

**COMMUNITY-BASED KNOWLEDGE CAPTURE:
TSAY KEH DENE DEVELOP AN ONLINE ARCHIVAL SYSTEM**

by

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ABSTRACT

Indigenous peoples have differing perceptions of what constitutes data, including how to collect, preserve, and interpret information. A data management system has the potential to embrace community knowledge, which will have long-term benefits for the preservation of a culture. Designing a database platform for an Indigenous community requires researchers to be cognizant of the history and current position of distinct Aboriginal Nations.

The focus of this Master's research project is the methodology and process of data capture to build a data management system sensitive to the needs of the Tsay Keh Dene in northern British Columbia. This qualitative research project examined how the Tsay Keh Dene perceive their cultural, historic, environmental and geographic landscapes. It describes methods to determine how the database interface should function and develop with Tsay Keh participation. With this data management system, the Tsay Keh have an efficient and powerful tool specifically created to their needs.

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In: Natural Resource Development in Canada: An overview of effects on the Tsay Keh Dene

The Constitution Act, 1867 differentiates between propriety rights and legislative authority relative to natural resources and the environment. Through the Canadian Constitution, ownership of all crown lands and natural resources not specifically given over to private ownership is given to the provinces. (Mitchell, 2003, p.1)

The Canadian government delegates decision-making powers concerning Crown lands to various government bodies within Canada. Until recently, First Nations¹ governments had lost their voice in land use decisions about their traditional lands including natural resource development on those lands. The natural resources that are of primary concern in the north are natural gas, precious metals, and prime timber.

British Columbia continues to depend on natural resource development as the basis of provincial economic security and health. This exploitation of British Columbia hinterlands for natural resources represents a source of conflict and uncertainty between First Nations, industry, and government. At the forefront of the conflict are different interpretations of what the land represents to each of these groups.

A conventional perception by government and industry is that the North is an unpopulated frontier containing an under-utilized wealth of resources waiting to be "colonized" (Coates and Morrison, 1992). An alternate view of the same land, however, sees the so-called hinterland as a homeland to many First Nations whose

¹ Throughout this paper, references will be made to Aboriginal and Indigenous people, First Nations, Indian, or simply "the people"; all of these references are to the same people: those who inhabited this land prior to colonization by the Western European "discoverers" and "settlers," and their descendants.

interests are often overlooked in the development process (Berger, 1988; Swiderski, 1992; Usher, 1993;).

According to Thomas Berger (1988), “progress” has led to the destruction of traditional economies, local environments, and essential resources integral to First Nations and to their identities. (Place, 2007) The result has been industrial development that continues to erode First Nations land and culture, and has, in many cases, left these communities with geographies that have become foreign landscapes.

As noted by Jessica Place, (2007) “The findings of Berger’s influential inquiry into proposed development in the Mackenzie Valley speak to issues that are also evident in the hinterlands of British Columbia”(Place, 2007, p. 5). At the core of the issues are opposing values regarding land use. Land is an important part of First Nations peoples’ ways of life, and resource development can undermine the ability of First Nations to maintain their identities and culture (Berger, 1988). While the dominant society perceives land in terms of extractable resources, for First Nations, “the land (is) sacred, the source of life and sustenance, (and) not a commodity to be bought and sold.” (Berger, 1988, p. 127).

Presently in British Columbia, there is enormous pressure on First Nations’ traditional territories for resource exploitation and activities that would help to sustain the province’s overall economic health and wealth. In the recent economic climate of semi-recession, the Tsay Keh Dene continue to be in the position of watching their land being exploited for its wealth, yet without appropriate acknowledgement that these areas are not only fundamentally consequential to the community, but are also the source of the peoples’ sustenance and spiritual well being. “Therefore, the space

and the relationship between people or between people and their environment are seen as sacred, a key concept within many Indigenous peoples' spirituality." (Wilson 2008, p. 87).

The Tsay Keh Dene people are geographically and genealogically connected to their lands—the land *is* their identity, embodying all aspects of language, traditions, customs and protocols. Fundamentally, the land constitutes their ways of knowing and being. There is much concern for the future generations of Tsay Keh Dene, and it is my hope that this document will find its way to assisting those who are in search of their identity and language.

This First Nations Studies Masters project documents the development of an online database for the Tsay Keh Dene First Nation of Northern British Columbia. As part of that database, this paper focuses on the value and importance of “place” to Tsay Keh Dene. The benefits of the database development process to the Tsay Keh will be the emphasis placed on critical aspects of Tsay Keh epistemology and ontology, and additionally, how this archival system supports the preservation of their culture for future use.

Presently, minimal literature exists concerning data capture development for First Nations communities. Besides the academic benefits from the lessons learned from this experience, this project is potentially a starting point and a resource for First Nations communities developing their own, perhaps similar, online Indigenous archival systems.

The Tsay Keh are in the process of creating a specialized information management system to store historical and contemporary community knowledge. It has been my job to create an archival system equipped with the functions to ensure this system is a vehicle to help preserve the Tsay Keh culture and assist with land management strategies.

Through the early stages of researching database possibilities, it became obvious that there were important lessons to be learned by the development of this specialized system. This was the point at which documenting the development of this product became the focus of my University of Northern British Columbia Master's research project.

Research Questions

At this critical junction in history, where global politics exist in times of high anxiety—compounded by the fact that there is an accelerated demand on natural resources—it is prudent that Canada's First Peoples have their say when it comes to their own cultural and geographic landscapes. Distinct from other non-Indigenous cultures, a First Nation community embodies unique knowledge systems that must be taken into consideration when building an electronic application such as an online database. This thesis project examines the different factors that must be incorporated into constructing a storage mechanism for First Nation's community knowledge.

The Tsay Keh Dene have a deep connection to their traditional lands. This connection, thousands of years in the making, is being severed by continuous industrial developments that fail to recognize the significance of this land to the Tsay

Keh. Furthermore, there is a lack of appreciation on the part of industry and government for the full implications of what this industrial development will do to the health of this First Nation's culture. Preserving local knowledge can be a way to validate Tsay Keh Dene's cultural connection, use and occupancy of their lands to both government and industry.

The key research questions are:

- 1) How does an online database capture Tsay Keh Dene knowledge?
- 2) What are the potential benefits to Indigenous communities in electronically archiving this data?

The research questions become the framework behind the overall design of a Tsay Keh Dene database capable of storing Indigenous knowledge of this community, thereby placing value upon the lands this First Nations uses in northern British Columbia.

A key factor in the design and functionality of this data management system is that community members not only have access to this tool, but also have ease in using this technology. Navigation through the data that will be stored in this database will have multiple applications for all users:

- As archival data that can be used in the treaty process (proof of land use and occupancy);
- Helping inform decisions on future land use on traditional territory;
- As a teaching aid in Tsay Keh school and education system;
- Assisting with bridging Elders' traditional knowledge with younger generations; and,
- Connecting community members with their traditional territory and traditional historic knowledge.

Reflections of a Northern Researcher

Who am I and where do I fit in? I identify myself culturally as a Canadian with Scottish, Irish, and Cree roots. With a Bachelor's degree in Geography, my background is in the field of natural resource management. Professionally, I work for the Tsay Keh Dene in their Lands and Resource Department in Prince George, British Columbia. Working for a First Nation allows me to keep my own environmental ethics without compromising my value system.

Currently, my position as Director of Land and Resource for the Tsay Keh Dene Band's Lands and Resource Department is to assist the Nation to reach their goals of land management in their territory. With the continued assault on Tsay Keh lands through industrial development, management of traditional territories is very difficult. The goals and management strategies steering the overall direction of the Land and Resource Department incorporate Indigenous knowledge methodologies that focus on sustainable land use.

Chapter One of this project document offers a description of Tsay Keh Dene history, featuring the significant forces that have impacted ancient connections to the Tsay Keh Band's traditional territory. Understanding the community is paramount in designing a data management system. In this chapter, the historical information about the Tsay Keh- Dene that I present provides insight into links between those past relations and contemporary development of natural resources on that same land.

Chapter Two is a review of the literature in which I examine the concepts of: *sense of place, Indigenous knowledge, and mapping of Indigenous knowledge.* I

reference leading authors and academics to provide a thorough understanding of contemporary thought concerning these three topics. These are intrinsically intertwined topics that essentially filtered the overall trajectory and outcome of this data management system.

Chapter Three features an explanation of the methodology used in this research project. I discuss in detail my research methods, including Indigenous knowledge, oral history, ethics, and geography (including mapping and cartography). My discussion expands to include the technology used in implementing this project. The online database application incorporates contemporary conventional tools to support the unique needs of a traditionally oral society. I show how tools such as Google Earth help facilitate these needs by incorporating visual data with oral and written data.

Chapter Four is a discussion of the community benefits that an online database will achieve for the Tsay Keh Dene. As I document the creation of this specialized database, I am cognizant of the specific attributes and themes other researchers and academics can learn from, particular to the needs of Indigenous communities.

As I note in this chapter, there are minimal scholarly resources available on the topic of data capture management systems specifically designed for Indigenous communities. Therefore, when I created the framework for the development of a data management system for the Tsay Keh, it was initiated from the ground-up and incorporated experimentation. In this chapter, I establish that this database system is not a stagnant tool. Given the intrinsic nature of this system—as the outcome of this project—data capture will evolve with time, grow and be modified at the discretion of

others. As they use the system, community members will be able to add information and data to it; thereby, creating a growing and living information tool, continually evolving to be consistent with the operating definitions and needs of the users.

CHAPTER ONE: THE TSAY KEH DENE, PAST AND PRESENT

To understand the possible benefits of a community knowledge archival system designed for the needs of a specific culture within a recognizable and confining set of demographics, it is critical to understand the history of the group, and their current reality.

Historically the Tsay Keh Dene have suffered many changes in their lives and culture resulting from being subjected to colonial policies and economic systems in which they have not been included. The Tsay Keh are currently positioning themselves to participate in land management of their traditional territory as part of their aspiration to help their community to regain physical and spiritual health.

The history and complexity of Aboriginal and non-Aboriginal relations in Canada is epitomized by the situation in the Province of British Columbia:

There the Native Protest over the loss of their lands has been more audible than elsewhere, and the Indian land question has agitated the province for more than a century. One tribe, the Nishga [Nisga'a], has been at the forefront of this controversy. The story of the Nishga Indians illustrates the quest of all Canadian aboriginals for legal recognition of their aboriginal rights. Their story takes us back to the beginning of the European colonization of North America, and it brings us forward to the very center of the present conflict over land claims, Indian self-determination, and the concept of aboriginal government. (Berger, 1982 as cited in Swiderski (1992, p. 33).

Like the Nisga'a, the Tsay Keh Dene has endured much at the hands of the Canadian governments and policies. Tsay Keh history includes the move to the reserve system of land occupancy, the dramatic results of the enforcement of the Indian Residential School system throughout the twentieth century, and finally, the onslaught of 'outsiders'—non-Indigenous people—procuring natural resources

development within the boundaries of their traditional territories into the twenty first century.

The Reserve System of Land Occupancy

Traditionally, the Tsay Keh Dene had a migratory culture—moving upon, through, and over the land in family groups, seasonally and systematically harvesting subsistence resources. When the Canadian government created and imposed the reserve system upon First Nations in western Canada, the Tsay Keh, like many others, were forced into a very alien form of community living which presented sudden and major challenges to their culture and identity. For the Tsay Keh, living as a sedentary group in predetermined locations resulted in fundamentally negative outcomes that were previously unknown within their culture. Social diseases previously unknown within Indigenous cultures became problematic. Drug and alcohol abuse increased in these new living conditions within the reservation.

Families unaccustomed to restricted territorial boundaries were forced to live within constant and immediate contact with one another, which, in turn, produced serious frictions between them. Congregation outside the Reserves became illegal, and extended families became separated and estranged which resulted in massive and systemic cultural breakdown. Kinship bonds and relationships eroded as a result of familial populations who became isolated, virtually confined to their respective reserves, yet placed into previously unknown enforced proximity. The resulting confusion about personal and cultural identity is an issue still prevalent today.

Along with the introduction of the reserve concept, the Federal government imposed a Chief and Council system. This internal governance structure contradicted the previous cultural form of Tsay Keh political and leadership models that had consisted of family headmen, each of whom was elected to speak for a traditional and heredity area. This Aboriginal system had allowed and promoted direct and inter-relational control and management of respective territories to one another. Subsequently, with the imposition of the reserve system of governance, these synergistic structures were lost—which further undermined Tsay Keh self-determination.

Traditional Tsay Keh cultural practices steadily weakened and eventually broke down. Everyday routines, hereditary arts, and even elemental tasks such as food gathering were becoming obsolete. The Tsay Keh people, habitually accustomed to active physical lifestyles, fulfilling traditional roles in a hunting and gathering society, became more and more accustomed and dependent on sedentary living with the influx of non-Aboriginal practices and material goods. These changes contributed to major negative health effects. Diseases such as diabetes, heart disease, and anemia are some side effects of moving away from consuming traditional sustenance and becoming more sedentary. Consequently, such dramatic, imposed changes furthered Tsay Keh resentment towards the colonial Canadian governments, culture, and social policies.

The Residential School's Impact

Every demographic of the Tsay Keh community has and continues to suffer numerous side effects from residential school experiences. Through informal

discussions with Tsay Keh community members it surfaced that from the late 1950s until the closing of Lejac School in Fraser Lake in 1976, Tsay Keh children and youth were taken away from their parents and families, and placed in residential schools. These children were effectively removed from every cultural and environmental feature familiar to them, and relocated into government-controlled, religion-based schools operated specifically and only for First Nations students.

The Canadian society considered Tsay Keh villages not only remote, but also primitive and without amenities or infrastructure. Without relegated institutions such as schools, the Canadian government imposed a countrywide mandate of available education, and removed First Nations children to centralized schools, often hundreds of miles from their villages. Tsay Keh children were taken from their homes and sent to Lejac School, a remote live-in facility. Behind this enforced education system was a Canadian government policy to encourage and facilitate assimilation of these children into the dominant society. It was a policy that had catastrophic consequences for the Tsay Keh people, the effects of which continue to this day.

Side effects of residential schools within the Tsay Keh population are varied. Removal of Tsay Keh youth into the residential school system effectively removed the upcoming generation(s) from their community; traditional lessons in cultural norms and decision-making processes suffered or failed to be passed down. This left the Tsay Keh less able to determine their own futures, unable to sustain a culture that had been, in pre-colonial times, entirely self-sufficient and self-determining.

Due to the separation of parents and children, there are layered generations of parents with compromised parenting skills. As a consequence of being taken away

from their own, many Tsay Keh endured a childhood that was absent of trustworthy role models, and without traditional Tsay Keh guidance and spirituality. To this day, there remains a tangible grief in the parental generations who were isolated and robbed of their roles as both educators and loving parents when their children were taken from them.

Their children suffer as well, some irreparably so. At the hands of strangers, Tsay Keh children were severely punished for being Indian in any way, and their personal identities were destroyed in the process. Even their food was vilified; their diet was restricted to a menu foreign to their traditional game-rich diet. Major epidemics of previously unknown infectious illnesses such as measles, influenza, and tuberculosis that swept the Northwest also surfaced in the Lejac residential school to claim many young victims.

Wounds of this magnitude had resounding and pronounced, long-term effects on all Indigenous communities, including the Tsay Keh Dene. Once back in their own communities, the confusion of the children was magnified by an inability to be understood by Elders, parents, and relations. Because Sekani, their mother language, was forbidden at the residential schools, a chasm developed in the possible communication between those who were left behind in the community and those who were removed to the schools. The ability to communicate verbally had emotional consequences; a major element of cultural knowledge and identity had been erased.

To this day, Tsay Keh lineage structures continue to suffer the effects of broken familial traditions and lines. Within these affected generations, there are elements of social and cultural dysfunction. Social diseases such as alcoholism and

drug use plague the Tsay Keh people. The entire community has had to pay for the consequences of the sudden absence of the young generations who were taken from them and subjected to the residential schools' environment of isolation, loneliness, ridicule, and harassment.

The trials and horror of the enforced residential school system resulted from the Canadian government's notion that the younger generation could and should be made to be someone and/or something *other* than Tsay Keh Dene. It is only logical and reasonable, therefore, that within the Tsay Keh community there remains an underlying resentment for not only the Canadian government, but also for non-Aboriginal Canadian people and institutions who supported policies of assimilation. Significantly, this resentment—grounded in personal and cultural instability—creates within the community a palpable feeling of difference from other Canadians.

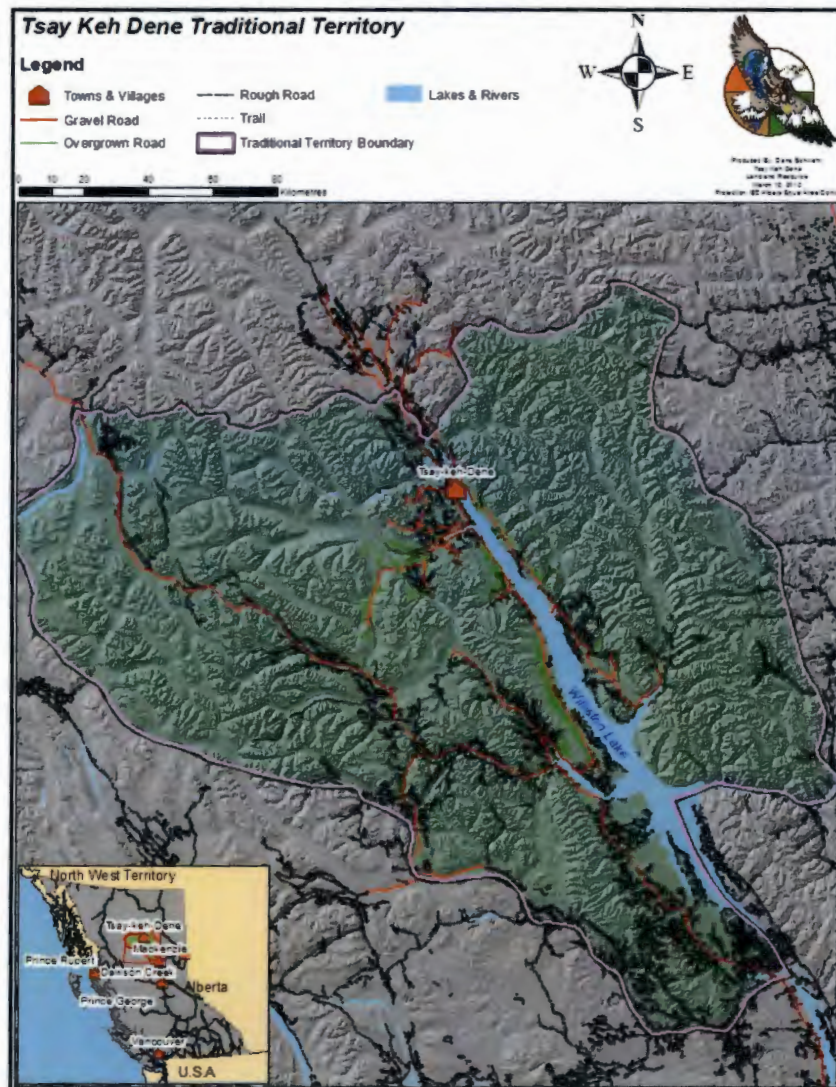
Tsay Keh members today are conflicted when it comes to understanding their own identities. After decades of being taught to feel shame for their culture, ways, language and lifestyle, the United Nation's proclamation in the 1990s as the "Decade of Indigenous Peoples" has created a vortex of confusion. Suddenly, within a few decades, Aboriginal people were expected to feel pride for their heritage and for themselves. This paradoxical position could not and cannot be rectified simply—or quickly.

W.A.C. Bennett Dam- The Williston Reservoir

Perpetually, the Tsay Keh Dene find themselves in a position of watching their traditional territory being exploited for its natural resources. As Coates and Morrison (1992) contend, for "...the last three decades, southerners have once again discovered the untapped potential in these vast lands, and have rushed to develop the hydroelectric, mineral and timber resources in the sub-arctic zones." (p. 2) There has been a cyclical rotation of harvesting the resource wealth of the Tsay Keh territory. Currently, hydroelectric projects, timber harvesting along with mineral exploration and development have become the region's economic development focus.

One of the most recent examples of Canadian government and B.C. economic developments to affect the Tsay Keh was the creation of the Williston Reservoir as part of the W.A.C. Bennett Dam. Named after a former B.C. premier, the dam began construction in 1963 and was online and producing power by 1968. Currently, the Tsay Keh are located on a reserve at the northern tip of this man-made lake (defined as a body of water qualified by a fluctuating depth).

Figure 1.1: Overview of Tsay Keh Dene Traditional Territory



Source: Tsay Keh Dene Land and Resource Department

GIS Analyst: Dana Schwehr

When the governments began this monumental project, the Tsay Keh people (or Ingineka Band) did not have fair warning or proper understanding of what was going to happen to their land in the future due to the construction of Williston Reservoir. The dramatically altered landscape created by the W.A.C. Bennett Dam and the Williston Reservoir resulted in profound cultural, physical, and mental stress for the people whose home it had once been.

Before the flooding, the land that became the Williston Lake Reservoir was home to many families who lived at Fort Grahame. The flooding and exodus from Fort Grahame striated and segregated families from one another and fragmented the overall community lifestyle the Tsay Keh peoples shared. Some families chose to move to Ft. Ware, while others were moved to either the Parsnip or Ingineka reserves. Where there had been one large community, now there were three fragmented communities, all living within a landscape suddenly and completely altered and re-defined.

When the flooding first started to consume their land, the water came so quickly that many people were unable to remove their belongings from their dwellings. The community was in shock, and once again, as a result of the non-Aboriginal need of a particular commodity, and the subsequent appropriation of their lands, the Tsay Keh's sense of their own future was unclear and seemingly jeopardized.

The impact was immediate and devastating. With the flooding of the Rocky Mountain Trench, wildlife migration routes, hunting areas, and culturally significant areas such as burial sites were submerged—forever lost. The effects on the Tsay Keh people could not and cannot be quantified. The new man-made lake created an alien landscape that forever separated the Tsay Keh from the land they had inhabited since time immemorial; not only was the face of that land changed forever, the Tsay Keh Dene were changed.

The familial ecosystems that the Tsay Keh had been accustomed to for millennia were altered suddenly and drastically; the new massive lake began creating

huge amounts of latent energy, and the entire landscape was thrust into ecological chaos. Animals, migrations, and weather patterns that the Tsay Keh could once forecast, no longer applied. The changes in the local and regional geography made it very difficult for the Tsay Keh to endure with the surety they once had in a known and reliable habitat.

Massive bodies of water such as Williston Reservoir have been scientifically proven to generate natural energy such as storms and dynamic temperature changes which generate airborne water particles that influence changing weather patterns within the immediate and surrounding regions. During the last decade, the location of the reserve has resulted in previously unknown respiratory problems for the Tsay Keh people.

The unnatural rise-and-fall pattern of the reservoir's water levels creates hydro electricity, but it also produces massive amounts of fine beach sands when the water level is low—a phenomena which has a demonstrable two-fold effect. "Approaching Tsay Keh Dene Village at sunset in early June, I saw what looked like a thick bank of fog hanging above the community on an otherwise clear evening. Within the village, fine, silty particles of dust created a thick accumulation on window screens."

Figure 1.2: Dust Storm over the Williston Reservoir



Source: (costumecupboardmamablogspot.com)

Air quality in the village of Tsay Keh deteriorates when Williston's water level is low. Fine sands combine with high winds generated by the large body of water, and enormous dust storms drastically reduce overall air quality. This phenomenon has been observed and documented by outsiders to the community:

The management of industrial reservoirs for hydroelectric energy can cause severe impacts to surrounding communities. This study examines the generation of dust along the northern foreshore zones of Williston Reservoir in northern British Columbia. The dust is generated in the spring when the reservoir levels are low and impacts a relocated First Nations' village (Tsay Keh) at the north end of the reservoir. Data were gathered to provide an overview of the physical conditions that contribute to the dust problem [and] assess[ed] a large-scale and complex problem with respect to dust management along a large reservoir. Methods for dust control include short- and long-term solutions that integrate the use of native vegetation along the foreshore zones of the reservoir. (<http://www.ncbi.nlm.nih.gov/pubmed>)

Erosion is a grave concern for the residents of Tsay Keh. High winds and fluctuating water levels erode the shoreline an estimated 12-feet-a-year in some areas. Re-

vegetation projects have been unsuccessful due to the powerful erosion forces. A possible solution—creating an artificial island to stem the erosion—remains untried. Aware of the health implications, B.C. Hydro, a Crown Corporation, has attempted to mitigate dust problem using tilling and furrowing, but these strategies are temporary.

Consistently over the years, the incidence of asthma and respiratory illnesses within the Tsay Keh peoples has increased. “No one has suffered as much from dust storms as the Tsay Keh Dene people at the far north end of Finlay Reach” (cited in Arocena, p. 571). At this time, the only known solution to the dust problem would be to maintain high water levels, which is not a feasible option for B.C. Hydro.

In Baker’s study (2000), 80% of the band members interviewed “indicated that the dust storms were responsible for adverse health effects such as eye irritation, respiratory tract problems, and skin rashes.” Questions concerning the future of the Tsay Keh community and their on-going health issues continue. The consequences of ongoing air quality issues can be summarized as the Tsay Keh’s 1) increased resentment towards outside, non-Tsay Keh influences, particularly B.C. Hydro; and, 2) escalating dissatisfaction and mistrust of the Williston Reservoir as a viable habitation site. Though it is a demonstrably problematic location, it is the only site being offered by governments within the currently active Tsay Keh treaty process.

Road Construction on Tsay Keh Territory

The creation of the town of Mackenzie in the mid 1960s at the southern end of the Williston Reservoir added more pressure on the Tsay Keh people, their lands and its health. The town of Mackenzie was created to facilitate the growing B.C. pulp and

lumber industry. Tsay Keh Dene, Kwadacha First Nation, and McLeod Lake Indian Band territory all lay within the Mackenzie Timber Supply area, and therefore were been included as part of the pulp and lumber industries' sources.

As a result of the massive quantity of raw timber and wood fibre needed to feed these industries, the forests in this region were clearcut. Consequently, due to the extreme habitat destruction and changes in ecosystems, many species of animals were displaced. In addition, in order to get to the marketable timber within this territory, hundreds of kilometers of main and spur roads were built, allowing access to and exploitation by other natural resource industries, including mining.

Expanding industry access to Tsay Keh has also expanded accessibility for other user groups. Sport hunters and other recreationalists are able now to use industry roads to access remote hunting territories which were previously inaccessible to outsiders. Today the Tsay Keh territory has been depleted of once plentiful game; whereby, it has become increasingly difficult for Tsay Keh hunters to provide sustenance for their own families. Tsay Keh hunters and families cannot go to areas and camps that have been used by their ancestors for generations because the space has been occupied by modern camps catering to sport hunters whose activities are primarily recreational and not based on subsistence needs. Increasingly, Tsay Keh people are getting pushed out of their own territory by outsider influences and exploitation.

Beyond the obvious consequence of damaging local pristine ecosystems with roads and industry, the reality is that First Nations usually receive little or no financial compensation for what are considerable losses to their socio-economic,

cultural, and territorial losses. The scars on their land are constant reminders to the Tsay Keh of a foreign, invasive, and aggressive market economy and its ruthless exploitation of the resources within their territory.

The British Columbia Treaty Process

For 17 years, the Tsay Keh have been ensconced in a six-stage treaty process and are currently in Stage Four of the process. In this process:

The three parties examine in detail the issues identified in the framework agreement, with the goal of reaching an agreement in principle. The agreement in principle identifies and defines a range of rights and obligations, and forms the basis for the treaty. The parties also begin to plan for implementation of the treaty.
(www.gov.bc.ca/arr/treaty/negotiating/sixstage.html)

These issues usually concern the amount of land and cash settlements that the governments are willing to offer to the First Nation with whom they are negotiating. If the parties reach a mutual level of satisfaction on the terms of the treaty, they will draw up an agreement in principle defining and identifying each party's range of rights and obligations, thus forming the basis of a final and successful treaty.

However, treaty negotiation is currently at a standstill due to a dispute over the allocation of land that the B.C. government is prepared to assign to the Tsay Keh, but which the Tsay Keh cannot accept. The B.C. government has come to the table offering a land settlement of which the total area equals a mere five percent of Tsay Keh's traditional territory. This particular five-percent plot of land has no resource value for future economic opportunities, as opposed to the remaining 95% claimed by the Tsay Keh. Exploration and technological investigations have proven that the larger percentage of land contains marketable resources including large and rich

mineral belts, and/or considerable timber value. Furthermore, the land offered by the government includes the reserve lands already occupied by the community. Though the offering includes a small area outside these reserve lands, the overall size of the offering would limit the economic endeavours the Tsay Keh could reasonably pursue.

One benefit of this settlement process could be that the Tsay Keh would be granted “fee simple” land ownership. The First Nation would own their land in the same terms as the rest of Canadians, including paying property taxes. The lands would be owned outright by the the band and its members, and therefore could be offered for re-sale at the discretion of the landowners. The Tsay Keh, however, are no longer sure that the B.C. treaty process will ever give them fair settlement, and that issue has brought up questions about the future of the negotiation.

It is important to recognize the overriding fact that, from the Tsay Keh point of view, the amount of land offered for settlement does not constitute a *negotiation* as much as it shows that the provincial and federal governments do not understand Tsay Keh traditional economies, the people’s relationship with the land, their culture of harvesting, or their future within Canadian economics and markets. Their principle argument, moreover, is that, historically, the Tsay Keh never signed over or surrendered their land to any government or agency, yet they now find themselves, as a First Nation, in the process of fighting to “get it back” from governments that has laid claims to ownership of their lands.

The Tsay Keh Response

In Tsay Keh territory at present, there is serious emphasis on preserving the Tsay Keh Elders' knowledge. These Elders hold thousands of years of accumulated wisdom about survival and land use—vital knowledge that can assist the present and future generations. Part of moving forward for the Tsay Keh is to have this knowledge archived in a meaningful, accessible, and useful format. At a time when First Nations in Canada are regaining some recognition of rights and ownership of land and resources, the need to preserve local and historic data about the land and the people who use it becomes critical.

Historic and ethnographic information about a culture is fundamental to the vibrancy of that culture and its communities. For First Nations whose languages, teachings and views are continually challenged and undermined by outside perspectives, preservation of Indigenous knowledge is a means to ensuring future generations in First Nations communities such as Tsay Keh will retain healthy identities and relations. When First Nations negotiate with government and industry about land use or territorial boundaries, they require a strong and defensible case. Developing and owning an archival information system that has been created with their specific community needs in mind will help the Tsay Keh achieve that goal.

CHAPTER TWO: A REVIEW OF THE LITERATURE

Tsay Keh's traditional territory and home is being ravaged by outside industry and therefore understanding and preserving Tsay Keh's perception of place is essential to the building of this database technology. As anthropologist Keith Basso (1996) has written, exploration of Indigenous concepts of place is critical.

In this unsettled age, when large portions of the earth's surface are being ravaged by industrialism, when the continents Indigenous people are being forcibly uprooted by wanton encroachments upon their homelands... mounting major legal efforts to secure permanent protection for sacred sites now controlled by federal agencies... attachments to geographical localities contribute fundamentally to the formation of personal and social identities... (p. 53)

In this chapter I review some of the literature concerning the Indigenous concept of *place*, Indigenous *knowledge*, and the *mapping* of Indigenous knowledge. I focused on the linkages between these three domains in Tsay Keh Dene thought. In documenting the creation of the Tsay Keh Online database, I employed their concepts and perceptions of *place* and show how this differs from non-Indigenous perspectives. It is through examining the literature that I have formed the framework for creating an online database tailored to be the most beneficial to the Tsay Keh Dene people.

Sense of Place

The foundational theory of the sense of place which I use in this paper is developed by Basso (1996), which he describes as a

concept of dwelling [that] assigns importance to the form of consciousness with which individuals perceive and apprehend geographic space. More precisely, dwelling is said to consist in the multiple "lived

relationships” that people maintain with places, for it is solely by virtue of these relationships that space acquires meaning. (p. 54)

During extensive conversations with Tsay Keh Community members, it became very obvious to me that there is a tangible difference of the understanding and comprehension of “place” between non-Indigenous thought and Indigenous worldviews. In *Senses of Place*, authors Feld and Basso (1996) suggest define the Indigenous sense of place in much the same manner as other scholars have:

The terrain covered here includes the relation of sensation to emplacement; the experiential and expressive ways places are known, imagined, yearned for, held, remembered, voiced, lived, contested, and struggled over; and the multiple ways places are metonymically and metaphorically tied to identities (Feld and Basso, p. 11).

As Gregory Cajete (1994), scholar and educator from the Santa Clara Pueblo, has observed, “Native people traditionally perceive themselves as embedded in a web of dynamic and mutually-respectful relationships among all of the natural features and phenomena of their homelands.” (p, 178) For the Tsay Keh Dene people, the concept of place is what inextricably ties their current existence with their past. Their concept of place, therefore, must be addressed not only by the data and/or content parameters of use for this database system, but also by the needs of the people which dictated this project’s creation. The distinguished Kiowa-Cherokee scholar, N. Scott Momaday (1994), provided a structure for my understanding about how Indigenous peoples construct their sense of place in relationship to the value they place upon their lands:

From the time the Indian first set foot upon this continent, he centered his life in the natural world. He is deeply invested in the earth, committed to it both in his consciousness and in his instinct. The sense of place is paramount. Only in reference to the earth can he persist in his identity. (p. 1)

With years of experience with the lands, waters, and mountains of their traditional territory, the Tsay Keh Dene know not only what it means to use all facets of those lands respectfully, but also they know how to protect the lands from further negative exploitation. This consciousness of Tsay Keh traditional territory—their Indigenous sense of place—becomes a means towards preserving their lands for future Tsay Keh Dene.

In the past, First Nations values have not been incorporated into the equation of land management in British Columbia. These conflicting views of what the land represents are an ongoing topic of conversation and debate in both provincial and federal courts today. As Hugh Brody (2004) asserts about neighboring Tsay Keh communities in north central British Columbia, “Treaties and trap lines encircle the Indians with legal and territorial limits. At the same time, potential settlement and resources have become the subjects of a new northern mythology.” (p. 115) Currently, as experienced since the early 1960s, there is a massive amount of interest in the natural resources in Tsay Keh traditional territory. Industry and government neither perceive nor acknowledge that the Tsay Keh territory is someone’s home and source of economy, but see that space as a conduit to wealth and economic prosperity.

The necessity and timeliness of preserving the traditional knowledge, identities, and memories of the Tsay Keh is paramount for their future—a foundational impetus to this project. As anthropologist Julie Cruikshank (2000) has written,

...articulating past and present connections to place has taken on a fresh importance during an era of protracted land claim negotiations. Again,

older people describe the relation between humans and land differently than do the younger men and women directly engaged in these negotiations. (p. 16)

Cajete's (1994) understanding of the value of Indigenous traditional knowledge is not dissimilar from Cruikshank's:

The force flows all ways between the human, spiritual and natural worlds that support and are supported by worldviews of our people, culture, knowing and living. Accumulated knowledge within Indigenous groups around the world represents a body of ancient thought, experience, and action as a vital storehouse of environmental wisdom. (p. 78)

Following Cajete's ideas, I believe Canada's current resource management strategies are based primarily on the Western science paradigm and do not incorporate traditional Indigenous knowledge, rather, these management strategies incorporate values that promote contemporary local and regional economics. Acknowledging other stakeholders on the land, such as First Nations and wildlife values, will both relieve conflicts and preserve regional biodiversity.

Throughout my employment with the Tsay Keh Land and Resource Department, I have listened to community Elders speak about their traditional territory. When retelling stories passed on from ancestral fathers and mothers, and adding anecdotes from their own lives and experiences on the land, they quantify their intense connection to place. Neal McLeod (2007), an educator and poet of Cree and Swedish descent, succinctly expressed a similar relationship between the land and the Cree people: "Cree collective memory is anchored in places and landscape." (p. 19) The Tsay Keh Dene hold this same value in their concept of place.

The Tsay Keh's relationship with their traditional territory has been eroding since the early 1800s, when Samuel Black, a Canadian fur trader-explorer, began

using community members as guides within the region as a result of the Hudson's Bay Company's emerging commercial interest in Tsay Keh territory.

More recent industrial activity in the territory included a catastrophic project driven by the Government of British Columbia: the W.A.C. Bennett Dam built in the mid-1960s. The dam, as I outlined in the previous chapter, permanently altered the relationship and interaction the Tsay Keh had with their land. Williston Reservoir flooded a total of 1761 square kilometers of traditional Tsay Keh territory. The destruction of the physical region has produced far-reaching consequences for the people who had for centuries habituated and bonded with the landscape—a landscape which now permanently lies at the bottom of an enormous body of water.

The flood that created Williston Reservoir not only submerged the land, but it also Tsay Keh knowledge and sense of place, essentially diluting memories of the peoples' historic past. Ongoing industrial degradation from outside sources emphasizes the critical need to capture and retain Tsay Keh's territory. Their relationship with place can be quantified with community data on a specialized database.

As Basso (1996) contends, "places possess a marked capacity for triggering acts of self-reflection, inspiring thoughts about who one presently is, or memories of who one used to be, or musing on who one might become." (p. 55) For Tsay Keh Elders, the land or "place" holds the same ability to bring back memories and stories about particular places, and, as it is true for the Apache, the Tsay Keh are "always thinking—thinking of place-centered narratives, thinking of the ancestors who first

gave them voice, and thinking of how to apply them to circumstances in their own lives.” (Basso, 1996, p. 80)

In the past five decades these memories or the muses that spawn memories about Tsay Keh’s history on the land and their concept of place are threatened with being erased by industry harvesting the land for its natural resources.

Indigenous Knowledge

The Tsay Keh have developed a specific and distinct set of ways to navigate efficiently through their lives in a climate and geography which outsiders would deem inhospitable at times. D. Michael Warren (1991) advocates that,

Indigenous knowledge (IK) is local knowledge that is unique to a specific culture or society. IK contrasts with the international knowledge system generated by universities, research institutions and private firms. It is the basis for local-level decision making in agriculture, health care, food preparation, education, natural-resource management, and a host of other activities in rural communities. (p. 21)

Embracing Warren’s perspective of Indigenous knowledge centered in locality of places, knowledge and experiences from the past provide an understanding of how the Tsay Keh had the necessary skill sets to overcome environmental obstacles and thrive on the land throughout a millennia of interactions on their lands.

Tsay Keh traditional territory is geographically situated on one of the last extensive tracts of merchantable timber in northern British Columbia as well as a vast mineral belt. The Tsay Keh have watched their forests being harvested for decades, witnessing sacred areas and habitats that they have depended on for spiritual and physical sustenance, being destroyed. Low global dollar-values have produced soaring global gold prices, with increased industrial activity and pressure to Tsay Keh

land. Industrial pressures and exploitation have brought and continue to bring tangible changes to Tsay Keh territory that can be observed daily.

In her work, *Recovering the Sacred*, Anishinaabekwe (Ojibwe) author and activist, Winona LaDuke (2005), describes how American First Nation people feel about their relationship with governments, mirroring my understanding of how Tsay Keh feel about their relationship and treatment by the Canadian Government:

Debates on how the past is understood and what the future might bring have bearing on genetic research, reclamation of mining sites, reparation of broken treaties, and reconciliation between descendants of murderers and their victims. At stake is nothing less than the ecological integrity of the land base and the physical and social health of Native Americans throughout the continent. In the end there is no absence of irony: the integrity of what is sacred to Native Americans will be determined by the government that has been responsible for doing everything in its power to destroy Native American cultures. (p. ii)

LaDuke's (2005) quote encapsulates many lived experiences of the Tsay Keh as well. Traditional knowledge is not solely a system of knowledge; it is also "seated in a way of life [based on] cumulative culturally transmitted knowledge about particular environments" (cited in Kendrick *et al*, p. 187). Tsay Keh Elders know this geographical region from years of interactions within this traditional territory, making knowledge both experiential and cumulative. There remains only eight to twelve surviving Tsay Keh Elders. The Tsay Keh's traditions and knowledge are on the verge of being lost.

Furthermore, the side effects of local industrial development are degrading Tsay Keh Indigenous knowledge and perceptions of "place." When viewed from the air, Tsay Keh traditional territory is a grid of roads leading to logging blocks and mines. Industrial developments have affected notable changes on both humans and

animals within the territory. Habitat destruction by industry and over harvesting of game by outside hunters have made the Tsay Keh traditional-life difficult to sustain.

Tsay Keh Dene hunters speak about how difficult it is to find game. As traditional food sources decrease due to exploitation, hunters need sources other than 'old' knowledge to locate traditional food sources to feed their families and community. For the Tsay Keh, "the act of eating wild meat is the culmination of the whole array of practices and social relations...practices that are deeply rooted in a complex set of beliefs and values." (Nadasdy, 2003:76) This developed database is set to capture information that will help to preserve land-based information for all Tsay Keh Dene and their families; thus, helping to sustain their livelihood as well as maintaining that knowledge for their children.

Henrietta Mann (2002), a Northern Cheyenne woman who teaches at the Native Studies Department at Montana State University, succinctly defines my understanding of how Tsay Keh interpret their relationship with the Earth:

Over the time we have here, we have built cultural ways on and about this land. We have our own respected versions of how we came to be. These origin stories—that we emerged or fell from the sky or were brought forth—connect us to the land and establish our realities, our belief systems. We have spiritual responsibilities to renew the Earth and we do this through our ceremonies so that our Mother, the Earth, can continue to support us. Mutuality and respect are part of our tradition-give and take. Somewhere along the way, I hope people will learn that you can't just take, that you have to give back to the land. (Mann as cited in: LaDuke, p. 15)

Over the past two years, I have had the good fortune to go out onto the land with Elders. Tsay Keh Elders recall, with great reverence, memories of their traditional territory before it evolved into a maze of roads, cutblocks, and mine sites.

Tsay Keh Elders worry about the future and wonder what will happen to the Tsay Keh culture and traditions as industry continually exploits their lands.

Mapping Indigenous Knowledge

Providing a method for visually representing space-based knowledge was at the forefront in the development of the Tsay Keh database project. The use of mapping and mapping technology for the preservation of Indigenous knowledge is a formidable way to prove and establish the use and occupancy of a place to provincial governments, in this case the Tsay Keh Territory. A key feature of the Tsay Keh data management system is the use of Google Earth to visually represent information. The use of satellite imagery and mapping allows for the representation of cultural and historical information in a way that will make the Tsay Keh Territory accessible to different demographics for a range of purposes including education.

In a discussion of maps as a way of understanding Indigenous peoples, Brody (2004) succinctly summarizes the values of mapping projects such as this one:

Yet, some peoples who have lived with, or within, colonial frontiers have managed to survive - sometimes with great difficulty, in extremes of poverty and with persistent disregard for their rights. And to establish their claims, the foundations for their rights, they find that they need to have their histories heard and acknowledged. For peoples whose records are in the form of spoken accounts, mythic narratives, songs and ritual dances, this is no easy task: it means translating one kind of knowledge into another. To be seen and heard, they have to find ways of showing and explaining knowledge in ways that make sense to both their own Elders and the colonial powers that they have to convince. Hence, the importance and power of maps. (p.xiv)

The mapping component of this database has the potential to bridge gaps between varying demographics in the Tsay Keh community. Elders will be able to use

the digital map as a reference point that, in turn, can articulate important information from the past that may help their Nation navigate in the future.

For hunters and gatherers of the Tsay Keh community, this database may detail disseminating ways and places where harvesting of food occurred in the past. The mapping technology built into this database allows Tsay Keh members/users to manipulate information on their own terms, by using categories which include local names, traditional resources, seasonal movements, activities, and special places.

John Graham and Karim-Aly Kassam (1997) outline the values of database management that are commensurate with those that support this research project's goals and objectives:

Interest in documenting or mapping Indigenous knowledge is utilitarian in that it is seen as; (1) providing solutions to environmental crisis propelled by an industrial civilization; (2) another empirical guide to sustainable development planning; (3) a means of exerting Aboriginal control over resources or asserting a land claim; (4) a means of transferring aspects of knowledge to younger generations using the tools of the secular education system and making it available to local schools. (p. 128)

Electronic mapping of Indigenous knowledge has the potential to be the connective tissue that will help Tsay Keh carry on into the future with their culture intact. This database is essentially a living library that can be increased as data becomes available and amalgamated into the existing map.

First Nations such as the Tsay Keh have had parts of their history written about by ethnographers and historians, although as Basso (1996) claims, ethnographers inquiries about these cultures "have been notably less inclined to examine the elaborate arrays of conceptual and expressive instruments, ideas, beliefs, stories, and songs with which community members produce and display coherent

understanding..." (p. 54). Without this kind of understanding, the picture of a distinct culture is in effect incomplete and does not relay the magnitude of multiple layers that make the culture unique.

Hugh Brody (2004), author of *Maps and Dreams*, wrote about the Beaver Indians who are territorial/boundary neighbors as well as related through kinship ties to the Tsay Keh. Brody writes about a common history and experience of the respective First Nations in the region. As he asserts, these Nations have "histories that are not being heard and that maps need to be created and seen by the public. The job of making the invisible visible is as important as ever." (p. xiii)

Collating Tsay Keh information/knowledge into an efficient database platform has the potential to make Tsay Keh more visible concerning ideas and concepts about their respective landscapes and their connection to them, as well as being a powerful legal tool for future negotiations on their traditional territory. Proving a geographic area's significance can be the difference between a landscape being harvested for its natural resource value or being preserved for its cultural value. Historically, Tsay Keh have not had their knowledge harnessed within an efficient technology—a shortfall which has left them reacting to government/industry referrals. A referral is a document administered by government ministries that go to people or groups that have an interest in an area (ie. First Nations.) Often the given time to respond to referrals expires before Tsay Keh can react.

Bridging Gaps

Exploring literature concerning Indigenous concepts of *Place*, *Knowledge*, and *Mapping Knowledge* informs this database project and emphasizes the importance of knowledge capture for First Nations communities. The overarching fact which emerged through a review of the available literature on building community archival systems, was that there is very little applicable literature for developing a technology such as the Tsay Keh Community Knowledge database. This literature review potentially provides readers—including web developers—a viable context for understanding how to develop technology that is culturally relevant and specific to the needs of each community.

Examining the concept of *Place* from an Indigenous perspective has highlighted fundamental differences in how various cultures perceive what land and its geography means to each culture. The Governments of Canada, and various non-Indigenous industries view the Sub-Artic region of the Tsay Keh traditional territory as a hinterland whose the primary value is to provide for the extraction of natural resources for economic gain. This definition of the Tsay Keh territory is the source of ongoing conflict because the Tsay Keh Dene view their land as much more than a means for large-scale economic development.

The Tsay Keh are not against all industrial development, on the contrary, they understand that for a rural area, industry is a bridge to a healthy community through employment opportunities and education. The Tsay Keh want their values and traditional knowledge taken into account in decision-making processes surrounding

natural resource development. Their value system encompasses implementation of harvesting practices that which incorporate and use optimum sustainable means.

This literature survey of ideas about Indigenous knowledge quantifies the differences that exist between non-Aboriginal cultures and Indigenous Knowledge. It is accepted knowledge that First Nations people were on the continent of North America millennia before the first non-native explorers and settlers arrived. For the last five hundred years, the relationship between Aboriginal people and these new arrivals have left the First Peoples clinging to the last vestiges of their cultures.

The point here is that, in times of change, when acknowledgement of Indigenous peoples and their rights is being generated from world organizations such as the United Nations and through the Canadian Constitution, Aboriginal people need to preserve and assert their knowledge through self-determined policies and collaborative management strategies. The Tsay Keh's online database will be an effective tool for the use and dissemination of traditional knowledge that will enhance their rights and claims.

Mapping Tsay Keh knowledge is the most distinct feature of the Tsay Keh online database. As the review of Indigenous knowledge literature attests, there are major gaps between non-Indigenous societies and Aboriginal peoples. Primarily, these gaps are expressed in education levels (including literacy) and how people learn. We have to remain cognizant that for Aboriginal peoples, education is often based on oral teaching and that conventional North American education paradigms are foreign. Significantly, these gaps in learning/ teaching paradigms are being bridged—and are moving into the future—with projects such as this on-line database.

Populating knowledge maps with attributes like Sekani place names, sacred sites, traditional medicine and harvesting areas, and trail systems will preserve critical knowledge for future Tsay Keh generations as well as invigorate pride in the Tsay Keh community.

Chapter Three: Methodology

While research is commonly viewed as a relationship between the researcher and the researched, there is also a third party to consider: a supervising committee. Ultimately, this means that I follow two sets of ethical guidelines: as a Master's student, I am required to follow the ethics set out by the University of Northern British Columbia; as an employee of Tsay Keh Dene, I must adhere to the cultural processes and expectations required by this community.

In theory, we come to a place of understanding the research; in practice, we perform the research by way of rehearsing inquiries and articulating our questions before we engage. There is a spiritual connection through the appropriate use of language (Ramsden, 2002, p. 117). In the context of Tsay Keh, for many attributes of their culture and traditions cannot be translated easily in English. Significantly, as noted by Anderson and Gallini (1998), for research carried out in Indigenous communities,

...researchers must have an understanding of cultural awareness – a beginning step towards understanding that there is a difference; cultural sensitivity alerts students to the legitimacy of difference and begins a process of self exploration as the powerful bearers of their own life experience and realities and the impact this may have on others; cultural safety is that outcome which enables safe service to be define by those that receive the service; and intellectual property rights – prevents the widespread copying of new inventions or creative works. (p. 1)

Herein lies the importance of entering into a relationship and building trust with communities. Within this relationship Cree academic and educator, Verna Kirkness, and co-author Ray Barnhart (2001) articulate four essential ideas fundamental to

many approaches in conducting research in Indigenous communities known as The Four Rs. (p. 48; cited by Thomson Rivers University)

My own theoretical approach, research methodology, and ethics incorporate these ideas in the following ways:

- Respect – within this project, I have respect for the land and the people of Tsay Keh who are teaching me and from whom I am learning;
- Relationship—I recognize that all things, people and places are interconnected and things that are animate are imbued with spirit;
- Responsibility—I ensure that my involvement with the project and sharing what I know is beneficial to the community; and
- Reciprocity—I embrace giving back through modern technology by advancing the opportunity to blend old knowledge and new information for future generations with that technology.

The purpose of this Master's Project is driven and bound by an Indigenous knowledge paradigm. This project follows research techniques that allow the qualities of Tsay Keh knowledge and traditions to be at the forefront of the database, including the written material, as a deliverable product.

There are numerous ways of interpreting a world and how it exists. An Indigenous worldview often differs from a non-Indigenous perception of that world. "Through colonialism," writes Sioux author, historian and activist, Vine Deloria, Jr. (1997), "the notion of a single worldview has become hegemonic, making other worldviews and interpretations of the world invalid or regarded as superstitious imagination." (p. 74) The Tsay Keh worldview places a high value the lands that sustain their people and way of life.

This mapping project captures the values of Indigenous knowledge, particularly centering on the Tsay Keh's worldview in relation to their place on the

land. It focuses on the people's interconnectedness with their lands and waters, which the Tsay Keh Dene express as part of their way of knowing and understanding place.

Since the early 1930s, the Tsay Keh have been forced by the Canadian and British Columbia government agencies, residential schools, and the Church, to look at the world through a colonial lens. Decades of acculturation at the behest of these dominant societal powers have left Tsay Keh grasping to hold on to the last vestiges of their culture. These influences altered the Tsay Keh as a people—changing their culture, territories, and language—by quantifiable and measurable degrees of loss. These losses, concomitant with what does survive, emphasize the need to preserve as many facets of the Tsay Keh culture that modern tools can support.

Throughout my research for this project, I engaged Tsay Keh Dene's knowledge and their worldview philosophy. Tsay Keh Dene traditional knowledge guided my project as I incorporated "*The Four Rs*" (*Respect, Relationship, Responsibility, and Reciprocity*) into my methodology, providing opportunity to dialogue with the Tsay Keh regarding perspectives and knowledge. This dialogue became my veritable rite of passage within this research journey. As I have always maintained, it is my highest priority that this project delivers maximum benefit to the Tsay Keh Community. I believe using *The Four Rs* has guided this journey.

Indigenous Research Methods

One of many key values to Indigenous research is perhaps the way knowledge can be accessed, utilized and/or transformed. Kovach (2009) highlighted the idea that there has been much discussion for the use of Indigenous research frameworks, the

significance of incorporating a decolonizing lens within Indigenous inquiry, and insight into how tribal epistemologies under-gird tribal based approaches to research (Kovach, 2009). Maori educator Linda Tuhiwai Smith, Marie Battiste, a Mi'Kmaq educator and academic leader, and Henderson have all argued that culture has to be viewed as a domain of struggle where the production and transmission of knowledge is always a contested process. (Battiste and Henderson, 2000; Tuhiwai Smith, 1999.) In *Protecting Indigenous Knowledge and Heritage: A Global Challenge*, Battiste (2000) affirms that “most Indigenous scholars choose to view every way of life from two different but complementary perspectives: first as a manifestation of human knowledge, heritage, and consciousness, and second, as a mode of ecological order.” (p. 35)

An example that comes to mind is the way in which Indigenous people view the connection between land and language. According to Tina Fraser (2009), a Maori scholar fluent in her language, “*Kei roto I te whenua te reo Maori*—The language is embedded in the land.” elaborating further, she contends that, it is impossible to separate the two. In *Research is Ceremony*, author Shawn Wilson (2008) claims that Indigenous people and Indigenous researchers themselves do not own knowledge and that knowledge is to be shared. Implicitly, my research process subscribed to that idea— this project was, and continues to be, for the community. Furthermore, the project was specifically and essentially driven by the community’s immediate and future needs. Ownership of Tsay Keh knowledge belongs to the people who experienced life on the land, and shared their stories through an oral history that preserved their memories.

Wilson also speaks of *relationality* and relational accountability, which is the importance of relationships in the research process. This research project has advocated a major emphasis on establishing and upholding an open and transparent process, along with a trusting relationship between the community and myself in the role of a researcher. Since the inception of this project, I made it a priority to share information and to communicate with the Tsay Keh Dene.

In the beginning of this project, some Elders and knowledge holders were concerned about the safety of their knowledge, and that I, as the researcher, needed to always be respectfully cognizant of how important knowledge is to Indigenous peoples. To ease this friction, it was and remains necessary for me: 1) to show my commitment to addressing their concerns about knowledge safety, and, 2) to have maintained that commitment throughout the project. This required a parallel commitment from my colleague, Will Cadell of Spark Geo, whom I partered with for the creation of the online database.

As Louise Grenier (1998) writes in *Working with Indigenous Knowledge*, “Indigenous knowledge is dynamic and new knowledge is continuously added.”(p. 1). Grenier adds context and a framework to this database project. The fact that the Tsay Key community-based environmental monitoring program is gathering current information on the overall environmental health of the territory and the wildlife within and on that territory, reflects Grenier’s assertion of dynamicism in the fluidity of Indigenous knowledge. Tsay Keh knowledge continues to develop and use new methods for preserving that knowledge.

Another key point that both Wilson (2008) and Grenier (1998) make is that the researcher must always be cognizant of the intricacies of Indigenous cultures, especially the cultures with whom they are working, and allow those intricacies to steer their research. Kovach (2009) elaborates “An Indigenous research framework acts as a nest, encompassing the range of qualities influencing the process and content of the research journey.”(p. 42).

Tuhiwai Smith (1999) and Shawn Wilson (2008) provide the researcher with methods and frameworks to carry out Indigenous research in an ethical manner. These authors have extensive experience not only out on the land, but also within the community with the people about whom they write. During my research, I used ideologies set forward by both these scholars to ensure ethical integrity in my research project. Because I also share these authors’ philosophy about *active research*, I spent time out on the land doing fieldwork with Tsay Keh Elders and knowledge holders under the auspices of my employment for Tsay Keh. This active research contributed not only to my knowledge and understanding of local issues and needs, but also to the strategies employed in information management.

Geography and Cartography

I remember when there were no roads here. Now there is roads that have opened our territory to everyone...too much pressure. Derek, I worry that the land will not support our children in the future. (Personal Communication: Tsay Keh Dene Elder Ray Izony, 2011.)

When creating this specialized product for the Tsay Keh Dene, I considered many factors that make their community dynamic to itself. Of critical consideration was the low level of literacy among Aboriginal peoples, and that Indigenous

communities often do not have the same literacy levels as the status quo in other parts of Canada. These lower literacy levels in First Nations communities are a result of many factors, not the least of which is the fact that First Nation communities were originally oral cultures. The gap between status quo and First Nations communities is narrowing however, with the introduction of western education and immersion in the English language.

This research project also considered that Tsay Keh members may or may not be familiar with Internet technology, and could well require training and tutorial sessions. With these considerations, this archival database logically required to be an intuitive system, ensuring accessibility and ease of use to all people including community members as well as academics; therefore, even for community members with lower literacy levels and or a low level of computer literacy, this database technology is a useful application. They will receive tutorials on the use of the application, and will be able to use the navigation of the map as a way of communicating knowledge with others—a primary goal of this project.

The archival system will be used by many different demographics in the Tsay Keh community; therefore, this system needed to incorporate multiple forms of media. The use of maps (Google Earth) became a key media feature in this electronic database. Campbell (2000) explains the purposes of electronic maps as a conduit of information storage:

Maps are not limited only to showing information about physical and cultural features on the earth's surface. They are also used to show distributions of more abstract features, such as the flow of trade, the use of communications, the extent of political influence, or the areas occupied by peoples of various races, languages, or religions. (p. 4)

The Google Earth interface is a paramount feature of this database, and it is what separates it from other off-the-shelf content management systems: Google Earth allows for the spatial representation of Tsay Keh data. When logging into the Tsay Keh database a user can browse spatial archives on a screen that is set to a satellite image of the geographic area of the Tsay Keh territory. A user can open and navigate to sites that have had data logged with coordinates included, or navigate freely throughout the map screen.

When a user finds an area of interest that has a marker on it showing that there is data logged for that site, they can left click and get more information. Progressing to a new screen, the user will find more information about the area; including stories, pictures, monitoring information and video. The technology's zoom function allows the users to navigate the scale in which they can see the area. At first, for an Elder this technology is quite overwhelming—by the mere action of holding down the curser down and moving the mouse, the map moves. Users quickly realize that they can navigate the Earth's surface through controlled, simple hand movements.

Mapping can be a powerful tool for Indigenous communities to better manage their resources, plan for the future, record and employ local knowledge, raise awareness about areas of concern in their environmental and social landscape, and communicate their priorities and concerns to external agencies or government officials.

Illustrating and cataloguing Tsay Keh's historical and cultural knowledge through Google Earth enables this database to not only be elemental, but also instrumental in proving land use by the Tsay Keh; thereby, bolstering proof of

occupancy when there are conflicting views between the peoples and the provincial and federal governments. As Tobias (2000) asserts "mapping always gives rise to a heightened awareness of Aboriginal rights that have been denied, and an increased willingness to be involved in strategies to right long-standing injustices."(p. 35).

Oral History

The online database that I have developed is an archival system (oral history tool) to hold Tsay Keh community information. It has been designed to aid in efforts to preserve their culture, and to assist them in present day and future negotiations. The archival system is a split database that stores both 1) information that can be spatially referenced through a coordinate system and be put on a map (place-based information), and 2) information that is broad and cannot be placed on a map (non-place based).

The non-spatial part of the database was designed specifically for Treaty related documents. An example of this data is Hudson's Bay Journals that have entries about Tsay Keh. A critical component to the design of this technology is that it caches Tsay Keh oral traditions and history in a professional setting and community accessible environment that is considered legally defensible when used as support in a land use and occupancy claim.

A critical part of creating this database was to set protocols/guidelines for the inputting of data. It was critical that there be a rigid structure of what information can be logged, what sources can be used, and proper documentation about the data

source(s). Of critical importance was understanding how to process oral histories in the usefulness of this database.

The range of records described as oral histories include personal reminiscences, structured interviews, and recordings of contemporary thoughts or events—all intended to be saved for future generations. The products of oral history projects may take the form of transforming the original tape recordings to edited tapes, transcriptions, translations, re-wordings, summaries and interpretations. These records reflect the interests and perspectives of the narrators. (Association of Canadian Archivists, 2007, p. 6)

In the last few decades, a handful of Tsay Keh community members have had the insight to record narratives from Elders and other knowledge holders onto cassette tape for future use. These recordings recount various topics and concern different areas of their Tsay Keh traditional territory. At the time many of these recordings were made, there was still very little recognition of aboriginal rights and title. These tapes are now emerging as the valuable resources that they were intended to be. As times and transcription technologies evolve, the tapes can be transcribed. Their usefulness in proving land use and occupancy of the area cannot be underestimated, as Terry Tobias (2000) explains,

First Nations peoples carry maps of their homelands in their heads. For most people, these mental images are embroidered with intricate detail and knowledge, based on the communities oral history and the individuals direct relationship to the traditional territory and its resources. (p. 35)

This explanation of relationship and respect to a traditional territory is parallel to what I have experienced with my time with Tsay Keh Elders. Their knowledge of the land and its history is remarkable for its extensiveness and detail.

In *Aboriginal Oral Traditions*, Renée Hulan and Renate Eigenbrod (1998) elaborate on the values of Indigenous knowledge: “Oral traditions are distinct ways of knowing and the means by which knowledge is reproduced, preserved, and conveyed

from generation to generation.” (p. 121). For the Tsay Keh, stories and anecdotes about their traditional territory have been the means for survival and a way of understanding their relationship with the land since time immemorial. Elders hold stories with extreme reverence—these stories are the teachings that we need to learn from before it is too late.

The Tsay Keh are acutely aware that they need to utilize and preserve their traditional knowledge of the Elders before it is too late. As Kimberly Blaeser (1999) writes: “Through speaking, hearing, and retelling, we reaffirm our relationship with our nations, our tribal communities, our family networks. We begin to understand our position in the long history of our people” (p. 54) As many authors have noted in various research studies, oral traditions are a way of knowing a people’s past. The Tsay Keh Dene have been an oral-based culture, reliant on the spoken word to diffuse their unique culture to the younger generations. This database spatially orients stories as well as their geographic locations and thus, fortifies the Tsay Keh’s ties to their immediate environment and traditional ways of life.

Preservation of this information is essential as the Elder generations dwindle and the upcoming generations, victims of colonization through residential schools and Canadian policy, assume a leading role in the community. The creation of this database will bridge gaps in cultural and environmental knowledge, as well as provide the Tsay Keh community with scientific data necessary to legally defend their territory against encroaching industrial and governmental pressure.

Ethical Considerations

As mentioned, I incorporate the *Four Rs* of the Indigenous methodology — Respect, Reciprocity, Relationship, and Responsibility. As Kovach (2009) states, “Indigenous inquiry is a relational methodology: its methods are dependent upon deep respect for those (or that) which it will involve, and those (or that) which will feel its consequence.” (p. 174) The researcher must be committed to conducting ethical research, which means being personally responsible for protecting the group or community who agree to participate in the research project.

In terms of this research project, I have been and am committed to being respectful, sensitive, and cognisant of the needs of the Tsay Keh. In the past, Indigenous communities including Tsay Keh have had negative experiences with researchers mining information from their lives, then leaving very little in the way of tangible benefits.

Knowledge Safety

As noted earlier in this paper, many First Nations have trust issues with Western Research (ers) as well as apprehension around technology, specifically with the topic of having their information accessed through the web. These were issues that I addressed early in the project. It was critical for the Tsay Keh to be comfortable with the process of having this database accessible through the web, and be assured of the safety and security of their knowledge. Data is at the forefront of the product development.

Will Cadell and myself set up a series of three focus group meetings comprised of a cross section of Tsay Keh demographics in become familiarized with the community's concerns about the project. The first meeting was to scope out the data management needs from the community perspective, as well as any issues about the development of this community knowledge database. Our second community focus group meeting was to take what we understood from the first meeting and make a database model, with all the different functionality, for community review. The feedback from this meeting provided Will and myself with enough information to go back to the drawing table and create the actual application. In the final meeting we took our rendering of the Tsay Keh Database to the community for final review and do touch ups before launching the product on the web.

There are two main safeguards promoting the security of this online database, rendering it nearly impossible to penetrate: 1) controlled access-- as a community-member-only--password and user name protected and, 2) a robust firewall protects the database from being accessed by unauthorized users.

To "talk around," in Tsay Keh terms, one hears that the provincial and private economics outweigh the concerns of First Nations, which are frequently centered on the environment. It is commonly believed within the Tsay Keh community that research concerning their territory, interests, and ecosystems are biased to the benefit of industrial interests. The object and goal of previous research in the Tsay Keh traditional territory—often orchestrated by the B.C. government and/or a specific industry—often focused on finding results that would often support industry and/or government. The goals and objectives of this database project is to benefit the Tsay

Keh community with a viable and useful tool designed specifically without influence of outside interests. This database will reinforce cultural bonds by offering easy access to real factors and quantifiable data.

Developing trust and building rapport are critical steps in the social research process; the process must be entered into and carried out with openness and honesty. Success of this project was necessarily determined by pre-educating all participants in the project—builders as well as users—in order to facilitate the integral requirements of the community and to facilitate the unique needs of the client group. Determining both the frameworks and the style of interface formation with the user-group is essential in any custom-built project, and it was essential to this project.

Without Tsay Keh participation and approval, I knew the project would fail entirely. I needed to identify Tsay Keh Dene community values pertaining to the capturing of Tsay Keh information and to predetermine what were their requirements for information safety. To safeguard this project, I held a series of meetings with a cross section of the community prior to launching the creation of the database. These meetings built comfort around the project, and I received approval from the community to move forward.

As I have indicated, past research that has been performed within the Tsay Keh community has resulted in feelings of reluctance and apprehension on part of the community members to participate in other research projects. By providing a thorough presentation of my research findings and its conclusions provides transparency in how I conducted research within the Tsay Keh community. While meeting both university requirements, as well as my goal of conducting ethical

research using Indigenous methods that place value on building relationships, this objective will be achieved. I understand the imperative for the Tsay Keh to have closure on this project, to feel confident that the project deliverables are transparent, and that I successfully achieved the goals and objectives set forth in this research project.

In summary, this project squarely invested in Indigenous worldviews and research methodologies. This project's research framework was imbedded with Tsay Keh ways of knowing the world. I always remained cognizant of my position in creating the research project, and that this research project is for the benefit of the Tsay Keh Dene Community. For the Tsay Keh community, respect and reciprocity are foundational deliverables of this Master's project.

Chapter Four: Tsay Keh Dene Online Database: Benefits of the Project for the People

The benefits of an online database for the Tsay Keh are vast and can be quantified in many tangible ways. The common adage “knowledge is *power*” is very potent and meaningful within First Nations communities today. First Nations are forceful about having their value systems and voice recognized concerning their respective traditional territories in Canada. These voices and values have been suppressed for over a century, since the fur trade became less profitable and the colonial presence became comfortable navigating in these lands without the assistance of the Indigenous people who called the region “home.” The benefits of having a secure and efficient data management system, designed around Tsay Keh specific needs, can be defined into three categories: culture, geography and economics.

Culture

The Tsay Keh traditional territory or the land that it represents is interpreted and defined differently by various groups of people. One interpretation of this Sub-arctic area is that of a hinterland available for the harvest of its natural resources. The perpendicular interpretation is that this land has the likeness of a Mother or provider, for a community of people and the ecosystems within it. For Tsay Keh, “Places possess an emotional significance that contributes profoundly to our identity as individual human beings: we all must belong somewhere to be complete persons.” (Jordon-Bychkov and Domosh, 2002, p. 1). As a result of colonial policy and

economics, the Tsay Keh culture has been eroding as obviously as the shoreline of the Williston Reservoir.

The local geography of the Tsay Keh territory is made up of high peaked mountains and pristine rivers and lakes that have long provided spiritual and nutritional health to the Tsay Keh. This landscape sculpted the Tsay Keh culture by creating meaning and texture for the people by providing everything they needed to survive and thrive in a sometimes inhospitable environment. Unfortunately, for decades these lands have been put out to tender by outsiders. For the people, their own Tsay Keh traditional stories are becoming unfamiliar and unattached as the landscape changes; stories are losing luster and validity.

The Tsay Keh were masters of survival and have understood and managed local ecosystems, making observations of changes and reacting accordingly. Animal populations were inventoried yearly, and modifications would be made to harvesting practices when an area needed to be rejuvenated. Traditional practices have lost potency as a result of changes to the land by non-Indigenous technology.

The degradation to the Tsay Keh territory is vast, and has had severe consequences to traditional sustenance gathering and Tsay Keh traditions. There is only a small group of a generation of knowledge holders left in Tsay Keh. This group of Elders has memories and stories about their territory that need to be captured and nurtured for future generations.

Many people in British Columbia are not cognizant of where and how their electricity is created. The Tsay Keh people are acutely aware of how this power

source was created by the W.A.C. Dam and the resulting Williston Reservoir, and suffer daily from the damage incurred by it—physically, emotionally, and environmentally. The flooding of their territory to facilitate British Columbia's electrical needs has affected them to degrees hard to conceive, and have cemented perpetual ill feelings towards B.C. Hydro and the British Columbia government.

The last 47 years have been a constant state of turmoil for the Tsay Keh people as they have to deal with the ongoing cumulative effects of the reservoir. As mentioned earlier in this paper, there are many negative consequences for Tsay Keh well-being— including poor air quality, water pollution, heavy winds, erratic weather—and most significantly, cultural displacement and drowning of memories about their traditional landscapes.

Tsay Keh Response

The external forces discussed in this paper have left the people of Tsay Keh disorientated in today's world and with many unanswered questions about how their people are going to adapt to the economic and social climate of the day. With bills being amended in the Canadian Constitution to acknowledge aboriginal rights and title, along with the recent global phenomena of the United Nations acknowledging aboriginal peoples, Canada has been forced to listen to First Nations optimism. There remain many obstacles to be overcome before the Tsay Keh people will reach equilibrium within their community.

Information management and modern technology to preserve Tsay Keh community knowledge is a formidable step towards helping the Tsay Keh community

move forward. Community members will be able to access their culture by logging into the Tsay Keh Online database, virtually visiting areas they have not been to in a long time. Furthermore, users can also access community stories , and see what has happened to their territory in the past as well as what is happening in the present. The database will be easily accessed from home as well as being a learning tool in both schools and the courts.

Geography

The geographies of the north are changing rapidly; regions of natural resource abundance are being depleted at an unprecedented rate. With projects such as B.C. Hydro's Site C dam (located east of the W.A.C. Bennett Dam) in the docket for development, and the Enbridge Pipeline being a possible and near reality, close scrutiny of the effects of mega projects and industry are of the utmost importance to the preservation, longevity and sustainability of northern landscapes and Indigenous cultures. Without due diligence, governments of British Columbia and Canada are allowing unsustainable developments to take place.

A current example of unsustainable practices in north central British Columbia is fracking, a very controversial practice used in the reclamation of raw oil. Though fracking appeared to be a highly promising process, it has been allowed to occur in massive areas, without the completion of a full-scale environmental assessment. A fracking development is in close proximity to the Tsay Keh territory and uses water from local rivers that feed into the Williston Reservoir. As CBC News (July 29, 2011) reported:

Northern B.C. fracking for shale gas is a booming, billion-dollar industry that's growing rapidly with the full support of Premier Christy Clark. B.C. Independent MLA Vicki Huntington said she welcomed the news of the two federal reviews, but questioned why the provincial government had not made a similar move, since natural resources are a provincial responsibility.

No public consultation was required for the license because it will draw a maximum of 3.65 million cubic metres of water per year, well below the 10 million cubic metres per year required to trigger an environmental assessment, according to the statement. B.C. is already providing gas companies with 78 million cubic metres a year of water from rivers, creeks and streams on short-term permits...

But critics are concerned the controversial process has been approved without serious public consultation. They say the process requires too much water and leaves toxic waste water behind. (CBC News, July 29, 2011)

Fracking in north central British Columbia suggests that the British Columbia government needs to reassess the practice of fracking and refocus on balancing economic development strategies with environmental risk.

Tsay Keh Response

Traditional Tsay Keh transportation and trade corridors were made up of intricate trail systems combined with local rivers and lakes. Many of these trails led to camps, hunting areas, and/or sacred sites, but are now either under the Williston Reservoir or severed by roadways developed for industrial use. As the local geography represented by the mountains, rivers, and lakes is further eroded by development, it becomes more difficult for the continuation of the Tsay Keh culture and way of life.

Elders have memories of these transportation networks and have started to use mapping technologies to preserve this knowledge. Place names reflect local attributes such as a geologic, a landscape, or an animal feature, and carry great reverence to the Tsay Keh Elders who know the stories of the respective area and have had personal

experiences within the location. Tsay Keh place names that mark the territory are proof that they both used and occupied their traditional territory.

The Tsay Keh database is connected to Google Earth. This technology allows the representation of Tsay Keh knowledge in a visual interface that makes it accessible to different demographics within the Tsay Keh community. The mapping feature can recall and restore memories, helping repair and preserve the traditional Tsay Keh worldview and way of life. The preservation of local data can be used in many ways, including assisting in future land use planning efforts, as a tool to manage local animal diversity, and to support overall ecosystem health.

Economics

The Tsay Keh were traditionally a hunter-gatherer society. With the introduction of industry into their territory, their society also began to rely on wage labour. In the beginning, Tsay Keh participation in regional employment was mainly seasonal and allowed time for the maintenance of traditional occupations such as subsistence hunting and trapping. Following the ebbs and flows of British Columbia economics over time, a component of the Tsay Keh community was able to secure employment with industry.

Today, the Tsay Keh community is either employed by their Band carrying out governmental services, maintenance of housing and community infrastructure, or working seasonal positions for B.C. Hydro. This irregular pattern of employment in the Tsay Keh community has developed a dependency on British Columbia Social

Assistance programs to bridge gaps in employment, and as a result, perpetuated many social problems within the community, such as substance abuse.

In the Tsay Keh village, there are many factors to be considered in the local economic structure: remoteness of community, education levels, employment opportunities, and the effects from all the changes their culture has been subjected to by the government of Canada and the needs of natural resource developers.

Tsay Keh Response

The Tsay Keh are making strides to create and control a new future for their community as they strive to reinvigorate their former strength as a people. As noted earlier, the Tsay Keh territory continues to be under pressure from industrial development such as logging, and the mineral exploration and mining sectors. The Tsay Keh are now in a position to leverage their historical ties to the land and their current reality which has suffered the effects from past development.

To that end the Tsay Keh leadership is focusing on developing community-relevant education programs that target placements in local jobs and opportunities. The Tsay Keh are in active negotiations with industries operating on their traditional territory, and working towards ensuring a fair settlement of compensation for the disturbances inflicted on the people and their rights. Compensation terms are broad. From these negotiations, the Tsay Key could achieve significant gains such as revenue sharing and compensation payments, education and training opportunities, and employment positions within the developers' industries.

The Tsay Keh have hired outside non-band member professionals to assist them in reaching their goals of self-government, self-determination, and self-sustainability. The Tsay Keh are striving to meet many of their challenges head-on—such as focusing on community member's health and education, and creating a work force that will be able to participate in meaningful employment and engagement in local and regional economics.

In the last decade, remote northern communities have had increased access to computers and the internet. The Tsay Keh realized that as part of moving forward, they need to engage with new computer technologies to help them meet their present and future community objectives. Increased Internet access has allowed Tsay Keh to harness technologies that will ultimately connect them with the outside world and make communication efficient. Computer applications such as automated referral management systems and computer databases to inventory community information are powerful tools for Tsay Keh to engage with industry and governments, and these, in turn, will ensure fair communication and results.

Conclusion

The process of developing and documenting this online data management system for the Tsay Keh has highlighted many dynamic issues and external forces that First Nations communities have contended with and need acknowledgement. The original objective of this project for me, as an employee of the Tsay Keh, was to develop a repository for community information. In the early stages of this project's development, I quickly realized that in order to create something that would be

effective for the needs of the Tsay Keh I would have to have a strong understanding of the data itself, how it needed to be accessed, how history was to be incorporated, and what an efficient data management system could do to help the trajectory of their future. Archival technology and highlighting both the struggles and the community strengths of the Tsay Keh people guided the trajectory of this project which has had as its goal and objective to assist the positive future overall health and well-being of the Tsay Keh Dene.

“Knowledge is Power”

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