Indigenous Peoples, Resource Extraction and Sustainable Development: An Ethical Approach

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ABSTRACT. Resource extraction companies worldwide are involved with Indigenous peoples. Historically these interactions have been antagonistic, yet there is a growing public expectation for improved ethical performance of resource industries to engage with Indigenous peoples. (Crawley and Sinclair, *Journal of Business Ethics* 45, 361–373 (2003)) proposed an ethical model for human resource practices with Indigenous peoples in Australian mining companies. This paper expands on this work by re-framing the discussion within the context of sustainable development, extending it to Canada, and generalizing to other resource industries. We argue that it is unethical to sacrifice the viability of Indigenous cultures for industrial resource extraction; it is ethical to engage with indigenous peoples in a manner consistent with their wishes and needs as *they* perceive them. We apply these ideas to a case study in the coastal temperate rainforest of Clayoquot Sound, British Columbia, Canada. In this case a scientific panel comprised of Nuu-Chah-Nulth elders, forest scientists and management professionals, achieved full consensus on developing sustainable forest practice standards by drawing equally on Indigenous traditional ecological knowledge and Western science in the context of one of the most heated and protracted environmental conflicts in Canadian history. The resulting sustainable forest practice standards were later adopted by leading forestry firms operating on the coast. Our analysis of this scientific panel's success provides the basis for advancing an ethical approach to sustainable development with Indigenous peoples. This ethical approach is applicable to companies working in natural resource industries where the territories of Indigenous peoples are involved.

KEY WORDS: Indigenous peoples, resource industries, sustainable development, traditional ecological knowledge, western science, forest practices, cross cultural bridging

ABBREVIATIONS: TEK, Traditional Ecological Knowledge; TEKS, Traditional Ecological Knowledge Systems

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Introduction: the ethics of resource extraction and Indigenous peoples

Resource extraction companies worldwide are involved with Indigenous peoples. Historically these interactions have been antagonistic, yet there is a growing public expectation for improved ethical performance of resource industries to engage with Indigenous peoples. This cross-cultural interface brings added complexity (Hall and Vredenburg, 2003) to industries already under pressure of declining natural capital stocks and the call for sustainable

resource development with growing public scrutiny of corporate social and environmental performance.

The concept of sustainable development has begun to receive attention in the management literature (DesJardins, 1998; Garcia and Vredenburg, 2003; Hall and Vredenburg, 2003; Hart, 1997; Hart and Milstein, 1999; Lozano and Boni, 2002; Payne and Raiborn, 2001; Sharma et al., 1994; Vredenburg and Westley, 1997, 2002; Westley and Vredenburg, 1996). Less attention in this growing literature has been given to the role of Indigenous peoples and their relationship with resource industries in the context of sustainable development.

In a recent article in the *Journal of Business Ethics*, Crawley and Sinclair (2003) propose an ethical model of organizational management and integration between Indigenous peoples and Australian mining companies. Highlighting the importance of Indigenous cultures, the need for power sharing, two-way learning and relationship building as the basis for "enduring engagement," Crawley and Sinclair have made an important contribution. In this article we advance the ethical discussion first by *re-framing* the discussion within the context of sustainable development, second by *extending* it to Canada, and thirdly in *generalizing* to other resource industries. In this re-framing, we consider the ecological, social and cultural environments within which resource extraction industries operate. We argue that it is unethical to surrender the viability of Indigenous cultures in the pursuit of resource extraction to maintain industrial society.

Resource extraction industries are directly involved with natural systems, causing the most obvious environmental impacts. Along with biophysical processes and non-human inhabitants of ecosystems, industrial development impacts the lands and lives of people, in particular Indigenous peoples. Such long-resident cultures sustain beliefs, values and uses of local ecosystems frequently at odds with those of industrial resource extraction. Interactions with Indigenous peoples have thus led resource extraction companies into ethically challenging situations, often resulting in conflict.

Building on the work of Crawley and Sinclair, we expand the discussion of relations between Indigenous peoples and resource extraction companies with reference to concepts of sustainable development, traditional ecological knowledge (TEK), and

cross-cultural bridging This moves the discussion beyond human resource strategies at the level of the firm to a broader consideration of relationship building between cultures and the roles of resource industries in natural systems and society at large. A Canadian forest industry case study of dialogue between Indigenous elders and Western science practitioners provides an example of cross-cultural bridging in the context of sustainable development. Professional and theoretical implications are gleaned for advancing an ethical approach to relations between Indigenous peoples and resource companies.

Crawley and Sinclair (2003) make a strong case for an ethical examination of Indigenous human resource practices in Australian mining companies. They put forward that the corporate discussion of relations with Indigenous communities occurs almost entirely within the context of corporate/public affairs and stakeholder management. While the business case for organizational multi-culturalism and the productive management of diversity has been well stated, Crawley and Sinclair assert that the ethical argument for building relations with Indigenous peoples has usually fallen by the wayside. Yet there is a strong ethical argument to be made for such cross-cultural relationship building which includes Native Title legislation, the recognition of Indigenous peoples' relationship to the land and their ancestral roles in environmental stewardship, the socioeconomic legacy of the impacts of colonialism and minimization of suffering. Thus, Crawley and Sinclair propose an ethically based model of "enduring engagement" founded upon two-way learning and adaptation, long-term sustainable relationships, power sharing, and the Kantian assumption that, rather than being treated as a means to an end, individuals, and thus Indigenous cultures, have value in themselves.

None of the Australian companies in the Crawley and Sinclair study had reached the proposed mature stage of cross-cultural relationship building; however at least one had employees and leaders who were striving to reach this goal. The Canadian experience of relations between Indigenous peoples and resource industries has much in common, in both substance and form, to the situation described by Crawley and Sinclair of mining companies in Australia. Historical and constitutional parameters of the

Canadian context will be outlined below. Our case study examines a positive example of extensive dialogue between practitioners of Indigenous traditional ecological knowledge and Western science for sustainable forest industry practices.

Ethical arguments for sustainable development

It has been argued that business has a *moral* responsibility to ensure that its activities are ecologically sustainable (DesJardins, 1998). DesJardins has proposed that the "moral minimum" which constrains the impacts of economic activity should be extended to ecosystems. He argues that all markets operate within constraints, the most obvious being those imposed by the biophysical limits described in the laws of natural science. The classical model of corporate social responsibility (CSR) includes legal constraints and the neo-classical model incorporates moral limits. The sustainable development approach includes biophysical constraints. While business is free to pursue profits, the "rules of the game must be changed to include the obligation to leave natural ecosystems no worse off in the process." (p. 831) In order to address the global quandary of population growth, poverty and environmental destruction, Desjardins advocates a shift from unrestricted material growth to the concept of *development*. This conceptual evolution from a growth based ethic to qualitative economics is discussed below.

The *business* case for corporate environmental and social performance has received growing attention in the management literature. It is argued that companies who demonstrate such corporate social responsibility can improve their competitive advantage and increase their market share (Garcia and Vredenburg, 2003; Hall and Vredenburg, 2003; Hart, 1995, 1997; Hart and Milstein, 1999; Pablo, et al., 1999; Porter and Van Der Linde, 1995; Sharma and Vredenburg, 1998; Sharma, et al., 1994; Senge and Carstedt, 2001; Vredenburg and Westley, 1997). Ethical capital is thus a marketable commodity. However the argument has also been put forward that such enlightened self-interest based solely on economic justification is doomed; CSR becomes obsolete when it is less financially viable (Stormer, 2003). Payne and Raiborn (2001) review current evidence indicating that business executives

in North America acknowledge that sustainable development can and should be regarded as part of the "interwoven frameworks of business ethics." Business environmentalism they suggest is most accurately viewed as a continuum ranging from mere compliance with the law to the active pursuit of sustainable development goals. The stakeholders of sustainable development, they posit, include all the earth's inhabitants, human and non-human. As an ethical issue, they assert that sustainable development would create the greatest good or least harm for all those inhabitants and their offspring. Taking this as a starting point, we advance a holistic approach to sustainable development identifying the biophysical, organizational and cultural systems upon which communities are dependant with concepts of natural, social and cultural capital. It is unethical to undermine these natural, social and cultural systems; it is ethical to sustain them.

Evidence indicates that current trends of industrial expansion and consumption are unsustainable and that we are undermining the systems upon which humans (and other species) depend. One indicator of human impact on the biosphere is loss of biodiversity. Biodiversity can indicate ecosystem stability; its loss is an indicator of ecological strain.[1] As a result of human intervention in the biosphere, according to Wilson (1999), we are witnessing the greatest rate of extinction of species since the Mesozoic Era 65 million years ago. Wilson challenges economists and business leaders to use "full-cost" accounting to figure the environmental and social costs to the "*real, real world*" of current industrial practices and pleads for conservation-based ethics.

The *ecological footprint* is a tool that reckons such costs by measuring human impact on global ecosystems. Eco-footprint analysis reveals that cities in the northern hemisphere and newly industrialized nations typically appropriate the biophysical services of a land and water base some two to three orders of magnitude larger than their geopolitical boundaries. All ecologically productive "open space" on the planet is already fully employed in producing biophysical goods and services for humans. We are deficit spending our natural capital. According to William Rees (1996), originator of the ecological footprint concept, if the world's population were to stabilize at between 10 and 11 billion people sometime this century, "five additional Earths would be

needed, all else being equal – and this is just to maintain the present rate of ecological decline.'' (p. 210). His analysis indicates that the wealthiest quarter of the world's population has already appropriated the entire long-term carrying capacity of the Earth (Rees, 1996, 1997). Not only are we reaching the limits to growth, the data expose global inequities in the distribution of these increasingly scarce natural resources. The ethics of sustainable development demand that economic equity and social values be factored into the ecological equation.

Sustainable development: towards a holistic approach

The concept of sustainable development was first coined in 1972 at the United Nations Conference on Human Development. It was popularized in 1987 with the release of the seminal report *Our Common Future* by the United Nation's *World Commission on Environment and Development* (WCED, also known as the Brundtland Commission, named after its chair, former Prime Minister Gro Brundtland of Norway). Sustainable development now is commonly understood as development that meets the needs of the present without compromising the ability of future generations to meet their own needs.[2] But the concept, as introduced by the Brundland Commission and contributed to by many others since is much more nuanced than this, as is discussed below The Brundtland Report asserted that the only way the environmental problems facing the planet could be resolved was through a marriage of economy and ecology. The Report called on the world's governments and their peoples to take responsibility for the planet's environmental damage and the policies that cause it and adjust economic policies in order to achieve balance. The Brundtland Commission Report recognized that in order to address the planet's environmental problems a systems approach was needed which explicitly recognized interdependence of the ecological, and political-economic systems within which human beings are imbedded. Cooperation was advocated as the means for achieving this. Social issues relating to quality of life and economic disparity were not separated from environmental concerns in this attempt to reconcile regional and global environ-mental concerns with international and local economic development interests.

One of the least recognized contributions of the Brundtland Commission Report was its focus on the role of business organizations in effecting the changes that would be required to address global environmental problems. The Commission acknowledged that the business corporation had by the late 20th century become one of the more enduring and influential institutions in global society. Business corporations were in a position to harness innovative organizational and managerial capabilities to effect change. Rather than being part of the problem, as had largely been the case, businesses would have to become 'part of the solution'. In many countries proactive business leaders seized this newly defined role with enthusiasm. For example, in Canada, Chief Executive Officers of leading corporations accepted invitations to join Federal and Provincial Roundtables on the Economy and the Environment.(Pasquero, 1991) Their work in these roundtables, alongside government and non-governmental organizations' (NGO) leaders, affected business leaders' perceptions of sustainable development issues. This in turn was disseminated into their corporations.

In addition to spawning corporate sustainable development initiatives, the Brundtland Commision was also the progenitor of several influential subsequent United Nations conferences, such as the 1992 Rio de Janeiro conference on Environment and Development which published Agenda 21, the Program for Action for Sustainable Development Worldwide, and the 1998 Kyoto Conference and its United Nations Framework Convention on Climate Change.

Our Common Future stipulated that a stock of ''quality of life assets'' should be left to successive generations no less than that held by current generations. The imperative of *intergenerational equity* (Turner et al., 1994) has become a central feature of the concept of sustainable development yet has proven illusive to achieve. The problem is typified in the WCED's own recommendations for a five to tenfold increase of global industrial activity to ''avert economic, social, and environmental catastrophes.'' (p. 89). This popular equating of sustainable development with sustainable growth has led to both enthusiasm and confusion around the concept and its applications, precipitating scrutiny

and theory development from within the natural and social sciences. Our holistic approach to sustainable development recognizes the interdependent biophysical, organizational and philosophical systems within which human life is embedded including natural, social and cultural capital (Lertzman, 1999).

Natural capital is a concept from ecological economics. Like any form of capital, natural capital is a stock that yields a flow of income. The "natural income" produced by natural capital consists of biophysical services and natural resources (Daly, 1994). Applying this concept to the notion of intergenerational equity provides two interpretations: (i) wealth comprising human made and environmental assets, and (ii) environmental assets alone (Pearce et al., 1989). Implicit in the first is an assumption that natural capital and human-made capital are equal substitutes. Turner et al. (1994) use the terms "weak" and "strong" sustainability[3] to characterize the distinction. The constant natural capital stock criterion of strong sustainability dictates that a constant amount of natural capital must be preserved and passed on from one generation to the next.

The ethical implication of strong sustainability is a moral obligation to current and future generations to preserve natural capital. What of social systems and their capacities? Along with ecosystems maintenance, sustainable development must address equity in the distribution of the biophysical goods and services which humans appropriate. A working definition for sustainable development based on social and ecological considerations is offered by Rees (1989):

> Sustainable development is positive socioeconomic change that does not undermine the ecological and social systems upon which communities and society are dependent. Its successful implementation requires integrated policy, planning, and social learning processes; its political viability depends on the full support of the people it affects through their governments, their social institutions, and their private activities. (p. 3.)

Making the connection between ecological and social systems upon which humans depend, intergenerational equity dictates a passing on of the life assets required for healthy communities. Thus, we can think of maintaining and building *social capital* as part of sustainable development.

Coleman (1990) describes social capital as *social structural resources*. It is a public good embodied in the relations amongst people and is a resource inherent in social structure. Social capital functions on trust and can have the added value of playing a role in shaping the identities of individuals and groups (Coleman, 1990; Putnam, 1993). We define social capital as the organizational resource of relations, trust and institutions upon which communities are based (Lertzman, 1999). Sustainable development must therefore be able to maintain and cultivate the trust, relationships and organizational resources necessary for a healthy and robust society. Another element of society crucial for understanding the relationship of social capital and natural capital is *cultural capital*.

The concept of cultural capital appeared in the sustainability literature with Berkes and Folk (1994) who argued that a more complete conceptualization of the interdependence of the economy and the environment requires attention to social, cultural and political systems. They submit that cultural capital determines how a society uses natural capital and modifies it to create human capital. Cultural capital can thus be seen as an interface between natural and social capital. We use cultural capital to refer to the resources of shared knowledge, beliefs and values upon which communities are based (Lertzman, 1999). This concept highlights the values and meaning of sustainable development. The manner and extent to which these values are adopted and interpreted within the structures of meaning that guide humanity's interaction with ecosystems will impact considerably the transition to ecological sustainability. Cultural capital is also a useful concept for interpreting cultural perspectives within sustainable development.

Exceeding productive capacities of ecosystems to maintain patterns of consumption amounts to a dangerous deficit spending of natural capital. There are limits to growth if the ecosystems upon which humans depend are to be maintained. It has been elegantly argued that growth is different than development (Daly 1994; DesJardins, 1998; Rees, 1990). Whereas growth refers to physical change entailing an *increase in size*, development implies a *qualitative change* characterized by capacity building and systems enhancement. The ethics of the two are as different as their outcomes: one is sustainable and

the other is not. If the transition to ecological sustainability requires a decrease in our demand on natural capital perhaps this can be offset with a greater supply of social and cultural capital (Lertzman, 1999). Insights related to this can be gained through cross-cultural dialogue, as we argue below.

Ethics of sustainable development and Indigenous peoples

Sustainable development in the global context is a cross-cultural proposition. We agree that all cultures have value and meaning for themselves; thus, each has important contributions for achieving sustainable development. Given their long-standing use and knowledge of ecosystems, Indigenous peoples play an important role in the cross-cultural dialogue on sustainable development. We assert that it is unethical to affect the lands and lives of Indigenous peoples in a manner that is not consistent with their wishes and needs as *they* perceive them. Before looking at concepts of TEK we will review some of the international policy context which frames issues of sustainable development and Indigenous peoples.

In regards to Indigenous peoples, the Brundtland Commission recognized that:

> These communities are the repositories of vast accumulations of traditional knowledge and experience that link humanity with its ancient origins. Their disappearance is a loss for the larger society which could learn a great deal from their traditional skills in sustainably managing very complex ecological systems.

The 1992 Rio de Janeiro conference resulted in several international agreements outlining a global policy context for sustainable development. The role of Indigenous peoples and their communities in sustainable development is explicitly recognized in these agreements, in particular, the *International Convention on Biological Diversity, Agenda 21, Guiding Principles on Forests,* and the *Rio Declaration on Environment and Development.* A number of other international conventions have been signed relating to the protection of Indigenous peoples' intellectual and cultural property.[4]

The impact of industrial development on Indigenous peoples has led to a sense of urgency for the survival of Indigenous cultures as the loss of biodiversity has been accompanied by a similar collapse in the diversity of human culture. Drawing the connection between ecology and culture, research has demonstrated a direct correlation between biodiversity and linguistic diversity (Nettle and Romaine, 2001). The greatest "biolinguistic diversity" on the planet is found in areas inhabited by Indigenous peoples, where 4% of the world's population speak 60% of the world's languages. Most of these languages and the ecosystems their speakers inhabit are threatened or on the verge of collapse.

Loss of a language represents more than a loss of words and syntactical rules for their organization. Languages represent meaning systems, a way for organizing and making sense of the universe. Each embodies an inimitable example of human ingenuity and adaptation to the environment. Along with words, knowledge, and understanding, when a language is lost so is a way of life and our human species is diminished. Indigenous peoples living close to their ecosystems for long periods of time have garnered an enormous degree of descriptive and applied knowledge. Much more than "data", this information characteristically functions within time tested resource management systems and social institutions of long resident peoples. This adaptation to and use of ecosystems by Indigenous peoples offers alternatives for Western science based resource management. Although one could state the business case and practical utility of maintaining such cultural diversity,[5] we concur with the ethical position put forward by Crawley and Sinclair (2003) that cultures have value in and for themselves.

From an ethical standpoint, we argue that it is unethical to sacrifice the viability of Indigenous (or other) cultures for industrial resource extraction to maintain consumer society. It is ethical to engage with Indigenous peoples in a manner consistent with their wishes, their cultures and means for material survival. From the point of view of sustainable development, the complex relations of ecosystems, cultural systems and their organizational features raise vital topics to address. To do this effectively requires substantive cross-cultural dialogue. One avenue for such an exchange is the dialogue between practitioners of Western science and those of Indigenous traditional ecological knowledge.

Traditional ecological knowledge systems[6]

Scientists are becoming aware of the vast repository stored in the annals of traditional knowledge. Researchers are recognizing the role this knowledge can play in gathering base-line data and the dynamic management applications displayed by TEK practitioners (Cruikshank, 1981; Duerden and Kuhn, 1998; Turner et al., 2000; Freeman, 1985, 1995; Lertzman, 2003). Traditional ecological knowledge-systems (TEKS) are being considered as alternative models of ecosystem-based management (Scientific Panel for Sustainable Forest Practices in Lertzman, 1999; Clayoquot Sound, 1995; Trosper, 1998). Yet, researchers are less familiar with the cultural protocols or methods that guide the transmission of traditional knowledge, along with the social institutions and philosophical foundations upon which TEK rests. This is a distinct stumbling block for the understanding, research and application of TEK and has resulted in ongoing lack of trust and misunderstanding between traditional knowledge holders, their communities and professionals from Western culture.

As a recent research paradigm in resource management with its origins in anthropology, traditional ecological knowledge is a relatively young field that attempts to describe something ancient. The term TEK is thus somewhat of a misnomer, firstly, because it can lend a stagnant character to something that is dynamic, adaptive and lived. Secondly, the term TEK focuses on ''knowledge'' but draws attention to something which is actually the outcome of a complex system of social relations and institutions (social capital), founded upon particular beliefs and values (cultural capital), mediated by the practices and protocols (methods) of oral tradition (Lertzman, 2003). More important than ''the knowledge'' is the whole way of life that generates it and the people who live it.

Although various scholars have tried to define TEK, there is no universally accepted definition (Berkes, 1993). Nor is Indigenous knowledge a uniform concept across Indigenous peoples (Battiste and Youngblood Henderson, 2000). Some have questioned the value of discussing how such knowledge is constituted (Cruikshank, 1998). Others have asserted that the real issue is power (Nadasdy, 1999). Indigenous scholars such as Battiste and Youngblood Henderson (2000) have suggested

that attempts to define TEK are inherently colonial, grounded in a Eurocentric need to categorize and control. They see Indigenous knowledge as a mode or component of ecological order, its great diversity a reflection of global ecological diversity. Developing an *understanding* of traditional knowledge is a challenge for Western scholars as the means to do so is experiential, through cultural immersion over time. Moreover, the ethics of researching and applying TEK is a contentious topic with a litany of unethical examples including the breach of propriety.[7] Indeed, many Indigenous people often question the ethics of research into traditional knowledge by Western academics, as Maori scholar Linda Tuhiwai Smith (2001, p.1) has stated, ''…research is inextricably linked to…colonialism…'research' is probably one of the dirtiest words in the indigenous world's vocabulary''.

Nevertheless, common themes can be gleaned from a literature review of TEK (Lertzman, 2003). These include: a spatial aspect (geographically located); a historical or temporal nature with very long time frames; socially mediated (i.e., transmitted through social institutions at the community level); and culturally located (functions within a larger philosophical and cultural context). A fifth aspect, not so prevalent in the literature, relates to the ''methodological'' element of TEK (Lertzman, 2003). This pivotal feature refers to traditional knowledge protocols that govern how TEK is accessed, verified and transmitted. Distilling the essence of these elements, TEKS refers to the ecosystems and structure of social relations and institutions (social capital), founded upon philosophical beliefs and cultural teachings (cultural capital), mediated by practices and protocols (methods) of oral tradition (Lertzman, 2003). All are necessary elements of these knowledge-producing systems; all are features of TEK. When any aspect is circumvented or missed the integrity of the system, its members and their knowledge are compromised.

The ''methods'' of TEKS are the mechanisms through which traditional knowledge is generated, transmitted and legitimized. These protocols play a vital role in linking the worldview (cultural capital) with social institutions (social capital) ensuring that knowledge is shared properly, in a manner consistent with and legitimate to the beliefs, teachings and practices of oral tradition in a given area, language

and community. Such practices may not be seen as "methods" from a Western science perspective; however, within oral traditions knowledge and its transmission are guided by the rigour of strict rules of learned protocol that are generally replicable and consistent within language areas (Lertzman, 2003). These methodological principles or protocols, learned usually from an early age, are acquired cultural skills requiring years of instruction and mentoring, often involving arduous physical and intellectual training. Some of these proficiencies can be passed interculturally, forming the basis for a body of skills we refer to as *cultural literacy* (Lertzman, 2002, 2003).

The Scientific Panel for Sustainable Forest Practices in Clayoquot Sound British Columbia addressed "the different origins and shared goals of scientific and traditional knowledge" (1995) in the following manner:

> …consider traditional medicinal knowledge: it is acquired through the rigours and methodology of a vision quest, in which persons isolate themselves and undergo fasting, cleansing, and other ritual activities to receive inspiration and medical knowledge from supernatural powers. Although the methodology of the vision quest is unfamiliar to the modern medical community, the knowledge gained often coincides with that of modern medical scientists, acquired by wholly different methods. (p. 16)

A variety of intuitive, somatic, and other spiritual modalities are vital for generating TEK including: singing, dancing, drumming, dreaming, fasting, praying, purifying, periods of isolation outside of the community and other ceremony (Lertzman, 2003).

Traditional Western science (TWS) addresses phenomena that can be measured in time and space, and does not generally recognize that which lies outside (Lertzman, 2003). With important aspects of TEK outside the researchable realms of science, there are gaps in understanding the nature of traditional knowledge. Western scholars often recognize the spiritual foundation of TEK, seen as "holistic" in nature, yet such descriptions tend to the shallow and vague. The standard epistemological account for TEK is through trial and error over time. Empirical observation and deduction are an important aspect of TEK, yet this is only a partial account of one amongst other important means for generating TEK (Lertzman,

1999, 2003). Such accounts recognize knowledge outcomes but not the means by which knowledge is generated. TEK-systems are holistic because they synthesize empirical observation and deduction with other ways of knowing (Lertzman, 1999, 2003).

The ethics of traditional land-use and resource practices are inseparable from TEK. Coast Salish educator, Bill White, illustrates this point in the First Salmon Ceremony:

> It is important to remember that songs were sung and ceremonies performed to strengthen the salmon resource and in so doing confirmed our relationships with the natural, supernatural worlds. The people were concerned that this resource was viewed as a relationship, and doing so reinforced that our relationships with all living things should be balanced. …the First Salmon Ceremony…ensured stronger social, spiritual, cultural and economic purposes (Personal communication 2/24/04).

Nuu-Chah-Nulth elder and former Scientific Panel for Sustainable Forest Practices in Clayoquot Sound member Roy Haiyupis explains how spiritual teachings translate into ethics of environmental stewardship. Based on principles of ecological sustainability these represent traditional core values:

> Respect is the very core of our traditions, culture and existence. It is very basic to all we encounter in life…Respect for nature requires a healthy state of stewardship with a healthy attitude. It is wise to respect nature. Respect the spiritual…It is not human to waste food. It is inhuman to over-exploit. "Protect and Conserve" are key values in respect of nature and natural food resources. Never harm or kill for sport. It is degrading to your honour…It challenges your integrity and accountability. Nature…once broken, will hit back…(Scientific Panel for Sustainable Forest Practices in Clayoquot Sound 1995, pp. 6-7)

Given a dependence on stable habitats and species, Indigenous traditional resource users have a clear stake in the sustainability of local ecosystems. There are obvious possibilities of convergence and divergence between TEK and the ecological sciences and much to be learned between them (Lertzman, 2003).

TEKS and TWS offer each other externally derived, independent reference standards that provide a basis for bi-cultural verification (Lertzman, 1999,

2003; Scientific Panel for Sustainable Forest Practices in Clayoquot Sound, 1995). They represent parallel, potentially complementary knowledge systems with their own methods, philosophies and experts. Case study research has demonstrated that including these different ways of knowing generates robust data, enhances assessment processes, and strengthens planning for ecological sustainability (Lertzman, 1999, 2003). Before presenting case study materials which examine a dialogue between representatives of traditional knowledge and Western science, it is necessary to consider briefly the historical context within which this dialogue occurs. This is the same context in which resource extraction industries operate.

Historical context of Indigenous peoples and resource industries in canada

Oral histories of Indigenous peoples and scientific evidence attest to sustained human occupation in North America, at least since the period following the last glacial recession (about 13,000 years). Both worldviews of historical origin agree that these lands have been sustainably inhabited since time immemorial. Indigenous leaders and cultural educators have made the point that "sustainable development" has been a way of life throughout time.[8] This early history forms the legal basis governing current relationships between Indigenous peoples and resource industries in Canada.

The original inhabitants of Canada encountered by Europeans comprised autonomous collective entities having distinct languages, religions, customary law, government and economic systems, exercising political sovereignty within particular geographical boundaries. The British recognized this in their early dealings with Canada's "First Nations". Although chauvinistic, the "Doctrine of Discovery" and "Law of Conquest" which became part of English law recognized aboriginal "usufructuary rights"[9] along with a degree of sovereignty and control over lands that could not be extinguished unilaterally by Europeans. The Royal Proclamation (1763) enshrined in constitutional law the recognition of First Nations' sovereignty and self-government along with aboriginal rights and land title. The concept of Aboriginal Title is based in British law on the principle of prior occupation of the land and cannot be relinquished unilaterally by the Crown but only through mutually ratified treaty.[10]

Nation-to-nation relations characterized the early period of dealings between Europeans and First Nations in Canada. During the era of the fur trade First Nations were respected militarily as allies and as enemies, and also as trading partners. Peace treaties were made without cession of lands and political subjugation of First Nations. By the 19th Century this began to change as the interests of the Crown shifted increasingly towards settlement. The first treaties to include land cession occurred in the period following the War of 1812 when the British instituted a policy of securing lands for settlement while trying to avoid open war (McKee, 2000).

After the founding of a Canadian federal state through the confederation of prior British colonies, in 1867, the shift to settlement was complete. First Nations became regarded as impediments to civilization. The impetus for Canadian relations with First Nations was the drive for land and natural resources; treaties were an instrument to achieve this. Disease, hunger, white settler expansions and loss of traditional access to resources took their toll and many First Nations signed treaties out of poverty and desperation. Loss of land was at times obfuscated by government negotiators and misunderstood by First Nations' chiefs. There were clearly different understandings of the meaning and purpose of treaties and their implications for the traditional territories of Indigenous peoples (Price, 1999; Treaty Seven Elders and Tribal Council with Hilderandt, Carter and First Rider, 1997). The result was considerable loss of land and resources accompanied by increasing poverty, disempowerment and deprivation. Land remains the central point of conflict between First Nations and Europeans (Fisher, 1983).

Government policy throughout the 20th century was based on the notions of "cultural assimilation" and "termination". Along with treaties, the main policy tools were the reserve system, the Indian Act, Christianity and education. Residential schools, implemented through a partnership of church and state, resulted in widespread abuse of children and community disruption (Assembly of First Nations, 1994; Barman et al., 1986; Lertzman, 1996; Titley, 1986).[11] The outcome was a more rapid decline of First Nations' quality of life.

Current health indicators for Aboriginal people in Canada (those groups recognized Constitutionally as Aboriginal peoples, including First Nations, Inuit, and Metis) depict a vulnerable population where life expectancy is much lower and unemployment is considerably higher. A young person in a First Nations community is at least 5–6 times more likely to die from suicide than a non-Native adolescent. In some communities at certain times of the year this situation has reached an alarming 36 times the national average (Mac Gregor, 2001; Royal Commission on Aboriginal Peoples, 1995).

In spite of these historical social impediments, First Nations have asserted progressively their rights and constitutional position. Aboriginal rights in Canada are based upon the initial occupation of the land by self-governing groups of First Nations prior to the arrival of Europeans. These rights, protected and preserved in treaties, are intended to ensure the necessities of First Nations' survival. Along with the right to occupy the land and use its natural resources, these include the right to preserve and foster language, culture and economic development including forms of law and government. These rights along with Aboriginal Title, treaty rights and the basis for self-determination and self-government were enshrined in the Constitution Act of 1982.

The treaty process continues and land claims are ongoing as First Nations move towards self-government. Recent treaties are broader in scope than historical ones, including governance, administrative and funding mechanisms with land claims for considerably larger areas. Constitutional decisions by the Supreme Court of Canada have upheld the status of Aboriginal Title as a right pre-dating 1763; many First Nations use litigation as a path for asserting their rights and title. The landmark Delgamuxw Decision (1997) by the Supreme Court of Canada was momentous in placing oral history on par with Western evidentiary criteria and was the first decision to begin defining Aboriginal Title. Delgamuxw emphasized political process over litigation highlighting the need for processes of consultation and co-decision making.

Aboriginal Rights, Title, constitutional position[12] and an increasingly effective ability to exercise these place First Nations in a uniquely influential position in Canadian society. This is especially the case with regards to natural resources access, land-use planning and decision-making. It is unlikely that sustainable development will be achieved in Canada without the support and participation of First Nations. These are the realities with which resource industries, including forestry, mining, oil and gas, are dealing increasingly (Hall and Vredenburg, 2003; Higginson, 2004; Sharma and Vredenburg, 1998; Vredenburg and Westley, 1997, 2002). Compelling factors at the community level are behind such developments. Poverty, unemployment and health issues have given First Nations an urgent stake in sustainable economic development.

New management models are being proffered as First Nations search culturally appropriate paths to sustainable development. Co-management of natural resources offers one approach. Some believe that impact benefit agreements and joint ventures hold promise for bridging private sector efforts with local development needs. Such efforts require collaborative bi-cultural decision-making processes and management models to facilitate shared goals of sustainable development. Given the longstanding relationship that Indigenous peoples have with ecosystems, their traditional knowledge and management systems are an asset to achieving ecological sustainability. This is partially why some companies in the natural resources sector have framed sustainable development as an appropriate context for advancing relations with Indigenous communities. It is clear that the participation of Indigenous peoples is a necessary element for companies in this sector, especially those who have declared sustainable development as a corporate goal.

Case study: the Scientific Panel for Sustainable Forest Practices in Clayoquot Sound

Given the numerous examples of conflict between Indigenous peoples and resource extraction industries, we consider it instructive to examine a case with positive results. Ours is of the Scientific Panel for Sustainable Forest Practices in Clayoquot Sound, an independent scientific body established to develop sustainable forest practice standards in the coastal temperate rainforests of Clayoquot Sound on the west coast of Vancouver Island, British Columbia, Canada. Its context was one of the most

protracted and fervent environmental conflicts in the country, which eventually brought industry to a halt through roadblocks, public demonstrations, and political pressure. Whereas every previous attempt at land-use planning in Clayoquot Sound had failed, the Clayoquot Scientific Panel achieved full consensus on all its outcomes. This Panel is a precedent setting example of functional dialogue between Indigenous people and Western science based culture. Its mandate to draw equally on traditional ecological knowledge of local First Nations as well as Western science is chiefly notable. The Panel was also unprecedented both procedurally and in substance resulting in the formulation of an ecosystem-based approach to forestry grounded in both traditional knowledge and Western science. This approach was eventually adopted by the major industrial forestry companies operating in the area. Research for the case study involved interviews with Scientific Panel members, review of government press releases and background information supplied to Panel members, and detailed examination of Panel reports, in particular their third report, *First Nations Perspectives Relating to Forest Practices in Clayoquot Sound*.[13]

The coastal temperate rainforest system of the Pacific Northwest is one of the most ecologically productive landscapes on the continent with marine ecosystems of the highest biodiversity on the planet. The west coast of Vancouver Island is home to the Nuu-Chah-Nulth people who are a collection of First Nations with a shared language, political system based on hereditary chiefs, and history going back thousands of years. The natural capital of their territory enabled the Nuu-Chah-Nulth to sustain a rich, complex and stable lifestyle with a culture famous for its carvings, ocean going vessels and elaborate ceremonial life. This natural wealth was mediated by a great storehouse of social and cultural capital enabling long-term social and ecological sustainability. As with many Indigenous peoples, the knowledge to sustain Nuu-Chah-Nulth way of life is governed by strict rules of protocol embedded in complex social institutions and cultural teachings. The Nuu-Chah-Nulth signed no treaty with Canada, making the case that title to their traditional territory was never relinquished. The coastal temperate rainforest system, so rich in its natural resources, has also been the basis

of the British Columbia forest industry, which in turn has been the foundation historically of the British Columbian economy. Some of the largest national and international forestry companies operate there. Controversy surrounding industrial logging practices in that region came to a head in the early 1990s.

Amidst ongoing occupations, roadblocks and demonstrations against logging practices in Clayoquot Sound, strong reactions from forest industry workers, with voices of concern from various other private and public sector actors in the face of growing international scrutiny, the Scientific Panel for Sustainable Forest Practices in Clayoquot Sound was launched by the government of British Columbia in 1993. The 19 member panel was comprised of fifteen internationally recognized scientists from a variety of fields including: biodiversity; ethnobotany; forest harvest planning; silvicultural systems; hydrology; soils; fisheries; wildlife; roads and engineering; scenic resource, recreation and tourism; and worker safety. The Nuu-Chah-Nulth Tribal Council designated four other experts including three elders and a hereditary chief as Co-chair. The Panel was charged with developing "world-class standards for sustainable forest management by combining traditional and scientific knowledge" to be consistent with international precedents found in the *Convention on Biological Diversity*, *Agenda 21*, and *Guiding Principles on Forests* in order to meet the forest stewardship standards required for designation of Clayoquot Sound as a United Nations Biosphere Reserve.

Given the cultural and philosophical differences of its members and the professional diversity of their scientific backgrounds, how did the Clayoquot Scientific Panel achieve success in the face of local and international scrutiny, government and industry demands, and political pressure from a variety of interest groups? Several key findings emerge when applying the TEKS framework introduced above to analyze the work of the scientific panel. Foremost amongst these was the adoption by the Panel of traditional Nuu-Chah-Nulth protocols as the basis of their internal working protocol. Interviews with panel members revealed that their adoption of the *Nuu-Chah-Nulth inclusive process for discussion and sharing to reach agreement* played a key role in bridging TEK and Western science as well as facilitating

consensus amongst Panel scientists (Lertzman, 1999). Nuu-Chah-Nulth traditional knowledge methods were pivotal for the Panel's success.

Another vital step taken by the Panel was the respect given to Nuu-Chah-Nulth cultural and spiritual teachings including *the sacredness and respect for All Things*, embodied in the traditional principle of *hishuk ish ts'awalk* (everything is one). Indeed, the knowledge and cultural values of Nuu-Chah-Nulth peoples were incorporated directly into the Panel's work and formed a foundation for their recommendations. Third, the Panel recognized Nuu-Chah-Nulth social institutions and drew upon them in framing their recommendations. A central component of this is the traditional land management system governed by hereditary chiefs, the institution of *hahuulhi*, which they recommend as a basis for co-management of local resources. The Panel also came to the profound epistemological conclusion that TEK provides for Western science an *"external, independently derived reference standard"* (p. 17). We see this as the basis for developing *bi-cultural* standards of verification.

Other observations can be made. One is that ecosystems occupied a shared conceptual space as the field of inquiry and application for both the scientific and traditional knowledge experts on the panel. Another key finding is that Panel members with a background in cross-cultural communication skills, two in particular, played a vital role in the Panel's work. We conclude that *bi-cultural* professionals are necessary elements of successful exercises in cross-cultural bridging. Other Panel members with no such background were able to develop such *cultural literacy* demonstrating that these are learned skills that provide an opportunity for organizational innovation.

Discussion and Conclusions

Sustainable development with Indigenous peoples: advancing an ethical approach

Building on the discussion of corporate relations with Indigenous communities initiated by Crawley and Sinclair in the context of human resource strategies, we have re-framed the discourse by advancing it within the context of sustainable development. We believe this provides a more comprehensive conceptual framework and ethical common ground for assessing relations between Indigenous peoples and resource extraction industries. Therefore, we take no exception with the position of Crawley and Sinclair or the arguments they put forward; on the contrary, we seek to strengthen them. Drawing on ethical arguments for sustainable development we deepen the discussion with concepts of natural, social and cultural capital. A holistic approach to sustainable development must address the biophysical, organizational and cultural systems within which human life is embedded and upon which it is dependent. The ethics of sustainable development oblige the preservation of all these aspects of human (and non-human) life for current and future generations.

Principles for applying an ethical approach to cross-cultural interactions in sustainable development with Indigenous peoples can be inferred from our case study. First, it is necessary to have respected individuals as recognized cultural representatives. It is not appropriate to have non-Indigenous consultants speaking *for* or on behalf of Indigenous peoples just as someone without the requisite scientific training is not qualified to represent scientific knowledge. Second, culturally literate people are a necessary element of effective bi-cultural interaction. These bi-culturally trained individuals play a role both in communication and in educating others. Third, it is necessary to set *bi-cultural standards of verification*. This is the "two heads are better than one" principle. There are bound to be differences of perspective when building bridges between cultures; these differences are partially what strengthen the resulting agreements. Including different ways of knowing strengthens sustainable development management. (Lertzman, 1999; 2003). Fourth, the protocols of traditional knowledge are a vital resource which offer important procedural tools for processes of sustainable development. In the absence of such protocols, bi-cultural agreements are methodologically (and ethically) invalid. The same applies to respecting the rigour of science. Fifth, such agreements must be informed by the cultural values and teachings of Indigenous peoples. Sixth, the social institutions of Indigenous communities are a crucial element of the co-management of natural resources and the organizational regimes which govern bi-cultural agreements and institutions. Finally,

ecosystem-based approaches are an excellent common ground for building application paradigms of Western science and Indigenous ecological traditional knowledge.

We argue that it is unethical to forfeit the viability of Indigenous cultures for the benefit of industrial resource extraction. Furthermore, it is ethical to engage with Indigenous peoples in a manner consistent with their wishes, cultures and means for survival as they determine these to be. The findings of our case study provide insight into how such a process can work. These findings concur with the spirit and substance of the ethical model for enduring relations between Indigenous and non-Indigenous peoples and their institutions put forward by Crawley and Sinclair. For example, *cultural literacy* is the skill set of "two-way learning and adaptation". One means for sharing power is to engage with Indigenous peoples in relationship and institution building exercises that work with traditional protocols and are guided by traditional authority and teachings.

Extending the discussion from Australia to Canada, and from mining to forestry in the context of sustainable development enables us to generalize to resource industries in the broader context of the discourse between Indigenous peoples and industrial society. This provides a window into what ethical, or respectful relations between Indigenous peoples and those of Western industrial institutions look like and how they can be pursued. The approach we put forward can therefore be applied to other resource extraction industries in the context of sustainable development with Indigenous peoples.

Consider the oil and gas sector. In the search for non-renewable fossil fuels, energy companies are encroaching increasingly into the traditional territories of Indigenous peoples. Some of these encounters occur in areas of pristine wilderness with Indigenous peoples whose experience of industrial society is recent and limited. One of our current research projects, in Ecuador, finds an example of this. International pressures to address the country's overwhelming debt has instigated a strong impetus for oil and gas development in Ecuador's southeastern region where large expanses of some of the planet's most biodiverse remaining tropical rainforests comprise headwaters of the Amazon basin. Recent oil and gas development in the northern region of the Ecuadorian Amazon has had consid-

erable ecological and social impact on Indigenous and other local peoples (Garcia and Vredenburg, 2003; Semmens, 2004; Vredenburg, 2003). One result is that Indigenous peoples in the southern Ecuadorian Amazon (the Achuar nation) are opposed to oil and gas development under any circumstances. They regard this as a struggle for their survival. Others in the country, and elsewhere, consider oil and gas development to be a foregone conclusion. From the perspective put forward in this paper, the ethical case for resource extraction in the southern Ecuadorian Amazon may well be that that there is no case.

Extending the ethical analysis of resource extraction and Indigenous peoples to the global context advances the discussion from firm based human resource strategies to building bridges between cultures to achieve sustainable development. Given that all cultures have value and meaning for themselves there is an ethical imperative for self-determination, yet global sustainable development will not be achieved in a cultural vacuum. In the global context, sustainable development is by its nature and of necessity a cross-cultural endeavour. With their long-standing use and knowledge of ecosystems, Indigenous peoples play an especially important role in the cross-cultural dialogue on sustainable development. Ethically and practically, this is not something industrial society can achieve on its own. There are lessons to be learned from Indigenous peoples about the ethics and application of sustainable development. This requires substantive cross-cultural dialogue.

Notes

[1] This occurs within a growing litany of concerns including: global warming and climate changes; ozone depletion and impacts on photosynthesis efficiency; rising levels of radioactive and other toxic wastes in the atmosphere, on land and water; increasing loss of habitat in various aquatic and terrestrial locations; soils loss and desertification; loss of gene pools; unaccountable possibilities of the synergistic interplay amongst these phenomena.

[2] Definition of the word "development" is not a given. We recognize that this word connotes different meanings to different people in different contexts. As with the concept of *sustainable development* discussed in the paper,

development is a culturally bounded, philosophically and politically embedded term. The meaning of 'what is development' is as impacted by *how* it is defined as it is by *whom*. Our reference in the text here is to the popular occidental understanding.
[3]   Turner et al. propose a spectrum: very weak, weak, strong, and very strong.
[4]   Marie Battiste and James (Sa'ke'j) Youngblood Henderson provide a full discussion of these international legal regimes in *Protecting Indigenous Knowledge and Heritage,* Saskatoon: Purich, 2000.
[5]   An argument made by some pharmaceuticals and tourist operators.
[6]   This model of Traditional Ecological Knowledge Systems was first developed in David A. Lertzman, *Planning Between Cultural Paradigms: Traditional Knowledge and the Transition to Ecological Sustainability,* Doctoral Dissertation, School of Community and Regional Planning, University of British Columbia, Vancouver: 1999.
[7]   We do not deal with the proprietary element of traditional knowledge but this is an important issue with obvious ethical implications. See, "Indigenous Heritage and Eurocentric Intellectual and Cultural Property Rights" in Battiste and Youngblood Henderson, *Protecting Indigenous Knowledge and Heritage,* Saskatoon: Purich, 2000.
[8]   Bill White personal communication 2/24/03.
[9]   Usufructuary refers to rights to the "fruits of the land" such as fishing, hunting, gathering, and agriculture.
[10]   The Royal Commission on Aboriginal Peoples has referred to the Royal Proclamation, (largely a response by King George III of England to the prospect of war with First Nations) as the "Magna Carta" of Aboriginal rights in Canada.
[11]   The residential school experience is one of the most notorious chapters in Canadian history. Amongst other things, it resulted in the loss of language, parenting skills and other cultural practices and values, suicide, community and family disintegration, alcoholism, lasting bitterness and mistrust. The effects have been intergenerational. See Barman, Hébert and McCaskill, *Indian Education in Canada, Volume I, The Legacy*, Vancouver: University of British Columbia Press, 1986; "Schooling and Civilization" in E. Brian Titley, *A Narrow Vision, Duncan Campbell Scott and the Administration of Indian Affairs in Canada*, Vancouver: University of British Columbia Press, 1986; and "Christianity and Education: Weapons of Assimilation" in David Lertzman, *A Spirit of Understanding: Community Based Program and Curriculum Guidelines for the First Nations Integrated Resource Management Program*, Victoria: Ministry of Education, Skills and Training, Province of British Columbia, 1996.

[12]   For a detailed discussion see Patrick Macklem, *Indigenous Difference and the Constitution of Canada* Toronto: University of Toronto *Press,* 2001.
[13]   For a full account of this case study see David A. Lertzman, *Planning Between Cultural Paradigms: Traditional Knowledge and the Transition to Ecological Sustainability,* Doctoral Dissertation, School of Community and Regional Planning, University of British Columbia, Vancouver: 1999.

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