church from a clan in Haida Gwaii. *In the Wake of the War Canoe*. Toronto: The Musson Book Company. n.d. p. 129. One suspects that the missionary did not have the right to resell the house for a different use.

came through and areas of more open water where sea otters, seals or whales were hunted. There were areas where nations overlapped, but this was not common.⁸

There appear to be few issues of sustainability in these common resources prior to colonial traders even though there was extensive trade among indigenous groups. By the mid-1800's there is mention there were fewer very large trees for large canoes, where Haida Gwaii was the major source for the large war and freight canoes. One trader describes having their sailing ship surrounded by over 600 canoes where they thought there was sufficient capacity in canoes for all of the indigenous groups in the surrounding area. Canoes were a very valuable trade item. There is also an indication of a decline in sea otter harvests.

However, other resources appear to have been abundant, even after colonial trading began. For example, when the first salmon canneries were built on the Fraser and Skeena rivers so the market for salmon was greatly increased, the first Canadian regulations to limit fishing were not because too many fish were being harvested; they were to eliminate waste by preventing more fish from being harvested than the canneries could process.⁹

In addition to natural resource governance being a property based system by clans and tribes rather than individuals, the system was characterized by extensive sharing. Different clans within a group could possess resource areas with very different productivity. One kind of sharing was to allow clans with fewer resources to harvest from more abundant areas after the prime holder had harvested sufficient resources for the season. The second was through the potlatch. Potlatches were sponsored to commemorate significant events such as marriages, the granting of names signifying specific responsibility to individuals, the granting of names to children transcending into adulthood, or to honor a new chief. These events were characterized by the giving away of property that had been acquired by the clan of the person to be honored. Acceptance of the goods obligated the recipient to recognize the assumption of responsibility by a new chief or a new name for an individual assigned specific responsibility. Such events resulted in considerable wealth redistribution, and while they did not remove inequality in the resources that could be held by a clan, they tended to provide a basis for support across a nation in addition to the support the clan itself provided for the individuals within it.¹⁰ Tribes, generally being larger with multiple extended families also had a sharing of resources within them.

⁸ Some of the overlaps that are appearing in land claims are the responsibility of colonists who made mistakes in identifying clan or tribal property boundaries.

⁹ Those initial regulations (300 fish/day per boat on the Fraser) applied equally to both indigenous people and colonists who were moving into the area. Frances E. Herring, *Among the People of British Columbia*. London: T. Fisher Unwin, 1903. P.293.

¹⁰ Potlatches played multiple roles and their importance as a governing institution was not always recognized by missionaries. Secwepemc tribes also held feasts with "give-aways" that appear to include governance issues (*Secwepemc People*, p. 375).

Not having a written language prior to the use of Chinook¹¹ means that much of what we know of indigenous people's governance of natural resource uses comes from observers during very early contacts between the indigenous people and traders who came by ship. The early observers often learned the local languages and heard traditional stories. However, that means that even the earliest written information may contain observations that include trader influence. As of the early written reports, however, with the exception of very large trees and sea otters, resource sustainability seems to have been maintained.

COLONIZATION AND THE SUPPRESSION OF INDIGENOUS RESOURCE GOVERNANCE

British and Spanish explorers began contacts with coastal indigenous peoples in the late 1700's. Spain's first expedition took place in 1774 though it had claimed Alaska and the western part of North America as far back as 1493. The British captain James Cook made his first expeditions to the area in 1776-80 while attempting to find the elusive Northwest Passage. The British established the first trading posts to supplement ship based trade, with the most important being at Astoria on the Columbia and in Victoria on Vancouver Island. However the Hudson Bay Company, the representative of the British, had no interest in encouraging settlers as their business was trading with indigenous people. In the interior traders had made contact with indigenous peoples in the 1700's with Alexander McKenzie in 1793 and Simon Frazer in 1808.

At the time of these initial contacts, the indigenous peoples in British Columbia had well organized governance and well understood land and resource boundaries. On the coast their governance relied on specific named positions with rights and responsibilities where as individuals took that position they assumed the "name". These names were equivalent to "titles" in the British Royal system—not the birth-given and lifetime name of a specific individual. In the interior individuals became "resource stewards" with the same responsibilities. This is why naming ceremonies were important as they were essentially ceremonies of an individual assuming an important position within the clan or tribe. Such ceremonies were intimately associated with potlatches or feasts, although potlatches and feasts also served broader governance, dispute resolution, wealth redistribution and credit¹² functions. This was the natural resource governance system in effect when explorers and traders arrived.

It was only after the Oregon Treaty of 1846 established the boundary between the United States and what was to become British Columbia that Britain took an interest in settlement and created

¹¹ Chinook developed as a trade language along the Pacific coast. The first dictionary was published in 1863 but use of the language has been identified as early as 1804. It appears that indigenous people also used the language for written agreements among themselves the most famous of which is in the Kamloops Wawa, an early published newsletter.

¹² D. Bruce Johnsen. "The Potlatch as Fractional Reserve Banking," Fairfax, VA.: George Mason Law and Economics Research Paper No. 16-5. February 22, 2016.

the colonies of Vancouver Island in 1849 and British Columbia (the mainland) in 1858. Hudson Bay Factor James Douglas was appointed governor of each and the colonies were merged in 1866.

Governor Douglas was well aware of the law of colonization: King George's proclamation of 1763. That proclamation was clear: where indigenous peoples were organized into governments the only way land could be obtained by settlers was for the government to enter into a treaty with the indigenous people's government to purchase land that could then be made available to settlers by the British Government's representative. This protected indigenous people from exploitation, but more important, it vested potential settlers land in the British Crown so the government had a monopoly on land distribution to settlers. This also clarified property rights vis a vis other colonial powers which were generally respected. Thus following the Oregon Treaty of 1846 setting the US-British Columbia border, Great Britain was the only colonial power indigenous people could treaty with between the southern border of British Columbia and Russian Alaska, which was purchased by the US in 1867.

Governor Douglas began the "treaty"¹³ process on southern Vancouver Island. His vision has been described as allowing indigenous groups to define the boundaries they would like for their villages and adjacent agricultural land to be designated as a reserve and to surrender (sell?) land ownership of surrounding territory with the provision that indigenous people would be able to continue to hunt, fish or gather other products such as berries along with other people (including settlers) on open lands that did not become under ownership of others. Governor Douglas seems to have expected that reserve villages would be like English villages with their own government, and indigenous people would be like all other residents having the right not only to traditional activities like hunting and fishing¹⁴, but also have the right as an individual to pre-empt lands outside the reserve as their own private land like any settler. His vision was that in the long run indigenous people would have the same rights as settlers, but they would also have a guaranteed village site that remained under control of their government. Governor Douglas proceeded to negotiate 9 treaties, with the one furthest north being at Fort Rupert, near present day Port Hardy.

¹³ Questions have been raised as to whether these were treaties or land purchases. That fact that many viewed them as land purchases from indigenous clans or tribes indicates that the clans and tribes were viewed as having full property rights to the land. Later on, these agreements have been viewed as treaties because they were made by the representative of the Crown and under King George's proclamation a treaty was necessary before property could be transferred to anyone else.

¹⁴ Some treaties specified the rights to hunt and fish in the treaty. This has been the basis of court decisions that have allowed indigenous people to hunt on open land contrary to provincial hunting rules. *Regina v. White and Bob* (1964) 626-7, B.C. Court of Appeal. A similar provision in the Stevens Treaties in Washington State was the basis for Judge Boldt's decision that state and federal regulations must be cognizant of treaty rights and has led to co-management of the salmon fishery in that area. A description of the treaties and fishery issues on Puget Sound in the context of US Native American Law is contained in Robert L. Bish, *Governing Puget Sound*. Seattle: University of Washington, 1982. Ch. 7.

In 1866 when the colonies of Vancouver Island and the mainland British Columbia were merged, Governor Douglas did not continue treaty making on Vancouver Island or initiate treaty making on the mainland. One reason may have been that the British government did not allocate funds for that process although Governor Douglas had funds which he used to finance roads and other improvements. Instead, the colonial government began consultation with indigenous groups and identification of reserves that would include their villages, adjacent farming areas and, in some cases, sites such as weirs or dip-net sites for salmon fishing. In general, it appears that Douglas supported letting the particular First Nation designate the boundaries of their reserve in a way that has been described as creating the equivalent of small English towns where residents had sufficient land to grow small crops such as vegetables. Individuals would also be free to pre-empt land outside their reserve. It is important to note that the reserve land was registered in the British system as land in common and did not take into account the ownership of individual houses and lots that, while not written down, was well understood by the clans and tribes. In most cases, clans were also grouped together on reserves. The grouping together of clans was primarily because the villages were actually “winter” villages where multiple clans in a broader nation group resided together, not the summer home sites where clans moved out to their territories where resource harvesting took place. In the interior the tribal village site usually became the main reserve site as well. One problem in the interior was that the designation of reserve sites, primarily where agricultural production was already being undertaken by the tribe, were often pre-empted by Whites prior to the tribe having the opportunity to have it designated as a reserve. This included some of the best farming sites in the region.

The net result of the Douglas era was that indigenous peoples ended up with communal property in a village area, but their ownership and authority to manage the natural resources that were their economic base had been stripped away. The impact was not immediately obvious up the coast because with few settlers and everyone free to capture the natural resources, indigenous peoples continued to use those resources as they always had. However, this occurred without regulation because all of the non-village or land already pre-empted by settlers had been transformed into a giant commons where anyone could use the resources but no one could prevent others from using those resources. That was not a situation where resources could be sustained with population growth and the expansion of markets, such as for salmon after the invention of the can.¹⁵ While a similar situation existed in the interior, the pre-emption of some of the best farm land by Whites had an immediate impact on the tribes.

The focus here is on the governance of natural resources, where with colonization resources that were formally governed in a clan-tribal/property framework which resulted in sustainability with few exceptions (sea otters, very large trees for the large war and cargo canoes) that governance

¹⁵ Overharvesting of some resources continues today where recently berries were so over-picked by crews brought in by wholesalers that there will be too few berries available for bears preparing for winter hibernation, a situation where local First Nations were aware of and moderated their berry picking to account for it.

model was destroyed. The issue for natural resources was what would replace it. The new institutions that replaced indigenous governance are intimately related to other policies of the colonial government toward indigenous peoples. This paper is not the place for a detailed examination of colonial government policies or those that immediately followed when British Columbia joined Canada in 1871—but a summary is important because it reemphasizes how the taking away of indigenous peoples economic base, when combined with other policies, destroyed their economy and left many in poverty that continues to the present day.¹⁶

The Douglas government policy of creating reserves for villages was based on the assumption that indigenous people would have access to all of the opportunities that settlers had, including the right to pre-empt land outside their village and to vote. Both of those rights were taken away by the government that followed Governor Douglas. That government also reduced the size of many of the reserves (called cut-off lands, some of which have been restored or compensation paid), but that did not restore the economic base which was in surrounding forests and fisheries. In addition, registering reserve lands in common stripped away a family's title to their own home. Not having title to one's home eliminated any opportunity in the future to create an asset with home ownership that might be leveraged to begin a small business (including the purchase of a fishing boat or farming equipment) or passed on to one's children. In summary, indigenous people were not only stripped of their economic base but of their personal real property in their village as well as precluded from pre-empting land which would become their own private property outside the village. Colonization took them from a property based sustainable society and economy to owning no real property or having any rights to manage resources in their traditional territories.

In practice, indigenous people affected by these changes first were those located on southern Vancouver Island and the Lower Mainland because most of British Columbia remained unsettled. This allowed indigenous peoples in the north and interior (with the exception of pre-empted farm land) to continue to harvest natural resources as they had always done and continue to reside in their villages with full respect for their property from other residents.

The final entrenchment of British Columbia's deprivation of indigenous people's rights and economic base was solidified when British Columbia joined Canada 1871. The Canadian government agreed to accept prior provincial policies toward indigenous peoples and cede all of the common land to the Provincial Crown while assuming responsibility for indigenous peoples. Thus the former economic base of the indigenous peoples was now owned by the Provincial government, which had no responsibility for indigenous people. This process all began in violation of King George's proclamation of 1763. The British Columbia Government had

¹⁶ An excellent detailed description of colonial and post joining Canada policies is contained in Paul Tennant, *Aboriginal Peoples and Politics: The Indian Land Question in British Columbia, 1849-1989*. Vancouver: UBC Press, 1990.

acquired indigenous lands while indigenous people ended up without their traditional economic base in their natural resources, a title to their property on a reserve or a treaty describing their rights. They were also precluded from either voting or pre-empting land like settlers. To make their situation even worse, while the government of Canada had allocated 160 acres per family when creating reserves, British Columbia only allocated an average of 10 acres per family, too little for extensive agriculture, including ranching, or sustainable forestry.

Following removal of voting and pre-emption rights¹⁷ both British Columbia and Canada continued to enact policies that either specifically disadvantaged indigenous peoples or disadvantaged them because of their lack of the resources to competitively participate in the economy. Those policies included restrictions on traditional fishing practices, discrimination in the issuance of grazing and water rights, restrictions on traditional hunting and issuing trapper licenses to non-indigenous people in areas indigenous people had traditionally trapped, prohibition on the sale of tanned hides (a traditional occupation of indigenous women), and exclusion from many kinds of licenses including those required for trucking. Indigenous people were not allowed to be hired for BC Government road crews from 1909 to the 1940's and not allowed in most restaurants or public places until the 1960's.^{18 19}

Indigenous leaders understood what had happened and never ceased to advocate for their land and self-government as both the Federal and Provincial governments increasingly restricted their use of resources and their right of self-government.²⁰ Later, the abolition of the potlatch by the Canadian government in 1884 represented a final act to eliminate their most important governing institution. In 1906 and 1908, chiefs from both the coast and interior even went to London and Ottawa to petition for recognition of their land rights. Finally, 1927, in the face of continued complaints by indigenous people, the right of indigenous people to seek legal recourse for their lands was legislated away.

In terms of natural resources governance all authority of indigenous peoples had been eliminated. The Federal government had taken over management of fisheries although the Province continued to regulate oysters, the regulation of land resources came under provincial jurisdiction,

¹⁷ 1872 *Act to Amend the Qualification and Registration of Voters*. It also precluded indigenous people from going into law or politics.

¹⁸ The history of these policies is included in John Sutton Lutz, *Mukuk: A New History of Aboriginal-White Relations*. Vancouver: UBC Press, 2008. While examples are found throughout the book Ch. 7 provides most of them.

¹⁹ Readers interested in a broader perspective will find it is Daron Acemoglu and James A. Robinson, *Why Nations Fail: The Origins of Power, Prosperity and Poverty* (NY: Crown Publishers) in their discussion of extractive versus inclusive institutions. The British Columbia and Canadian governments followed the extractive rather than inclusive path in regard to indigenous peoples.

²⁰ Paul Tennant's *Aboriginal Peoples and Politics: The Indian Land Question in British Columbia, 1849-1989*: Vancouver: UBC Press, 1990, provides a detailed history of the continuous efforts of indigenous peoples to regain their lands. While Professor Tennant's history ends in 1989, the current court actions are a continuation of those efforts. *Secwepemc People* includes a detailed description of the chiefs from Secwepemc tribes who went on the trips.

which included land resources such as animals, plants, and minerals, many of them on land that were Provincial Crown lands as well. Federal regulation also came to include “environmental” impacts. The regulation of water resources is shared with the Provincial government owning the land under inshore waters and the Federal government regulating the water itself. The Federal government also regulated the land on reserves, while the provincial government delegated local land use regulation to local governments; although until the late 1960’s when regional districts were created the Provincial government itself regulated land use outside of municipal boundaries. The First Nation governments (“Band governments” as outlined in the Indian Act) that had been created by the Federal government had neither land ownership (reserve lands were vested in the Federal Crown) nor regulatory authority except where the Federal government has allowed a First Nation government to create regulations on their reserves.

While this outcome of colonialism and Canadian government policy deprived indigenous peoples of their resource use and governance and self-government, not all indigenous people were poor. The two exceptions worthy of note are in fisheries and on reserve lands.

While food fisheries were managed by what was known as Indian Affairs at the time, all commercial fisheries were managed by the Department of Fisheries which refused to recognize any traditional commercial fishery by First Nations. In the beginning all fishers were treated equally. However, as fishing required more capital for larger boats, First Nations members were gradually excluded because they lacked access to the debt finance available to non-First Nation fishers. There was one major exception, however, primarily in mid-coast and the north.

When the Department of Fisheries began issuing licenses it gave most of the licenses directly to the canneries. The canneries owned the boats and selected the fishermen to do the fishing. In the north, indigenous people had always done the fishing and had good relations with the canneries so many indigenous people ended up fishing for the canneries. As successful fishers, many acquired sufficient wealth to be able to purchase their own boats when licenses were available to fishers and not just the canneries. It was these fish boat owners, who had considerable wealth that became the organizers of the movements to regain indigenous rights to their territories and for self-government during the 20th century. They were the ones who financed legal actions after the restrictions on legal actions ended in 1951.²¹

The second group of indigenous peoples who became wealthy was certificate of possession holders on reserves where the reserve land became valuable to non-indigenous people because of its location. Certificates of possession had been given out to traditional land occupiers (which were often the hereditary chiefs) with their primary purpose to prepare the First Nation and its reserve residents for eventual integration into the wider society where First Nation governments would cease to exist and individual members would occupy property like everyone else. British

²¹ Tennant, pp. 73, 116-119. Frank Calder’s father was one of those boat owners.

Columbia has 45 reserves geographically within municipal boundaries and many more reserves in urban areas. Much of this land was valuable for uses to non-indigenous developers who could lease it from the Federal Crown, with the revenue going to the certificate of possession holder, or the First Nation, if no certificate of possession had been granted for the land. The unequal distribution of lands under certificates did not necessarily increase inequality among residents on reserves as there was always unequal wealth within the indigenous community. However, the mediating institutions of clan integrity, sharing of resources and the traditional potlatch were no longer present to mitigate the inequality.²² Now it appears that most people, both indigenous and non-indigenous, look to the Federal and Provincial governments to alleviate poverty and provide basic services including housing, education and medical care, while on some reserves, holders of well-located certificates of possession have large incomes and become wealthy from leasing those lands²³.

POST WORLD WAR II: REEVALUATING COLONIALISM

Following World War II and the creation of the United Nations, colonialism became an important issue as people under colonial governments revived Woodrow Wilson's League of Nations ideal of self-determination: that people have the right to select their own government. The revival of this ideal in the Middle East and Africa also spilled over to the former British colonies of Canada, Australia and New Zealand (and the United States in Alaska where Russia did not engage in treaties prior to selling it to the US) where indigenous people had been deprived of their rights either contrary to British law for not following the requirements of King George's proclamation or for not honoring the treaties that had been made. Canada had, and continues to have, both issues.

Within Canada, British Columbia was unique for denying indigenous rights without treaties. A myth was created that indigenous peoples did not have governments at the time of colonization and King George's proclamation did not apply. This was in spite of clear recognition of indigenous peoples' rights by Governor Douglas and early governments, and the Provincial government even kept secret records on lands that only became public again in 1985.²⁴ In the face of this continued denial of indigenous people's rights, the only course of action was continual litigation. The first break-through was in 1963 when a court ruled that indigenous people hunting out of season were not in violation of provincial law because their treaty allowed

²² It has been told that envelopes of money are still distributed in some contemporary potlatches to assist poorer members of the group.

²³ The First Nations whose reserves contained land valuable to non-indigenous people have also led the way in promoting self-government on reserves, including First Nation taxation. They include Tk'emlups, Musqueam, Squamish, Sechelt and Westbank.

²⁴ British Columbia. *Papers Connected with the Indian Land Question 1850-1875*. Victoria: Government Printer, 1875. Reprinted Victoria: Queens Printer for British Columbia, 1987.

them to hunt over unoccupied lands.....as formerly.²⁵ While technically this was a treaty based case, the decision referred to the rights of indigenous peoples that were relevant to non-treaty areas. This began a series of decisions²⁶ leading to the most recent in 2014 ²⁷(Tsilhqot'in) which declares that the First Nation still holds title to its lands. During this time Treaty negotiations had begun in British Columbia but many observers regard the Provincial government positions as failing to recognize the dramatically changed legal environment. Only five treaties have been concluded. This is not the place for a review of all the court cases and government treaty negotiating mandates, but what is most important for this report is: What are the implications for the role of First Nations in natural resources management? The legal environment has changed and continues to change and this can no longer be ignored as was the practice of the British Columbia and Canadian governments for a century and a half.

The return of First Nations to natural resources governance, however, also provides for the opportunity to take advantage of contemporary research on how community based and larger government agency governance can fit together for mutual benefit. Academic research has demonstrated that local knowledge is an indispensable component of successful resource governance, something that is all too often missing in Provincial or Federal government decision-making. First Nations can provide that input to the resource governance process.

RESTORING THE ROLE OF FIRST NATIONS IN NATURAL RESOURCES GOVERNANCE

Court decisions are changing the way natural resources are governed in British Columbia. "Consultation" after the Provincial or Federal Government has already made decisions is no longer acceptable. Given that First Nations are winning their legal challenges primarily on a nation rather than clan basis also means that First Nations themselves may want to move from clan based to nation based natural resource governance, as well as work with the Provincial Ministries and Federal Departments more closely.

The most developed approach for examining natural resources governance and the role of community based governments is the Institutional Analysis and Development (IAD) framework developed at Indiana University under the direction of Professor Elinor Ostrom. Characteristics of institutional arrangements for natural resources management associated with successful sustainable resource use were derived from analyses of over 5,000 case studies from around the world, including many from indigenous communities. Those studies include all aspects of natural resources management including shell and fin fisheries, forests, water, irrigation, and

²⁵ *Regina v. White and Bob* (1964) 626-7, B.C Court of Appeal and the article that broke open Indian claims 52 *Dominion Law Reports* (2d) 1965, 481 Supreme Court of Canada. For discussion see Tennant pp.218-219.

²⁶ Some of the most important are: *Calder v. British Columbia (Attorney General)* 1973 S.C.R. 313; *R. v. Sparrow* 1990 1 S.C.R. 313; *Delgamuukw* 1997 3 S.C.R. 1010.

²⁷ *Tsilhqot'in Nation v. British Columbia* (2014). 2 S.C.R. 256

grazing lands. While this framework has more elements than are necessary for examining pre-colonial resource uses and clan territorially based governance, it has the advantage of being complete enough to provide the basis for expanding consideration to both nation based governance and relationships with geographically larger governments including Provincial Ministries and Federal Departments within the Canadian federal system. It is also compatible with “adaptive management,” an approach that also has a focus on the importance of local knowledge as a critical component in resource decisions²⁸ and co-management²⁹, both of which have been pioneered by faculty in British Columbia universities.

THE INSTITUTIONAL ANALYSIS AND DEVELOPMENT (IAD) FRAMEWORK

Precursors to the Institutional Analysis and Development framework began in the 1960’s with recognition that local governments functioned best when the people who made the decisions also benefitted from the decisions and paid the costs.³⁰ This was later labeled “fiscal equivalence” and remains a criterion for local government institutional design.³¹ It is also a characteristic of well-functioning federal systems.

Many natural resources are much more physically and biologically complex than the services produced by local governments, but like many local government services they were best governed by a group within an institutional framework that was often governmental rather than through private market transactions. Like the earlier work on local governments, it was obvious that creating institutional arrangements for natural resources usage would need to draw on economics for its work with public goods, commons problems and external effects, and political science/public administration, specifically the work on federalism, intergovernmental relations and administration. This approach is based in classical liberalism prior to the division of labour into different disciplines—none of which were by themselves adequate in dealing with either local government organization or the governance of natural resources.

²⁸C.J. Walters *Adaptive Management of Renewable Resources*. New York: Macmillan, 1986. E. Sabine, et.al. “Adaptive Management: A Synthesis of Current Understanding and Effective Application” *Ecological Management and Restoration*. V 5, No 3 December 2004:177-182

²⁹ Evelyn Pinkerton, ed. *Co-operative Management of Local Fisheries*. Vancouver: University of British Columbia Press. This is just one of many publications by Professor Pinkerton.

³⁰ This is a major conclusion in their analysis of the local government system in Los Angeles County that was the first challenge to the idea that amalgamation of local governments into one large government was more efficient than a system of smaller governments more matched to their resident’s preferences. Vincent Ostrom, Charles Tiebout and Robert Warren, “The Organization of Governments in Metropolitan Areas: A Theoretical Inquiry,” *American Political Science Review*, 1961.

³¹ Mancur Olson, “The Principle of Fiscal Equivalence: The Division of Responsibilities among Different Levels of Government. *American Economic Review*, 1969.

The IAD is a framework, not a model with fixed relationships among its components. Its use requires the analyst to consider all of its elements for any specific situation and then focus on those elements that are most relevant.³² The components of the framework are:

1. The biophysical condition of the resource and its environment;
2. The attributes of the user community, including individual preferences for use of the resource; and
3. The institutional arrangements through which decisions on use are made.

The Nature of Resources and their Environment

Different natural resources have very different biophysical properties and very different interdependencies with other natural resources. For example, fin-fish need unpolluted water. Salmon need access to rivers and streams for spawning but are subject to over-fishing. Shell-fish also need unpolluted waters, are immobile and are also subject to over-harvesting. The waters within which fish live also are used for ports and transportation, recreation and waste disposal. Timber, mushrooms, berries and salal are immobile, but each can be over-harvested and harvesting timber may preclude harvesting mushrooms, berries and salal. Forests also include wildlife, mines, rivers and transportation corridors for roads, railroads and pipelines. While many natural resources are subject to over-harvesting, for others the governance issues arise because of interdependencies with other resource uses. This combination of the potential for over-harvesting and interdependencies generally requires institutional arrangements where users and those affected by the uses can make decisions over the resource uses. It is also important to recognize that preservation of a natural ecology, sometimes with a religious motivation, is also a use that will usually require decisions in more than one forum. Given the diversity of the resources themselves, as well as the diversity of uses, one would not expect “one best way” for decision-making to apply equally well to all of them. It is also the interdependencies among the different resources that make them difficult to manage by provincial and federal agencies that lack local knowledge of those interdependencies at specific sites of their use.

Users and the User Community

All natural resources have potential users and there are many interdependencies among users as well as between users and other people. Many of the interdependencies will be transmitted through markets when the products of natural resources are transported and sold. For example, when salmon are sold by the fisher to the processor, the salmon enter into the market system and

³² The summary of the IAD framework and design principles are taken from Elinor Ostrom’s Nobel Lecture upon receipt of the Nobel Prize in Economics in 2010, “Beyond Markets and States: Polycentric Governance of Complex Economic Systems,” reprinted in *Mainline Economics: Six Nobel Lectures in the Tradition of Adam Smith*. Ed. Peter J. Bottke, Stefanie Haeffele-Balch and Virgil Henry Storr: Mercatus Center, George Mason University, 2016. An overview of the analysis of institutional arrangements for managing natural resources is presented in Elinor Ostrom, *Governing the Commons: The Evolution of Institutions for Collective Action*. Cambridge: Cambridge University Press, 1990.

may end up being consumed anywhere in the world. For our purposes, we are primarily concerned with the users and user communities that are affected prior to the products entering into the market economy.³³ This is when non-market institutional arrangements are most needed for decision-making.

Users and user communities can be very diverse. Some fishermen may have large boats with long nets and need lots of space for efficient capture of fish while others may be smaller trollers. Still others may be even smaller including for charter sport fishing and fisher owned boats for recreational fishing. And for species like salmon, fishers may prefer weirs or dip nets in rivers. Similar differences exist in shell fisheries between mechanical diggers and hand diggers for clams. Similar technological differences exist for other resource harvesting.

An important second dimension of resource use is the nature of the community affected by or dependent on resource harvesting, especially when harvesting areas are historically associated with the community. Some members of the community may prefer the annual harvesting of pine mushrooms and salal to a one-time timber harvest. Some members of a community may prefer annual salmon harvesting to the risk of acid mine drainage from a mine. Others may place a higher value on the jobs, royalties and taxes that come from a mine development to pay for better schools or health programs. There is no divine expert to make the appropriate decisions for users and the user community for natural resource uses. These choices must emerge from the institutional arrangements through which resource use decisions are made.

Institutional Arrangements

The major research focus of the IAD project and analysis of over 5,000 case studies of natural resource use has been, and continues to be, the kind of institutional arrangements that are associated with long term sustainable resource use governance. Such institutional arrangements must include arrangements among users to prevent over-harvesting and destruction of the resource. They must also provide processes to decide on different resource uses by different user communities because of the resource interdependencies, and they need to be able to take into account the benefits and costs of natural resource uses in the broader British Columbia and Canadian economies. There may also be particular resources or resource uses that possess international interdependencies sufficient for international agreements.

When we examine the biophysical diversity of different natural resources and their interdependencies, the potential for over-harvesting many of them and the diversity of the users and communities affected by the uses, two conclusions stand out. First, no analysis of resource

³³ How products enter the market economy may be affected by other institutions. For example, British Columbia policies to keep timber stumpage prices low and thus keep log prices low enables the mills to provide an economic base for their community. However it also reduces the value of timber to First Nations, who do not benefit from the subsidization of the mills. This problem affects First Nations, but is not our focus in natural resources governance.

use can take every relationship and consequence into account at the same time. And second, no one kind of organization is going to work for all decisions. These conclusions mean we are probably looking at multiple institutions simultaneously with multiple resources and multiple communities. This leads us to the IAD Framework.

Frameworks, Theories and Models

While some scholars use the terms framework, theories, and models interchangeably, it is useful to understand the differences in order to understand the application of the IAD framework when comparing case studies of resource uses and deriving some institutional design principles that are associated with success or failure.

A framework contains a general list of variables that may need to be taken into account for any specific analysis. Its use requires the selection of those biophysical characteristics of the resources that are relevant, those characteristics and preferences of individuals and communities that are affected, and the kinds of institutional arrangements that currently exist and their success or failure measures.³⁴ The IAD framework includes the variables previously discussed relating to the resource, community and individuals, and institutional arrangements. Many of the important characteristics come from the economics of common pools, public goods, external effects, property rights and transaction costs, but focus is on the incentives institutional arrangements generate for resources, not optimization models. The environment is too complex for the optimization model approach, especially when the optimization models are confined to a single resource such as salmon or timber and ignore the relationships to other resources.

Theories specify relationships among the variables and are considered useful to explain outcomes or make predictions. They can still be pretty broad and variables are often qualitative rather than quantitative. Economists will talk about the theory of demand, for example, where in markets a price decrease will lead to an increase in the quantity purchased. When applied to fish, this means that if the price of fish falls, consumers will demand a larger quantity and if the cost of catching fish still allows for fishers to make a profit, they will devote more effort to fishing. As they devote more effort to fishing, their demand for equipment may lead to higher prices for equipment and higher costs of catching fish—until a new equilibrium is established between consumers and fishers. Economics has many well tested theories, but so do fisheries science, forestry, and other areas where scholars and scientists have devoted effort to understanding the relationship among the variables.

While theories are a kind of scientific generalization that has application in many situations, a model moves to be much more specific by identifying variables and the relationships among

³⁴ While economists like to use simple models to determine “optimal” use, there is no way to actually obtain the necessary information on values placed on different resource costs and benefits necessary for such models to be anything more than an abstract characterization of “utopia”, which means “nowhere”.

them that can be tested in real-world settings. Models make precise assumptions about a limited number of variables. One must be careful with the use of models to make recommendations for a policy or institutional change because, by their very nature, they may omit critical variables that may be needed for any single actual resource use situation.

Moving from a framework, identifying appropriate theories and developing a model for a specific situation is an art, as well as a science. The process must include both “scientific generalizations” and local time and place information.³⁵ Scientists tend to be good at the former, but local people and resource users are the source of information for the latter. Both kinds of information are needed for a useful institutional analysis, so institutional arrangements must be structured to produce both kinds of information in decision processes.

Institutional Design Principles and Indigenous Resource Use and Governance

Ten design principles have been identified to be associated with successful governance of natural resources. They are useful guides for analysis, but few cases had every characteristic. As more independent researchers have used them to guide their research the original list has been slightly modified as described in Elinor Ostrom’s Nobel Prize Lecture³⁶. Because our interest is in resource use and governance by indigenous peoples of British Columbia as described in part I of this analysis, a summary of their uses and governance processes will be used as an example of how each design principle is applied. The applications will begin with a description of pre-colonial clan based practices, proceed to indicate changes that appear necessary as treaties are generally with groups comprised of multiple clans, and the potential roles of the Provincial and Federal governments.

1. **User Boundaries:** Successful arrangements had clear and locally understood boundaries between users and non-users. The difference may have been designated in an official licensing scheme of some kind, but it may also have been understood by the residents of a community and was often based on long-term use by members of a family that got passed on generation by generation. Legitimate users are called “appropriators” in the literature.

Within the clan and tribe based systems territories were well known and understood by adjacent groups. This meant that appropriate users for resources within the territory were known. Within clan or tribe, the chief or another named individual was responsible for determining how and how much of a resource would be harvested. All members of the group were known to each other and to the leadership and during some harvest times virtually everyone able to work would

³⁵ F. A. Hayek, “The Use of Knowledge in Society,” *American Economic Review*. September 1945.

³⁶ “Beyond Markets and States: Polycentric Governance of Complex Economic Systems,” reprinted in *Mainline Economics: Six Nobel Lectures in the Tradition of Adam Smith*. Ed. Peter J. Bottke, Stefanie Haeffele-Balch and Virgil Henry Storr: Mercatus Center, George Mason University, 2016.

be involved in the harvest in some way. For other resources, such as converting timber into boards for houses or into canoes only a few members would have been taught the skills necessary for the tasks and they would be the ones responsible for that activity. Again, within the group they would be known and recognized for their skills. A group would also know which of its members had been trained in skills to harvest resources outside of its area such as salmon from canoes at the mouth of a river or a special hunt with members of other tribes.

When which members are authorized to harvest resources is managed by a broader nation group instead of clans or tribes it may become important to know who is authorized to harvest. While this would have been common knowledge in small societies as groups became larger and some members reside away from their territory, it is likely that a more formal registration or licensing system will be necessary. This is especially the case if the harvesting results in the resource becoming the property of the harvester to be sold in a market where there is a potential for overharvesting of the resource. Such registration and licensing will be even more important if the resource is available to non-members of a group or nation.

2. Resource Boundaries: Clear boundaries separated a specific common resource from a larger social-ecological system. Community understood boundaries were relatively easy for most land based resources and shell fish. Problems were more likely for migratory fin-fish and fowl and rivers. The issue associated with different geographic boundaries for different resources arises again in principle number 10 on nested arrangements.

The clan-tribal based system was synonymous with its territorial boundaries but the same boundaries did not always apply to every resource such as when an owned salmon dip net site was separate from the property where berries were harvested. What was important was that property based clan resource management had very well understood geographic boundaries for property ownership. It is necessary to have well defined geographic boundaries for resource use decisions.

The identification of authorized users and boundaries was one of the most important governmental elements of the potlatch and was extraordinarily elaborate. These oral histories are called *kungax* or *adaawk* for the Gitksan and their significance for territorial claims was recognized by the Supreme Court of Canada in the landmark case *Delgamuukw v British Columbia*. In the words of Chief Justice Antonio Lamer, they are a "sacred 'official' litany, or history, or recital of the most important laws, history, traditions and traditional territory of a House". The content of these special oral histories includes its physical representation: totem poles, crests and blankets. The importance of the *adaawk* and *kungax* is underlined by the fact that they are "repeated, performed and authenticated at important feasts". At those feasts,

dissenters have the opportunity to object if they question any detail and, in this way, help ensure the authenticity of the *adaawk* and *kungax*.³⁷

Not all First Nations will have the detailed records of the Gitksan's and treaty areas will most likely be an aggregation of clan or tribal territories. Still, specific boundaries will be needed as First Nations are integrated into the resource governance system.

3. Congruence with local conditions: The institutional arrangements through which resource use decisions were made fit into the community and were viewed as fair. They also showed the ability to adapt to changing conditions, such as drought or exceptionally weak salmon run, without the institutional arrangements falling apart. Longevity of an arrangement was considered a demonstration that the arrangement met this condition.

Chiefs or named title-holders were responsible for resource use decisions for the clans and tribes. These members were lifelong residents and users of the resources in their territory. They would have traditional knowledge passed on from generation to generation about how weather influenced living resources and differences in salmon runs in different years. The pre-colonial use of resources on a sustainable basis for generations indicates a level of knowledge appropriate for resource use decisions. Their continuation probably indicates an acceptance of clan residents that the decisions were fair. It should be noted that fairness does not imply equal access. Chiefs could be wealthier than other members of the clan or tribe and some clans or families could be much wealthier than others in the same tribe or nation. There was, however, considerable redistribution of wealth within the different groups by allowing less advantaged members access to resources owned by others and through explicit redistribution at potlatches and feasts. Again, the potlatch was the institution through which complaints could be made and discussed and it appeared that feasts provided the same opportunity in the interior.

The process for acquiring a 'title' or designation of a resource steward (the position in authority for managing a resource) was quite elaborate. According to Trospen, entrance to and exit from the trustee-titleholder positions depended upon demonstration of knowledge about how to carry out the duties of the trustee position. Head titleholders had a probationary period of a year in which they could demonstrate their qualifications by collecting the wealth needed to hold a feast at which final recognition of the title would be given. The titleholder had to know the history of the territory for which he would become responsible. The oral histories of these territories, in principle, extended back to the origin of the relationship between the title and the land. Many stress the importance of memory in providing humans with the knowledge that they need to deal with crises as well as with day-to-day decision-making. Titleholders had to be able to recite

³⁷ <http://www.usask.ca/english/colloqu/taylor.htm#4>, citing *Delgamuukw v. British Columbia* paragraphs 85, 93.

from memory the history of their territory, and be able to witness the demonstration of such knowledge for titleholders of other territories. Should a crisis cause a breakdown of the territorial system, the widespread presence of people with such memories would help in reorganizing the system. While some parts of the history may have been forgotten, because of the death of the titleholders in an epidemic or war, reconstructing the system would still be possible from the fragments that would remain.³⁸ *Secwepemc People* (p. 282) does not describe the process for becoming a resource steward, but it does indicate that a committee of elders familiar with the traditional uses of the resource continued to advise the steward in their duties.

With increases in population and changed technologies there is more pressure on resources and more interdependencies among them. At the same time when resource use decisions are moved from local clans to nations or to Provincial Ministries or Federal Departments it becomes more difficult to have local knowledge of the resources, more difficult to quickly respond to unusual conditions, and even more difficult to have decisions considered “fair” to all the affected parties. As scale grows it is increasingly difficult to integrate local knowledge into the bureaucratic (and claimed “scientific”) resource use decisions. These impediments have nothing to do with the individuals holding positions in the bureaucracy; it simply reflects the difficulties of moving information up and down within bureaucratic organizations and the imperative of moving toward greater degrees of standardization within a larger organization. It is not at all clear how these larger organizations can manage resource uses to alleviate wealth disparities so that members feel that decisions and allocations are fair.

4. Appropriation and Provision: The rules on appropriation (who, how and how much can be taken) matched responsibilities for contributing to the costs (provision) of capturing or maintaining the resource even though there was not a direct exchange. For example, fishers who shared the catch from a weir contributed to the maintenance of the weir and the effort of catching the fish. Irrigation systems were built and maintained by the beneficiaries who received the water delivered to their land, and so on.

Within clan based systems chiefs and title holders/stewards were the major organizers and decision-makers, with occasional agreements made among clans or among nations to undertake larger scale investments such as building permanent fish channels to make harvesting more efficient. Most activities, however, involved a division of labour within the group itself. In some clans slaves played an important role but for some functions such as producing a canoe the trained individuals likely received significant benefits from its production, especially if the canoe itself was traded for other goods. In the interior those members who participated in the building of a fence to corral animals during a hunt were entitled to the harvested animals.

³⁸ Trosper, Ronald. (2011). *Resilience, Reciprocity, and Ecological Economics: Northwest Coast Sustainability*. New York: Routledge. Pp 165-6.

In modern systems the individuals who performed the work of resource harvesting would either be paid or receive benefits from selling the product into a market as with berry, salal and mushroom harvesters. The question may become how are investments to enhance the resource financed, who receives the resource rents, and how benefits and costs line up among organizations involved as much as for individual harvesters. Some way of sharing is necessary when harvesting is forgone in order to preserve a resource for the future or for another use as during a weak salmon run or when berries need to be left for bears prior to their hibernation.

The most significant change when moving from clan to larger scale governance is how to align benefits and costs with multiple resources. A clan is small enough that the chief and leaders can compare the benefits of harvesting more berries with the benefit of leaving berries for the bears, so bears will not become a nuisance to their village, or the benefits of catching fewer fish is a low-return year so as to not reduce fish stocks in territorial areas for the future. Only relatively small culturally integrated groups can make these kinds of trade-offs.

5. Collective choice arrangements: Most of the persons affected by the resource and its use participated in making and modifying the rules for the use of the resource. Participation could be as direct as when a community of users discussed use of a resource or indirect where members of a resource using community chose a person or smaller group to make decisions. Large governments had extreme difficulty meeting this condition. This issue arose in principle 9 on recognition of local community arrangements as well.

This criterion fits a society where only a small percent of the residents are actual resource harvesters. Within the indigenous clan system virtually all members would be involved at peak periods during the year, such as during the salmon runs for the harvesting and drying of salmon. Again the chief played the major decision-role. Resources were clan, not individual, property.

As the population of the nation or larger government increases, only a subset of members are likely to be harvesters of any single resource. Their participation in the rules and decisions over resource use can increase the effectiveness of the resource's management. Such participation is also related to how fair they regard the processes, their willingness to follow the regulations, and their assistance for seeing that regulations are followed by other harvesters.

6. Monitoring Users: Individuals who were accountable to or were the users monitored appropriation and provision levels of the users. Monitoring needed to be part of the responsibilities of users of the resource. This appears to reflect that the users felt the appropriation and provision conditions were fair. Having outsiders do the monitoring had the potential to create a situation where users resisted the monitoring, especially if the monitoring was perceived as sporadic.

Clans and tribes would have done their own internal monitoring to the extent it was necessary. If a clan or tribal member continually violated the norms of the group, expulsion was a major sanction as it would be extremely difficult for an individual or small nuclear family to have survived in the clan/tribe based systems. As colonial cities developed, the cities would have provided an option for those who were expelled or who wanted to leave their clan. Sanctions could also be extreme, including killing the transgressor although that was more likely with a non-group member who intruded into the territory.

Monitoring resource harvesting in many remote areas is extremely difficult unless harvesters have sufficient faith in the regulations to monitor each other. When regulations are made in some remote bureaucratic process this condition is unlikely to exist. This will especially be the case if local resource users know more about the condition and dynamics of the resource in their area while distant bureaucrats are making the regulations.

7. Graduated Sanctions: Sanctions for rule violations started very low and become stronger if a user repeatedly violated a rule. It appeared that if a user was confronted by an emergency situation where they knowingly violated a rule, the other users would consider it a temporary situation, so the penalty was minor. However, when a user repeatedly violated a rule, sanctions were stronger in order to maintain the overall management system.

With regard to trespassing or unapproved harvesting, some accounts of repeated trespassing by outsiders refer to death as a penalty, with a compensatory feast due the relatives of the deceased. Due to the oral history recitations at the frequent potlaches, usage boundaries would have been widely known.³⁹

Contemporary management must also be able to deal with graduated sanctions. This may be best done with minor violations considered among the local harvesters who can understand the situation and why the violation occurred. However, if violations become serious it can be useful to be able to call in enforcement officials from a larger organization. A good example of this approach occurs in social work for some First Nations. Minor problems, including marginally dysfunctional households, are given counseling by local social workers. However, if a situation arises where a child must be removed from the household, the local social workers may request that a provincial government social worker undertakes the removal so the local social worker can maintain a counselling service within the community. First Nation people may also find it appropriate to monitor their members within their territory, but be able to call on Provincial or Federal professionals to sanction non-First Nation members who are not approved harvesters that intrude into their territory.

³⁹ Trosper, p. 78.

8. Conflict Resolution Mechanisms: Rapid, low cost, local arenas existed for resolving conflicts among users or with officials. The emphasis here was not simply rapid and low cost; it was “local.” It appears it was necessary for a commitment by individuals in the community that rules be followed and that conflict resolution mechanisms were fair. One observation was it was more difficult to achieve this principle if conflict resolution took place much later at a distant location, especially if it was being done by outsiders to the community.

Again, these would be clan or tribal based and serious disputes were resolved within a potlatch, meetings of elders or feasts.

One of the dilemmas of enforcing violations of regulations in natural resource harvesting is that larger organizations must follow bureaucratically designed processes and usually take place in a central location that may be far from where the violation occurred. That can be appropriate for major violations, but not for minor ones. Violation enforcement is an issue where harvesters must feel processes are fair because without their support enforcement may become impossible.

9. Minimal Recognition of Rights: The rights of local users to make their own rules were recognized by higher levels of government. This was a condition for long-term sustainability because when higher level governments refused to recognize local user practices and substituted their own rules, the local institutional arrangement did not survive. This is what happened to the near shore fisheries in Nova Scotia and Newfoundland and is what has happened to many traditional indigenous resource management arrangements. Higher level governments that relied on scientific information without time and place information for local areas were especially prone to violating this principle, as well as making poor resource use decisions.

Prior to colonization the need for recognition of clan and tribal territorial boundaries would have been by adjacent clans and tribes, especially those of the same nation. Court cases, especially *Delgamuukw*, demonstrated that boundaries were well understood. Overlapping treaty claims indicates that boundaries between nations were sometimes disputed. Problems would and did arise when a colonial government began to impose its own governance, especially if it failed to recognize the traditional clan and tribal based rights that had existed for generations. This failure has led to the decline not only of clan and tribal rights but also a decline in the resources themselves where the colonial government did not have either the science or the local knowledge to engage in sustainable resource management. These colonial governments also generally failed to meet the previously listed criteria identified in the IAD framework as essential to sustainable resource governance. This issue is the fight that First Nations are currently engaged in throughout British Columbia.

The restoration of local First Nation roles for resource management and respect for their decisions is a very important aspect of improved resource management in British Columbia.

10. Nested Enterprises: When a common pool resource was closely connected to a larger social-ecological system, governance activities were organized in multiple nested layers. While conditions for successful sustainable systems relied heavily on community participation and fairness, many resources had interdependencies over areas and people beyond their boundaries. The way those interdependencies were taken into account was in higher level arrangements where the lower level communities were themselves direct participants. This allowed the IAD framework to be used to examine higher level institutions with the same criteria used for community-based ones.

This nesting was different from a lower level organization just participating in a hearing by a higher level organization if the lower level organization had no role in the design of the institution and how it was operated. While the original IAD research referred to “nested” as relationships between higher and lower levels of institutions, the work with and on co-management (and co-adaptive management which explicitly introduces the importance of the local time and place information) in joint decision-making by different organizations. This nesting is an integral part of a federal system.

While a clan or tribal based territorial system can provide for effective governance of many natural resources, there are resources where clan boundaries are inadequate. The best single example for the northwest is salmon, where there are actually five different species in rivers running through multiple territories. Prior to colonization available technologies limited the harvesting of salmon in the mouths of rivers where there was common access to only a small percentage of the allowable harvest. This would still allow harvesting from clan owned sites and in rivers within clan territories as directed by the local chief, title holder or steward. The knowledge accumulated would allow for adjusting the catch to the size of runs and adjusting to unusual situations.

Following the expansion of the market with the introduction of canneries and the improved technologies of larger boats introduced by non-indigenous fishermen it became possible for fleets of larger boats to over-harvest salmon and deplete runs to the extent that there would be few fish available for harvest at traditional sites or in rivers further upstream.⁴⁰ Because such fleet fisheries are harvesting mixed stocks, simply reducing the catch does not assure that salmon will remain for the many fixed sites and upstream rivers where traditional users harvested them. To allow escapement of sufficient salmon to assure that objective, would be grossly inefficient as

⁴⁰ The transition from territorial clan based fisheries to open water was not simply due to fishing technologies. Department of Fisheries regulations were often directly targeted to reduce the indigenous fishery and increase the White fishery. (Makuk, pp 239-242).

there would be many more salmon than could be harvested in many areas.⁴¹ This kind of commons problem requires governance at multiple levels. There are other resources that face similar problems. This is also the principle that must be reconciled to bring back the local knowledge of First Nations within the Canadian and British Columbia resource governance system, and it is with an understanding of the issues at the local level where governance must begin.

To repeat, the IAD principles were drawn from a collection of over 5,000 case studies by many different researchers, many of whom were anthropologists residing in the community.⁴²

Researchers led by Elinor Ostrom first selected those cases where sufficient information was provided to determine characteristics that seemed to lead to success or failure. This was not a mechanical process where every researcher would agree with every case interpretation.

However, it is the first time institutional arrangements for natural resource governance have been studied on such a large and systematic scale. The findings are not only relevant for governing natural resources in an increasingly interdependent world, but they are especially important for First Nations, many of which had sustainable successful arrangements in place long before colonization. From a First Nation perspective, it is important that Provincial ministries and Federal departments take this research into account to reform the current system to foster First Nation participation. The research is also relevant for taking other well-defined communities of resource users into account.

THE RETURN OF INDIGENOUS PEOPLES TO NATURAL RESOURCES GOVERNANCE

Resource management for Indigenous peoples has two fundamentally different components: on reserve and in their traditional territories.

On Reserve

On reserve land management needs to be returned to Indigenous governments, including allowing them to have the option of restoring their title and jurisdiction to their lands⁴³. Most

⁴¹ This issue is examined in Mike Morrell, "The Struggle to Integrate Traditional Indian Systems and State Management in the Salmon Fisheries of the Skeena River, British Columbia," in Evelyn Pinkerton, *Co-operative Management of Local Fisheries*. Vancouver: UBC Press, 1989. 231-248.

⁴² The cases collected have since been added to and made available by the Indiana University Digital Library of the Commons at <http://dlc.dlib.indiana.edu/dlc/>

⁴³ Once title is restored, some First Nations may choose to accommodate better property rights for their members. For example, owning one's own home is a major way Canadian families create wealth through increasing home equity to either pass on to their children or leverage for the capital to start a small business. While private property to home ownership should be available to everyone, and indigenous people should not be required to leave their reserve community to achieve that objective, practicality means the local First Nation government needs to have the authority to introduce that option on reserve. That means the Federal government needs to

immediate, however, is training First Nation members to replace INAC officials for reserve and infrastructure management. The Tulo program in Applied Lands Management⁴⁴, offered at Thompson Rivers University is an example of a program with this specific objective. Tulo also offers other active-learning programs for First Nation managers in Tax Administration and Economic Development.⁴⁵ There is less concern for natural resources within British Columbia First Nations because they are relatively small. First Nations outside of British Columbia that have much larger reserves will also find the information below of use for within their larger territories.

Traditional Territories in British Columbia

There are two different approaches we could take to the return of indigenous peoples to natural resource management in their traditional territories. The first is based on the British legal tradition that land ownership includes the ownership of animals and fish as they are “products of the soil”, but, second, over time the sovereignty of the Crown also allowed it to regulate land use resource uses. This dichotomy leaves some interesting legal issues for Canadian First Nations that we will leave to lawyers and the courts.⁴⁶

A second approach, beyond purely legal, is to look at the biophysical nature of the resources and their environment, the demands for their use, and the institutional arrangements through which decisions are made, and could be made, that would be most likely to result in sustainable beneficial use of the resources over time. This is the approach of the Institutional Analysis and Development (IAD) Framework described earlier in the paper. This approach does not explicitly deal with how the benefits are divided up—other than how the benefits are divided up makes a difference in the incentives for resource use and its sustainability. Again, highest and best use of

allow that option which will require Federal legislation. That the Federal government prevents an indigenous people whose society and economy were based on private property to return to ownership of their individual home is inexcusable.

Allowing a First Nation that wants to allow private ownership of homes on reserve should not be confused with the United States attempt to eliminate First Nation governments by dividing reserves into lots and putting them up for sale to anyone interested—many of which were sold to non-Native Americans. First Nations should be permitted to make their own decisions as to who may purchase a lot, and if a member wishes to take out a mortgage the First Nation can retain the right of first refusal to purchase the mortgage if there is a default. Most important, however, the ownership of lots does not change the jurisdiction of the First Nation government over its reserve lands.

⁴⁴ <http://www.tulo.ca/first-nation-applied-lands-management/>

⁴⁵ <http://www.tulo.ca/>

⁴⁶ One point that an economist would make looking at the traditional indigenous title to land and its natural resources would be that the land rents, i.e. basic payment for permission to harvest the resource, should accrue to the property owner and that is the indigenous First Nation from whose territory the resource is harvested. This will encourage the highest and best use of the resource and it is also the owner who has the highest stake in long run sustainability. The benefits to the British Columbia and Canadian government would not come from ownership, but from the taxation of transactions in the marketplace as the resource is marketed, processed, and further traded.

a resource in a sustainable manner is generally best achieved when the owner receives the rents.⁴⁷ However, because different natural resources have very different biophysical properties and occur within very different physical, social and economic environments it is unlikely there is any one-best way for their governance.

THE NATURE AND USES OF RESOURCES

Because successful institutional arrangements flow from the biophysical nature of the resource and its beneficial uses, a description of major resources and the general implications for institutional arrangements drawing on the IAD framework is where we will begin. It is important to remember that for each of the resources, First Nations had successful sustainable governance in place prior to colonization and that governance was destroyed by the colonial and Canadian governments. However, the post-colonial population increases and expansion of markets for natural resources products have created many more interdependencies among both resources and resource users than existed prior to colonization. This means that for many resources First Nations cannot simply return to their clan/territorial property governance, although there are some resources where it can. Applying the IAD framework to the different resources is one approach to help with those decisions as both resource use interdependencies and institutional arrangements are much more complex than in pre-colonial times.

The IAD Framework is comprised of variables that may need to be considered for any particular natural resource use. Each of its ten fundamental elements was described earlier in the paper. It was developed to handle the most difficult cases where a commons—a resource open to all where no one had the authority to exclude users could easily be destroyed from over use such as a fishery or groundwater basin—where under the proper institutional arrangements it could provide sustainable benefits to its users over time. Our focus here is to briefly describe the nature of some of the most important resources and how they may relate to contemporary First Nation governance of their traditional territory. While the IAD framework is our guide, the details are not worked out beyond the general institutional arrangements that must be taken into account. We believe the details of institutional arrangements for natural resources management are best developed by the affected parties and users of the resource. Toward that end the Tulo Centre of Indigenous Economics has also proposed a curriculum in First Nation Natural Resources Governance, which is appended to this report. The Tulo objective is the same as has been achieved in its tax administration program: Train First Nation members to manage their own taxation and local services, which in turn has provided them with the information to integrate their First Nations into the local government service production and delivery systems, initially in British Columbia and increasingly across Canada, for everyone's benefit.

⁴⁷ It would appear that incentives for the provincial government were to favour logging and mines over the sustainable annual harvesting of mushrooms, berries, salal and other forest products which may have had a higher present value but did not result in revenue to the provincial government like logging and mining.

Traditional indigenous governance for most natural resources occurred within the clan/property framework where chiefs or another member with that responsibility was taught the nature of the resource and who and what kind and rate of use was sustainable. Most uses were for the clan itself, but there were extensive trading relationships with other clans and nations where clans that could easily harvest more of a resource than they needed would also harvest specifically for trade.

The clan/property tradition is quite straightforward where the harvesting of a resource on a sustainable annual basis in their territory does not have non-market consequences outside of their territory. These resources would include most plants and animals, including shell fish but not including salmon or large game that migrate through a territory rather than be a resident. For these resources, the clan, or treaty group, would be responsible for “managing the commons”. They would need to determine who could harvest, especially if individuals made their own decisions on how much to sell in a market. The governance may have to include specific areas assigned to different clans or individuals, and research shows that governance works best if the users themselves participate in the rule-making, monitoring, enforcement with graduated sanctions and conflict resolution. These elements of natural resources governance are just as important within a clan or nation grouping as they are in society in general. Any First Nation assuming responsibility for their territory needs to consider these aspects of their resource governance, especially in that it is unlikely that all of its members will be actual harvesters of a resource and that the opportunity for market sales may provide incentives for individuals to end up overharvesting the resource. It is also important for resources that are harvested within a territory that do not have external effects that the Provincial and Federal government leave governance up to the nation group whose territory it is.

Some of the most important resource uses are not bounded by traditional territories or they may have significant external effects. Trees for lumber and pulp, salmon, mines and water resources all possess characteristics where people outside the traditional territory where they are harvested may be affected. This does not imply that governance should be taken over by a geographically larger government—but it does require that those consequences be considered and institutional arrangements may need to be created for that purpose.

Timber.

Trees for lumber pose multiple issues, one of which is relatively unique. It is that the British Columbia government currently controls most timber harvesting in the province and it is coordinated with the mills that process the logs. Many of the mills are the major source of employment and tax base for small communities. It appears that the BC government is willing to take relatively low stumpage prices for timber in order to keep the price of logs down for the

mills. This lets the mills pay higher property taxes to support their local municipality and sell lumber at a lower price than would otherwise be the case and the Vancouver log market where logs from BC timber leases come from has lower prices than the international log market where logs from private lands can be sold. A First Nation would want to be aware of these market interdependencies in making its own decisions on when and how much timber to harvest at any given time, and what, if any, relationship they had with the mills that would process those logs. First Nations also need to pay attention to the international log market and consider shipping logs directly abroad.

A second critical issue with timber harvesting is that it will likely destroy resources that are harvested annually including mushrooms, berries and salal. Currently the BC government does not seem to take these consequences into account in its timber management, but it is very likely the present value of annual resource harvesting may exceed the present value of logging in some areas within traditional territories. For example, the salal industry on Vancouver Island has an estimated value of \$20-50 million per year and \$25-50 million is earned by wild mushroom pickers.⁴⁸ This does not include the retail value of Aboriginal Artwork that uses forest products. Overall, it is estimated the economic value of non-timber forest products to BC is about \$250 million per year.⁴⁹ Making this issue even more difficult is that the benefits of annual harvesting largely go to local people who in many areas have developed their own “territories” that are respected by other local harvesters⁵⁰, while the beneficiaries of timber harvesting may include some locals, but more likely the benefits go to large companies and mills located elsewhere. There is no way a provincial bureaucracy can make the appropriate decision on timber harvesting when it is going to destroy a locally beneficial natural resource. For successful management, the IAD criterion that larger governments recognize that the best decisions may be made by local governments is an important one. The British Columbia government currently has timber harvesting decisions backward. Instead of the Provincial government making initial decisions and then allowing First Nations to consult, the First Nation where the timber is located should be making the initial decision and then consulting with the Provincial government.

Finally, timber harvesting can create unstable slopes and result in destruction of water resources, which in turn support salmon. This means any particular harvest itself must take environmental

⁴⁸ Turner and Cocksedge, "Aboriginal Use of Non-Timber Forest Products in Northwestern North America" *Journal of Sustainable Forestry* 13:3-4. P. 42.

⁴⁹ Hamilton, Gierc et al, "Non-Timber Forest Products", précis for course Wood 465 at UBC. See: <http://wood465-kozak.sites.olt.ubc.ca/files/2013/01/Non-Timber-Forest-Products.pdf> . p.1

⁵⁰ Local harvesters with their own territory have a strong self-interest to harvest in a sustainable manner. One example of non-local harvesters coming into a territory occurred when the author lived on Cortes Island. A couple boats of families came into a beach to harvest salal. The men went into the forest and cut off and pulled out entire shrubs and branches and took them to the beach where the women and children then picked the new and end growth to be sold to a wholesaler for florists. This was both an invasion of an islander's territory and destruction of the resource. When discovered by Islanders the non-residents were “encouraged” to leave and not come back even though they had a legal right to destroy the resource.

consequences into account and as water and salmon are most assuredly related to a larger territory, governance institutions must take those consequences into account. Timber harvests require a regulatory structure. Local impacts are most important so local institutions are critical. The degree to which a larger regulatory agency is needed, and its organization, will vary from place to place but one of some kind will probably be desirable.

Salmon

The biological nature of salmon creates a dilemma for governance. Traditionally, indigenous peoples harvested salmon primarily by dip-nets and weirs, with some nets, from rivers and streams in the traditional territory of the clan or nation. While river mouths were open fisheries the fishing technologies did not facilitate a sufficient catch to eliminate the upstream territorial fisheries. The emergence of large boats and modern nets overharvesting fish in open water and at river mouths could easily destroy the fishery in many traditional territories.

The dilemma is simple. If the open water commons fishery is regulated to assure sufficient escapement to sustain the overall fishery there is no assurance that fish will be left for each territorial fishery. The result will be some territories may receive more than sufficient fish while others receive virtually none. In contrast, if the commons part is managed to assure sufficient fish for every territory, fewer fish than necessary to sustain the overall run will be harvested and many territories will have excess fish. However, because the pre-colonial indigenous fishery was sustainable as basically a territorial fishery for generations, a good case can be made that a return to a territorial fishery could work. Obviously this has extreme distributional consequences for the fishing industry—where millions of dollars are invested in fishing boats and technology to participate in the open water commons fishery regulated by the Federal Department of Fisheries. Restoring or even shifting to a territorial fishery will involve joint governance of some kind, perhaps the kind of co-management that has been created in Washington State to satisfy the requirements of the Stevens Treaties which courts have ruled provide for indigenous peoples to harvest one half of the sustainable catch. In British Columbia such treaties currently do not exist. It is important, however, to recognize that if indigenous people have responsibility to manage a resource such as salmon, they must develop the institutional arrangements to do so. When a court decision ended DFO limits on the fishery, the Micmac received a large share of the lobster fishery in Quebec and the Maritimes but DFO had to negotiate management back because the Micmac were unsuccessful at creating their own institutional framework for management.⁵¹

Mines and other large projects

⁵¹ For a description of the issue see stories below.

http://www.idlenomore.ca/marshall_decision_still_ripples_through_native_fishery.

<http://thechronicleherald.ca/novascotia/1501139-indigenous-commercial-lobster-fishermen-at-odds-in-digby-county>.

Mines are likely to be located in a single traditional territory. Their issue is external effects, including the pollution of rivers and streams. Regulating such activities to prevent negative external effects requires scientific knowledge and relationships with large international companies. Few First Nations have the capacity for this kind of management at the present time. It is very likely that the regulation of mining will require governance that includes both local and the British Columbia or Federal Government.

Dams and pipelines are similar to mines in that the effect of their construction, including infrastructure, and operation will extend outside of any First Nation's territory. The governance system for large projects will require some kind of joint governance.

Water resources

Water has many uses, some out of channel such as for irrigation and domestic use, others in-channel for navigation, recreation, waste disposal, power production and as habitat for fish and animals, including marine mammals. All of these uses make water extremely valuable and an extensive range of regulations at all levels of government has emerged to deal with them. Water in rivers and streams cannot be fully governed on a territorial basis.

Water is our most complex resource. Governing water uses involves many kinds of separate local user communities as well as regulations by the provincial and federal government. First Nations can expect to be part of a larger governing structure for water resources.

CONCLUDING OBSERVATIONS

Indigenous peoples governed natural resources in a sustainable manner for many generations. Those resources were the economic base of their communities. The stripping away of rights of use and jurisdiction over their traditional territories, in clear violation of British and subsequently Canadian constitutional law, and confinement to reserves where even their individual property rights to their house had been taken away and not being allowed to pre-empt property for their own use like other settlers essentially destroyed not only their economy but in many places their traditional society. In those areas distant from settlers, many clans and nations maintained their traditional culture and never gave up in advancing their rights under British, and subsequently, Canadian constitutional law. The courts are finally, 150 years later, catching up with the illegal practices of the British Columbia government. This poses a major challenge for a province where a significant portion of its economy is based on natural resources. It is very important that new institutional arrangements be created that improve the governance of natural resources—not simply change the way benefits are divided up.

For improved governance one must look at more than just the legal issues of self-government and title. One must look at the nature of different natural resources and their uses to design institutional arrangements that can restore the economic base of indigenous peoples and take advantage of Provincial and Federal governmental institutions which can supplement community based institutions. This will allow them to take into account the consequences of resource use beyond traditional territories. Some of those issues have been described above.

While there are recent attempts to create treaties, the slow process has allowed indigenous people, dissatisfied with the treaty process, to continue to bring actions in the courts. Each action has increased the rights of indigenous peoples. That trend is expected to continue because the failure to recognize indigenous rights has now been in law school classrooms for nearly a generation. As older judges who accepted British Columbia's myths retire and younger judges take their place, indigenous peoples can expect more and more victories. It behooves the Provincial Government to recognize this trend and get in step if it expects the treaty process to succeed. At the same time it behooves First Nations to begin planning for significant resource use governance responsibilities. While some resources can be managed within a traditional territory, others, including the most important: timber, mines, salmon and water all have biophysical characteristics that result in important external effects beyond those territories. Their governance will require institutional arrangements to take those consequences into account for long run sustainable resource governance.⁵²

The diversity of resources and the complexity of institutional arrangements require that both local knowledge and western-style scientific techniques be used for effective natural resource management. A transition to a locally-driven resource management, appropriately informed by modern techniques, will provide a more accurate, flexible solution to sustainable resource management. The subtle interconnections that inform a truly sustainable ecosystem are available through the use of indigenous techniques and local government systems developed by First Nations. They suggest a more accountable, ecological and financially answerable approach than broad leasing agreements to absent foreign multi-national enterprises that have no real stake in maintaining the resource for future generations of Canadians. The involvement of BC First Nations in directing and managing these resources also will provide revenue alternatives that will increase economic self-sufficiency, encourage the further development of indigenous enterprises and increase employment opportunities within the community, clearly a net benefit to BC as a whole.

The diversity of resources and the complexity of institutional arrangements require that both local knowledge and scientific knowledge be brought to bear on the governance of their use.

⁵² The Tulo Centre of Indigenous Economics is proposing a First Nation Natural Resources Certificate Curriculum with a focus on the Institutional Analysis and Development framework to aid First Nations in this endeavor. It is attached to this report as an appendix.

First Nation peoples need their own members educated in the science of resources so that it may be combined with their understanding of local resources, the benefits of their use, and their dealing with Provincial and Federal governments. All parties face an interesting future.