UNEP

CBD

CONVENTION ON BIOLOGICAL DIVERSITY

Distr.
GENERAL

UNEP/CBD/WG8J/5/INF/7
16 July 2007

ORIGINAL: ENGLISH

AD HOC OPEN-ENDED INTER-SESSIONAL WORKING GROUP ON ARTICLE 8(j) AND RELATED PROVISIONS OF THE CONVENTION ON BIOLOGICAL DIVERSITY
Fifth meeting
Montreal, 15-19 October 2007
Item 4 of the provisional agenda*

REVISION OF THE SECOND PHASE OF THE COMPOSITE REPORT – NORTH AMERICA

Note by the Executive Secretary

1. In decision VIII/5 B, I, paragraph 3, the Executive Secretary was requested to further develop phase two of the composite report taking into account comments made at the discussion held during the fourth meeting of the Working Group on Article 8(j) and related provisions. In decision VIII/5 B, I, the Conference of the Parties renewed the mandate of the Advisory Group[1] to Article 8(j) and related provisions, which was requested to continue to provide advice on the further development of phase two of the composite report.

2. Based on information received and input from the Advisory Group, contained herein is the revised report for the North American region on the status and trends regarding the knowledge, innovations and practices of indigenous and local communities. This report has provided input for the Executive Summary of the second phase of the composite report on the same subject (UNEP/CBD/WG8J/5/3) and it is largely based on the original consultants report as contained in UNEP/CBD/WG8J/4/INF/7.

* UNEP/CBD/WG8J/5/1/Add.1.
[1] Established by decision VI/10 and VII/16 E

/…

I. EXECUTIVE SUMMARY

A. Trends in North America leading to loss of traditional knowledge

1. The decline of traditional knowledge in North America has been the result of a lengthy and continuing colonization of the continent. Many practices and presumptions of the non-Indigenous majority have caused damage to the social, cultural, economic and environmental underpinnings of Indigenous communities, resulting in a major loss of Indigenous knowledge and practice in North America. The greatest threat to Indigenous knowledge and practice is the lack of respect shown by the non-Indigenous community for Indigenous peoples and their world views. This should be of concern to all, as a decline in cultural diversity undermines efforts to retain and revive biological diversity.

2. The loss of traditional languages is one means of identifying the decline in traditional knowledge and practice. In North America over half of all Indigenous languages have insufficient speakers to guarantee the survival of the language. The worldviews expressed by these languages are likewise endangered, threatening our collective capacity to respond to environmental degradation. The loss of traditional knowledge and practice undermine the vitality of Indigenous languages, which can lead to a cessation in cultural practices relevant to the conservation and sustainable use of biological diversity. Conversely, the loss of biological diversity undermines the retention of traditional languages, knowledge and practice.

3. Indigenous communities in North America are afflicted with high levels of poverty. The poverty is the result of many factors, but which include, Indigenous peoples' forced alienation from their traditional territories, lack of capacity to participate in modern economies, lack of self-government, and unequal distribution of the wealth. The negative impact of poverty on the retention of traditional knowledge and practice is a result of all these factors. For example, lack of self-government undermines the capacity of Indigenous peoples to participate in decision making regarding the conservation and sustainable use of biological diversity and so the traditional knowledge and practices for this purpose languish.

4. Historic and continued displacements of Indigenous peoples away from their traditional territories foster a decline in traditional knowledge and practice. Indigenous peoples are rarely involved in decision making regarding development in their territories, have been relocated to facilitate development, or have lost their land base altogether leaving them destitute in new, unfamiliar surroundings. Land loss strips Indigenous peoples of the ability to practice those traditions dependent on land use or their connection with their traditional territories. Furthermore, the tiny tracks of land upon which many Indigenous peoples have been forced to build their entire communities and economies make it impossible to continue traditional lifestyles, especially when traditional economies rely on the use of large areas of land and/or water. Some Indigenous communities, such as many Métis peoples, have had all of their land taken from them, making the retention of traditional knowledge even more difficult.

6. Various contagions over the centuries, as well as the ongoing high levels of suicide, incarceration, and violent death, have taken a severe toll on Indigenous communities in North America. While their population is climbing from historic lows, Indigenous peoples continue to experience shorter life expectancy than non-Indigenous peoples. The massive reduction of Indigenous peoples within the first centuries of contact reduced the overall collective amount of traditional knowledge held. Ongoing trauma within Indigenous communities continues to undermine the intergenerational transfer of traditional knowledge and practice.

B. Obstacles to the Maintenance, Preservation and Application of Traditional Knowledge

1. Demographics

7. The three principal demographical developments affecting traditional knowledge and practice are the changes in gender roles, the changing dynamics between youth and Elders, and the increasing levels of urbanization of Indigenous peoples.

7. Traditional European gender roles have long been imposed on Indigenous communities, especially affecting who is allowed to lead and speak on behalf of their people. Men and women both have experienced a decline in their traditional gender related knowledge base, as their capacity to pursue their traditional roles or tasks has been undermined.

8. Young Indigenous people are losing their languages and identifying more with North American 'pop culture'. As this trend grows, the relations between youth and Elders are becoming increasingly strained. Loss of traditional languages is making communication and mutual understanding more difficult, making the passing on of traditional knowledge difficult.

9. The increasing urbanization of society undermines the capacity of Indigenous peoples to pursue some traditional practices on a regular basis. Stripped of their economic base, Indigenous peoples seek employment in urban centres. In an effort to support themselves in a new economic reality, Indigenous peoples lose the opportunity and need to practice their traditions, negatively impacting its vitality and the intergenerational transfer of knowledge.

2. National obstacles

2.1 Economic development

9. Many economic development policies and strategies threaten traditional knowledge. Economic development of land and natural resources is being pursued at an unsustainable rate. Land and resources are constantly being expropriated from remaining traditional Indigenous territories – especially in the North – with little participation of Indigenous peoples in the decision-making process or in benefit-sharing. Without land, traditional activities are difficult to practice, and without the inclusion of Indigenous people in decision-making, traditional knowledge is not being used to ensure development is sustainable. Furthermore, some laws and policies may not be discriminating on face value, but their implementation is often done in a way that excludes Indigenous perspectives, inadvertently enforces assimilation or, targets Indigenous peoples.

10. Globalization is also being pursued relentlessly, with little concern by governments of whether Indigenous interests are being protected. The result is often that agreements, such as NAFTA, tie the hands of governments so they can no longer restrict several types of trade, even if Indigenous rights may be violated. The exclusionary decision-making processes of globalisation further marginalize Indigenous peoples and remove their control over land and resources necessary for the practice and retention of traditional knowledge.

11. The new 'knowledge economy' is largely centred on the economic protections offered under intellectual property (IP) regimes. As of yet, these IP regimes are not flexible enough to protect traditional knowledge from exploitation. Communities often receive no benefit from the sharing of their knowledge. In addition, the 'knowledge economy' values research into new genetically modified plants and animals, which can increase profit for those who 'discover' new products and can patent them. But

Indigenous peoples worry about the effects these foreign entities will have on ecosystems, and are worried that their traditional practices will be threatened.

12. Economic development needs to be approached with the full participation of Indigenous peoples at all levels of decision-making. This is especially important in areas of resource development, and environmental management through co-management regimes over resources and protected areas. Governments need to recognize through concrete laws and policies that Indigenous people must retain their connection to their traditional territories so traditional knowledge can be exercised and protected.

2.2 Social policies

13. The historic education policy of placing children in residential schools caused severe psychological damage to generations of Indigenous youth. Beyond the emotional and physical trauma, residential schools forced Indigenous children to adopt the language, dress, and customs of the colonizers and distanced them from their culture and traditional territories. Traditional knowledge was difficult to pass on when children spent large parts of their lives away, and were not able to communicate with Elders. Today, because of a lack of Indigenous control over education and a lack of Indigenous content in curriculum, the education system continues to be a cause of alienation of youth and a corresponding loss of traditional knowledge for many Indigenous peoples.

14. Hiring policies requiring specific formal education credentials are also a continuing cause for loss of traditional knowledge in North America. This is particularly true for higher-level positions in areas such as environmental management and education. In order to have a successful career, many Indigenous peoples feel the need to get a non-Indigenous education, which is given more value than traditional education. More often then not, non-Indigenous education comes at the expense of the time and opportunity to acquire traditional knowledge.

2.3 Technological advancement

15. The rate at which Indigenous peoples have had to adjust to new technologies since colonisation has made it difficult for traditional knowledge to adapt to changing circumstances. Almost every facet of life has dramatically changed – from weapons of war, methods of transportation, agricultural techniques, methods of communication and energy sources. These changes have impacted the way Indigenous peoples interact with their environment. Without adequate time and resources to adapt properly to these instruments in a culturally appropriate way, loss of traditional knowledge is often the result.

2.4 Legislative and policy approaches to Indigenous peoples

16. There is an underlying racism that continues to permeate the majority of laws and policies affecting Indigenous peoples. Despite government rhetoric to the contrary, the recognition of self-government for Indigenous peoples remains extremely limited. Indigenous peoples are often forced into lengthy and costly lawsuits just to have basic rights recognized. In both Canada and the United States, the day-to-day lives of Indigenous peoples are often micro-managed by the State under racist legislation such as Canada's archaic *Indian Act.* Furthermore, although the Canadian and American governments have undertaken to act as fiduciaries for most Indigenous land and resources, the governments have consistently failed to act in the best interest of the people on whose behalf they are acting. Without self-government, and without the ability to work in partnership with the government, Indigenous people are not able to enact programs or policies to protect their traditional knowledge. As the situation presently stands, most Indigenous communities remain at the mercy of the federal governments. To reverse this situation, Indigenous peoples must fully participate in drafting and implementing law and policy that

affects them. As well, in areas where Indigenous peoples are the primary focus of a law or policy, Indigenous people should have full control.

3. *Local obstacles*

17. There are several factors at the local level affecting traditional knowledge in North America. These factors can be roughly divided into: inappropriate land tenure systems; cultural denigration; weak and changing economies; social and health issues; lack of capacity; and inadequate decision-making powers.

18. Policies in Canada and the United States have resulted in the privatisation of most of the once communally held land of Indigenous peoples. This has resulted in the powerlessness of Indigenous peoples to exercise control over the use of their traditional territory and they are often excluded from the land where their traditional activities are normally performed.

19. Across most of North America, Indigenous peoples were the target of Christian missionaries. The cultural changes brought by the new religion affected the maintenance of traditional knowledge. The education system also taught youth to value European knowledge systems and ways of life, leading young people to turn away from traditional lifestyles. Finally, since contact, Indigenous peoples have faced racism and discrimination from large segments of the non-Indigenous population, inciting shame for one's own beliefs and traditions. Instead of ridicule or discrimination, many people prefer to reject their traditions and assimilate to the majority population and thus internalize this mistreatment.

20. Indigenous peoples in North America face poverty and unemployment levels far higher then the rest of the population. When faced with difficulties of affording basic food, housing and clothing, the hierarchy of needs necessitates that the focus turns from maintaining traditions. This problem is worsened by the reality that traditional economies of hunting, trapping, fishing and artisanry are shrinking. Traditional economies have a hard time surviving on small land bases and in a larger economic environment that favours unrelenting growth at all costs.

21. Due to many of the factors discussed so far, Indigenous peoples in North America face high levels of substance, physical and sexual abuse as well as high rates of incarceration and suicide. In such an environment, many communities suffer from feelings of hopelessness, lack of self-esteem and confusion over their cultural identity. It is exceedingly difficult for communities to respond with the necessary actions to protect traditional knowledge in such a damaging social environment.

22. Since colonisation, Indigenous people have been restricted from exercising customary rights, including rights to hunt, fish, trap, gather or practice traditional ceremonies. In the past, these restrictions were justified by the non-Indigenous community as necessary to assimilate Indigenous peoples for their own good or by the overriding desire to develop and privatize the land. Today, restrictions continue to be justified by economic or environmental arguments. Indigenous peoples have also had to deal with restrictions to basic human rights, such as the freedom of movement, freedom of expression, linguistic freedom or religious freedom. Traditional knowledge is often the victim of such a repressed, externally controlled environment.

23. Finally, many communities are unable to protect their traditional knowledge because of a serious lack of capacity. Limited capacity is prominent in several areas, such as lack of good governance, lack of basic infrastructure, limited human, financial and social capital, a lack of Indigenous-led research initiatives or the lack of local experts available to deal with local environmental threats. Indigenous peoples who are unable to self-govern must rely on outsiders to respond to problems. These outsiders are

often insensitive to or unaware of concerns of traditional knowledge, and hence traditional knowledge is not part of the problem solving processes and/or development frameworks.

24. Heath problems are also preventing the retention and application of traditional knowledge. High rates of obesity, diabetes, heart disease and depression, plague many Indigenous communities at levels far higher than the rest of the population. Without basic levels of health and wellbeing, it is impossible to practice traditional knowledge activities that often require mental and physical strength. The growing HIV/AIDS epidemic that is spreading across Indigenous communities also threatens the future sustainability of Indigenous communities and retention of traditional knowledge and practice. The HIV/AIDS epidemic is devastating to Indigenous communities, as other health epidemics of introduced diseases have been among Indigenous populations since contact.

C. Recommendations

25. In order to combat the myriad of obstacles to the retention and practice of traditional knowledge in North America, governments as well as local communities must respond in several ways. The implementation of the following recommendations can support the retention and revitalization of Indigenous knowledge and practice in North America.

A. *National governance issues*

26. Governments need to recognize in a meaningful way the inherent right to self-government of Indigenous peoples.

27. Indigenous peoples need to be included in decision-making processes at all levels, especially where Indigenous land or other interests are at stake. This is especially important in environmental management, protected areas and education. As well as being included in decision-making, consultation mechanisms and prior informed consent mechanisms should be strengthened and made mandatory. Traditional knowledge should also be a mandatory consideration in decision-making. Their participation must include the right to say ‘no’ if need be.

28. National approaches to economic development, including laws, regulations, policies and negotiation strategies should integrate principles of sustainable development and use, and must be reviewed and amended as necessary to correct intentional or inadvertent racist elements that undermine the retention and practice of traditional knowledge.

B. Local governance issues

29. The capacity and infrastructure of Indigenous communities needs to be strengthened so that Indigenous peoples can self-govern effectively and protect traditional knowledge in a suitable way. Governments should facilitate capacity-building initiatives, particularly those intended to improve good governance, improve research skills, and increase avenues for accessing human and financial capital.

30. The education system must be reformed to allow Indigenous knowledge and values to be promoted, as well as encouragement of inter-generational transfer of traditional knowledge and traditional forms of education.

C. Social and cultural issues

31. Initiatives should be implemented that enhance cross-cultural understanding between non-Indigenous and Indigenous peoples and to increase respect of Indigenous cultures and communities.

32. Principles of customary law should be incorporated into intellectual property and other regimes to protect against exploitation of traditional knowledge and to encourage its promotion and use with the free and prior informed consent of the knowledge holders.

33. Language revitalization initiatives with full participation of Indigenous peoples should be promoted.

D. Land and resource issues

34. Governments must speed up and finalize land claim negotiations and ensure negotiations are respecting principles of fairness and good faith and are in line with international standards and human rights obligations.

35. Access to resources need to be increased so that Indigenous communities can build their own resource generating streams.

36. Protection of sacred sites needs to be improved to protect traditional knowledge activities.

37. Detailed Indigenous-led research projects need to be funded on the impact of development practices, the impact of existing laws and policies, the effects of climate change and the role of gender relations in retaining traditional knowledge.

E. Local issues

38. Sustainable use and development within communities needs to be promoted.

39. Indigenous communities must take responsibility to encourage local traditional knowledge and practice. They may wish to develop codes of conduct to regulate the sharing of traditional knowledge with those outside the community.

40. Customary law needs to be reviewed and practiced in communities.

NORTH AMERICA REGIONAL REPORT ON THE STATUS AND TRENDS REGARDING THE KNOWLEDGE, INNOVATIONS AND PRACTICES OF INDIGENOUS AND LOCAL COMMUNITIES RELEVANT TO THE CONSERVATION AND SUSTAINABLE USE OF BIODIVERSITY:

Phase two

1. Introduction

1. In the Preamble to the *Convention on Biological Diversity* the Contracting Parties note, 'that it is vital to anticipate, prevent and attack the causes of significant reduction or loss of biological diversity at source." This paper examines one of the causes of decline of biological diversity; specifically the retention and exercise of the knowledge, innovations and practices of Indigenous and local communities. We will see that the knowledge, innovations and practices of Indigenous and local communities sustains biological diversity. The current decline in the richness of this knowledge and the fetters on the practices of Indigenous and local communities relevant to the conservation and sustainable use of biodiversity is a cause of decline of biodiversity. The Parties have therefore requested a global study on the status of and trends regarding the knowledge, innovations and practices of Indigenous and local communities relevant to the conservation and sustainable use of biodiversity.

2. The first phase of this report (UNEP/CBD/WG8J/3/8, *North America Regional Report On The Status And Trends Regarding The Knowledge, Innovations And Practices Of Indigenous And Local Communities Relevant To The Conservation And Sustainable Use Of Biodiversity: Phase one*) focused on the current status of Indigenous and local community knowledge, innovations and practices in North America. It concluded that Indigenous and local community knowledge, innovations and practices relevant to the conservation and sustainable use of biodiversity were in decline in North America. The first phase also provided a survey of some of the efforts of governments, non-government organizations, and Indigenous communities to reverse this trend. The report concluded that there were significant efforts being made, but that more and targeted effort was required.

3. As requested by the Parties to the Convention, the study was divided into two phases. This second phase considers the causes of decline of Indigenous and local community knowledge, innovations and practices. As this second phase is necessarily critical of past and present attitudes, laws and policies that have undermined the retention of the knowledge and exercise of the practices of Indigenous and local communities, it is highly recommended that the two phases of the regional report be read together to balance the criticisms outlined below. Reading the two phases of this report as one will take the reader through the status of the knowledge, innovations and practices of Indigenous and local communities, the causes of decline, and efforts to address the decline.

4. Much of this paper is necessarily historical in perspective, as the overall decline of Indigenous knowledge in North America has been the result of a lengthy and continuing colonization of the continent. Many of the assumptions and practices of the colonizing governments which negatively impact the use, retention, and practice of traditional knowledge continue unabated, or have only relatively recently been recognized for the damage they cause. For example, clearly bigoted attitudes of earlier generations would no longer find favour in the twenty-first century however the present day decline of traditional knowledge can often be traced to the actions of previous generations stemming from those attitudes. The residential school system, which stripped Indigenous children of their rights to speak their language, wear traditional dress, or even live in close contact with their parents and grandparents is a classic example of this. The last federally operated residential school in Canada, at Gordon First Nation in Saskatchewan only closed in 1995 (Indian Residential School Resolution Canada, 2007). While Residential Schools no longer operate, their detrimental effects remain a culprit in the present day

impoverishment of traditional knowledge, thus undermining future capacity to reinvigorate traditional knowledge.

5. It is argued here that the greatest threat to Indigenous cultures is the fundamental lack of respect afforded them. This lack of respect is demonstrated in a myriad of ways, including racist and bigoted attitudes about Indigenous peoples, denigration of Indigenous cultures, and denial of Indigenous rights. This lack of respect, generated by indifference, ignorance, and a sense of superiority, has blinded the non-Indigenous majority to the unique traditional perspectives of the Indigenous peoples. Disregard for the value of these perspectives threatens not only the well-being of the Indigenous peoples who live by them, but also the well-being of the land, biodiversity and ultimately humanity itself.

2. *The relationship between biological, cultural and linguistic diversity*

2.1 Diversity: the key to a sustainable future

6. A diversity of genetic material is critical for the survival of a species. Without a wide gene pool, species grow weak and die. The *Convention on Biological Diversity* is based on this understanding and is dedicated to, among other things, the conservation of biological diversity and the sustainable use of its components. The Preamble to the Convention notes that Parties are, "[a]ware that the conservation and sustainable use of biological diversity is of critical importance for meeting the food, health and other needs of the growing world population…,". Humanity needs biological diversity for its survival.

7. The Parties have inquired whether biological diversity is predicated on human diversity; does cultural and linguistic diversity support the conservation and sustainable use of biological diversity. Certainly the diversity of cultures creates a rich tapestry of life. Our arts, language, philosophies, and religions undeniably underlie human metaphysical diversity, but do they also underlie the biological diversity of other species with which we share a planet? If we conclude that it does, then efforts must be made to ensure the survival of the knowledge, innovations and practices of Indigenous and local communities in order to sustain biological diversity.

8. In fact, there is a positive symbiotic relationship between cultural and linguistic diversity and biological diversity. "On the one hand, it is through cultural practices that a significant part of the world's biodiversity is created and maintained, both domestic and wild, and from the level of genes, species and ecosystems to entire landscapes. On the other hand, cultural diversity relies in its turn upon key elements and events in the natural world to maintain entire assemblages of social, cultural, economic and political expression."(UNEP, 2005). Biological, cultural and linguistic diversity are all inextricably linked. Article 8(j) of the *Convention on Biological Diversity* notes the in-situ conservation of biodiversity can be supported through respect, preservation, and maintenance of the knowledge, innovations and practices of Indigenous peoples. Canada acknowledges the relationship: "[t]he key to making decisions that do not adversely affect biodiversity is a better understanding of ecosystems and how they are affected by human activity. This includes a better understanding of traditional knowledge and the role it might play in conservation and sustainable-use efforts" (Canada, 1998a). Indigenous knowledge is based on acute observation of the land and its reaction to stress. Traditional Indigenous practices take advantage of local conditions for survival. The elements of local environments, including the biological diversity, "inform" the traditional knowledge, innovations and practices of Indigenous and local communities.

9. Elders throughout North America speak about the changes that they have observed in their lifetimes both to the people and to the land. For example, Indigenous Elders at a meeting in Whitehorse, Canada said the level of Indigenous knowledge retention of their generation was around 75% of their fore bearers, but estimated that the level of retention of the younger generation stood at around 25% (personal communication, 2005). They link the decline of the people to the decline of the diversity of the land. The

land is not being used in the same way, people are not gathering traditional foods or medicines, and new plants and animals have been introduced that compete with the existing flora and fauna. Instead of using traditional sources of food, medicine, clothing, and housing materials, Indigenous peoples, either through choice or necessity, increasingly rely on non-traditional items to fill these needs. The change in cultural experiences of the Indigenous peoples has occurred hand in hand with changes in the ways they use the land and the resources of the land. This change has coincided with a decline in the diversity of the land. The parallel between the decline of the global diversity of peoples and the decline of species on which they rely to sustain their unique cultures is apparent.

10. The connection between the decline in biological diversity and culture is not a unidirectional relationship. Declines in biological diversity cause deterioration in cultural diversity, as a weakened culture negatively affects biodiversity. The ways in which a decline in cultural and linguistic diversity causes a decline in biodiversity are considered below. For people who see themselves as a part of nature such as the Indigenous Peoples of North America there may be no distinction between a loss of their culture and languages, the loss of their biological distinctiveness, and the decline in biodiversity of other species.

2.2 Loss of local languages as a factor in the loss of traditional knowledge

11. Language is widely perceived to be evidence of one's distinct culture, although the loss of language does not eliminate one's cultural identity.

> *Language plays a key role in all aspects of human life everywhere. It is central to our conceptualization of the world, and for interpreting, understanding and changing it. Initially the language(s) we learn give us the categories to conceive our natural and social world. If an object, process or relationship has been important in the life of our people, it gets named, and by learning that word we also learn what is vital for us to know in our natural and social environment (Maffi, 1999a:21).*

12. Any linguist can confirm that many important concepts contained in one language cannot be understood in another. This is understandable given the different experiences of individuals and communities. Our language is shaped by our experience and perceptions and our worldview is expressed through our language.

13. There is some uncertainty as to how many Indigenous languages existed in North America at the time of contact, but estimates are that there were over 300 (SIL International, 2003). Almost one third of those are now extinct and many more are in serious jeopardy. Some, such as Ojibwa, with approximately 50,000 speakers or Navaho with close to 150,000 speakers may well survive. On the other hand, of the 61 Indigenous languages identified in Canada and 155 in the United States, half and two-thirds respectively have 500 or fewer speakers, which is insufficient to maintain their vitality (Morrison & Wilson, 1995).

14. The worldviews that are expressed through these threatened languages are likewise threatened. This is particularly true for Indigenous peoples of North America because of the traditional reliance on oral communication. The extinction of their language threatens the very memory of their existence as peoples. A lack of attention to the Indigenous lexicon threatens the retention of the ideas contained within it. The knowledge of their history, their great citizens, their traditional lands and ways of life, their unique worldview and their contributions to the arts, science, and human understanding are in danger of being lost entirely.

15. As the languages are lost, so are the concepts that are unique to its speakers. For example, Indigenous peoples of North America generally hold traditional views about humanity's relationship to the land and the other species with which they share the earth that are distinct from the general perceptions of the non-Indigenous majority (Knudson & Susuki, 1992; Nabhan & St. Antoine; 1993, Posey, ed., 1999). Many Indigenous peoples of North America traditionally believe that humanity is related to plants or animals; they feel a kinship to the flora and fauna. It is not uncommon to hear the Elders speak of our brothers the beaver or our sisters the birds; the moon is a grandmother and the sun a father. With such close kinship ties, Indigenous peoples traditionally felt a responsibility to care for the land and all things living on it.

> *The most important relationship embodied by First Nation, Inuit and Métis languages is with the land. "The land" is more than the physical landscape; it involves the creatures and plants, as well as the people's historical and spiritual relationship to their territories. First Nation, Inuit and Métis languages show that the people are not separate from the land. They have a responsibility to protect it and to preserve the sacred and traditional knowledge associated with it (Task Force on Aboriginal Languages and Culture, 2005).*

16. Perceptions about a people's link with their environment are embedded in their language. The loss of the language threatens the ability to express these ideas and facilitates the dominion of the traditional European non-Indigenous views. The loss of the language constitutes a tragedy for all humanity as we collectively lose some of the richness of experience we crave. We may also be at risk of losing ideas that may help us survive the current environmental challenges, including a decline in biodiversity: "[A]ny reduction of language diversity diminishes the adaptational [sic] strength of our species because it lowers the pool of knowledge from which we can draw" (Maffi, 1999b:25).

17. The Canadian Task Force on Aboriginal Languages and Cultures culminated their work in a 2005 report entitled *A Foundational Report for a Strategy to Revitalize First Nation, Inuit and Métis Languages and Cultures*. Through their lengthy consultations, field research and analysis of legislative and policy trends, the Task Force was able to present a comprehensive picture of the fundamental connectedness between language retention, traditional knowledge preservation and the overall wellbeing of Indigenous nations – socially, economically, psychologically and spiritually. The report presents a series of holistic recommendations, meant to fight culture and language loss on numerous fronts. The way in which the Task Force enunciates the link between language and traditional knowledge is relevant to this report, as are several of their recommended actions aimed at personal, local and national levels.

18. The link between language retention and the maintenance of traditional knowledge cannot be overstated. Understanding this connection is fundamental if Indigenous leaders and government policy makers hope to successfully respond to the loss and exploitation of traditional knowledge in Indigenous communities. The Task Force does a good job of explaining this link in their Report and describing the multi-layered effects of language loss in an individual and in a community.

19. The first way that language loss affects traditional knowledge retention is related to the role that the syntax of a language plays in shaping a person's conception of their relationship with the outside world. For example, whereas English sentence structure tends to focus on one's self as the focus and agent of an event or state being described, Indigenous languages, such as Anishnabe, usually focus first on the other person, thing or event and then finishes the phrase by explaining one's relation to the event, person or thing. For instance, where in English you might say "I am speaking to you", in Anishnabe you might say "you are being spoken to by me". Although these differences might seem merely semantic, it reflects a difference in worldview and the placements of value. In English, the precondition to expressing and understanding external events is an awareness of oneself. In Anishnabe, however, one must first

understand the rest of the world before the individual can understand themselves and express their place in the world.

20. The second way in which language loss affects the retention of traditional knowledge is the actual loss of words to describe important concepts to a people. Looking at a traditional Cree law demonstrates how a deficit of proper words to express an idea can prevent the inter-generational sharing of traditional knowledge. The James Bay Cree have a legal concept that can roughly be translated into English as the "law of maintenance", which speaks of a responsibility given by the Creator to the Cree of James Bay to not only take care of the physical environment, but to also maintain a harmonious relationship with other people and the animals they depend on for survival. This law is upheld through oral traditions that teach each generation about customs affecting hunting, trapping and fishing as well as rules for personal interaction. Without the words to express these laws (or the ability of the youth to understand the Elders explaining these laws), the traditional knowledge and hence the balance normally maintained is threatened. If equivalent French or English words are not found to imbue to the younger generation the necessity of upholding these traditional laws, the youth will easily adopt a previously foreign framework of values that are more easily understood in their new language.

21. When a language is lost and an Indigenous community is forced to switch to English or French, not only are the words they use different, but the relationship between the self and the rest of the world also shifts. This shift in worldview affects a people's physical interaction with the world. Traditional knowledge, along with language, is the physical expression of what is valuable and how a people perceive their relationship with and responsibility to the physical and spiritual world. As language loss promotes changes in a people's worldview, the gap between a people and the meaning embedded in their traditional knowledge grows. When this link is weakened, so to is the knowledge of traditional activities – without meaning, the practice of traditional activities loses its importance. When a people's connection to their value system is damaged, and when there is a loss of knowledge of how that value system is expressed, a state of tension or confusion develops between their traditional views and those views expressed in their new language. This confusion breads emotional, social and spiritual uncertainty, which puts into doubt fundamental concepts relating to 'self' and group identity. In such circumstances, social problems are allowed to permeate.

22. It should be noted that while it is undeniable that language loss makes it very difficult for a people to remain culturally strong, it is still *possible* to retain a sense of identity and culture within the confines of a new language. Without the mother language, there is greater need to find modalities to sustain traditional knowledge to keep the values, traditions and societal structures of a culture. There must be a strong concerted effort to translate traditional value systems and concepts into a new language. This point is important in communities where the language is already lost, or perhaps beyond the point of repair.

23. As already mentioned, the Task Force on Aboriginal Languages and Cultures suggests combating loss of Aboriginal languages and cultures at several levels. Their main focus is on measures that promote the resurgence of Indigenous languages. At the local level, they call on the need for resources to help in the creation of immersion programs, the development of educational resources in Indigenous languages, and the creation of language teacher training. The Task Force also calls for Indigenous control over education curriculum. Indigenous control over education is weak in North America. For example, the Newfoundland and Labrador government has repeatedly refused Innu requests to change their school year to allow their youth to go inland during the winter to help with hunting and trapping. These young Innu do not have the opportunity, despite their personal wishes, to learn the traditional activities of their people.

24. At a national level, there is a recognized need for a National Language Organisation that can help coordinate, support and fund language-retention initiatives throughout the country. In 2005, the Liberal Party, then forming the federal government promised $160 million over ten years to support language revitalization. The Conservative Party when it formed the Government in 2006 cancelled this budget expenditure and has not replaced it.

25. The Task Force repeatedly acknowledges the link between language retention and a continued connection with the land. To combat language and cultural loss in this regard, it is recommended that the Federal and Provincial governments engage in nation-to-nation negotiations with Indigenous peoples on resource-sharing, environmental sustainability and the protection of traditional knowledge. If links to the land are to continue or be revitalized, communities need significant rights over their traditional lands and need to meaningfully participate in policies and activities that affect their knowledge of the land or the wellbeing of the land. To this extent, Indigenous peoples must also be part of government planning for implementation of the *Convention on Biological Diversity*. (Task Force on Aboriginal Languages and Cultures, p. 74-5)

26. In the United States, three federal Acts "intended to encourage Indigenous control over education and the meaningful incorporation of Indigenous languages and cultural knowledge into school curricula …established the legal and financial framework for the emergence of new, community-based language and education programmes" (McCarty and Watahomigie, 1998). The *Bilingual Education Act*, in 1968, the *Indian Education Act* in 1972 and the *Indian Self-Determination and Educational Assistance Act* in 1975 support bilingual education programmes and teacher training in Indigenous languages and allow the tribes to operate their own schools (McCarty and Watahomigie, 1998). The *Native American Language Act*, passed in 1990, recognizes that "the traditional languages of native Americans are an integral part of their cultures and identities and form the basic medium for the transmission, and thus survival, of Native American cultures, literatures, histories, religions, political institutions, and values" and the Act aims to "preserve, protect, and promote the rights and freedom of Native Americans to use, practice, and develop Native American languages" (Public Law 101-477, Sect. 102 and 104[1]). The Indian Nations at Risk Task Force and the White House Conference on Indian Education, reporting in 1991 and 1992 respectively, both recommended support for strengthening native languages and cultures (Demmert, 1994).

2.3 Loss of biological diversity as a factor in the loss of traditional knowledge, and vice versa

27. According to government sources, there are over 350 species in Canada and over 1260 in the United States which are endangered, threatened with extinction or are of special concern (Environment Canada, 2005; US Fish and Wildlife Service, 2005). The traditional knowledge associated with these species is obviously likewise threatened. Traditional knowledge is predicated on active involvement with the environment. Divorced from the practice, the knowledge becomes abstract and loses its empirical depth. Without the opportunity to engage with the other species, the traditional knowledge becomes little more than a memory and/or a museum piece. "Due to its place-specific and subsistence-related nature, ecological knowledge is at especially high risk of being lost, as people are removed from their traditional environments or become alienated from traditional ways of life and lose their close links with nature."(Maffi, 1999b:30)

28. The 'extinction of experience' (Nabhan and St. Antoine, 1993) undermines the capacity of the people to keep the language alive. For the Yoeme of the Sonoran Desert, the disappearance of traditional ceremonial plants has hampered the retention of specific rituals. The Elders are unable to perform certain ceremonies due to the loss of particular species in their territory as a result of environmental destruction. As such, they are unable to pass on these rituals, many of which are teachings about the human

connection to the Earth and respect for the Earth. The loss of these ceremonies hampers the teaching of these lessons, thereby reducing the knowledge and language of the Yoeme, which in turn fuels environmental destruction (Molina, 1998). Where biological diversity is in decline, such as the ceremonial plants of the Yoeme, so too is the knowledge of those diverse elements of the earth. Conversely, where traditional knowledge, practice or innovation is in decline, such as loss of the teachings about caring for the land, the local biological diversity is at risk.

29. There are two major environmental threats to biological diversity worth considering here for their negative impact on the retention and practice of traditional knowledge: climate change and invasive alien species.

30. Climate change has been identified by the United Nations as a major environmental threat to all life on earth, but Indigenous peoples will be particularly hard hit. Poverty will likely be exacerbated as climate change will impact natural resources, in particular traditional food supplies and those resources relied upon for traditional economies, such as fur bearing animals for trapping. The health of Indigenous peoples will likely decline as a result of climate change, again as a result of impacts on traditional foods and medicines, as well as the growing impact of previously unknown diseases, such as the spread of West Nile Virus in the northern United States and throughout Canada. Declining ecosystem health generally will lead to an overall decline of the health of those dependent on the ecosystem; Indigenous peoples being among the first to experience the negative impacts as a result of their continuing close relationship with the land. Extreme weather events, such as flooding, drought or heat waves also threaten the health and well-being of Indigenous peoples.

31. Indigenous peoples in the Arctic and sub-Arctic have already begun to experience the negative consequences of climate change. They have noted the decline of traditional food sources, such as ringed seal and caribou, mainstays of their traditional diets. The thawing permafrost is damaging expensive infrastructure, in some instances, requiring the relocation of Indigenous communities (CBD, 2007a). Thinning sea ice, unpredictable freeze and thaw of northern rivers and lakes and the delay in opening winter roads (roads that can only used when the land is frozen) has made travel dangerous and more expensive. While those of the Arctic and sub-Arctic are highly vulnerable to the impacts of climate change, Indigenous peoples throughout North America are at risk. A community study by six First Nation communities in Canada identified seasonal changes in weather, changes to water bodies, and changes in the plants and wildlife. The impacts of these changes on the communities are significant. For example, the warmer weather has made travel more difficult, reducing the opportunities for inter-community visiting (an important cultural event in the sparsely populated north and an opportunity to share traditional stories and support the retention of traditional knowledge), and increased the cost of living, as supplies must be flown into the communities instead of being trucked in over winter roads. The changes in animal populations have also had an impact. Some communities are seeing new species, such as skunks and bears move into their territory and a decline in the health and number of existing species such as caribou or fish, important to their food supply or for traditional economic value. (Centre for Indigenous Environmental Resources, 2006) As they are among the poorest peoples in North America, the resources available to Indigenous peoples to counter these threats are limited.

32. “Using biodiversity resources to mitigate or adapt to climate change is of particular importance to vulnerable populations such as people living in low-lying areas or developing countries and indigenous communities” (CBD, 2007b). Halting the causes of climate change and ensuring the health of existing ecosystems can do much to alleviate the negative consequences of climate change on biological diversity and thus the retention and practice of traditional knowledge.

33. Invasive alien species have likewise caused negative impacts on the retention and practice of traditional knowledge. The spread of invasive species has been the result of deliberate or accidental

releases of species into new habitats. For example, the spread of the zebra mussel to the Great Lakes released with ballast water from international freight ships, or the spread of Atlantic salmon on the west coast as a result of escapes from aquaculture operations. Some species have advanced into new territories or have survived the winter as a result of climate change, for example the spread of the western pine beetle that is currently devastating the forests of the western states and provinces. The United States Department of Agriculture has identified almost 100 invasive species affecting all or parts of the United States (USDA, 2007a). Invasive alien species compete with existing flora and fauna for food and water, undermining the capacity for indigenous species to flourish or even pushing out indigenous species altogether. Particularly problematic are those that have no known predators in the new locale.

34. The economic impact of invasive species is significant. A survey of the economic impact in Canada was conducted in 2002, with estimates of $5.5 billion (Canadian dollars) cumulative to date costs and estimated annual costs of $22.5 million for research on and control of invasive species (RNT Consulting, 2002) "The U.S. spends $120 billion annually on the control and impacts of more than 800 invasive species infestations[, which] does not account for the values of species extinctions and losses in biodiversity, ecosystems, services and aesthetics[, n]ine out of 21 of the most endangered ecosystems in the U.S. are significantly impacted by exotic invasions [and] 80 percent of the nation's fish communities are considered degraded because of decline or loss of native species and introduction of exotics". (USDA, 2007b)

35. The impact on Indigenous cultures is incalculable. As noted above, without access to traditional flora and fauna for ceremonies, food or medicine, Indigenous peoples' traditional knowledge and practices are threatened.

2.4 Cessation of cultural practices relevant to the conservation and sustainable use of biological diversity as a factor in the loss of traditional knowledge

36. Probably the easiest link to draw between cultural diversity and biological diversity is with respect to food. Archeological digs have uncovered a wide diversity of foods consumed by Indigenous peoples in North America that are foreign to European cuisine. Geneticists have identified hundreds of plant varieties and seed banks have collected thousands of traditional specimens not found in Europe. Anthropologists have documented Indigenous communities planting, tending, collecting, processing, consuming or using plants native to North America. Some of these products native to North America, such as the blueberry, pecan, and maple syrup have become commonplace in the modern North American diet. Others, such as wild rice or the Saskatoon berry remain local to certain areas. Many others, such as sorrel, avalanche lily, or herring roe on kelp have not crossed over to the European diet and some of these have fallen out of use by Indigenous people as well. Some food sources, such as the buffalo, passenger pigeon, and cod have become extinct or threatened with extinction as a result of over-harvesting by non-Indigenous peoples.

37. Over-harvesting does not explain all the extinctions or threats of extinction of species that have not found favour with the non-Indigenous palate, however. In fact, Indigenous peoples claim it is the lack of harvesting that causes the decline for many species (Blackburn & Anderson, 1993; Shipek, 1993; Turner, Ignace & Ignace, 2000). In other words, traditional cultivation appears very often stimulates diversity. Similarly, the natural ecosystems produce the conditions necessary for Indigenous plants or animals. Upsetting the natural ecosystem changes these conditions, for example the removal of the bison from the plains and preventing wildfires changes plant species and climax ecosystems.

> *Native land ethics teach not to take more than you need or that the land can provide. But Native ethics as caregiving goes even further: If you don't use it, you lose it. Many (although not all)*

> *plant communities require disturbance to thrive. So, in the act of using plants, they are enhanced and conserved.*
>
> *There are hundreds of examples of this in T.E.K. Every time a fire was set, corms and roots dug, the plumpest seeds collected and sown uneaten, baby beavers counted to calculate the seasonal quota, a stem-tip broken deliberately in the taking of fruits and nuts, the strongest deer let out of encircling fires during communal hunts, a tree pruned to encourage straight shoots for baskets, a fishing weir constructed which let more fish through upriver than were harvested--every time humans used the land, the land was made healthier (Martinez, undated).*

38. The imposition of European foods and agricultural methods has displaced traditional foods and the capacity to harvest these foods in a traditional fashion. This in turn has imposed changes in the Indigenous diet in North America, which have undermined biological diversity.

2.5 Impoverishment

39. The Indigenous peoples of North America are among the poorest in the region. In Canada, registered Indians earn less than half the average non-aboriginal income (Cooke, Bevan, McHardy, 2004). In the United States, American Indians earn slightly more than half of the average per capita income based on 1999 statistics. (US Bureau of the Census, 1995). A major reason for this level of poverty is the dispossession of their land and resources which serve as the means of production for their economic wellbeing. Systemic inequities have denied Indigenous peoples of North America access to alternatives.

40. The Canadian Government states that it "supports the national objective of giving First Nations, Inuit and Northerners access to a range and level of services from their governments reasonably comparable to those enjoyed by other Canadians in like circumstances" (Canada, 2003). Yet, the Prime Minister has acknowledged the "shameful conditions on reserve" (Canada, 2004). In fact, "funding for core services such as education, economic & social development, capital facilities & maintenance has decreased by almost 13% since 1999-2000" (AFN, 2004). While $8 billion (Canadian) was spent on policies and programs related to Indigenous peoples in Canada in 2003-04, by the estimates of the Federal Government itself another $11 Billion (Canadian) is owed in contingent liabilities (AFN, 2004). The situation is similar in the United States.

> *In July 2003, the U.S. Commission on Civil Rights reported that the persistent underfunding of Federal trust commitments to tribes constitutes "a quiet crisis." In a comprehensive analysis of unmet needs in Indian Country, the study documented disproportionately lower funding for critical Indian services--including law enforcement, health care, and education--than for all other populations. In the last 25 years, federal expenditure per capita for Indians has steadily declined as compared to spending for the U.S. population at large (NCAI, 2005).*

41. The amount of money contributed to Indigenous peoples, however, is not the true test of impoverishment. It is the capacity to be self-sustaining that determines the success of a people and whether they are truly impoverished. In order to determine whether a people are impoverished in the holistic sense of the word requires us to ask whether a people have access to the elements necessary to sustain themselves and hence their traditional knowledge. "Several past policies adopted by the government in dealing with the Indians have been of a type which, if long continued, would tend to pauperize any race" (Meriam Report, 1928).

42. According to the United Nations Development Program, capable government is a fundamental element of a successful society (UNDP, 1994). The Harvard Project on American Indian Economic Development also cites similar needs for sustainable development, including practical sovereignty,

capable governing institutions, and a cultural match – that is a fit between the people's perceptions of how authority should be exercised and the formal institutions established for exercising that authority (Harvard Univ, 2004).

43. In Canada, there are a number of land claims and self-government agreements that have been negotiated, notably in the north, but these remain the exception and not the rule. Even those with settled land claims and/or self-government agreements financial resources are limited. In particular, financial support for self-government falls short. In Canada only 2% of all government funds support self-government (AFN, 2004). Even where these agreements have been finalized, the Department of Indian and Northern Affairs, responsible for implementation of the agreements, "seems focused on fulfilling the letter of the land claims' implementation plans but not the spirit. Officials may believe that they have met their obligations, but in fact they have not worked to support the full intent of the land claims agreements" (Auditor General of Canada, 2003). The National Chief of the Assembly of First Nations has complained that First Nations in Canada are "administering their own poverty".

44. In the United States, *The Indian Self-Determination and Educational Assistance Act* and the *Tribal Self-Governance Act* helped to define the sovereign political powers of the Tribes, but many problems remain.

> *The federal pullback [in the United States] … has left Indian Country, in many cases, without the institutions required to effectively and efficiently discharge important functions associated with their "re-empowered" sovereign status. Tribes are thus put in a situation of governing themselves while simultaneously attempting to build the entire range of requisite governing institutions, including tribal courts, tribal housing authorities, child welfare agencies, tribal wellness centers and district development agencies (Henson & Taylor, 2002).*

45. United States tribal priority accounts have declined by 4.4% between 1998 and 2003 (NCAI, 2005a). Contract support costs, key to financing self-government, will fall short by close $136 million (US) in fiscal year 2005 (NCAI 2005b), despite court rulings that require the Federal Government to meet its contractual requirements (NCAI, undated). In fact, in several cases, not only is the spirit of the treaty not implemented, but important obligations under a signed and ratified modern-day treaties have not been implemented, thus forcing communities to engage in lengthy and costly law suits against the government. This further depletes a people's resources and relationship with the government.

46. The ability to influence decision-making, as noted above, is critical to the sustainable development of a people. Indigenous peoples in North America, though wrestling for acknowledgement of their inherent right to self-government from federal authorities, remain in large part excluded from decision-making over their internal affairs. Despite the self-government legislation in the US, the Federal Government continues to hold tremendous plenary power over the Tribes. The same is perhaps even truer in Canada, as few Indigenous communities have had their inherent right to self-government recognized. Decisions affecting Indigenous peoples are frequently made behind closed doors with little, if any consultation with them. Financial allocations and intrusive legislation and policies are decided upon without input from Indigenous peoples and/or without consideration of their impact on Indigenous peoples. Indigenous peoples are rarely consulted on industrial development, such as what crops will be planted, whether the waters can be diverted, or where a new settlement or factory will be created. As they also hold little economic capacity in North American society, Indigenous peoples are sidelined from private sector decision-making as well, including the development of natural resources in their territories.

47. Access to power goes hand in hand with economic capacity. The connection between impoverishment, marginalization, and powerlessness is evident. But what is the connection between poverty, powerlessness and traditional knowledge?

48. Nadasdy, in the *Politics of TEK: Power and the "Integration" of Knowledge*, speaks about the power relationship between Indigenous peoples and the government bureaucrats who use the knowledge they provide. First, there are cultural gaps in understanding, including that the information is often treated as mere data without embracing the often spiritual elements related to the knowledge. Further, the exercise of the knowledge by the bureaucrats serves to reinforce the existing power structures.

49. The opportunity for Indigenous peoples to exercise self-government is a means to redress the power imbalance. In a study on suicide in Indigenous youth in British Colombia, Canada at the University of British Colombia, it was found that one of the most important correlations for youth suicide rates in Indigenous communities was the degree of self-government in the community. Self-government was more important than factors such as education rates, employment, or location. In communities with no or little self-government youth suicide rates were as high as 140 per 100,000, 20 times the rate for their non-aboriginal peers. Notably, communities that exercised self-government had achieved statistically average rates and in some cases lower than the general population or even zero (Chandler, 2005).

50. According to Chandler's study, personal and cultural continuity are constitutive elements of a community. In other words, youth need to see a point in continuing to live in order to resist suicidal thoughts. They had to see themselves reflected in their day-to-day reality and believe they could influence their future. The study demonstrates that communities with capacity to create their own realities had the greatest capacity to generate cultural continuity and thereby reduce suicide. Interestingly enough, the study reflected on the fact that in some communities the suicide rate was below that of the general population or even zero. The authors concluded that perhaps these communities "are already in possession of highly effective forms of knowledge and practices—knowledge about how to make life worth living that could potentially be put to use by others", an example of the value of traditional knowledge not only for the Indigenous community but potentially for the non-Indigenous community.

51. The important point for the purpose of this study on the status and trends of traditional knowledge, however, is that limitations on self-government undermine cultural continuity including traditional knowledge. As we have already discovered, powerlessness and marginalization go hand in hand with poverty. The study by Chandler gives us evidence that powerlessness and marginalization also go hand in hand with a loss of traditional knowledge. As we will see below, it is the connection to the land and decision-making authority with respect to the land that is the greatest determinant of wealth and thereby retention of traditional knowledge.

2.6 Migration

52. The migration of non-Indigenous peoples to North America has had a substantial negative impact on Indigenous peoples and the retention of traditional knowledge. The steady influx of non-Indigenous people displaced Indigenous people, competing with them for food and shelter. Clashes of cultures often led to violence and further subjugation of Indigenous peoples. Land use shifted from the traditional uses by Indigenous peoples, driving the Indigenous peoples off the land entirely or forcing them to retreat from non-Indigenous settlers and their use of the land.

> *Governments saw relocation as providing an apparent solution for a number of specific problems….[G]overnment administrators saw Aboriginal people as unsophisticated, poor, outside modern society and generally incapable of making the right choices. Confronted with the enormous task of adapting to 'modern' society, they faced numerous problems that government*

> *believed could be solved only with government assistance. If they appeared to be starving, they could be moved to where game was more plentiful. If they were sick, they could be placed in new communities where health services and amenities such as sewers, water and electricity were available. If they were thought to be 'indolent', the new communities would provide education and training facilities, which would lead to integration into the wage economy. If they were in the way of expanding agricultural frontiers or happened to occupy land needed for urban settlements, they could be moved 'for their own protection'. And if their traditional lands contained natural resources — minerals to be exploited, forests to be cut, rivers to be dammed — they could be relocated 'in the national interest'. (RCAP, 1996)*

53. Under the United States Federal *Removal Act* of 28 May 1830 thousands of Choctaws, Muscogees, Seminoles, Chickasaws, and Cherokees were moved by the army from their traditional territories east of the Mississippi between 1830 and 1845. This included the forced removal of 16,000 Cherokee from their traditional territories in Georgia. An estimated 4,000 people died during the half-year it took to relocate the Cherokee to Oklahoma. The current population distribution of Indigenous peoples in the United States demonstrates the long-term consequences of this displacement, as there are very few Indigenous communities in large parts of the eastern United States (US Census Bureau, 1990).

54. The Royal Commission on Aboriginal Peoples (RCAP) notes that,

> *Perhaps the most appropriate term to describe that impact* [of colonialism] *is 'displacement'. Aboriginal peoples were displaced physically — they were denied access to their traditional territories and in many cases actually forced to move to new locations selected for them by colonial authorities. They were also displaced socially and culturally, subject to intensive missionary activity and the establishment of schools — which undermined their ability to pass on traditional values to their children, imposed male-oriented Victorian values, and attacked traditional activities such as significant dances and other ceremonies. In North America they were also displaced politically, forced by colonial laws to abandon or at least disguise traditional governing structures and processes in favour of colonial-style municipal institutions (RCAP, 1998).*

55. The rise of the non-Indigenous population, the change in the colonial economic base, and the normalization of relations between Canada and the United States, which undermined the Indigenous peoples value as allies were identified by the Royal Commission as three forces driving the displacement of Indigenous peoples in Canada.

56. The removals disrupted not only the Indigenous peoples relocated, but also the Indigenous peoples whose territories they moved into, creating a ripple effect across the continent. This in turn undermined the practice, retention and sharing of traditional knowledge. Unfamiliar with the new locale, Indigenous peoples could find themselves as ignorant of their new home as were the Europeans.

2.7 Reduction in numbers of Indigenous peoples

57. The number of Indigenous peoples living in North America at the time of contact is a matter of considerable debate, with estimates ranging from 4.5 million to 18 million (Morrison and Wilson, 1986). What is certain, however, is the impact of imported diseases, which in some cases decimated up to 93% of a people's population. "A serious contagious disease causing significant mortality invaded North American peoples at intervals of four years and two and a half months, on the average from 1520 to 1900" (Stiffarm and Lane, 1992:31).

> *The figure of 500,000 for the Indigenous population [in Canada] at the time of initial sustained contact with Europeans is perhaps the most widely accepted today, although many would regard it as a conservative estimate. The diseases brought to North America by Europeans from the late 1400s onward, diseases to which the Indigenous inhabitants had little resistance, had an enormous impact on Aboriginal population levels. During 200 to 300 years of contact, diseases such as smallpox, tuberculosis, influenza, scarlet fever and measles reduced the population drastically. Armed hostilities and starvation also claimed many lives.*
>
> *The extent of the decline varied from one Aboriginal nation to another and also depended, of course, on the population size before contact. However, a census estimate of the size of the Aboriginal population in Canada in 1871 places the number at 102,000. It would take more than 100 years — until the early 1980s — before the size of the Aboriginal population again reached the 500,000 mark (RCAP, 1996).*

58. An unnaturally declining population affects the capacity to retain traditional knowledge and positively impact biodiversity. Firstly, with fewer people, the amount of knowledge they collectively hold is reduced. Secondly, the rapid decline of the population traumatized communities, diverting their attention and energy from commonplace traditional activities to activities of flight and survival, again undermining their ability to sustain their traditional knowledge. Also, population stresses most significantly impact the old and the young and hence intergenerational transfer of traditional knowledge and culture is drastically affected.

2.8 Loss of ancestral lands and territories

59. Many of the Indigenous peoples of North America have been stripped of their traditional territories and resources, thereby losing the ability to connect with the land on a regular basis. Although some have managed to negotiate reasonable treaties with the federal governments, for example the Yukon First Nations under the modern land claims process in Canada, for the most part, fueled by lack of government respect for the needs and interests of Indigenous peoples, loss of ancestral lands is likely the single most significant cause of decline in traditional knowledge.

60. At contact, the Indigenous peoples covered the North American continent. While generally more thinly populated than Europe, the entire territory was occupied, far from the explorers' claims of discovering a "terra nullius". The historic records of various Indigenous peoples generally show a picture of hospitality and support during the early years of contact – with some notable exceptions. From the 16th century until the late 18th century, the relationship was marked by cooperation in trade and military exercises. By the late 18th and early 19th centuries, however, an imbalance in the relationship took hold. Non-Indigenous populations began to outnumber the Indigenous population and economic and military success was no longer dependent on the cooperation of the Indigenous peoples. In fact, increasingly, Indigenous peoples were perceived as barriers to economic opportunity.

> *More and more, non-Aboriginal immigrants were interested in establishing permanent settlements on the land, clearing it for agricultural purposes, and taking advantage of the timber, fish and other resources to meet their own needs or to supply markets elsewhere. They were determined not to be frustrated or delayed unduly by those who claimed title to the land and used it in the Aboriginal way. In something of a return to earlier notions of the 'civilized' and 'savage' uses of land, Aboriginal people came to be regarded as impediments to productive development. Moreover, as Aboriginal economies declined because of the loss of the land, the scarcity of game and the continuing ravages of disease, relief payments to alleviate the threat of starvation became a regular feature of colonial financial administration. In short order, formerly autonomous*

Aboriginal nations came to be viewed, by prosperous and expanding Crown colonies, as little more than an unproductive drain on the public purse (RCAP, 1996)

61. In Canada, in the late 19th and early 20th centuries laws were passed which made it illegal to leave the reserves, private property held by non-Indigenous people was declared off bounds to the Indigenous peoples, and currently the widespread environmental contamination of the land and water limit the ability of Indigenous peoples to rely on the land for their traditional pursuits.

62. Indigenous peoples in North America feel the loss of the land deeply and bitterly.

Micmacs in Membertou [moved out of a growing municipal centre and away from the ocean's edge] have difficulty exercising their customs now because they are no longer near water. The feeling of being close to the water was taken away from the people. It's like being chained. (Bernie Francis in York, 1990).

63. Moved from place to place, often at the whim of non-Indigenous dominated governments, many Indigenous people have lost their connection to their traditional territories and the ways of life associated with those areas. For example, Indigenous peoples east of the Mississippi River in the United States, including the Choctaw Cherokee, Creek, and some Seminole, were herded along the "Trail of Tears" to central Oklahoma. This dry dusty prairie landscape was foreign to the people of the forested hills of their ancestors. They had no knowledge of this new place and were unaccustomed to surviving in that landscape, so many died from malnutrition once they had arrived (see comments by Principal Chief John Ross in Ronda, 1999).

In some relocations, what relocatees lack in their new environments is the culturally based knowledge that made them self-sufficient in their homelands. The importance of this cultural knowledge is highlighted in the Inuit relocation to Devon Island. Marcus describes how, without an intimate knowledge of the land (a "memoryscape"), the Inuit were reluctant to break trails over unknown territory. They refused to establish traplines beyond walking distance from the camps, and the greater number of hours of darkness affected the trappers as well. (RCAP, 1999)

64. Even where Indigenous peoples continue to reside in or close to their traditional territories, they still face restrictions in their efforts to connect with the land. In Canada, even though many Indigenous peoples have treaties that guarantee a continued right to hunt and gather in their traditional territories these rights have been constrained through the years.

At Confederation, ownership and control of Crown land and resources was assigned to the provincial partners. In the northwest, land and resources were given initially to the dominion government to enable it to sponsor settlement. That was changed in 1930, however, with passage of the natural resources transfer agreements with the three prairie provinces. In these the federal government failed to take "any precaution, apparently, to safeguard the sacred trusts which had been guaranteed to the Indians by treaty." Thereafter, Aboriginal access to off-reserve resources was controlled across the country by provinces — which, of course, had no responsibility for First Nations. Outside reserves, in trapping, hunting, fishing and in such traditional activities as wild rice harvesting, Aboriginal people faced licensing systems, provincial management programs, game wardens, and all too often fines and imprisonment, as well as the restrictions of international wildfowl conventions signed by the federal government (RCAP, 1996)

65. Through a combination of efforts including, war, disregard, harassment, bribery, trickery, abuse of power, and outright theft, the Indigenous peoples of North America have lost most of their homelands, even much of that initially secured through treaty (in Canada, see for example RCAP, 1996).

66. Even with the acknowledgement of past wrongs, governments have failed to rectify the situation. The *1993 Apology Bill*, in which the United States Government admitted it was complicit in the illegal overthrow of the Kingdom of Hawaii, has not resulted in the return of the land to the native Hawaiians. Likewise the *Statement of Reconciliation* in 1998 by the Canadian Government has done little to speed the resolution of land claims.

67. Without the ability to sustain a long-term relationship with the land, the people lose the intimate detailed knowledge of the land (Barsh, 1999). "Customary livelihood relations among [the Ojibway] in their work on the land have been inextricably bound to an awareness of the intrinsic value of diversity" (Chapeskie, 1999). An ongoing relationship with the land underlies traditional knowledge. "Knowledge and land are intimately bound to one another just as the natural world is alive and spiritually replete (Whitt, 1999). The relationship to the land is deeply spiritual, one of kinship, requiring the greatest respect. Severing the relationship with the land does not simply dispossess Indigenous peoples of their economic base; it strikes at the heart of their emotional, social, and spiritual support. If, as the study by Chandler noted, personal and cultural continuity are critical to community well being, the continued cultural ties to the land are pivotal to the survival of the people and their knowledge.

3. Identification of national processes that may threaten the maintenance, preservation and application of traditional knowledge

3.1 Demographic factors

3.1.1 Gender

68. Demographic factors, including gender, age and urbanization, also influence the maintenance, preservation and application of traditional knowledge.

69. It is difficult to draw conclusions about the role of gender in maintenance, preservation and application of traditional knowledge because of the varying circumstances affecting Indigenous peoples across Canada and the US. For example, concluding that women have limited influence due to denied access to decision-making processes is true in some communities, but not others. Iroquois culture, for example, is traditionally matrilineal, and in many cases women continue to hold ultimate authority in their traditional governance systems.

70. It is equally challenging to draw conclusions about gender based job discrimination and whether this undermines the retention of traditional knowledge. Traditionally, most Indigenous peoples acknowledged the unique, but equally essential roles of men and women, with a clear delineation of tasks. There were also communal activities in which everyone helped, such as fishing, even though the men generally brought in the nets and the women generally cleaned and smoked the fish. Twenty-first century gender analysis may distort our understanding of traditional Indigenous communities, which may create confusion about the role of gender discrimination in threatening the maintenance, preservation and application of traditional knowledge.

71. That said it is clear that traditional views on gender roles in European societies did affect Indigenous – European interactions, which has, and continues to affect gender relations. At the time of contact, Europeans favoured male authority and decision-making over female. Women, valued for their womb and domestic arts, were highly suspect if they were overly or overtly powerful. In their dealings with Indigenous peoples, the Europeans privileged men with political authority. Even in matrilineal societies, the Europeans sought the advice of the men and set the men up as authority figures, according with European social and religious patriarchies.

72. This may in turn have affected the retention of traditional knowledge and caused stress in community relations. It may have also impacted traditional knowledge that supports biodiversity. For example, in some Indigenous communities the women held traditional responsibilities to care for the earth, such as the duty to ensure the collection and storage of seeds. The women may have retained this responsibility, but have become divorced from the tools and systems necessary to exercise this responsibility. The traditional knowledge held by the men has also been lost in some cases, as traditional hunting, fishing and trapping activities fall into disuse.

73. It is not possible to conclude from this overview whether gender bias undermines the retention of traditional knowledge influencing biodiversity. Further study is required.

3.1.2 Age

74. Conversely, the impact of age dynamics in Indigenous communities is a regular theme among Indigenous peoples. The loss of Elders clearly has an impact on the retention, preservation and utilization of traditional knowledge.

75. The Elders are libraries of knowledge. Historically, many Indigenous peoples of North America were not literate and relied on observation and oral communications for inter- and intra-generational transfer of knowledge. In the normal course of events, the youth would have been trained to carry on the traditions. The effects of colonization, including the decimation of Indigenous populations from disease , the loss of their land base and deliberate policies of assimilation, the opportunities for the youth to receive and practice this training have been restricted or lost altogether. Elders familiar with the traditions and who know the stories die and take this knowledge with them without the opportunity to pass it to the next generation.

76. The challenge is that the youth are pursuing other knowledge and opportunities. Elders are concerned about a lack of interest and commitment among the youth in the traditional ways. There are many distracting influences with which youth must contend, particularly mass media. There are equal challenges in passing on traditional knowledge to youth that are interested in learning. The modern education system divorces the people from their traditions, including traditional ways of learning. When the Elders were young, they learned from the land, from observing others and practicing what they had seen. Children today are required to attend school, where they learn from books with little opportunity for direct observation or practice. As noted above, the loss of the traditional languages is further complicating matters (Ohmagari and Fikret, 1997). The loss of biodiversity also undermines the ability of Indigenous peoples to retain their traditional knowledge and thereby assist with the conservation and protection of biodiversity. Many Indigenous peoples have spoken of the need to find ways and means to ensure and strengthen the intergenerational retention of traditional knowledge.

3.1.3 Urbanization

77. Many Indigenous peoples in the Americas lived in urban centers prior to contact with Europeans. Some of these centers rivaled European cities in size (Editor, 2005). Modern urbanization, however, is a further challenge to the retention of traditional knowledge.

78. The majority of Indigenous peoples in Canada live away from the reserves. The urban Indigenous population grew by 62%, compared to 11% for other urban Canadians from 1981 to 1991, fuelled by both high birth rates, decreases in infant mortality rates, and net migration from rural areas. However, there was no net migration away from reserves during the same period (INAC, 2004). In the United States in 1990, 51% of American Indians were living in urban areas (compared to 75% of the

general American population), up over 40% from 1930 when only 10% of American Indians lived in cities, compared to 50% of the general American population.

79. There are strong pressures fostering the urbanization of Indigenous peoples around the world, including in North America. Among them include economic pressures, education opportunities, loss of lands, and assimilationist policies (Editor, 2005).

80. Modern urban life is generally is incompatible with a traditional lifestyle that promotes the retention of traditional knowledge. People learn the survival skills of an urbanite, how to ride the subway or order groceries off the Internet rather then paddling a canoe or preserving fish. First Nation peoples living away from reserves tend not to speak their traditional languages, threatening intergenerational transfer of the language (Task Force on Aboriginal Languages and Culture, 2005). This said, many Indigenous peoples in North America living in urban centers continue to pursue their traditions to the extent possible. There is a steady movement of people back and forth between urban centers and reserves. People take advantage of weekends and holidays to attend Pow Wows, participate in the spring goose hunt, or make traditional crafts. While clearly not a fully traditional lifestyle, the traditional knowledge associated with these activities and managing their traditional territories lives on.

81. It is not possible at this time to offer conclusions about the impact of urbanization on the retention of traditional knowledge based on the current research available. This issue requires further study.

3.2 National development policies/programmes

82. National development as understood by the non-Indigenous society has had a generally negative impact on the retention of traditional knowledge and biodiversity. The activities pursued by non-Indigenous people to advance their own economic well-being or political hegemony are ultimately at odds with the interests of Indigenous peoples' traditional knowledge. In this section both economic and social development will be considered, the latter in the context in which it is often applied to Indigenous peoples – the perceived need to "civilize" the Tribes.

3.2.1 Economic development of land and natural resources

83. The economic development of North America has had a harmful affect on Indigenous peoples and the retention of their traditional knowledge, although initially the opposite was true. When Europeans first arrived in North America they relied upon Indigenous peoples for trade and knowledge, particularly their knowledge of how to survive in a climate and landscape different from Europe. Indigenous people provided shelter, food and medicine to the newcomers. They also provided labour to support the fish and fur industries, knowledge and guiding to assist the explorers, and warriors in battles among European nations. Initially the system worked to the general benefit of all parties, although it must be noted that some Indigenous communities took the opportunity offered by Europeans to defeat long standing Indigenous rivals. Over time, however, this relationship shifted in favour of the Europeans (RCAP, 1999).

84. Opening up the land to business and immigration has always been a defining feature of the colonization of North America. Non-Indigenous people have felled trees, constructed roads and railroads, cleared pasture land, and built homes, businesses and churches in an effort to rebuild Europe in North America. They imposed upon the land their own preferences in agriculture, housing, and community structure. They grew crops they favoured, clear cut the forests for pasture, fenced farmland, dammed

streams for milling, and ploughed the prairies. These activities were contrary to the way of life of Indigenous peoples who were mainly nomadic, semi-nomadic or small-scale agriculturalists. They relied on the bounty of the land and mostly lived in sustainable self-sufficiency. Their lifestyle quickly came into conflict with that of the Europeans. Ultimately, what the non-Indigenous majority has imposed is a system that fails to provide for the long-term sustainability of the population in the territory.

85. Europeans felt justified in these actions, not only for their own betterment, but for the betterment of Indigenous peoples. There was tremendous economic opportunity that, to the European eye, was going to waste or at the very least underutilized under Indigenous tenure. There is overwhelming evidence that the Europeans viewed the Indigenous peoples as backward and slothful in not capitalizing on the wealth of the land. This lack of respect justified pushing them aside. Dislodging Indigenous peoples from the land was the first task in developing the economic potential of North America. Civilizing them to the European standards went hand in hand with these plans for economic growth.

> *Such a goal placed Canada in the vanguard of the empire-wide task of carrying the 'white man's burden', which was at one and the same time the duty of 'civilizing' Indigenous peoples, be they Maori, Aborigine or Zulu. This also became the justification for the extensive annexation of the homelands and resources of Indigenous peoples in Africa, Asia, Australia and North America. For Victorians this was a divinely ordained responsibility; for Canadians it was, at the level of rhetoric at least, a national duty. (RCAP, 1996)*

86. The history of Indigenous – non-Indigenous relations has been dominated by deliberate efforts to assimilate Indigenous peoples to the majority society. In Canada, a policy of enfranchisement was adopted. In exchange for giving up one's Indian status, Indigenous peoples could be granted the full rights of citizenship and given a small block of land. Receiving advanced education, military service, or participation in certain professions would disenfranchise an Indian of his or her status as such.

87. The Royal Commission on Aboriginal Peoples in Canada linked economic and political hegemony, one supporting the other. Others have suggested that the conflict is rooted in cultural differences of perspective.

> *Many authors, notably Carl Jung and Aldous Huxley, have stated that Western societies fear, hate, destroy, and also revere Indians, precisely because they express the parts of our personal and cultural psyches that we must suppress in order to function in the world as we do. How could present-day America possibly exist if great numbers of people believed that the minerals in the ground, the trees and rocks, and the earth itself were all alive? Not only alive, but our equals? If our society suddenly believed it was sacrilegious to remove minerals from the earth, or to buy and sell land, our society would evaporate. Nor could it exist if Americans believed in an economic life organized along steady-state, collective-subsistence forms, as most Indian societies are. Therefore, it is logical, normal, and self-protective for Americans to find the philosophical, political, and economic modes of Indian culture inappropriate and foolish (Mander, 1991).*

88. Canada has acknowledged its history of racism towards Indigenous peoples in a Statement of Reconciliation issued in 1998.

> *Sadly, our history with respect to the treatment of Aboriginal people is not something in which we can take pride. Attitudes of racial and cultural superiority led to a suppression of Aboriginal culture and values. As a country, we are burdened by past actions that resulted in weakening the identity of Aboriginal peoples, suppressing their languages and cultures, and outlawing spiritual practices. We must recognize the impact of these actions on the once self-sustaining nations that*

> *were disaggregated, disrupted, limited or even destroyed by the dispossession of traditional territory, by the relocation of Aboriginal people, and by some provisions of the* Indian Act*. We must acknowledge that the result of these actions was the erosion of the political, economic and social systems of Aboriginal people and nations (Canada, 1998b)*

89. Yet many of these destructive development policies and activities continue today. Currently, the United States and Canada are engaged in concerted effort to open the north to development. Recently, the United States has explored options to open the north slope of Alaska to oil exploration and development, despite the pleas from Indigenous peoples in the area dependent on the caribou herd for their way of life. Oil exploration, mining, and related development proceed apace in both countries. Indigenous peoples in the region find themselves caught between taking advantage of the economic boom in their territories and the diminishing returns from the land and their desire to avoid the social upheaval and loss of traditional ways of life that so often comes hand in hand with such development.

90. The Task Force on Aboriginal Languages and Culture (2005) recommends that governments

> *[s]upport resource development, including lifestyles that foster language retention, by financially supporting:…First Nation, Inuit and Métis people who choose to live a traditional lifestyle, as well as supporting initiatives to teach youth the skills to live traditionally or on the land.*

91. The Task Force stated that the revitalization of languages is a way to heal and reconnect with the land. Economic development, particularly that reliant on natural resource extraction must be reconciled with Indigenous peoples' ability to maintain their languages and culture through the use, retention and practice of traditional knowledge. As demonstrated above, this will support the long term protection and conservation of biological diversity.

3.2.2 The new 'knowledge economy' and globalization

92. It is not possible to examine the real and potential impacts of globalization on Indigenous peoples in North America in detail in this survey report. The issue is simply too vast to do it justice here. Nevertheless, it is possible to outline possible trends identified in the literature on this subject.

93. At contact, Europeans were interested in North America for the resources it offered, including fur, fish, timber, and mineral wealth. Initially Indigenous peoples played a significant part in trade with Europeans. As first the European and then the nascent North American economies grew more demanding the balance of economic power shifted away from Indigenous peoples to the non-Indigenous community. Today, modern economic development in North America hinges less on resource extraction and increasingly on the "knowledge economy" and globalization (Statistics Canada, 2007, Bureau of Economic Analysis, 2007).

94. The development of a global economy has resulted in impacts beyond the economic. In a discussion at the United Nations General Assembly, states concluded that,

> *[G]lobalization was not just a phenomenon of the market place or financial transactions. It had also been spreading globally political paradigms, cultural patterns and social ideas. It has led to standardization of the world's security systems. This way, globalization had been affecting the sovereignty of nation states and many of the established political, economic and social structures. Globalization is driven by both push-up and pushdown trends. There is globalization from below (e.g. proliferation of NGOs, etc.) and globalization from above (emergence of international structures, e.g. WTO). It pulls power from the government down to civil society, but it also*

> *pushes power out past national borders to the regions and to the global domain. (United Nations General Assembly, 2001)*

95. As a result, globalization has had an effect on traditional power structures and has in some cases threatened local culture.

> *The political aspect of globalization has led to a shift of power from sovereign states to technologically advanced global elites and private multinational (oftentimes nonnational) Interests… On the social level, it has produced wide disparities among countries and within countries. For many groups of population it has led to greater vulnerability and social dislocation. It had created openness to other cultures and their creativity, and promoted flow of ideas and values. However, as cultures interact, some have faced the risk of being diluted and/or destroyed at the expense of others. (United Nations General Assembly, 2001)*

96. Globalization is reducing the capacity of nation states to realize and protect local interests. It constitutes a threat to food security, environmental protection, and cultural diversity. For example, the *North America Free Trade Agreement* (NAFTA), between Canada, Mexico and the United States restricts the right of the parties to limit trade in commodities. If, for example, bulk water sales were to proceed, the party selling the water would be required to continue the sale, despite potential harm to local interests, for example in the face of local water shortages (Johansen, 2002). The capacity of Indigenous peoples to rely on a stable natural environment to pursue biodiversity related traditional knowledge is thereby threatened. The increasing concentration of power in a few hands has widened the gap between the rich and the poor. The Institute for Policy Studies has reported that Chief Executive Officers in the United States made on average 458 times more than their workers in 2000. This is an increase from 104 times what their workers were paid only nine years previously (Anderson et al, 2006). Although the National Intelligence Agency reported in *Global Trends 2015* that overall globalization would increase political security, it indicated that it would also "be rocky, marked by chronic volatility and a widening economic divide…deepening economic stagnation, political instability, and cultural alienation. [This] will foster political, ethnic, ideological, and religious extremism, along with the violence that often accompanies it." The International Forum on Globalization finds that, "[a]ll over the world, evidence points to the failure of globalization and the so-called "free trade" policies of the last decade - loss of jobs and livelihoods, displacement of Indigenous peoples, massive immigration, rapid environmental devastation and loss of biodiversity, increases in poverty and hunger, and many additional negative effects." (IFG, 2007a) Victoria Tauli-Corpuz, chair of the United Nations Permanent Forum on Indigenous Peoples and the Indigenous Peoples and Globalization Project of the International Forum on Globalization states,

> *Today, millions of native people still live traditional lifestyles, each with a distinct culture, language, knowledge base, identity, and view of the cosmos. The impact of globalization is strongest on these populations perhaps more than any other because these communities have no voice and are therefore easily swept aside by the invisible hand of the market and its proponents. Globalization not only discounts native peoples, it is driving them closer and more rapidly toward extinction (IFG, 2007b).*

97. The increasing reliance in North America on "knowledge" as a key economic driver also threatens the retention and use of traditional knowledge. A "knowledge economy" refers to an economy where value lies increasingly in new ideas, software, services or relationships. Knowledge is recognized as a source of competitiveness, because science, research, technology and innovation in knowledge creation become increasingly important as an element of the gross domestic product. The United States has been the major player in promoting this agenda on the world stage, with Canada a strong ally, threatening not only traditional knowledge in North America, but around the world. The promotion of intellectual property rights to secure economic advantage, particularly with respect to genetic

modification, and the subsequent impact on biodiversity is a cause of grave concern in Indigenous communities (see comments of various Indigenous organizations to the World Intellectual Property Organization, 2005).

98. Modern laboratory techniques for genetic modification of plants and animals, including cloning, gene splicing, and so called "terminator technology" may have the potential to go seriously awry, introducing new and potentially lethal biological actors capable of destroying entire elements of biodiversity and eventually any related traditional knowledge. The Assembly of First Nations in Canada passed a resolution in July 2005 protesting the development of genetically modified wild rice (*manomin*) in the United States. As noted elsewhere in this paper, *manomin* is a traditional food for some of the Indigenous peoples in North America with great symbolic importance. Introducing a genetically modified version is not only culturally offensive undermining traditional values, but also has the potential to destroy the existing biodiversity and associated traditional knowledge.

99. The practice of using patents on genetic materials, to prevent others from profiting from either new genetically modified products or new applications for genetic materials, is widely pursued and promoted in North America. This widely used intellectual property system also undermines the use, retention and practice of traditional knowledge. For example, if a genetically modified *manomin* is introduced, particularly one that is exceptionally hardy, Indigenous peoples who traditionally harvested this resource may find themselves overrun with a strain for which they are required to pay a royalty to harvest. This would clearly have a dampening affect on traditional knowledge.

100. It has not been possible in this brief overview to provide a detailed examination of development polices and programmes on Indigenous communities in North America. Some general issues of concern have been flagged, including loss of territory, alienation from the land, economic decline, and diminished opportunities to exercise traditional knowledge. It is recommended that states, with the full participation of Indigenous peoples, undertake detailed research and analysis on the impact of development on the use, retention and practice of traditional knowledge with a view to ameliorating its negative impacts on Indigenous peoples. To this effect, Indigenous peoples and governments are strongly recommended to take on board and implement the *Akwe:Kon Voluntary Guidelines For The Conduct Of Cultural, Environmental And Social Impact Assessments Regarding Developments Proposed To Take Place On, Or Which Are Likely To Impact On, Sacred Sites And On Lands And Waters Traditionally Occupied Or Used By Indigenous And Local Communities*, adopted by the Parties to the *Convention on Biological Diversity* in 2004.

3.3 Education, training and employment policies/programmes

101. For decades in both Canada and the United States authorities forcibly removed Indigenous children from their families confining them to residential schools where they were cut off from contact with their communities and its traditions. The children were forbidden, on threat of violence, to speak their languages, wear their traditional clothes or dress their hair in traditional manners, practice their religions, or even use their Indigenous names (RCAP, 1996). In the United States, this practice continued until the 1930s. In Canada, the final residential school did not close its doors until the 1990s. Thousands of children and their families were traumatized by their experiences at these schools. The bond between the children and their communities was often permanently broken, as the children were unable to survive in the traditional manner or even to communicate with their families when they were returned home, often years later.

102. The vehicles for this horrendous morphic process were the physical, psychological and sexual abuse that permeated many of these schools. The damage was severe and lingers today generation after generation. Residential schools indoctrinated Indigenous peoples with non-Indigenous religious, social,

and economic values and the current school system largely continues this indoctrination. There are few educational materials that reference traditional knowledge and purpose of traditional lifestyles. Children are taught about experiences familiar to urban non-Indigenous children – white picket fences, bus trips to the shopping centre, or playgrounds with swing sets. The Canadian Council on Learning (CCL) has identified a "cultural mismatch" between values held by Indigenous children and those of Western science taught in school, creating learning difficulties for Indigenous children and limiting their opportunities to pursue advanced education or employment (2007). As a result, Indigenous children can:

> *…learn Western science by adopting a Western science world view and abandoning or allowing the marginalization of their Aboriginal values and ways of knowing[;]*
>
> *…acquire enough surface knowledge of the material presented in science classes to achieve a passing grade without acquiring a meaningful understanding of the concepts—thus avoiding potential threats to their Aboriginal identity [; or]*
>
> *…avoid learning any science at all and accept the consequent failing grades and/or lack of participation in science education (CCL, 2007).*

103. In recent times, greater efforts are being made to develop curriculum more in tune with Indigenous peoples, but without the Indigenous peoples in full control of Indigenous education, training and decision-making processes these efforts are not as effective as they could be. A review of the literature on this issue by Dr. Marie Battiste, Director Aboriginal Education Research Centre, College of Education at the University of Saskatchewan revealed a nucleus of principles for Indigenous learning and education in Canada, which include:

> *• Aboriginal peoples view education as a vital area for holistic and lifelong learning and for transformation of their economic livelihood.*
> *• Learning is acknowledged as a lifelong process that requires both formal and informal opportunities for learning for all ages.*
> *• Land, the knowledge and skills in and from place, language and culture are integral parts of the learning and education process among Aboriginal people.*
> *• Aboriginal learning must be integrally linked to elders and community and opportunities realized to build upon these connections and their language, knowledge and culture.*
> *• Learning development must focus on Aboriginal individuals in a holistic manner based on their spiritual, intellectual, emotional and physical selves and acknowledge and foster their gifts and abilities.*
> *• Selecting and legitimating curricular knowledge are issues based on power, voice, and agency that require Aboriginal people to be participating in all aspects of curriculum development, deciding on the knowledge to be included in the curriculum, and in what languages the curriculum is be delivered. This requires new skills and knowledge to bring Aboriginal people into these participatory realms as well as power changes to systems in policy making.*
> *• The participation and involvement of parents and community is essential to building a successful learning continuum and healthy resilient communities.*
> *• The legitimate right of Aboriginal peoples across Canada to develop and control all aspects of their own education must be recognized, resourced, and realized.*
> *• Inequalities in educational funding create uneven capacities for Aboriginal people and require immediate fiscal and applied solutions.*
> *• The development of any learning and research activities with and for Aboriginal*

> *peoples must be developed within ethical principles of research involving Aboriginal communities and leadership. These are to ensure that Aboriginal peoples are invited as participants and owners of research, as well as researchers, who are involved in all aspects of the research, the analysis and conclusions, identifying the solutions and recommendations that they will benefit their nations and communities. (Battiste, 2005).*

104. Employment policies also continue to discriminate against Indigenous peoples. The bare facts of employment for Canada and the United States bear this out. For example, Canada reports 13.6% unemployment for Aboriginal peoples as compared to 5.3% for non-Aboriginal people in Canada (Statistics Canada, 2005). Particularly relevant is the bias in hiring practices in favour of higher levels of education. This creates a circular pattern of keeping Indigenous peoples out of decision-making positions, especially at high levels positions and in the education system, thereby undermining their ability to positively influence their circumstances.

3.4 National programmes for modernization through the development, transfer and adoption of new technologies

105. The impact of new technologies on Indigenous peoples has been profound. While the pace of technological change in the 20th century has been unprecedented, the rapidity of change for Indigenous peoples in North America in the past four centuries has been overwhelming. New technologies include instruments of war (guns, dynamite), transportation (the horse and then the railroad, cars, airplanes), energy (water mills, steam engine, internal combustion engine, nuclear power and hydro electric developments), agriculture and food production (iron pots and steel knives to combine harvesters and biogenetics), communication (printing press, radio, television, the Internet) and natural resource extraction (panning for gold to drilling for oil and gas). The impact on traditional knowledge is incalculable. Jerry Mander (1991) writes about the impact of technology on Indigenous peoples stating,

> *There is no way to understand the situation of Indians…or other native societies without understanding the outside societies that act upon them. And there is no way to understand the outside societies without understanding their relationships to native peoples and to nature itself. All things considered, it may be the central assumption of technological society that there is virtue in overpowering nature and native peoples. The Indian problem today, as it always has been, is directly related to the needs of technological societies to find and obtain remotely located resources, in order to fuel an incessant and intrinsic demand for growth and technological fulfillment. The process began in our country hundreds of years ago when we wanted land and gold. Today it continues because we want coal, oil, uranium, fish and more land. …So it becomes okay to humiliate – to find insignificant and thus subject to sacrifice – any way of life or way of thinking that stands in the way of a kind of "progress" we have invented, which is scarcely a century old. In fact, having assumed such superiority, it becomes more than acceptable for us to bulldoze nature and native societies…(Mander 1991:6-7)*

106. Not only has technological development in the hands of others had an impact on Indigenous peoples in North America, the new technologies in the hands of Indigenous peoples have changed the relationship between the Indigenous peoples and the world around them. The use of guns for hunting for example, while ensuring a more successful hunt, changes the relationship between the hunter and the hunted (Barnhardt and Kawagley, 2004).

107. Social relationships have also been affected.

I used to be a schoolteacher and when TV came to the villages I saw an immediate change. People lost interest in the native stories, legends and languages, which are really important because they each people how to live. And it's hurting the relationships between men and women too, and between young and old. We used to honour our old people and listen to them…but that's changing fast. TV makes it seem like the young people are all that's important and the old have nothing to say (Cindy Gilday, quoted in Mander, 1991).

108. Communication systems, including radio, television, and the Internet, are a double-edged sword. They have the capacity to facilitate exchange of information on, about and for Indigenous peoples, but most of the content is for and about the non-Indigenous community. Without control of production and distribution, Indigenous peoples find themselves without the power to express themselves and instead, for the most part, are passive recipients of a foreign culture. While there is burgeoning capacity in Indigenous communities, non-Indigenous content continues to dominate the airwaves.

109. The impact of reliance on fossil fuels and the resulting climate change is a clear example of the consequences of technological development on traditional knowledge as it relates to biodiversity. Indigenous peoples in North America have been noting changes in their landscapes for some years now, including warming trends, extreme weather events and shifts in the range of culturally significant species. These are particularly noticeable in the north and at high elevations. These changes, like any changes in the environment, impact on the ability of Indigenous peoples to pursue their traditional practices. Extensive research is required on the potential impact of climate change on Indigenous peoples, in particular on their traditional ways of life. Furthermore, because of the extensive knowledge of the landscapes held by Indigenous peoples, they must be involved in impacts research, both for their own benefit and for the benefit of the non-Indigenous population. More study is also required on the impact of climate change on traditional knowledge. Indigenous peoples are often the first to experience the impacts of environmental damage and can serve as both an early warning system, as well as helping others to prepare for the necessary responses to the impacts. This is a classic case where the retention of traditional knowledge will prove its value to the non-Indigenous community.

3.5 Identification of activities, actions, policies and legislative and administrative procedures that may discourage the respect for, preservation and maintenance of traditional biodiversity-related knowledge

110. It is not possible in these short few pages to outline all polices, legislation, practices, etc., that threaten the retention, preservation and application of traditional knowledge. This deserves a separate study on its own and it is recommended that such a study pursued by government and academics. However, it is possible to identify typical attitudes that form the basis of law or policy that threaten traditional knowledge and practice and. In addition, to provide examples of the impact of these attitudes, by way of general remarks on constitutional, economic and social law and policy.

111. The Royal Commission on Aboriginal Peoples in Canada identified four false assumptions that underlay government policy towards Indigenous peoples. While these were identified in the Canadian context they would apply equally across North America. They all generally stem from a lack of respect. The four false assumptions are:

1. Aboriginal people are inherently inferior and incapable of governing themselves;

2. Treaties and other agreements were, by and large, not covenants of trust and obligation but devices of statecraft, less expensive and more acceptable than armed conflict. Treaties were seen as a form of bureaucratic memorandum of understanding, to be acknowledged formally but ignored frequently. All four areas of policy or action ran roughshod over treaty obligations;

> *3. Wardship was appropriate for Aboriginal peoples. Hence actions deemed to be for their benefit could be taken without their consent or their involvement in design or implementation. In this respect, governments at all levels have failed their fiduciary duty to Indigenous peoples;*
>
> *4. Finally, concepts of development, whether for the individual or the community, could be defined by non-Aboriginal values alone. This assumption held whether progress was defined as Aboriginal people being civilized and assimilated or, in later times, as resource development and environmental exploitation.*
>
> *The fact that many of these notions are no longer formally acknowledged does not lessen their contemporary influence. (RCAP, 1996)*

3.5.1 Paternalistic policies

112. Paternalism is a dominant element of these assumptions. The non-Indigenous population overwhelmingly presumed that Indigenous peoples were incapable of managing their own affairs and therefore required supervision and management.

113. Métis affairs are addressed by the Interlocutor for Métis and Non-status Indians, a position first created in 1985 following formal recognition of Métis and Non-status Indians in the federal constitution for the first time in 1982. As of 2006, the Minister of Indian and Northern Affairs holds the position of Federal Interlocutor. As a result of their isolation relative to European habitation in the south, the Inuit were spared the full onslaught of colonialism until the mid-20th century. The resulting cultural clash was therefore more extreme. Nevertheless, the Inuit are now completely self-governing under a series of land claim and self-government agreements, perhaps evidence of changing attitudes towards Indigenous peoples. The Inuit still rely heavily on federal finances for their support, however, which imposes limits on their sovereignty.

114. The *Indian Act* adopted in its first iteration in the 1870's governs the management of most Indian affairs. Some First Nations have been successful in negotiating land claim and self-government agreements, but the majority continue to be governed by this same legislation over one hundred and twenty years later. The Minister of Indian and Northern Affairs who administers the Act has the power to decide who qualifies as an Indian, the size of reserves, what activities may occur on reserve, where the children will go to school, the distribution of estates, and so on. In fact, virtually every facet of First Nations peoples' lives from birth to death is managed by the Minister of Indian and Northern Affairs under the authority of the *Indian Act*. The First Nations are granted extremely limited governing powers to issue by-laws, all of which must be approved by the Minister. These by-law making powers are strictly limited, including such matters as the regulation of bee-keeping, control of noxious weeds, construction of ditches, and the regulation of traffic. More recently, band councils have been given the power to collect taxes on immovable property on reserve.

115. In the United States, the Bureau of Indian Affairs is the equivalent of the Canadian Department of Indian and Northern Affairs. The restrictions on Indigenous peoples in the U.S. were similar to those imposed in Canada.

> *Since the Indians were ignorant of money and its use, had little or no sense of values, and fell an easy victim to any white man who wanted to take away their property, the government, through its Indian Service employees, often took the easiest course of managing all the Indians' property for them. The government kept the Indians' money for them at the agency. When the Indians wanted something they would go to the government agent, as a child would go to his parents, and ask for it. The government agent would make all the decisions, and in many instances would*

either buy the thing requested or give the Indians a store order for it. Although money was sometimes given the Indians, the general belief was that the Indians could not be trusted to spend the money for the purpose agreed upon with the agent, and therefore they must not be given opportunity to misapply it (Meriam Report, 1928).

116. In both Canada and the United States there are signs, including recognition of self-government in some spheres, that the federal administrators are prepared to loosen their grip on the management of Indigenous affairs. Even in these situations, however, the purse is still firmly in government hands, thus allowing them to maintain substantial control.

117. As has been described above, the loss of the ability to be self-governing has stolen the opportunity to pursue traditional ways of life and to practice and conserve the traditional knowledge. Without the authority to manage their own affairs, Indigenous peoples remain wards of the state and are unable to create governing structures that reflect their cultural identity, including their traditional teachings as they relate to the relationship with the land. The restriction on their capacity to exercise their traditional knowledge in turn undermines their capacity to conserve and protect biodiversity.

118. As unfortunate as the paternalistic attitude is in and of itself, the governments showed themselves to be neglectful, reluctant, and at times outright fraudulent in the exercise of their fiduciary duty. This is particularly true with respect to the implementation of the treaties. Indigenous peoples signed treaties as sovereign nations with the colonial governments. These treaties, in exchange for land or for peace and friendship, guaranteed access to education, health services and resources. Most of these treaties have been breached more than honoured. This is not simply historical record but an ongoing course of action. The Nunavut government and Nunavut Tunngavik Incorporated complained to the Federal Court in 2004 that the government had breached their 1993 land claim agreement by granting over one half of the quota for shrimp to non-Nunavut interests. The agreement stipulates that special consideration must be given to the fact that northern shrimp lie off the shore of Nunavut and to the importance of the industry to the territory's economic well-being (CBC, 2004).

3.5.2 Breaches of the Crown’s Fiduciary Duty

119. Governments have also been keen to divest themselves of their fiduciary responsibility to Indigenous peoples, one means of doing so being to simply refuse to recognize people as being Indigenous. Examples of this policy include the 1917 "Declaration of Policy" issued by the American Bureau of Indian Affairs severing its responsibility to Indians deemed competent to manage their own affairs. Those with less than one-half native ancestry, or those holding high school diplomas were deemed competent. In the 1940’s and 1950’s the American federal government further unilaterally divested itself of responsibility for over one hundred Tribes. Many of these Tribes continue to fight for federal recognition. In Canada, the *Indian Act* stipulates who qualifies as a “status Indian”. Despite amendments to the legislation to reinstate women who had married non-aboriginal men and their children, the current legislation continues to discriminate based on blood quantum, leading to the potential that by 2050 no First Nations will qualify for status. The Métis, an officially recognized group of Indigenous peoples in Canada, have had little land, financial support, or recognition of their Aboriginal rights. Only recently has there been real movement, with the Supreme Court of Canada decision in *R.* v. *Powley*, [2003] 2 S.C.R. 207 which set a precedent in awarding hunting rights to those of Métis heritage living in Sault Ste Marie, Ontario. This case, though local, will have a broad impact on Métis rights across Canada. Much work is required to realize the full implementation of this decision.

120. Repeated breaches of the government’s fiduciary duty have cost Indigenous peoples land, opportunity, income, and trust. Restoring the rightful property of Indigenous peoples has often required litigation, with the only court of appeal being to the State – the fiduciary body itself. Many of these

battles have yet to be concluded, some of them worth billions of dollars and the territories concerned may cover thousands of square kilometres. Despite the difficulties of receiving compensation for breached duties, however, the greatest challenge to us all will be in restoring the trust. Indigenous peoples invariably distrust government officials and are reluctant at times to even speak in front of them.

121. The impact this has on the retention of traditional knowledge takes many forms. The breach of the fiduciary duty has undermined the ability of the Indigenous peoples to exercise their traditions. Much of the original territories are gone, their natural resources are vanishing, and many Indigenous peoples are destitute. Those individuals and communities who are faring better are often preoccupied with lobbying, litigation and negotiations. They are so caught up fighting for their rights that they are unable to enjoy that which they are struggling to preserve. But the lack of trust between government and most Indigenous communities has undermined the ability of the non-Indigenous and Indigenous communities to move forward in true reconciliation and understanding. Without trust, the Indigenous peoples are not prepared to share their traditional knowledge for fear of further abuse including ridicule, dismissal, misuse and even theft of their intellectual property. The Parties to the CBD are in the process of developing an international regime on access to and sharing benefits arising from genetic resources and associated traditional knowledge. This is intended, in part, to assist with the retention and utilization of traditional knowledge. However, without the trust generated from respect and based in experience, there can be no agreement. Furthermore, Indigenous peoples have expressed concern that an international regime for access and benefit-sharing of genetic resources cannot be negotiated with the participation of Indigenous peoples until traditional knowledge is protected.

3.5.3 Assimilationist policies

122. Hand in hand with paternalism and the failure to fulfill the fiduciary duty is assimilation. The purpose of assimilation policies was to more easily absorb the Indigenous peoples into mainstream society. "The fundamental requirement is that the task of the Indian Service be recognized as primarily educational, in the broadest sense of that word, and that it be made an efficient educational agency, devoting its main energies to the social and economic advancement of the Indians, *so that they may be absorbed into the prevailing civilization or be fitted to live in the presence of that civilization at least in accordance with a minimum standard of health and decency* (Meriam Report, 1928) (emphasis added).

123. Although assimilation policies have officially become a thing of the past, assimilationist attitudes continue to find a home in the Canadian and American political and popular culture. For example, the Conservative Party of Canada, which currently holds power under the leadership of Stephen Harper speaks of the need to ensure that Indigenous peoples are treated equally with non-Indigenous people under the *Constitution of Canada, 1982*. A laudable notion until one examines it more closely. Under section 35 of the Constitution, Indigenous peoples are accorded Aboriginal and treaty rights. These rights are deemed to be extraordinary rights to those enjoyed by non-Aboriginal people. However, the Conservative Party holds that the implementation of section 35 rights "must be conferred within the four square corners of the Constitution Act and the Charter, with full protection for equality rights, such as women's rights, for both aboriginal and non-aboriginal Canadians" (Conservative Party, 2005). The section intended to provide for recognition of special rights, would be read down by the Conservative Party to only accord such rights to Indigenous peoples as would be accorded to any people in Canada, thereby nullifying the intent of the legislation. Although couched in reasonable terms of "equality for all", the plain truth is that while Indigenous peoples hold the same rights as non-Indigenous peoples, they also hold an additional basket of rights as defined in section 35 of the Constitution. According Indigenous peoples only such rights as non-Indigenous people hold in Canada undermines the capacity and will of the Canadian state to recognize and respond to the rights contained in section 35. This may include policies, programs, and legislation that would facilitate the retention of traditional knowledge, for example through implementation of the treaties.

124. The resolve of the Conservative Party was expressed in the summer of 2006, when Prime Minister Harper, in a letter to the *Calgary Herald,* voiced his intention to put an end to the "race-based' fishery, heightening racial tensions on the west coast (O'Neil, 2006). The Assembly of First Nations protested this interpretation, noting that the Aboriginal fishery is rights based, not "race-based" AFN National Chief Phil Fontaine stated: "It is one thing to try and deny a right exists. But if we take the Prime Minister at his word he is actively trying to take away a right that is recognized in Canada's Constitution and by the Supreme Court of Canada. This should be of concern to all Canadians, not just First Nations." (Assembly of First Nations, 2006).

3.5.4 Religious and moral conversion

125. Moral superiority, particularly that arising from religious doctrine, has also been a key element of many colonialist policies. The Indigenous peoples were not Christians at contact and pursued practices that were considered morally repugnant to most non-Indigenous people. A profound sense of righteousness has been a constant element of government policy.

> *Let us have Christianity and civilization among the Indian tribes...let us have a wise and paternal government...doing its utmost to help and elevate the Indian population, who have been cast upon our care...and Canada will be enabled to feel, that in a truly patriotic spirit, our country has done its duty to the red men… (*quoted in *RCAP, 1996)*

126. While the role of organized religions in undermining traditional knowledge will be expanded upon below, it is also important to note that government law and policy often sprang from Christian religious doctrine. This manifested itself in the efforts to extinguish Indigenous spiritual practices. In both Canada and the United States, it was illegal to practice traditional ceremonies. The American *Indian Religious Freedom Act* of 1978 granted to Indigenous peoples of the United States freedom of religion that had been enjoyed by the non-Indigenous population since the adoption of the American *Bill of Rights* in 1791, almost two hundred years earlier.

127. Both countries have adopted legislation and administration systems that deprive Indigenous peoples of the right to govern themselves. Governments have failed, and in large part continue to fail, to include Indigenous peoples in decision-making processes. There has been little consultation with Indigenous peoples on matters which involve them, including those that are at the very core of their identities. As such, Indigenous peoples have found themselves at the mercy of foreign ideologies, with paternalistic guardians who are ironically delinquent in caring for the very wards they have created. Blinded to the negative impact of their policies, non-Indigenous governments often blame the victims for their situation, finding Indigenous poverty, social dysfunction, cultural decline, and occasional flares of violence at the injustice to be the fault of Indigenous peoples, thereby justifying further interference by colonialist governments.

128. Over the intervening years since contact, Indigenous peoples of North America have been denied the right to practice traditional religions and medicine, to attend university, to vote, to hold property, to sell the products of their labour, to wear traditional dress, to eat traditional foods, to speak Indigenous languages, to live where they choose, to travel and associate freely, or to even hire a lawyer to bring their grievances to court. All these prohibitions have had the cumulative effect of undermining respect for Indigenous peoples, denigrating their lifestyle and perspectives, and denying them opportunity for self-expression. Though both governments seized authority over Indigenous peoples, they have demonstrated an appalling lack of will to exercise that authority in a manner that truly benefits Indigenous peoples. They have demonstrated an equivalent lack of will to share power and to recognize the inherent right of Indigenous peoples to be self-governing.

129. Government policies, procedures and legislation have had the cumulative effect of undermining respect for traditional Indigenous knowledge not only within the non-Indigenous community, but within Indigenous society as well. Internalizing racism and foreign ideology manifests in a low sense of self-worth and despair (Chandler, 2005).

130. This report has reviewed the major reasons for the decline of traditional knowledge, innovation and practice. However, the constraints of the report do not permit the level of detail necessary to understand the issues fully and identify responses to the decline of traditional knowledge in North America. It is recommended that States produce a more detailed review of the causes of decline of traditional knowledge, with the full and effective participation of Indigenous peoples. Such a review would complement the final Composite Report, in determining the most destructive activities and finding the most promising solutions in particular circumstances of each country and community.

4. Identification of processes at the local community level that may threaten the maintenance, preservation and application of traditional knowledge

4.1 Territorial factors and factors affecting communal lands

131. The *Dawes (Allotment) Act* of 1887 was a deliberate effort to break communal holding of lands by Indigenous peoples in the United States. Under the Act, lands were allocated back to Indian people who were required to apply for a parcel. Land that was not applied for defaulted to the control of the United States Government. This land was invariably leased or sold to non-Indigenous people. The land allotment legislation was pursued in an effort to "civilize" the natives according to colonial ideology. The rhetoric of the time is telling in this regard.

> *To bring [the Indians] out of savagery into citizenship…we need to awaken in him wants. In his dull savagery, he must be touched by the wings of the divine angel of discontent…Discontent with the teepee and the Indian camp…is needed to get the Indian out of the blanket and into trousers – and trousers with a pocket in them, and with a pocket that aches to be filled with dollars!*
>
> *Here is an immense moral training that comes from the use of property. Like a little child who learns the true delight of giving away only by first earning and possessing what it gives, the Indian must learn that he has no right to give until he has earned, and that he has no right to eat until he has worked for his bread. Our teachers upon the reservations know that frequently their lessons…are effaced and counteracted by the [Indians] old communal instincts and customs…We have found it necessary, as one of the first steps in developing a stronger personality in the Indian, to make him responsible for property. Even if he learns its value only by losing it, and going without it until he works for more, the educational program has begun (Dr. Merrill E. Gates, president of Amherst College quoted in Mander, 1991: 275-276).*

132. Senator Dawes held similar views, advancing the legislation as a means of creating selfishness.

> *The head chief [of the Cherokees] told us that there was not a family in that whole nation that had not a home of its own. There was not a pauper in the nation, and the nation did not own a dollar…Yet the defect of the system is apparent. They [the Indians] have got as far as they can go, because they own no land in common…There is no enterprise to make your home any better than that of your neighbor's. There is no selfishness, which is at the bottom of civilization. Until this people consent to give up their lands and divide them among their citizens so that each can own the land he cultivates, they will not make much progress (Mander, 1991: 276).*

133. Once the land was divided, much of it was lost by Indigenous peoples by way of fraud perpetrated by the non-Indigenous population. The *Allotment Act* was the legislative vehicle used by the United States Government to obtain approximately 90 percent of the Indian land base in the United States.

134. In Hawaii the "Great Mahele" of 1848 had a similar effect. The islands were divided into three parts: land for chiefs and aides, land for kings and their heirs, and land for the Hawaiian Government. A new law in 1850 allowed commoners to claim private property. Only 1 percent of the total land mass of Hawaii was claimed, the rest was taken up by non-native Hawaiians, particularly missionaries. In 1887 the *Reciprocity Treaty* between the Hawaiian government and the United States acknowledged Indigenous Hawaiian control of government and lands, gave non-Indigenous sugar plantation owners freedom from sugar export tarrifs and gave the United States ownership of Pearl Harbour. An army mustered by the plantation owners coerced the replacement of the Hawaiian constitution with one that permitted only large property owners the right to vote. By this point in time the non-Indigenous population held most of the land. In 1898, following an attempt by Queen Liliuokalani to reassert sovereignty, the plantation owners supported by American troops forcibly deposed the monarchy and the islands were annexed by the Americans. In only fifty years the Hawaiians had lost their lands to foreign control (Mander, 1991).

135. It has not only been land loss that has proven problematic for the retention of traditional knowledge, but conflicting concepts of land ownership and the imposition of foreign land tenure systems that have compounded the problem.

> *For the Ojibways from Wabigoon, the notion of 'owning' manomin [wild rice] fields is more than just alien; it is offensive in the deepest cultural and spiritual sense…This is because the Ojibway people of Wabigoon do not see themselves 'controlling' manomin as a 'resource'; rather , they conceive of themselves in relation to 'it' in a kindred way…Ojibway people must now exist in a 'land use' context where the Government of Ontario has imposed its authority over most of the 'resources' of their ancestral lands (Chapeskie, 1999).*

136. As noted previously, alienation from the land interrupts the practice of traditions. The loss of the connection to the land is the beginning of the end of traditional knowledge. The World Council of Indigenous Peoples in 1981 summed it up: "An Indian without land is a dead Indian" (Brody, 1990:123).

137. In Canada and the United States, Reserve lands or Reservation lands are held by the federal government in trust for status Indians. The statutes (ie. Canada's *Indian Act*, or the American *Indian Reorganization Act*) and bureaucracy surrounding the use of these lands have traditionally been, and continue to be, a significant barrier to self-determination, access to capital, economic development and retention and use of traditional knowledge. One of the ways it does this is by restricting an individual or a community from using their land or resources as security to obtain capital in order to develop a sustainable economy in culturally appropriate ways. Legislative restrictions effectively mean that Indigenous communities remain dependent on either government assistance, or on non-Indigenous investors who generally develop businesses that are founded on dominant hegemonic practices. With no regard for traditional practices, economic development is more often than not culturally inappropriate (in terms of business structure, management structure or the products or services offered). Faced with poverty as a looming option, this dependency undermines a people's ability to protect and practice their traditional knowledge. Furthermore, the lengthy and expensive bureaucratic processes required to develop Indian lands, as required by statutes, stifles economic development. For example, the micromanagement by Indian and Northern Affairs Canada results in the simplest application for a mortgage or a leasehold taking over a year to process. This discourages Indigenous communities and possible investors, further limiting the development of prosperous and innovative communities that adapt

their traditional knowledge to modern economies, and certainly sustainable or culturally appropriate forms of economic development.

4.2 Cultural factors

138. As noted earlier non-Indigenous governments and religious institutions imposed restrictions on the practice of traditional customs including dress, religion, and language. Education systems were particularly intrusive, depriving Indigenous children of access to their families and culture. Indigenous peoples have been taught for centuries, directly and obliquely that they are worthless, their knowledge inferior, their customs laughable or unholy.

139. The process of assimilation and internalization of racist attitudes have produced a deep wound in Indigenous cultures (LaRocque, 1994; Anti-Racism Research Team, 2004). There are many stories told by Indigenous peoples of parents hiding the truth of their heritage from their children and distancing themselves from identifying with their own culture in an effort to shield them from abuse. The psychological need for acceptance is very strong in humans, and so, in an effort to blend-in, Indigenous peoples in North America have adopted many customs of the non-Indigenous population, replacing their traditional ways with those of the non-Indigenous community.

140. The overwhelming impact of colonialism on the landscape of North America has dulled the impact of traditional Indigenous customs. Most businesses are owned by non-Indigenous peoples, most law is made by non-Indigenous politicians and judges, most media production such as radio and television are about non-Indigenous peoples, most theatres, art galleries, and clubs showcase non-Indigenous talent, most books are written by non-Indigenous authors about non-Indigenous people and issues. In the capitals of both Canada and the United States, one would be hard pressed to find much evidence of the original Indigenous inhabitants of the area.

141. The intervening years of cultural disruption and loss of Elders and their personal and communal knowledge creates gaps in the knowledge about particular practices. Some Indigenous peoples knew how to prepare poisonous foods so that they were safe to eat (Hearst Museum, 2003). As this knowledge was shared less frequently with successive generations, people became reluctant to eat those traditional foods. The Pomo of the Southwest United States who used a local acorn for a staple food, had a technique for removing the poison tannin from the nut. While there are no doubt other reasons for the decline of acorn consumption among the Pomo, the lack of knowledge or practice of preparing this food is no doubt partly to blame.

4.3 Economic factors (including the relationship between poverty and ecosystem stress)

> *The income of the typical Indian family is low and the earned income extremely low. From the standpoint of the white man, the typical Indian is not industrious, nor is he an effective worker when he does work. Much of his activity is expended in lines which produce a relatively small return either in goods or money…The number of Indians who are supporting themselves through their own efforts, according to what a white man would regard as the minimum standard of health and decency, is extremely small. What little they secure from their own efforts or from other sources is rarely effectively used (Meriam Report, 1928).*

142. The primary impact of economic factors on traditional knowledge is an undermining of the capacity of Indigenous peoples to survive and thrive within their traditional subsistence economies. In most cases in North America, this is no longer possible. The traditional economy, based in most part on small scale farming or hunting and gathering has been completely destabilized by increasing development, disruption or extinction of traditional food sources, restrictions on access to traditional

lands and resources, and damage to the ecosystem. The consequences of this are evident over successive Indigenous communities over the centuries. Most recently we see this in the impact of oil development on the Lubicon Cree.

> *Until the oil invasion, the Cree had maintained a life of self-sufficiency by hunting and trapping. Only 10 percent of the band members were on welfare. But in the early 1980's, as the oil companies roared into the Lubicon land, the native economy went into a steep decline. The Cree had taken an average of two hundred moose each year before the oil development, but they could only find three in 1984. The total value of hunting and trapping fell to one-tenth of its traditional levels. By the mid-1980's, an estimated 90 percent of the band members were dependent on welfare (York, 1990).*

143. Some Indigenous peoples continue to pursue their traditional practices to the extent possible to supplement their income. As noted in phase one of this report, hunting and fishing are still pursued in many communities as a daily activity or periodic visits to the bush. However, few can rely fully on the land for all their needs. Welfare and employment in the mainstream economy supplement, or have completely replaced, traditional pursuits of economic sustenance. This limits opportunities for Indigenous peoples to keep their traditions alive and relevant in today's world.

144. Often, traditional Indigenous economies are discounted or entirely ignored by the non-Indigenous inhabitants (Tobias, 1993). It has long been presumed by non-Indigenous peoples that Indigenous peoples do not make use of the land, for the non-Indigenous people do not see evidence through their own cultural lens that the land is being put to good use. The *Mitchikabibikok Inik* (Algonquins of Barriere Lake) in the early 1990's had only 23 of 450 people in the community with full time employment. However,

> *[t]he 90% unemployment rate is offset by reliance on the traditional economy… in a given year, the land provided the community with 60,000 kgs of edible meat (780 kgs per household and 130 kgs per person). On average each household harvested meat at a value of $6,623. Families burned an average of 10.5 face cords of wood, which gives a fuel value of $48,000. In addition, non-meat resources from the bush added at least $845 per household. The estimated value of goods taken by the Algonquin economy was $575,245 a year from the land base. (Algonquin of Barriere Lake, 2001).*

145. Failure by others to identify existing land use undermines the ability of Indigenous peoples to continue to pursue their traditional economies and thus keep the traditional knowledge active, vibrant and relevant.

146. Beyond this, current economic paradigms further undermine the retention, practice, protection and conservation of traditional knowledge. Modern economic theory and practice promotes unlimited growth demanding ever increasing returns on investments. Over-consumption and development are promoted over sustainability. Economic development, constant growth, and conspicuous consumption are promoted, increasingly to the detriment of the balance of natural life systems. This is contrary to Indigenous peoples' traditional perspectives. Living in a sustainable fashion on the land was synonymous with respect for the land. Indigenous peoples relied on the land for their own well being, and understood the importance of living within the capacity of the land. Non-Indigenous populations, for the most part, viewed and continue to view the natural world as uncivilized and needing to be conquered. Modern commercial demands have dislodged Indigenous peoples, undermined traditional economies, and damaged environmental systems on which traditional economies relied. The Indigenous peoples have been left with few options to becoming likewise engaged in the modern economic system. Adaptation to survive in the modern world has meant sacrificing the very traditions that could ensure the long term survival of all.

4.4 Social factors (including demographic, gender and familial factors)

147. Social factors that lead to diminution of traditional knowledge find their roots in economic, cultural and governance causes discussed above. Social upheaval and dysfunction resulting from cultural denigration, loss of self-government, diminished self-esteem, and displacement from the land in turn can spur greater deprecation of traditional knowledge.

148. In 1963 and 1964, Manitoba Hydro flooded 2,200 square kilometers of land. Prior to the flooding "crime and vandalism were practically non-existent…The community prior to the flooding had no marked social problems, but rather a high degree of coherence" (York, 1990). The Indigenous communities affected received $10,000 (Canadian) in cash for compensation for the loss of their territory and economies. Today, largely as a result of the flooding,

> *[t]here's a very hostile attitude in the community. Our young people are always beating each other up. My people don't know who the hell they are. They live month to month, on welfare…Our way of life and our resource base has been destroyed. We were promised benefits from the hydro project. Today we are poor and Manitoba Hydro is rich. The crime and violence, that gang warfare, are the price we pay for Hydro's vision of progress (York, 1990).*

149. Indigenous peoples in North America experience greater social stresses than the majority population. This includes higher incarceration rates and for longer periods (Correctional Service Canada, 2007; American Indian Policy Centre, 2007), in Canada higher suicide rates (Health Canada, 2007; National Centre for Injury Prevention and Control, 2007), higher rates of death from violence including domestic violence (First Nations Chiefs Health Committee and British Colombia Ministry of Health Planning, undated; National Centre for Injury Prevention and Control, 2007), and higher rates of drug addiction and alcoholism (First Nations Chiefs Health Committee and British Colombia Ministry of Health Planning, undated; Office of National Drug Control Policy; 2001). Individuals dealing with these stresses are sidetracked from the normal exercise of their traditions. The longer this state, absent of traditional practice, continues the more difficult it is to gain a sense of normalcy.

150. In some cases emotional stress spurs greater attention to the traditions. In others, however, emotional stress is compounded by memories of shame associated with the practice of the traditions and so the traditional practices offer no comfort in times of need.

4.5 Constraints on the exercise of customary laws relevant to the management, conservation and sustainable use of biological diversity

151. Indigenous peoples in North America and Hawaii were wholly self-governing at contact. They had highly complex governing systems including systems of justice and decision-making. These were not lawless societies, but structured, orderly, and productive. In fact, the United States constitutional system is based largely on the system of government operated by the Iroquois Confederacy. Even the symbol of the United States, the eagle, was borrowed from the Indigenous community. Indigenous peoples, living within the constraints of their local geography, are acutely aware of the limitations of the supply of food and other necessities. Highly specialized governance and decision-making systems were in place to ensure that a harmonious balance was maintained, facilitating the well being of the people and the ecosystem on which they relied. There were restrictions on taking too much or wasting what was taken, and regulation on when and where hunting or gathering was to take place (Berkes, Colding, & Folke, 2000).

152. Concurrently with the denigration of Indigenous cultures, restrictions on the rights of Indigenous peoples to exercise self-government increased. Limitations to basic rights have affected the right to association, freedom of travel, rights to hunt for particular species or in particular areas, and rights to participate in economic, social, or cultural activities (RCAP, 1996).

153. Most critical, however, was the restriction on the right to participate in decision-making. As wards of the state, Indigenous peoples in both the United States and Canada were denied the right to make decisions for themselves, and their counsel was ignored or shut out from decisions made by non-Indigenous decision-makers. As wards of the State, their rights were reduced to those accorded under the law to children or the mentally insane. The State assumed the fiduciary duty of making decisions on their behalf (RCAP, 1996; Ryser, 1995).

154. The restriction on decision-making authority has undermined the retention of traditional knowledge in relation to biological diversity. The advice of Indigenous peoples to change this perspective, to reverse environmental destruction, has often fallen on deaf ears.

4.6 Lack of capacity to manage contemporary threats to biological diversity resulting from development, over-use and socio-economic pressures generated outside the community

155. The restrictions on Indigenous peoples in North America have left them lacking financial, human, research and infrastructure capacity. Working from a weakened base, makes it challenging to hire expertise on complex issues or to adequately engage on issues such as resource development in their territories, respond to environmental contamination, or assist with culturally appropriate and sustainable development. Issues of concern to Indigenous peoples are rarely topics of research in mainstream academia, and even with strategic information, financial support to purchase necessary equipment or build and maintain infrastructure is limited. Indigenous owned and operated laboratories undertaking environment related testing are rare, and few Indigenous communities have the financial capacity to pay laboratory fees for independent testing. There are few Indigenous doctors, laboratory technicians or environmental researchers and many of those who achieve successful careers find it necessary to work for non-Indigenous organizations to earn a living. There are few research centres dedicated to Indigenous peoples issues, limited funding available to support Indigenous environmental research and little ability to disseminate the results of the research or to ensure that the research is having a positive impact on policy.

156. Indigenous peoples rarely have the capacity to respond on their own to environmental degradation that threatens biological diversity. The majority have no means to clean up oil spills, little training to manage toxic compounds safely, no equipment to clear a streambed blocked with mining rubble, and no financial resources to hire people to replant trees. Without the capacity to monitor the environment or changes in the environment Indigenous peoples are stymied in their efforts to raise alarms about environmental concerns or to have their concerns taken seriously. Without financial and human resources or the necessary equipment they are limited in the responses they can undertake on their own.

157. The lack of capacity to undertake research, conduct laboratory studies, or environmental monitoring and testing is premised on the demand of mainstream non-Indigenous society that Indigenous peoples present their concerns in the scientific language of the dominant society. Words of the Elders, who have seen environmental changes first hand, and who also carry longitudinal knowledge passed on over generations about the land, are deemed inadequate and usually dismissed by those trained in the European scientific paradigm.

> *When the dams went up, and later as the state [of Oregon] sent a parade of biologists to the stand in U.S. vs. Oregon, the Indians realized they needed their own experts who relied not on traditional Indian wisdom but on facts and figures that would hold up in court (Winthrop, 1999).*

158. Again, presumptions of superiority influence perspective, based on dominant hegemonic ideology.

4.7 The impact of HIV-AIDS on the maintenance of traditional knowledge systems

159. The HIV/AIDS epidemic is only the most recent epidemic affecting Indigenous peoples in North America. Before AIDS it was small pox, influenza, measles, polio, and tuberculosis. Millions of Indigenous peoples have already died from these diseases. Much damage was done long before HIV/AIDS.

> *Before contact the Abenaki …may have numbered as many as 40,000 divided roughly between 20,000 eastern; 10,000 western; and 10,000 maritime. Due to early contacts with European fishermen, at least two major epidemics hit the Abenaki during the 1500s: an unknown sickness sometime between 1564 and 1570; and typhus in 1586. The major blow came in the decade just prior to English settlement of Massachusetts in 1620, when three separate epidemics swept across New England and the Canadian Maritimes. Maine was hit very hard during 1617 (75% mortality), and the population of the eastern Abenaki fell to about 5,000. The western Abenaki were more isolated and suffered relatively less, losing perhaps half of their original population. The new diseases continued to take their toll:*
>
> *smallpox 1631, 1633, and 1639;*
> *unknown epidemic 1646;*
> *influenza 1647;*
> *smallpox 1649;*
> *diphtheria 1659;*
> *smallpox 1670;*
> *influenza 1675;*
> *smallpox 1677 and 1679;*
> *smallpox and measles 1687;*
> *and smallpox 1691, 1729, 1733, 1755, and 1758.*
>
> *The Abenaki population continued to decline, but after 1676 they absorbed thousands of refugees from southern New England displaced by settlement and the King Philip's War… After another century of war and disease, there were less than 1,000 Abenaki remaining after the American Revolution. The population has currently recovered to almost 12,000 on both sides of the border. (Sultzman, 2004)*

160. The toll on the population was matched by the toll on the traditional knowledge of the people. Depopulation of North America from disease facilitated western expansion by the non-Indigenous population further undermining the capacity of the survivors to sustain themselves and their traditions.

161. Today, Indigenous peoples in North America continue to suffer high rates of disease and illness. They have lower life expectancies, particularly those living on reserves, and have higher rates of diabetes, tuberculosis, HIV-AIDS, and oral, visual or mobility impairments (INAC, 2000; Health Canada, 2000; Health Canada, 2007; National Centre for Injury Prevention and Control, 2007; First Nations Chiefs Health Committee and British Colombia Ministry of Health Planning, undated;). Suicide, drug, solvent and alcohol abuse, physical and sexual abuse, and violence are also more prevalent in Indigenous communities (First Nations Chiefs Health Committee and British Colombia Ministry of Health Planning, undated; National Centre for Injury Prevention and Control, 2007; Office of National Drug Control Policy; 2001; Health Canada, 2000). This obviously has a negative impact on the individual and collective capacity to exercise traditional knowledge.

162. The HIV/AIDS epidemic is of particular concern.

> *Unlike the AIDS epidemic in the Canadian population as a whole, where the cumulative number of AIDS cases has stabilized, the HIV/AIDS cases among Aboriginal peoples have increased steadily over the past decade. This trend is most worrisome in recent studies of HIV infections where Aboriginal people, who make up only 5% of the total population in Canada, represent 16% of the new HIV infections. Of these, 45% are women and 40% are under 30 years old.*
>
> *The increase can be attributed in part to the fact that Aboriginal people are over represented in high-risk groups such as injection drug users and prison inmates. Because of the high mobility of many Aboriginal people, the HIV risk found in the inner city can be transferred to even remote Aboriginal communities (Health Canada, 2000).*

163. But sickness and ill health are also the result of the inability to exercise traditional knowledge, thereby forming a vicious circle. Much of the poor health in Indigenous communities is attributable to poverty and despair from a general lack of capacity to influence their own environment. As discussed earlier, suicide rates, for example, are directly related to the lack of self-government. Cultural match, including the opportunity to exercise one's traditional knowledge is critical to the success of Indigenous governments. Without recognition of the value of Indigenous knowledge and willingness to divest itself of power by the dominant non-Indigenous community, Indigenous peoples the consequences of lack of self-determination, including poor health and premature death, will continue.

4.8. Impact of organized religions on traditional knowledge and practices

164. The impact of organized religion is a sensitive subject. Religious evangelicals and missionaries were active since the early days of contact and some Indigenous peoples have converted to other faiths. In some instances, this may impact the retention of traditional knowledge and practices, particularly those related to spirituality. Other traditional knowledge, for example fishing techniques, would not be affected by religious practice. This is a subject matter that requires further study; it is not possible to offer a definitive answer here.

165. That said, from time to time, particular religious groups or individuals have had a profoundly negative impact on Indigenous peoples, including the retention of traditional knowledge. Churches, like other elements of a society, reflect the public perceptions of the day. As such, churches have shared, with other powerful institutions in the colonization of North America, in the abuse of Indigenous peoples (United Church of Canada, 1998). There is evidence of a negative stereotype of Indigenous peoples that has been prevalent in the non-Indigenous societies. The churches did not differ.

> *Mormonism teaches, among other things, that dark skin is a punishment from God. The <u>Book of Mormon</u> says "…after they [the Indians] had dwindled in unbelief, they became dark, and loathsome, and a filthy people, full of idleness and all manner of abominations." If Indians accept the Mormon church, however, "…many generations shall not pass away among them, save that they shall be as white and delightsome people." (Mander, 1991:274-275)*

166. The moral superiority this displays underpins much of the religious institutions' dogmatic efforts to rid Indigenous peoples of their "superstitions" and to "civilize" them to the ways of the Europeans. The religious orders in Canada ran the residential schools and the early child welfare programs that were responsible for the deplorable treatment of the children that came into contact with these programs. The Government of Canada supported and encouraged the religious orders to pursue "aggressive civilization", following the example supplied by the Carlisle Indian Industrial School in Pennsylvania. "...Indian

culture is a contradiction in terms...they are uncivilized...the aim of education is to destroy the Indian" (Davin Report, 1879).

> *For twelve years I was taught to love my neighbour – especially if he was white – but to hate myself…I was made to feel untrustworthy, inferior, incapable and immoral. The barbarian in me, I was told, had to be destroyed if I was to be saved. I was taught to feel nothing but the shame for my 'pagan savage ancestors' … When I had been stripped of all pride, self-respect and self-confidence, I was told to make something of myself… (Jane Willis in York, 1990).*

167. The churches, in promoting negative images of the Indigenous peoples, both to the non-Indigenous society and to the Indigenous peoples themselves, undermined respect for Indigenous peoples and devalued the spiritual elements of their traditional knowledge, many of which are central to the relationship with the land and the protection of biological diversity.

168. The lack of respect for traditional spiritual practices also helped to facilitate the non-Indigenous hegemony and further undermine the capacity of Indigenous peoples to pursue their traditions. The San Carlos Apache lost their battle against the Vatican to stop construction of an observatory on *Dzil nchaa si an*. According to a Tribal Council Resolution, the mountain is "of vital importance for maintaining the integrety' of cultural traditions". Reverend George Coyne, Director of the Vatican Observatory countered that "We are not convinced…that Mt. Graham possesses a sacred character which precludes responsible and legitimate use of the land…there is to the best of our knowledge no religious or cultural significance to the specific observatory site" (Martin, 1993). The only way that the Apache could hope to win this argument is if they could use the religious perspective and arguments of the Vatican to reverse two thousand years of Christian religious dogma.

5. Conclusion

169. The challenges in promoting the retention of traditional knowledge are myriad and many are deeply embedded in societal and economic structures imposed on North America. The collective impact of these structures on the environment, in particular, has substantially and perhaps irreparably dictated the decline of traditional knowledge. Finding ways and means, as well as the will, to reverse this trend is essential if traditional knowledge and the wealth of its teachings are to remain vital and relevant.

170. In looking forward to the future we must learn from the past.

> *A moment's reflection must force acknowledgment of the phenomenal resilience of the Native people of North America. From the moment of European contact, their identity and survival have been under siege. Storms of oppression, racism, disease and attempted extermination have blown over American Indians as fiercely as over any people in history. Yet, with a tenacity that breeds its own offspring in the face of odds so stacked against survival for the last 500 years, America's Native peoples enter the 21st Century self-defined by their tribal identifications today as Muckleshoot or Hopi or Omaha or Swinomish or Seneca or Lakota or Seminole or Wampanoag or Penobscot or Delaware or Chickasaw or Lumbee…and on and on through an incredible diversity of culturally and politically distinct communities. To be sure, strains on personal, family and community identity and living conditions threaten to rent Native America. But at the dawn of the new millennium, the Indian voice is rising, population is growing rapidly, economic muscles are being flexed, and the winds of extermination and deidentification (sic) are being weathered. (Henson & Taylor, 2002)*

171. We must make every effort to ensure that this is truly the dawn of a new reality for Indigenous peoples and not merely the last hurrah. It is essential for both the survival of Indigenous peoples, non-

Indigenous peoples and all other species. Outlined below are a number of recommendations for improvements that maybe considered by the Parties to the CBD.

6. Recommendations

F. National governance issues

172. Governments need to recognize in a meaningful way the inherent right to self-government of Indigenous peoples.

173. Indigenous peoples need to be included in decision-making processes at all levels, especially where Indigenous land or other interests are at stake. This is especially important in environmental management, protected areas and education. As well as being included in decision-making, consultation mechanisms and prior informed consent mechanisms should be strengthened and made mandatory. Traditional knowledge should also be a mandatory consideration in decision-making. Their participation must include the right to say 'no' if need be.

174. National approaches to economic development, including laws, regulations, policies and negotiation strategies should integrate principles of sustainable development and use, and must be reviewed and amended as necessary to correct intentional or inadvertent racist elements that undermine the retention and practice of traditional knowledge.

G. Local governance issues

175. The capacity and infrastructure of Indigenous communities needs to be strengthened so that Indigenous peoples can self-govern effectively and protect traditional knowledge in a suitable way. Governments should facilitate capacity-building initiatives, particularly those intended to improve good governance, improve research skills, and increase avenues for accessing human and financial capital.

176. The education system must be reformed to allow Indigenous knowledge and values to be promoted, as well as encouragement of inter-generational transfer of traditional knowledge and traditional forms of education.

H. Social and cultural issues

177. Initiatives should be implemented that enhance cross-cultural understanding between non-Indigenous and Indigenous peoples and to increase respect of Indigenous cultures and communities.

178. Principles of customary law should be incorporated into intellectual property and other regimes to protect against exploitation of traditional knowledge and to encourage its promotion and use with the free and prior informed consent of the knowledge holders.

179. Language revitalization initiatives with full participation of Indigenous peoples should be promoted.

9. *Territorial factors*

180. Governments must speed up and finalize land claim negotiations and ensure negotiations are respecting principles of fairness and good faith and are in line with international standards and human rights obligations.

181. Access to resources need to be increased so that Indigenous communities can build their own resource generating streams.

182. Protection of sacred sites needs to be improved to protect traditional knowledge activities.

183. Detailed Indigenous-led research projects need to be funded on the impact of development practices, the impact of existing laws and policies, the effects of climate change and the role of gender relations in retaining traditional knowledge.

I. Community-level issues

184. Sustainable use and development within communities needs to be promoted.

185. Indigenous communities must take responsibility to encourage local traditional knowledge and practice. They may wish to develop codes of conduct to regulate the sharing of traditional knowledge with those outside the community.

186. Customary law needs to be reviewed and practiced in communities.

Peigi Wilson, May 2007.

Bibliography

Akwé: Kon Voluntary Guidelines for the Conduct of Cultural, Environmental and Social Impact Assessment regarding Developments Proposed to Take Place on, or which are Likely to Impact on, Sacred Sites and on Lands and Waters Traditionally Occupied or Used by Indigenous and Local Communities, Decision VII/16 of the Conference of the Parties to the *Convention on Biological Diversity* at: http://biodiv.org/decisions/default.aspx?m=COP-07&id=7753&lg=0

Algonquin of Barriere Lake, 2001, *Life in the 21st Century*, (Algonquin of Barriere Lake, Quebec).

American Indian Policy Centre, 2007, *American Indians in the Criminal Justice System* at: http://www.airpi.org/research/SearchingforJustice/sjjusticesys.htm

Anderson, Sarah, Cavanagh, John, Klinger, Scott, Stanton, Liz, *Executive Excess 2005: Defense Contractors Get More Bucks for the Bang*, (Institute for Policy Studies and United for a Fair Economy).

Anti-Racism Research Team, 2004, *An Assessment of Racism in Dakota, Ramsey and Washington Counties*, (Anti-Racism Advisory Committee and St Paul Foundation)

Assembly of First Nations (AFN), 2004, *Federal Government Funding to First Nations, The Facts, the Myths and the Way Forward* available at http://www.afn.ca/cmslib/general/Federal-Government-Funding-to-First-Nations.pdf

Assembly of First Nations, 2006, July 13, *Assembly of First Nations Chiefs Express Concern and Strong Opposition Regarding Prime Minister's Comments on "Race-based" Fisheries* (AFN, Ottawa) at http://www.afn.ca/article.asp?id=2798

Auditor General of Canada, 2003, *2003 Reports of the Auditor General of Canada, Chapter 8 Indian and Northern Affairs Canada – Transferring Federal Responsibilities in the North* available at http://www.oag-bvg.gc.ca/domino/reports.nsf/html/20031108ce.html

Barnhardt and Kawagley, 2004, *Indigenous Knowledge Systems and Learning* by Ray Barnhardt Center for Cross-Cultural Studies University of Alaska, Fairbanks and Angayuqaq Oscar Kawagley Alaska Native Knowledge Network University of Alaska Fairbanks, Article submitted for publication to Anthropology and Education Quarterly (Teresa McCarty, Editor March, 2004)

Barsh, Russel Lawrence, 1999 "Indigenous knowledge and biodiversity" in Posey, Darrell Addison, ed., *Cultural and Spirtiual Values of Biodiversity*, (UNEP, Nairobi), pp 73-6.

Battiste, Marie, 2005, "State Of Aboriginal Learning Background Paper for The *"National Dialogue On Aboriginal Learning"* (Canadian Council On Learning, Ottawa)

Berkes, Fikret, Colding, Johan and Folke, Carl, 2002, "Rediscovery of Traditional Ecological Knowledge as Adaptive Management" in *Ecological Applications*, Vol. 10(5), pp. 1251-1262 (Ecological Society of America, Washington).

Brody, Hugh, 1990, *Maps and Dreams*, (Waveland Press, Illinois).

Bureau of Economic Analysis, 2007, *News Release: Gross Domestic Product*, January 31, 2007.

Canada, 1998a, *Caring for Canada's Biodiversity: Canada's First National Report to the Conference of the Parties to the Convention on Biological Diversity*, 1998, (Public Works and Government Services Canada, Ottawa). http://www.bco.ec.gc.ca/documents/BioRep_E.doc

Canada, 1998b, *Statement of Reconciliation* available at http://www.ainc-inac.gc.ca/gs/rec_e.html

Canada, 2003, *Indian and Northern Affairs Canada and Canadian Polar Commission Performance Report For the period ending March 31, 2003*, available at http://www.tbs-sct.gc.ca/rma/dpr/02-03/DIAND-AINC/DIAND-AINC03D01_e.asp#secI

Canada, 2004, *Strengthening the Relationship, Report on the Canada – Aboriginal Peoples Roundtable April 19th, 2004*, Opening Speech by The Right Honourable Paul Martin, pages 31 to 37.

CBC, 2004, *Ottawa ignored claim when setting quota, say lawyers*, December 7, 2004, http://north.cbc.ca/regional/servlet/View?filename=shrimp-courts-12072004

Canadian Council on Learning, 2007, *The Cultural Divide In Science Education For Aboriginal Learners* (Ottawa).

Central Intelligence Agency, 2000, *Global Trends 2015: A Dialogue about the Future with Non-government Experts* (National Intelligence Agency, Washington)

Centre for Indigenous Environmental Resources, 2006, *Climate Change Impacts on Ice, Winter Roads, Access Trails, and Manitoba First Nations Summary documents and Findings pamphlet. 2006* (CIER, Winnipeg) http://www.cier.ca/information-and-resources/publications-and-products.aspx?id=482&publication=496

Chandler, 2005, *Suicide and the Persistence of Identity In the Face of Radical Cultural Change*, presented at the Assembly of First Nations National Policy Forum, April 2005, available at http://www.afn.ca/cmslib/general/Michael-Chandler.pps

Chapeski, Andrew J., 1999 "Culture, landscape and diversity" in *Cultural and Spiritual Values of Biodiversity*, Posey, Darrel Addison, ed. (UNEP, 1999:76-79)

Convention on Biological Diversity, 2007a, *Biodiversity and Climate Change*, (CBD), http://www.cbd.int/doc/bioday/2007/ibd-2007-booklet-01-en.pdf

Convention on Biological Diversity, 2007b, *The International Day for Biological Diversity: Biodiversity and Climate Change 22 May 2007*, http://www.cbd.int/programmes/outreach/awareness/biodiv-day-2007.shtml

Conservative Party, 2005, *Aboriginal Affairs Policy*, available at http://www.jimprentice.ca/Documents/CPCPolicy.htm

Cooke, Beavon, McHardy, 2004, *Measuring the Well-Being of Aboriginal People: An Application of the United Nations' Human Development Index to Registered Indians in Canada, 1981–2001*, (Indian and Northern Affairs Canada)

Correction Service Canada, 2007, *Aboriginal Offender Statistics*, (Correction Service Canada, Ottawa) at http://www.csc-scc.gc.ca/text/prgrm/correctional/abissues/know/4_e.shtml

Davin, N. F., 1879, *Report on Industrial Schools for Indians and Halfbreeds* (Ottawa: Public Archives, 14 March 1879), PAC RG 10, Vol. 6001, File 1-1-1, Part 1.

Demmert, William, 1994, "Blueprints for Indian Education: Languages and Cultures", *ERIC Digest* available at: http://www.ericdigests.org/1995-1/languages.htm.

Editors, 2005, "The American Indian rural – urban continuum" in *Indian Country Today*, July 14, 2005 at http://www.indiancountry.com/content.cfm?id=1096411229

First Nations Chiefs Health Committee and British Colombia Ministry of Health Planning, undated, *B.C. First Nations Health Handbook,* (British Colombia Ministry of Health Planning, Victoria) at http://www.bchealthguide.org/first_nations_healthguide.pdf

Flanagan, Tom, 2000, *First Nations? Second Thoughts,* (McGill-Queens University Press, Montreal)

Harvard University, 2004, *Harvard Project on American Indian Economic Development; Overview of the Project*, (John F. Kennedy School of Government, Harvard University, Mass) available at: http://www.ksg.harvard.edu/hpaied/overview.htm
Health Canada, 2000, *First Nations and Inuit Health Branch 1999-2000 Annual Review, August 2000*, (Health Canada, Ottawa).

Health Canada, 2007, *Acting on What we Know: Preventing Youth Suicide in First Nations*, at: http://www.hc-sc.gc.ca/fnih-spni/pubs/suicide/prev_youth-jeunes/section2_1_e.html

Henson, Eric and Taylor, Jonathon, 2002, *Native America at the New Millennium*, (Harvard Project on American Indian Economic Development) available at http://www.ksg.harvard.edu/hpaied/pubs/pub_004.htm

Indian and Northern Affairs, 2004, *Demographics*, found at http://www.ainc-inac.gc.ca/gs/dem_e.html

Indian and Northern Affairs, 2000, *Comparison of Social Conditions 1991 and 1996,* available at http://www.ainc-inac.gc.ca/pr/sts/hac/socl_e.pdf

Indian Residential School Resolution Canada, 2007, *Indian Residential Schools in Canada - Historical Chronology* (http://www.irsr-rqpi.gc.ca/english/historical_events.html, February 16, 2007)

International Forum on Globalization, 2007a, *Position Statement,* at http://www.ifg.org/about.htm

International Forum on Globalization, 2007b, *Indigenous Peoples and Globalization Project*, at http://www.ifg.org/programs.htm#IndPro

Johansen, David, 2002, *Bulk Water Removals, Water Exports and The NAFTA*, at http://dsp-psd.pwgsc.gc.ca/Collection-R/LoPBdP/BP/prb0041-e.htm#C. Bulk%20Water%20Removal%20and%20NAFTA%20Chapter%2011(txt)

LaRocque, Emma, 1994, *Violence in Aboriginal Communities*, (Public Health Agency of Canada, Ottawa).

MaCarty, Teresa and Watahomigie, Lucille, 1998**, "**Indigenous Community-based Language Education in the USA", in *Language, Culture and Curriculum*, Vol 11, No. 3.

Maffi, Luisa, 1999a "Linguistic Diversity, Introduction", in *Cultural and Spiritual Values of Biodiversity*, Posey, Darrel Addison, ed. (UNEP, 1999)

Maffi, Luisa, 1999b "Language and the environment", in *Cultural and Spiritual Values of Biodiversity*, Posey, Darrel Addison, ed. (UNEP, 1999)

Mander, Jerry, 1991, *In the Absence of the Sacred: the Failure of Technology and the Survival of the Indian Nations* (Sierra Club Books, San Fransico).

Martin, Evelyn, 1993, "Of telescopes, squirrels and prayers: the Mt. Graham controversy" in *Cultural and Spiritual Values of Biodiversity*, Posey, Darrel Addison, ed. (UNEP, 1999)

Martinez, Dennis, undated, *Traditional Environmental Knowledge*, University of Idaho, http://www.uidaho.edu/e-journal/pan_eco/dennis.html

Meriam Report, 1998, *The Problem of Indian Administration*, The Institute for Government Research Studies in Administration (*The Lord Baltimore Press*, Baltimore, MD) available at http://www.alaskool.org/native_ed/research_reports/IndianAdmin/Indian_Admin_Problms.html

Molina, F.S., 1998 "Wa huya ania ama vutti yo'oriwa – the wilderness world is respected greatly: The Yoeme (Yaqui) truth from the Yoeme communities of Arizona and Sonora, Mexico", in Maffi, Luisa, 1999b "Language and the environment", in *Cultural and Spiritual Values of Biodiversity*, Posey, Darrel Addison, ed. (UNEP, 1999)

Morrison, Bruce R., and Wilson, C. Roderick, eds., 1986, *Native Peoples: The Canadian Experience*, (McClelland & Stewart, Toronto)

Nadasdy, Paul, 1999, "The Politics of TEK: Power and the 'Integration' of Knowledge." *Arctic Anthropology* 36(1-2): 1-18.

National Centre for Injury Prevention and Control, 2007, *Injuries among Native Americans: Fact Sheet* at: http://www.cdc.gov/ncipc/factsheets/nativeamericans.htm

National Congress of American Indians (NCAI), 2005a, *FY2005 Appropriations Indian Country and the President's Budget* available at http://198.104.130.237/ncai/advocacy/otherissue/docs/fy2005-presidential_budget_handout.pdf

NCAI, 2005b, *Urgent Contract Support Costs Action Needed* (Broadcast #05-029), April 14, 2005.

NCAI, undated, *Federal Circuit Court of Appeals holds the United States liable under the Indian Self-Determination Act for underpaying the Cherokee Nations self governance compact in fiscal years 1994, 1995 and 1996* available at http://198.104.130.237/ncai/resource/documents/governance/csc-cherokee_result_release.pdf

Office of National Drug Control Policy, 2001, *SAMHSA Factsheet: National Household Survey on Drug Abuse, 2001* (Office of National Drug Control Policy, Washington)

Ohmagari, Kayo & Berkes, Fikret, 1997, "Transmission of Indigenous Knowledge and Bush Skills Among the Western James Bay Cree Women of Subarctic Canada" in *Human Ecology*, Vol. 25, No. 2, (Plenum Press, New York)

O'Neil, Peter, 2006, July 12, *Harper Vows to End Race Based Fisheries*, (Vancouver Sun, Vancouver).

United Church of Canada, 1998, *1998 Apology to First Nations: Indian Residential Schools*, General Council Executive Order, (United Church of Canada, Toronto)

Phoebe A. Hearst Museum of Anthropology and the Regents of the University of California, 2003, *California Indian Food and Culture*, (Phoebe A. Hearst Museum of Anthropology, Berkley).

RNT Consulting, 2002, *Environmental and Economic Costs of Alien Invasive Species in Canada*, (RNT Consulting, Picton) http://www.cise-scie.ca/english/library/bg_papers/biodiversity/enviro_economic_costs_alien_invasive_species/Invasives.pdf

Ronda , James P., 1999, "We Have a Country": Race, Geography, and the Invention of Indian Territory" in *Journal of the Early Republic*, Vol. 19, No. 4, Special Issue on Racial Consciousness and Nation-Building in the Early Republic (Winter, 1999), pp. 739-755

Royal Commission on Aboriginal Peoples (RCAP), 1996, *Report of the Royal Commission on Aboriginal Peoples Volume 1 - Looking Forward Looking Back* (Government of Canada, Ottawa)

Ryser, Rudolph, 1995, "Resuming Self-Government in Indian Country: From Imposed Government to Self-Rule Inside and Outside the United States Of America", in *Murdoch University Electronic Journal of Law*, Vol. 2 Number 1, (Murdoch University, Perth) at: http://www.murdoch.edu.au/elaw/issues/v2n1/ryser21.html

SIL International, 2003, "Languages of Canada" in Ethnologue.com, (SIL International, Dallas) http://www.ethnologue.com/show_country.asp?name=Canada

SIL International, 2003, "Languages of USA" in Ethnologue.com, (SIL International, Dallas) http://www.ethnologue.com/show_country.asp?name=USA

Statistics Canada, 2005, *Labour Force Survey: Western Canada's off-reserve Aboriginal population* at http://www.statcan.ca/Daily/English/050613/d050613a.htm

Statistics Canada, 2007, "Gross domestic product at basic prices by industry (monthly)" at http://www40.statcan.ca/l01/cst01/gdps04a.htm

Stiffarm, Lenore A. and Lane, Phil Jr. 1992, "The Demography of Native North America: A Question of American Indian Survival" in Jaimes, M. Annette, ed., *The State of Native America: Genocide, Colonization and Resistance* (South End Press, Boston)

Sultzman, Lee 2004, *Abenaki History*, available at http://www.tolatsga.org/aben.html

Task Force on Aboriginal Languages and Cultures, 2005, *Towards a New Beginning, A Foundational Report for a Strategy to Revitalize First Nations, Inuit, and Métis Languages and Cultures*, (Minister of Canadian Heritage, Ottawa)

Tobias, Terry, 1993, "Sterotyped Village Economies and the Pinehouse Harvest Research" in Inglis, Julian T. ed, *Traditional Ecological Knowledge: Concepts and Cases* (IDRC, Ottawa)

United Nations General Assembly, 2001, *Report on 56th session of the United Nations General Assembly Second Committee Panel on High-Level Panel on Globalization and the State*, 2 November 2001 at http://unpan1.un.org/intradoc/groups/public/documents/un/unpan001917.pdf

United Nations Development Program, 1994, *Capacity Development: Lessons of Experience and Guiding Principles*, available at http://magnet.undp.org/cdrb/CDPRIN1.htm

United Nations Environment Program, 2005, *Environment and Cultural Diversity,* Note by the Executive Director of UNEP to the Twenty-third session of the Governing Council/Global Ministerial Environment Forum, (Nairobi)

U.S. Bureau of the Census, 1995, *Selected Social and Economic Characteristics for the 25 Largest American Indian Tribes: 1990* http://www.census.gov/population/socdemo/race/indian/ailang2.txt

US Census Bureau, 1990, "American Indian, Eskimo, and Aleut Persons" *Race and Hispanic Origin Population Density of the United States: 1990*
http://www.census.gov/geo/www/mapGallery/images/americanindian.jpg

United States Department of Agriculture, 2007a, National Invasive Species Information Centre, http://www.invasivespeciesinfo.gov/index.shtml

United States Department of Agriculture, 2007b, National Invasive Species Information Centre, *Economic Impacts*, http://www.invasivespeciesinfo.gov/economic/main.shtml

Various Indigenous Organizations, 2005, comments to the World Intellectual Property Organization regarding the draft Provisions on the Protection of Traditional Cultural Expressions and Expressions of Folklore and the draft Provisions on the Protection of Traditional Knowledge, at: http://www.wipo.int/tk/en/consultations/draft_provisions/comments-1.html

Winthrop, Robert H., 1999, "Resource stewardship by Middle Colombia tribes of the American Pacific Northwest" in *Cultural and Spiritual Values of Biodiversity*, Posey, Darrel Addison, ed. (UNEP, 1999)

Whitt, Laurie Anne, 1999 "Indigenous peoples, their environments and territories" in *Cultural and Spiritual Values of Biodiversity*, Posey, Darrel Addison, ed. (UNEP, 1999) at page 69.

York, Geoffrey, 1990, *The Dispossessed: Life and Death in Native Canada*, (Vintage UK, London)
