

**LEGAL AND POLITICAL STRATEGIES FOR “PROTECTING” TRADITIONAL ENVIRONMENTAL KNOWLEDGE IN
PENTICTON, OKANAGAN NATION (BRITISH COLUMBIA)**

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ABSTRACT:

The political activities of the Syilx people at Penticton to protect their traditional environmental knowledge (“TEK”) from commercial exploitation are traced and compared against a broad juridico-political framework less as a means to critique their tactics but more to illustrate other political opportunities. An argument for the protection of TEK is made with the caveat that addressing indigenous claims for rights, territory and autonomy are politically prior to the protection of TEK because by definition TEK is based on an on-going relationship between the land, animals, and people. The law and politics of TEK is mapped along a continuum from narrow legal strategies, such as IPRs, trade secrecy, databases, and farmer’s rights, to broader political strategies of cultural meaning-making, where environmental, cultural, and human rights claims are made across a variety of public platforms in the context of a pluri-ethnic state increasingly attuned to the right of indigenous people to have rights. Not only does TEK fail to meet the requirements for western intellectual property rights (“IPRs”), but also IPRs are ill-suited to the protection of TEK for many ethical reasons, notably where it turns TEK into a commodity. An array of cultural meaning-making strategies are also examined; these expand the political by moving beyond the constraints of state-based structures towards new platforms for the publicity of moral claims on the state in the interests of TEK. Realistically, these strategies are only viable over the long term and fail to meet the immediate concerns of indigenous people over TEK. It is argued that the protection of TEK should take the form of trade secrecy and that the resources of indigenous people are best aimed at contemporary struggles for territory and self-governance.



Map of Okanagan Nation Traditional Territory.
From < <http://www.syilx.org/governance-okanagannationterritory.php> > Accessed 20 April, 2006.

Introduction

In a recent visit to the En'owkin Centre,² an indigenous post-secondary institution of traditional knowledge and art, at the Penticton Reserve in the Okanagan, I had the pleasure to meet with two traditional knowledge keepers, Jeannette Armstrong, the Executive Director of En'owkin, and her brother Richard Armstrong to learn about the concurrent and related strategies to protect the Locatee lands and the Okanagan Saskatoon berry, or *siya*. Both of these issues have resonance for those concerned with the appropriation and commodification of collective indigenous land and knowledge into private hands. With the Locatee Lands Project ("Project"), En'owkin is concerned with protecting one of the few remaining riparian cottonwood ecosystems in British Columbia's interior from urban sprawl through a series of initiatives, including securing leases on the land to halt development. In addition to safeguarding this biologically diverse oasis, the Project aims to become a living centre for education about the responsibility of both indigenous communities and all Canadians for the environment. The initiative to protect the *siya* more specifically relates to the protection of traditional environmental knowledge ("TEK"). Martha Johnson defines traditional environmental knowledge as:

a body of knowledge built up by a group of people through generations of living in close contact with nature. It includes a system of classification, a set of empirical observations about the local environment, and a system of self-management that governs resource use. The quantity and quality of traditional environmental knowledge varies among community members, depending upon gender, age, social status, intellectual capability, and profession (hunter, spiritual leader, healer, etc.). With its roots firmly in the

² See: <<http://enowkin.tripod.com/index.html>> (last accessed 30 May, 2006).

past, traditional environmental knowledge is both cumulative and dynamic, building upon the experience of earlier generations and adapting to the new technological and socioeconomic changes of the present (Johnson, 1992, p. 4).

The siya plays a role as an important source of sustenance and traditional medicine, and on the cosmological level as a symbol of the reciprocal relationship between the Okanagan people and the land (R. Armstrong, 2005). Certain varieties of the siya are under threat from land-use pressures, and potentially from biological piracy (“bio-piracy”) and the encroachment of genetically-modified varieties. The Project calls for the re-seeding of the Locatee lands with the siya.

There are a number of reasons for the protection of TEK (Correa, 2001, p. 5-7; Coombe, 2001). TEK is the primary form of knowledge that many indigenous people use to support themselves. Indeed, since the vast majority of indigenous people in both the North and the South are precisely the populations left out of the networks of global capital, their economies heavily depend upon the protection of their crop and medicinal knowledge. It has also been acknowledged that not only do indigenous people rely upon biological diversity (“biodiversity”), but that biodiversity itself is a product of TEK (cf. *Convention on Biological Diversity*³ (“CBD”)); in other words, the entwining of indigenous culture with nature, and people and the land informs the sustainable co-evolution of each (Norgaard, 1994, p. 81-91). Finally, TEK is also seen as central to the replenishment of the genetic stock from which new crop varieties are developed,

³ *Convention on Biological Diversity*, June 5, 1992 (entry in to force 29 Dec., 1993), 31 I.L.M. 818 (1992), also available at <<http://www.biodiv.org/convention/articles.asp>> (last accessed 30 May, 2006).

and potentially as a source for new biotechnological innovation in the fields of agricultural biotechnology and, to a lesser extent, pharmaceuticals (Brown, 2000, p. 104-05).

From the perspective that TEK is dependent upon the co-evolutionary relationship between the land, animals and indigenous people, the objective of “protecting” TEK should be understood as less about preserving plant germ plasm sample in an *ex situ* collection or the erection of intellectual property rights, but instead more about finding the means to encourage indigenous cultures and lifestyles which are central to the elaboration of biodiversity (Agarwal, 1995, p. 429; see also Correa, 2001, p. 10). To be sure, where samples of germ plasm are removed from their context, the sample is rendered in stasis, unable to co-evolve with the complex of productive relationships that inform nature. Although biotechnology can mine samples for information for new products, it is doubtless that the greater cache of agricultural resources remains in the natural habitat where species recursively create and diversify. Similarly, intellectual property protection may well shield innovative knowledge but does little to encourage co-evolution. Thus, discussions of the protection of TEK must always remain a side issue to larger political claims for indigenous land, rights, and self-governance.

With this in mind, I endeavour to sketch out the possible means of “protecting” TEK at Penticton as part of a politics of intellectual property along a continuum from narrow legal strategies to broader political strategies of meaning-making. I begin by investigating intellectual property law in the context of

indigenous knowledge and then I look beyond formal legal means to political and rhetorical claims for protection that could be based upon environmental, cultural and other grounds. As a result of this analysis, I show that western intellectual property rights (“IPRs”), such as patents and plant breeders’ rights, are an inappropriate and inadequate means of protecting TEK and that political struggles to broaden the meaning of environmental, cultural and human rights so that they encompass TEK are viable only over the long-term. I conclude that the protection of TEK should take the form of trade secrecy and that the resources of indigenous people are best aimed at contemporary struggles for territory and self-governance.

As I will try to make clear, rather than a plan for the protection of TEK, the objective of this paper is to hold this politico-legal continuum up against the strategies being pursued by the Syilx at Penticton, including those proposed over the course of a key note address by Professor Tirso Gonzales at a conference on *in situ* conservation held at En’owkin (*The Cosmology of Biodiversity: Understanding Conservation’s Spiritual Imperative*, En’owkin Centre, 24 May, 2005)(“Conference”). On a practical level, an annual cycle of fund-raising to secure resources for the preservation of the Locatee lands has been engaged. In addition to the protection of these riparian spaces, there are also plans to re-seed the Locatee lands with siya, thus dovetailing two important conservation efforts. Syilx knowledge keepers also maintain a practice of secrecy as a means of protecting their TEK, as evidenced by the control of knowledge within the community and with respect to outsiders. Critically, they are also engaged in the

education of indigenous youth in TEK (R. Armstrong, 2005). In respect of environmental claims for the protection of the Locatee lands, the Conference participants considered the prospect of appealing to the Canadian government to uphold its commitments under the CBD, an instrument of international environmental law, to assist in the support of traditional lifestyles as a means of furthering the in situ conservation of biodiversity. At the micro-level of politics in the everyday, Dr. Gonzales suggested the ways that in situ conservation may be seen as a strategy that invokes “remembering place”. He argued that this is a two-fold project involving both the historical recovery of TEK (and its technologies) and a re-membering of the body, mind, and spirit based on desires flowing from place and transhistorical cultural identity. In my interviews with the Armstrongs, in situ conservation and re-membering took on a broad meaning to encompass what it means for indigenous people to live materially and spiritually “in place”; *i.e.* within a matrix of reciprocity between the land and indigenous culture, practices, and language. Before I elaborate further on these legal and political strategies, however, I will first provide some background in the next section on the challenges and opportunities surrounding the restoration of the Locatee lands and the siya.

Conserving the Locatee Lands and the Siya

The Locatee Lands

The Okanagan Valley has an arid climate and is composed of grasslands and forests. This environment has led to the Okanagan becoming a popular site for vineyards, beaches, condominiums, golf, and as a destination for retirees from the province of Alberta (Atkinson, 2006) to experience what New York state-based Starwood Hotels and Resorts Worldwide calls “Canada’s playground” (Figure 1).⁴ The Locatee lands are a hotbed for conflict due to the coincidence of their biodiversity in a world suffering from environmental crisis, their location on an interstitial space between an urban centre and the physical walls of a valley, and the economic and social challenges facing indigenous people in Canada. They are one of the few remaining cottonwood riparian ecosystems in the British Columbia interior (British Columbia Government, 1997). As described by Jeannette Armstrong, they act as “the lungs” of the region (J. Armstrong, 2005). The Locatee lands are characterized by kokanee creeks which weave their way through stands of cottonwood birch, rose thicket, and other important plant species allowing myriad creatures reprieve from the Okanagan’s hot summertime climate. This habitat is host to an array of endangered or sensitive animal species, such as the Western Screech Owl, Yellow-Breasted Chat, Lewis Woodpecker, Red and Spotted Bats, as well as various snakes and insect species. It is also an important context for scientific study. On an experiential note, on a day in late spring, you can find yourself awash in a magical snowfall of cotton slowly blowing from and through a stand of trees.

⁴ See: <<http://www.westinkelowna.com/>> (last accessed 1 June, 2006).

Urban development is the major source of stress for this critical ecosystem. The city of Penticton lies on the valley floor between Lake Okanagan and Skaha Lake to the north and south, respectively. The Penticton reserve, which includes the Locatee lands, is located on the hillside to the west. The Locatee lands occupy the spatial boundary between the city and the reserve. In addition to providing splendid views of the Okanagan Valley, the proximity of the Locatee lands to the city and adjacency to a popular golf course renders them ripe for both residential and commercial development. In the context of the economic hardships under which indigenous people endure, the potential for economic gain from the development of the Locatee lands poses a formidable challenge to En'owkin's conservation efforts.

The term *locatee land* denotes land that has been legally allotted to an Indian band member by a band council under section 20(1) of Canada's *Indian Act*.⁵ There are instances of locatee land throughout B.C. Like all First Nations land, locatee land is inalienable except to the Crown. The "locatees" usually evidence their right to occupation and use by way of a Certificate of Possession. As the Certificates of Possession have been transferred through inheritance, ownership has become more aggregated. At Penticton, *the* Locatee lands consist of parcels of land held by over 15 separate parties (R. Armstrong, 2005).

The Project to save the Locatee lands is a long-term conservation initiative of the En'owkin Centre which attempts to secure the control of these lands for conservation, education and scientific purposes instead of having them leased

⁵ *Indian Act*, R.S., c. I-5, s. 1, available at <<http://laws.justice.gc.ca/en/I-5/index.html>> (last accessed 13 June, 2006).

out for development. In partnership with The Land Conservancy of BC, a charitable non-profit land trust, the En'owkin Centre holds a short-term lease on the parcels of land most threatened with development: those located at the north end of the Locatee lands near the golf course. Because En'owkin is a charitable non-profit organization that does not receive funding through the Ministry of Indian and Northern Affairs (unlike First Nations bands), maintaining even a short-term lease necessitates extensive and time-consuming annual fundraising. One of its biggest annual initiatives is The Great Riparian Penticton Duck Race, a form of lottery open to the public wherein bets are placed on decoy ducks which "race" down the River Channel for cash prizes.⁶

En'owkin ultimately aims to raise the funds required to secure long-term leases over the entire Locatee lands. However, the leasehold structure of locatee land and the inalienability of First Nations territory present dilemmas for fundraising. The donor community is accustomed to giving money and seeing immediate and long-term evidence of their philanthropy. However, since En'owkin will only lease the land from the locatees (and not own it), the traditional reward of legacy-building is less tangible to donors and, therefore, they may be less-inclined to contribute. En'owkin has also considered the establishment of an endowment fund, from which drawings could be made in perpetuity to pay for long-term leases. Needless to say, finding patrons willing to make the sort of contributions necessary for such a fund is a considerable challenge. Further obstacles facing the Project involve misunderstandings of the

⁶ See: <<http://www.conservancy.bc.ca/regioncontent.php?sectionid=39&pageid=552>> (last accessed 30 May, 2006).

financial resources of indigenous people in Canada. Potential donors may erroneously believe that since the locatees are concerned for the environment, the locatees should simply choose not lease their land for development. However, due to the systemic economic and social disadvantages accruing to many indigenous people, their ability to resist the lure of development may not be an option. Most lamentably, an additional challenge to fundraising comes in the form of racist attitudes surrounding the security of any charitable donations to indigenous people.

Beyond the conservation of the Locatee lands, the Project also aims to further eco-literacy, expand the traditional indigenous use of the land, and encourage a deeper connection to place and nature within the general public. The business plan calls for the establishment of an interpretation centre and facilities for long-term scientific research. This will allow the Project to be a site for instruction on the environment for both the indigenous and settler communities and act as a physical and educational bridge between the two communities. The practice of in situ tending and harvesting on the Locatee lands will not only provide sustenance, but also encourage the sort of ethical connection between people and the land which lies at the heart of traditional knowledge and, as argued below, a politics of re-indigenization and remembering.

Siya

As mentioned, part of the Project involves the planting of the siya, a species under threat, on the Locatee lands. There are seven varieties of siya recognized by the Syilx people of the Okanagan. The colour of the unripe berry is bright red: the colour of the power of life. When it is ready for eating, it is dark purple. In keeping with TEK protocols, some varieties are strictly left for bears and birds, and others form an integral part of daily sustenance, traditional medicines, and feasts (R. Armstrong, 2005). In addition to its important colour, siya has a symbolic role at feasts as it embodies the imperative of reciprocity between the Syilx and the land. Similar to the cultural meanings associated with the sustainable use of the land, the use of siya is also deeply woven into the *chaptiqwix*, or legends, of the Syilx. Siya can be used in pemmican, as a natural vitamin, cooked with bitterroot as a soup, as a complement to dry meat, and as a dessert prepared in a soup with flour dumplings. The names and varieties are known to women and the few men who also hold this knowledge.

The siya picking grounds located both on and off the reserve are a functional commons. Although no one owns the land, there are nevertheless strict protocols on who picks where and when. These protocols are established as a means of ensuring that any one area is not over-harvested: for example, restrictions are placed on access to the type of siya specifically earmarked for the elder women, a variety nearing extinction (J. Armstrong, 2005). Rather than clearing forests for vineyards as would agriculturalists, the Syilx have always been permaculturalists; they cultivate naturally occurring food sources “in place”. This approach to cultivating the land makes indigenous use seem invisible.

Undoubtedly the success of these practices contributed in some measure to the erroneous and racist perspective of early European settlers that America was a *terra nullius*, an “empty space”.

An example of the discreet environmental footprint of this form of food production and the covenant with the land was explained to me in my interview with Richard Armstrong (R. Armstrong, 2005). As a child, he and his family would travel to the siya picking grounds near the Whitelake Astrophysical Laboratory by wagon and horseback. They would spend two weeks camping, hunting and picking siya. Then one year, the land was sold to a private owner who encircled it with a fence. Although the owner permitted the Armstrongs to return to the picking fields at their leisure, they did not visit for a couple of years. When they finally returned, they were surprised to find that the quality of the berries had deteriorated, to the extent that even the animals were not eating from the bushes. Thinking that it was perhaps simply a bad year, the Armstrongs returned the following year only to once again discover a poor crop. Mr. Armstrong’s grandmother explained to him that the land had been waiting to provide the family with the berries on an annual basis. When the family stopped coming to the picking fields, the land stopped producing the good berries. The picking and foraging through the bushes made the plants healthy and, similarly, the plants kept the Armstrongs healthy. Their hiatus from this place brought to an end both the practices of in situ conservation and the land’s reciprocal provision of siya. In a sense, the “forgetting” by the Armstrongs led to the dis-membering of both the land and the people.

Today, the siya is being threatened by land pressures, commercial harvesters, bio-piracy, and the march of biotechnology (J. Armstrong, 2005). As I learned from Jeannette Armstrong, the most common variety of siya grows in numerous locations but is very unreliable due to its sensitivity to frost. Since many of the berries important to the Syilx are found in areas that overlap with commercial interests, access is often an issue. That the siya and Okanagan wine grapes both prefer hillside settings has meant that many traditional siya picking grounds have been enclosed in the interests of lucrative vineyards. Another useful variety of siya grows in shale soil conditions. Unfortunately, these same conditions are also a favourite of gravel companies, who erect fences around their production facilities. The supply of siya is also threatened by commercial pickers who descend upon traditional picking grounds and displace indigenous people, a struggle that is already under way in respect of the huckleberry (J. Armstrong, 2005). In terms of the protection of TEK, there have been instances of corporations expressing interest in the variety of siya which dries into a plump and flavourful type of raisin (J. Armstrong, 2005). One could easily imagine an act of bio-piracy whereby the siya would be taken without consent from the Syilx and branded as “SaskatoonSnack” in the grocery aisle. Finally, indigenous people have noticed the emergence of unfamiliar varieties of siya that exhibit differences in the shape of the pit, berry, and crown, as well as a different taste (J. Armstrong, 2005). Although there has been no scientific research, indigenous harvesters suspect these berries to be either alien prairie Saskatoons or, even more troublesome, some variety, genetically-modified or not, which may have

the potential to edge out the species indigenous to the Okanagan Valley (J. Armstrong, 2005).

The confluence of the challenges faced by the erosion of habitat for the siya and the dwindling of riparian cottonwood ecosystems have come together in plans to re-seed the Locatee lands with siya as a component of the Project. After prolonged deliberation on what initially resembles an instrumentalist western agricultural move, the Elders and Mr. Armstrong agreed that such a restorative act could be considered within the bounds of the alliance of the Syilx with nature (R. Armstrong, 2005). It is interesting to note the similarity between this attempt to replenish nature and the recent steps taken by the Okanagan Nation to replenish the Okanagan River with salmon (Hume, 2005). Hence, in the interests of maintaining the relationship between the people and the land, traditional practices have come to permit exceptions to permaculturalist methodologies and to mediate between indigenous and modern ontologies and epistemologies (cf. Johnson, 1992; Agarwal, 1995).

Forms of Protection for TEK: Legal and Political Claims

In this section, I will outline some of the possible legal and political modalities of protecting TEK from bio-piracy under the assumption that the objective of the Syilx is the promotion of biodiversity as opposed to its commercialization. I have tried to impart a sense of the scope of the politics of intellectual property for the reader but do not attempt a complete rehearsal of field due to the constraints on the length of this paper and the relative lack of

operability of the majority of the options over the short term (for broader coverage, see: Cleveland and Murray, 1997; Correa, 2001; Battiste, 2003). As we have already argued, concerns over TEK may be seen as politically secondary to the larger and more pressing issues of indigenous autonomy and rights to territory, such as the Locatee lands (Agarwal, 1995; Coombe, 2005, p. 121). Not only are the latter critical to the rebuilding of indigenous communities, but also any strategy of protecting TEK invariably depends upon obtaining these objectives. Intellectual property rights, farmer's rights, the development of indigenous TEK databases, as well as environmental, cultural, and human rights claims in the context of TEK are relatively new and evolving juridico-administrative and political modalities for the protection of TEK and, at this juncture, they remain unsatisfactory means of shielding TEK from commercial exploitation. Given these limitations and the broad challenges facing indigenous communities, I instead argue for two means of protection already being pursued at Penticton: the practice of trade secrecy and the pursuit of indigenous autonomy and land claims. A third means of protecting TEK will be alluded to in my conclusion, where I outline the recovery of TEK as both an archival practice and one that informs the re-indigenization of the self.

Intellectual Property Rights

Attempts to protect TEK with IPRs would seem to follow from the burgeoning of the information economy (Boyle, 2003) as well as from the adoption of the World Trade Organization's treaty for the protection of intellectual

property in all of its member states, the *Agreement on Trade-Related Aspects of Intellectual Property Agreement* (“TRIPS”).⁷ However, there are a range of drawbacks associated with using western legal instruments, such as patents or plant breeders’ rights, to protect TEK. Patents require that the invention for which protection is sought be useful, novel, and non-obvious (i.e. an inventive step). Unlike most industrial innovations, TEK is not readily patentable in its raw form and therefore requires some inventive step in order to fulfill the novelty and non-obviousness requirements of patentability. In terms of the more lax standard for protection available under plant breeders’ rights, the requirements that the variety be novel, stable, distinct, and uniform also present obstacles for the protection of TEK to the extent that it fails to meet the standard for stability and uniformity. Furthermore, the normal requirement for IPRs to be held by a single owner (as opposed to a collective) and the limited duration of patents and plant breeders’ right militate against IPRs serving indigenous people well over the long term (Cleveland and Murray, 1997, p. 487). It may be argued that both of these regimes implicitly work against indigenous farmers in the sense that TEK is rendered illegible by western legal regimes which are attuned only to reconciling competitive forces in the market with science’s definition of innovation. Thus, the products of industry are surrounded by legal protections while the TEK of indigenous people remains unrecognized for its inventiveness and is instead seen as a part of the public domain ripe for industrial exploitation. Even if IPRs could be secured for variants of TEK, the ability to access the legal system would

⁷ *Agreement on Trade-Related Aspects of Intellectual Property Rights, Marrakesh Agreement establishing the World Trade Organization, Annex 1C, April 15, 1994* (entry into force 1 Jan., 1995), available at <http://www.wto.org/english/docs_e/legal_e/27-trips.pdf> (last accessed 30 May, 2006).

be problematic for indigenous groups who, unlike life sciences corporations, lack the resources and expertise to defend their interests through litigation (Cleveland and Murray, 1997, p. 487). As in the case of small firms who cannot afford the patent system as a means to protect their inventions, indigenous groups may opt for trade secrecy in order to protect their TEK (Brascoupé and Endemann, 1999).

Another set of important reasons that IPRs may be unworkable for indigenous people is based upon the individualistic and capitalistic principles underpinning the granting of a property interest, principles that may be seen as inherent to the on-going colonialist-capitalist project of dismantling indigenous lifeworlds. More importantly, the concept of “ownership” over the products of nature is anathema to many indigenous peoples’ ontological and cosmological worldviews (although it is important to note that anthropologists have learned that private property regimes in IPRs do exist in indigenous societies, see Cleveland and Murray, 1997, p. 484-84; for the potential for customary laws to protect TEK, see: Correa, 2002, p. 15).

Trade Secrecy

David Vaver describes a trade secret as, “Commercial information that derives its value from the fact of its not being generally known and from the protection the law erects around it, mainly through contracts and the breach of confidence action” (Vaver, 1997, p. 298). Trade secrecy laws provide common law protection for inventions that may not fulfill the requirements for patent

protection or where the costs defend patent rights are too costly. Since trade secrecy does not require disclosure, the knowledge does not flow into the public domain as in the case of patents. However, the protection can easily dissolve where someone learns of the secret independently of any espionage or where a trade secret is reverse-engineered; the protections available to a patentee in such circumstances would not apply and the knowledge would enter the public domain. Gordon Christie argues that indigenous people are best positioned to protect cultural knowledge from within their communities, as opposed to protecting it through Canadian legislation such as the codification of an aboriginal right to culture. Subsequent to a long history of appropriation of indigenous culture by settler society, indigenous people have learned to temper the principle of sharing which undergirds TEK by erecting protocols to ensure that cultural knowledge is only shared with outsiders cognizant of the duty to protect TEK (Christie, 1998, para. 94). In Ecuador, for example, trade secrecy has come together with database technology in order to protect TEK. Under the direction of the NGO, Ecociencia, botanical knowledge has been catalogued in a closed-access database. Where the TEK does not appear in the public domain, it is deemed a trade secret and benefit-sharing with commercial interests is made possible through a standardized contract (UNCTAD-ICTSD, 2003, p. 122). In conclusion, recognizing the costs, ethical issues, and inoperability of IPRs for TEK, the Syilx people's practice of trade secrecy would appear to be the most effective legal means of protecting their TEK.

Regimes to Prevent Misappropriation: TEK Databases and National Laws

One alternative to IPRs that has received initial support from the Parties to the CBD is the development of misappropriation regimes (Correa, 2001, p. 18-19) which call for the establishment of national and international databases of TEK as well as criminal or civil laws to protect against its unauthorized use. TEK databases are a tool that responds to the research and commercial advantages that life sciences corporations have over indigenous people to exploit TEK. The database works not to render TEK a commodity but instead, by documenting it in a searchable catalogue, to prevent its unauthorized alienability by these third parties (Chander and Sunder, 2004, p. 1357-1358). China and India lead the way with the establishment of digital records of traditional medicines (Chander and Sunder, 2004, p. 1357-1358). One model regime calls for proof of the origin of all source material to be covered by IPRs (Correa, 2001, p. 18-19). A further requirement is for national patent offices to screen patent applications for TEK. Where source material is discovered in a TEK database, the model calls for proof of prior-informed consent from the indigenous group concerned. It is hoped that models such as these could also encourage benefit sharing between the appropriator and the indigenous group. The long-term objective of database advocates would be the establishment of a global database that could screen patent applications for registered TEK and, thus, protect against bio-piracy.

However, there are many challenges to the establishment of functioning regimes to prevent misappropriation. On one level, indigenous people would like to see their TEK used for the betterment of humanity; and hence it could make

more sense for it to be registered in a database in the public domain. On the other hand, indigenous people realize that the rest of the world has not left their intellectual property in the public domain, including knowledge valuable to indigenous people such as western medicines, and has instead commodified it. Therefore, as a result of the practicalities of the marketization of information, indigenous people do not have to search far for an ethical argument for the justifications of actively protecting their knowledge in a limited-access database. As a result of the disclosure of TEK in databases, however, some TEK could nevertheless be assailed as prior art by life sciences firms and this would frustrate claims for benefit-sharing (Coombe, 1998, p. 112-114). The operationalization of prior-informed consent also presents obstacles for misappropriation regimes. Rarely does TEK reside in the hands of only one indigenous group within a single locale or national territory, nor does the collective nature of TEK lend itself to a single “owner”. As a result, determining “who” needs to be consented with and to “what” degree becomes problematic (Berlin and Berlin, 2004). Another challenge comes from the fact that few operating models of misappropriation regimes exist. Furthermore, some of the models that have been proposed, such as the one introduced in this section, deploy the database as a means to facilitate the commercial exchange of TEK; thus, implicitly positing the market as opposed to conservation as a justificatory rationale for TEK databases.⁸ Finally, the technological and administrative requirements of a database could likely only be provided by national governments, with the consequence that databases may result in the control of

⁸ For a similar critique of the folly of “selling nature to save it” see the section on the CBD, below.

TEK falling in the hands of the state. This would especially be a problem since indigenous people are locked in struggles for traditional rights, autonomy and territorial claims against their respective national governments in the majority of cases.

Farmers' Rights – an intellectual and human right

Through the *International Treaty on Plant Genetic Resources for Food and Agriculture*⁹, article 9.2(a) provides for the protection of TEK in agriculture through the concept of farmers' rights. The protection of farmers' rights in landraces and cultivation practices may be undertaken by contracting parties in the form of a sui generis regime (Correa, 2001, p. 22).¹⁰ However, farmers' rights assume that industrial agriculture is the target use of folk varieties, as opposed to the protection and promotion of TEK and traditional lifestyles. The use of a sui generis regime to provide farmers' with remuneration for the use of their plant genetic resources would again place sovereignty over TEK in the hands of the state as opposed to the indigenous farmers themselves (Cleveland and Murray, 1997, p. 491).

⁹ *International Treaty on Plant Genetic Resources for Food and Agriculture*, November 3, 2001, Rome (entry into force 29 June, 2004), available at <<http://www.fao.org/ag/cgrfa/itpgr.htm>> (last accessed 30 May, 2006).

¹⁰ "Sui generis" denotes a legal regime "of its own kind". These regimes have received academic attention through TRIPS provisions that call for intellectual property protection to be provided by member states either in the form of western IPRs or through sui generis legal regimes, including those that may have the concerns of TEK at the forefront. For example, these concerns could be expressed by the provision of property-like rights that allow for traditional farmers' and breeders' exemptions. These would include, respectively, the rights to produce, save and exchange seeds, in the case of common as well as proprietary varieties; and, the right to develop new seed varieties and receive proprietary protection, including in the case of seeds developed from proprietary lines (Zerbe, 2002. p. 314-15).

Environmental Rights

In addition to misappropriation regimes, another means to stop the free-riding of western life sciences companies on the biodiversity conservation practices of indigenous peoples may be found in the CBD, a United Nations Environmental Programme treaty. Before the advent of the CBD, the genetic wealth of the south was considered the “common heritage of mankind”. The CBD assigns national sovereignty over genetic patrimony not already placed in international collections before 1993. Under article 15, prior-informed consent must be obtained for genetic material from indigenous people. In exchange for access to genetic resources, the appropriator must provide for benefit-sharing with the local holders of the resource. The benefits envisioned by the proponents of the CBD were to include a combination of royalties and technology transfer. Unfortunately, there does not seem to be much evidence of the former and the sorts of technology transferred, originally supposed to assist in building capacity for the local conservation efforts, has come mainly in the form of technology to assist in the extraction of resources to the metropole. As discussed in the context of TEK databases, there are also difficulties in locating exactly from whom prior-informed consent is to be acquired and what it consists of, especially where forms of TEK span state boundaries or are shared by multiple indigenous groups and groups within groups (Berlin and Berlin, 2004). There are also difficulties in assigning a value to TEK, where structural inequalities mean that those from rich countries will inevitably devalue the price of TEK (McAfee, 1999, p. 6 and 15). Furthermore, where life sciences companies have become

frustrated by these obstacles or simply reject the relationship of reciprocity acknowledged by the CBD, many resort to large state-based clearing houses of genetic information, such as Costa Rica's INBio, or simply cull the local public markets in the south (Castree, 2003; Greene, 2004). Since the state often is not the valid representative of the indigenous people from whom TEK is appropriated, national clearing houses of genetic information may impede conservation efforts where they do not provide meaningful financial support to indigenous people. Finally, several scholars have critiqued the CBD for being the "light" brother of TRIPS: it gestures towards remuneration of indigenous people and seeks to redress bio-piracy, yet it can only imagine conservation through the marketization of TEK as private property rights; or, "selling nature to save it" (Zerbe, 2002, p. 308-12; McAfee, 1999). The problem with this unswerving commitment to private property rights is that the market's externalization of environmental and community concerns from its calculations of profit and efficiency is precisely the form of rationality to blame for the environmental crisis that has necessitated conservation instruments in the first place. In the end, the CBD is another example of a failed attempt at export developmentalism (McAfee, 1999, p. 16).

However, the CBD may not be entirely without efficacy for indigenous struggles to protect TEK. The CBD recognizes the recursive relationship between genetic diversity and the rigorous practice of TEK as essential to encouraging bio-diversity. In article 8(j), the role of indigenous people in the

protection of TEK is acknowledged where national governments are admonished to,

respect, preserve and maintain knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity and promote their wider application with the approval and involvement of the holders of such knowledge, innovations and practices and encourage the equitable sharing of the benefits arising from the utilization of such knowledge, innovations and practices.

Thus, the CBD contains a contradiction because the sorts of commitments in article 8j, which recognize the connection between the local performances of TEK practices and biodiversity, are directly opposed to those in article 15 which recognize TEK as a commodity that can be globally mapped and ranked as a disembodied product (McAfee, 1999, p. 16). Political mobilization around article 8(j) holds the potential for using biodiversity conservation as a rhetorical device to place pressure on national governments to encourage TEK and traditional lifestyles and, more optimistically, to move towards settling the so-called “indigenous problems” of territory and autonomy.

Cultural Rights

At the international level, cultural rights provide another useful modality for protecting TEK. Under the auspices of the revised 1971 version of the *Berne Convention*,¹¹ indigenous farmers may seek to establish folk varieties as part of the cultural patrimony of local communities. As in the case of misappropriation

¹¹ *Berne Convention for the Protection of Literary and Artistic Works* (Paris Text), 24 July, 1971, available at <http://www.unesco.org/culture/laws/copyright/html_eng/page22.shtml> (last accessed 7 June, 2006).

regimes and farmers' rights, a drawback of this scheme is that the state is ultimately in control as it would delegate the management and definition of folklore to indigenous farmers. It has also been suggested that folklore, including folk varieties of crops, be protected under the WIPO-UNESCO *Model Provision for National Laws for the Protection of Expressions of Folklore Against Illicit Exploitation and Other Prejudicial Actions*.¹²

Against the backdrop of international legal instruments, cultural claims may be made from the platforms of pluri-ethnicity and multiculturalism that the neo-liberal state uses to define itself (N. Harvey, 2001, p. 1048; see generally Robbins and Stamatopoulou, 2004). Under the welfarist state, indigenous people in Latin America made redistributive claims through the state-sanctioned identity of the peasantry. With the collapse of social security in the shift to "market society" (the neo-liberal state) in the early 90s, indigenous people and peasants in Chiapas, Mexico, for example, found themselves face-to-face with the market, in need of resources, and struggling to re-affirm their identity under the enduring weight of colonialism (N. Harvey, 2001, p. 1048). They made their claims for increased autonomy and control over resources (including TEK) in cultural terms collectively as *indigenous people*, since international indigenous rights were one of the few avenues available to re-establish their subject position as citizens with "the right to have rights" and the right to cultural recognition (Jung, 2003, p. 437; N. Harvey, 2001, p. 1048). Although the Zapatistas did not initially adopt an exclusively indigenous identity as a place from which to make political claims,

¹² *Model Provision for National Laws for the Protection of Expressions of Folklore Against Illicit Exploitation and Other Prejudicial Actions* (1982), available at <<http://www.wipo.int/tk/en/documents/pdf/1982-folklore-model-provisions.pdf>> (last accessed 5 June, 2006).

they adopted just such an identity within two years of the initial uprising in 1994. This subject position allowed them to jump from the local scale to address the national government, receive support from a Mexican population increasingly attuned to indigenous claims, as well as receive support from transnational indigenous networks. In Canada, where the state adopts a multi-cultural identity and draws upon its indigenous heritage for the purposes of state symbolism, the public is also increasingly attuned to the injustices facing indigenous people and their right to claims against the state. As in the case of claims for biodiversity and environmental conservation, cultural claims over TEK may also serve as a means to garner support for the larger political goals of self-governance and territory. However, such strategies remain viable only over the long term and may be inadequate where threats to TEK are immanent.

Human Rights

Seeking protection for TEK under the rubric of human rights in property, environment, culture, and IPRs also largely relies upon moral suasion due to the non-justiciable quality of most international human rights. This is even more the case where the claim does not directly concern political and civil rights (so-called first-generation human rights) but is one which calls upon the state to act positively, such as in the provision of resources. Instead, indigenous farmers could use these diverse human rights obligations rhetorically to attract the support of the public, NGOs, and United Nations over the protection of TEK in the interests of protecting the environment, traditional life, and autonomy. One

example of a success story comes from Borneo where indigenous people were able to appeal to human rights in their opposition to the logging of rainforests (Cleveland and Murray, 1997, p. 492). There are a host of concerns over the justifiability of using human rights as a remedy to indigenous issues. For instance, human rights are invariably characterized as being based upon standards inherent to a universal notion of human dignity where they were actually crafted to respect western (as opposed to indigenous) norms. In addition, Balakrishnan Rajagopal argues that the individualistic and state-centered nature of human rights categories are ill-suited to address indigenous movements' campaigns at the sub-state level: for example, collective claims for the protection of land, TEK, and their own definitions of development (Rajagopal, 2003; but also see, Coombe, 2005).

There are several international human rights instruments that could be invoked in making these sorts of strategic claims. The *UN Declaration of Human Rights* ("UDHR"),¹³ for instance, provides for "the right to own collective property (Article 17), the right to fair compensation for work (Article 23), and the right to benefit from the protection of 'the moral and material interests resulting from any scientific literary or artistic production of which he is the author'" (Cleveland and Murray, 1997, p. 493). The individualistic orientation of the UDHR, however, means that it is unlikely to be an appropriate tool for the production of folk varieties of crops. For a consideration of minority cultural rights, we must look beyond the UDHR to both the *International Covenant on Civil and Political*

¹³ *Universal Declaration of Human Rights* (1948), available at <<http://www.unhchr.ch/udhr/lang/eng.htm>> (last accessed 30 May, 2006).

*Rights*¹⁴ (“ICCPR”) and the *International Covenant on Economic, Social and Cultural Rights*¹⁵ (“ICESCR”). Arguing for a right to the enjoyment of a minority culture under article 27 of the ICCPR at the United Nations,¹⁶ indigenous people in Canada have been able to stop the leasing of land for oil and gas exploration and timber development (Robbins and Stamatopoulou, 2004, p. 429). However, it is debatable whether this result flowed more from the international boycott of the resources company involved or from the UN decision, since the latter did not specify a remedy and instead, under no threat of penalty, left it up to the Government of Canada to resolve the matter (Kymlicka, 1999). Aside from the moral power of a decision from the UN, it would seem that these covenants lack the ability to provide meaningful international legal effect.

Although the UDHR has become the “most authoritative source of human rights norms” (Chapman, 1998, p. 132) and despite “a rhetorical commitment to the indivisibility...of human rights”, economic, social and cultural rights have consistently been considered less significant than civil and political rights (Chapman, 1998, p. 133). Article 15 of ICESCR provides for:

1. The States Parties to the present Covenant recognize the right of everyone:
 - (a) To take part in cultural life;
 - (b) To enjoy the benefits of scientific progress and its applications;
 - (c) To benefit from the protection of the moral and material interests resulting from any scientific, literary or artistic production of which he is the author.

¹⁴ *International Covenant on Civil and Political Rights*, 19 Dec., 1966 (entry into force 23 March, 1976), 999 U.N.T.S. 171, available at <http://www.unhchr.ch/html/menu3/b/a_ccpr.htm> (last accessed 30 May, 2006).

¹⁵ *International Covenant on Economic, Social and Cultural Rights*, 16 Dec., 1966 (entry into force 3 Jan., 1976), 993 U.N.T.S. 3, available at <http://www.unhchr.ch/html/menu3/b/a_cescr.htm> (last accessed 30 May, 2006).

¹⁶ *Omniyak, Chief of the Lubicon Lake Band v. Canada*, 1990 UN Doc. A/45/40, Annex 9(A) (1990).

To achieve these objectives, the ICESCR further requires that the parties take steps “necessary for the conservation, development and the diffusion of science and culture”. As Chapman argues, human rights protection establishes “a higher standard for evaluating patent applications, namely that the proposed invention also be consistent with the inherent dignity of the human person and with central human rights norms” (Chapman, 1999, p. 129). Instead of aspiring to this normative standard, she argues that human rights considerations (cultural life and scientific advancement) are pushed aside by economic considerations by intellectual property policy makers, even though ICESCR is legally binding. A human rights approach to IPRs requires that the balance between the creators and the rest of society be made more explicit: the protection afforded by IPRs must not only promote scientific progress but “do so in a manner that will broadly benefit members of society on an individual, corporate and international level” (Chapman, p. 161-62). The UN Working Group on Indigenous Populations at the United Nations High Commission on Human Rights is charged with protecting the rights of indigenous peoples, including the protection of TEK. According to article 12 of the *UN Draft Declaration of the Rights of Indigenous Peoples*¹⁷:

Indigenous peoples have the right to practice and revitalize their cultural traditions and customs. This includes the right to maintain, protect and develop the past, present and future manifestations of their cultures, such as archaeological and historical sites, artifacts, designs, ceremonies, technologies and visual and performing arts and literature, as well as the right to restitution of cultural, intellectual,

¹⁷ *UN Draft Declaration on the Rights of Indigenous Peoples*, U.N. Doc. E/CN.4/Sub.2/1994/2/Add.1 (1994), available at <[http://www.unhcr.ch/huridocda/huridoca.nsf/\(Symbol\)/E.CN.4.SUB.2.RES.1994.45.En?OpenDocument](http://www.unhcr.ch/huridocda/huridoca.nsf/(Symbol)/E.CN.4.SUB.2.RES.1994.45.En?OpenDocument)> (last accessed 30 May, 2006).

religious and spiritual property taken without their free and informed consent or in violation of their laws, traditions and customs...

Given Chapman's assessment of how economics overdetermines intellectual property law it is not surprising that the High Commissioner on Human Rights has acknowledged that there are tensions between the protection of the rights of indigenous people and western intellectual property systems, including TRIPS (Correa, 2001, p. 23, citing UN Economic and Social Council, 2001). An important aspect of the *Draft Declaration* is that it also recognizes the right of self-determination of indigenous people. As a result, it is unlikely that its final version will include this provision given the state-centrism of the national governments who would be signatories to such a treaty.

The International Labour Organization (ILO) *Convention 107*,¹⁸ while not a human rights instrument per se, provides for protection of indigenous cultural identity and customs. However, the *Convention 107* has few signatories and is nonbinding (Cleveland and Murray, 1997, p. 493).

Conclusion

I have retraced the political activities of the Syilx to protect their TEK from commercial exploitation and compared them against a juridico-political framework less as a means to critique their tactics but more to illustrate other juridical and political opportunities. Our argument for the protection of TEK was made with the caveat that addressing the indigenous claims for rights, territory

¹⁸ *The Indigenous and Tribal Populations Convention (No. 107)*, 1957, available at <<http://www.ilo.org/ilolex/cgi-lex/convde.pl?C107>> (last accessed 5 June, 2006).

and autonomy (such as the Locatee lands and other land claims in the Okanagan) are politically prior to the protection of TEK because by definition TEK is based on an on-going relationship the land, animals, plants, and people. The law and politics of TEK was mapped along a continuum from narrow legal strategies, such as IPRs, trade secrecy, databases, and farmer's rights, to broader political strategies of cultural meaning-making, where environmental, cultural, and human rights claims were made across a variety of public platforms in the context of a pluri-ethnic state increasingly attuned to the right of indigenous people to have rights. As I discussed, not only does TEK fail to meet the requirements for western IPRs, but also IPRs are ill-suited to the protection of TEK for many ethical reasons, notably where it turns TEK into a commodity. I also reviewed how an array of cultural meaning-making strategies expand the political by moving beyond the constraints of state-based structures towards new platforms for the publicity of moral claims on the state in the interests of TEK. Realistically, these strategies are only viable over the long term and fail to meet the immediate concerns of indigenous people over TEK. I suggested that the protection of TEK should take the form of trade secrecy and that the resources of indigenous people are best aimed at contemporary struggles for territory and self-governance.

A final means of protecting TEK comes in the form of the promotion of in situ conservation as practiced and taught by indigenous knowledge keepers, such as Jeannette and Richard Armstrong. While not a form of "protection" in the sense that it shields TEK in the manner of the IPRs canvassed in this paper, the

practice of in situ conservation instead protects TEK as a sword: in the sense that it works to strengthen the traditional lifestyles that underwrite TEK. Like trade secrecy, this form of protection is firmly in the hands of indigenous people themselves. Again, beyond the important work of excavating indigenous beliefs and technologies of place (remembering), in situ conservation also invokes a self that cultivates a revolutionary set of desires based upon the matrix of relations in place (re-membering) as opposed to a narrower set of desires based upon the market or settler society (dis-membering). Thus, beyond merely being an environmental preoccupation, conservation “in place” enacts a re-indigenized political subject, one who can turn her activist energies to both legal matters and the challenging platforms of politico-cultural meaning-making in the struggle for indigenous autonomy and territory.

References

- Agarwal, A. (1995). Dismantling the Divide Between Indigenous and Scientific Knowledge. *Development and Change*, 26, 413-39.
- Armstrong, J. (2005). Personal interview. Penticton, Okanagan Nation. 25 May.
- Armstrong, R. (2005). Personal interview. Penticton, Okanagan Nation. 25 May.
- Atkinson, C. (2006). A deluge of oil money changes face of Kelowna. *The Globe and Mail* (23 May), available at <<http://www.theglobeandmail.com/servlet/story/RTGAM.20060523.wvan-development0519/BNStory/RealEstate/home>> (last accessed 1 June, 2006).
- Battiste, M. (2000). *Protecting Indigenous Knowledge and Heritage* (pp. 191-201). Regina: Purlich Publishers.
- Berlin, B. and Berlin, E.A. (2004). Prior Informed Consent and Bioprospecting in Chiapas. In Riley, M., ed., *Indigenous Intellectual Property Rights: Legal Obstacles and Innovative Solutions* (pp. 341-363). Walnut Creek: Alta Mira Press.
- Boyle, J. (2003). The Second Enclosure Movement and the Construction of the Public Domain. *Law and Contemporary Problems*, 66(33), 33-74.
- Brascoupé, S. and Endemann, K. (1999). *Intellectual Property and Aboriginal People: A Working Paper*. Strategic Research and Analysis Directorate, Department of Indian Affairs and Northern Development and Intellectual Property Policy Directorate, Industry Canada.
- British Columbia Government (Ministry of Environment, Land and Parks). (1997) *Cottonwood Riparian Eco-systems of the Southern Interior*. <<http://wlapwww.gov.bc.ca/wld/documents/cottonwood.pdf>> (last accessed 30 May, 2006). Victoria: Queen's Printers.
- Brown, M. (2003). Ethnobotany Blues. In Brown, M., *Who Owns Native Culture?* (pp. 95-143). Cambridge, MA: Harvard University Press.
- Castree, N. (2003). Bioprospecting: from theory to practice (and back again). *Transactions of the Institute of British Geographers*, 28, 35-55.
- Chander, A. and Sunder, M. (2004). The Romance of the Public Domain. *California Law Review*, 92, 1331-1369.
- Chapman, A. (1998). *A Human Rights Perspective on Intellectual Property and Human Rights*. World Intellectual Property Organization.

- Christie, G. (1998). Aboriginal Culture, Aboriginal Rights, and Protection? *Osgoode Hall Law Journal*, 36, 447-84.
- Cleveland, D.A. and Murray, S.C. (1997). The World's Crop Genetic Resources and the Rights of Indigenous Farmers. *Current Anthropology*, 38(4), 477-515.
- Coombe, R.J. (1998). Intellectual Property, Human Rights and Sovereignty: New Dilemmas Posed by the Recognition of Indigenous Knowledge and the Conservation of Biodiversity. *Ind. J. Global Leg. Stud.* 6, 59-115.
- Coombe, R.J. (2001). The Recognition of Indigenous Peoples' and Community Traditional Knowledge in International Law. *St. Thomas L. Rev.*, 14, 275-285.
- Coombe, R.J. (2005). Protecting Traditional Environmental Knowledge and New Social Movements in the Americas: Intellectual Property, A Human Right, or Claims to an Alternative Form of Sustainable Development? *Florida Journal of International Law*, 17, 115-135.
- Correa, C.M. (2001). *Traditional Knowledge and intellectual property: Issues and Options Surrounding the Protection of Traditional Knowledge*. Geneva: Quaker United Nations Office (QUNO).
- Greene, S. (2004). Indigenous Peoples Incorporated: Culture as Politics, Culture as Property in Contemporary Bioprospecting Deals. *Current Anthropology*, 44(2), 211-37.
- Hume, M. (2005). The miracle of the fishes. *The Globe and Mail*, May 24, S1.
- Johnson, M. (1992). Introduction. In Johnson, M. ed., *LORE: Capturing Traditional Environmental Knowledge*. <http://www.idrc.ca/en/ev-43097-201-1-DO_TOPIC.html> (last accessed 1 June, 2006). (Ottawa: IDRC).
- Jung, C. (2003). The Politics of Indigenous Identity: Neoliberalism, Cultural Rights and the Mexican Zapatistas. *Social Research*, 70(2), 433-62.
- Kymlicka, W. (1999). Theorizing Indigenous Rights. *University of Toronto Law Journal*, 49, 281-293.
- Lefebvre, H. (1991). *The Production of Space*. Trans. D. Nicholson-Smith. Malden, MA: Blackwell.
- McAfee, K. (1997). Selling Nature to Save it? Biodiversity and Green Developmentalism. *Environment and Planning D: Society and Space*, 17(2), 133-54.

- Norgaard, R.P. (1994). *Development Betrayed: The End of Progress and a Coevolutionary Revisioning of the Future*. New York: Routledge.
- Parry, B. (2000). The Fate of the Collections: Social Justice and the Annexation of Plant Genetic Resources. In Zerner, C., ed., *People, Plants and Justice: The Politics of Nature Conservation* (pp. 374-400). New York: Columbia University Press.
- Perrault, T. (2003). Changing places, transnational networks, ethnic politics, and community development in the Ecuadorian Amazon. *Political Geography*, 22, 61-88.
- Rajagopal, B. (2003). *International Law From Below: Development, Social Movements, and Third World Resistance* (pp. 233-70). Cambridge, UK: Cambridge University Press.
- Robbins, B. and Stamatopolou, E. (2004). Reflections on Culture and Cultural Rights. *South Atlantic Quarterly*, 103, 419-434.
- UNCTAD-ICTSD. 2003. *Intellectual Property Rights: Implications for Development*, available at <http://www.ictsd.org/pubs/ictsd_series/iprs/PP.htm> (last accessed 5 June, 2006).
- United Nations Social and Economic Council. (2001). *Economic, Social and Cultural Rights – The impact of the Agreement on Trade-Related Aspects of Intellectual Property rights on human rights. Report of the High Commissioner*. E/CN.4/Sub.2/2001/13, Jun.
- Vaver, D. (1997). *Intellectual Property Law: Copyright, Patents, Trademarks*. (Irwin Law: Toronto).
- Zerbe, N. (2002). Contested Ownership: TRIPs, CBD and Implications for South African Biodiversity. *Perspectives on Global Development & Technology*, 1(3-4), 294-321.