

TRADITIONAL VALUES AND MODERN CHALLENGES IN PROPERTY LAW

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INTRODUCTION

After decades of negative portrayal of traditional land tenure systems by the world's financial institutions, the World Bank has finally conceded that traditional modes of land tenure serve a beneficent purpose, and provide a foundation for the functioning of non-market institutions. This is tantamount to the recognition that land serves a dual function, namely the provision of the foundations of market and non-market social institutions.²

Thus traditional land tenure systems can no longer be dismissed as a relic of 'the Arcadian fantasy era in which noble savages were expected to wander off happily ever after to their dreaming sites and practice self-determination, in mystic communion with the land.'³

From such recognition of the function of traditional tenure flows the challenges it must face, the foremost being how to make traditional land tenure viable and relevant in a global economic system propelled by market forces and by concepts of sustainable development. Globalisation is proceeding on the assumption of a borderless world in which property and appurtenant interests and rights can be effected instantaneously.⁴ The issue is therefore whether traditional land tenure systems and concomitant rights can retain a status autonomous of such a global economic matrix or be integrated into it.

In this regard the present writer essays a discussion of an issue pertinent to the theme of this conference, namely natural resources and ownership of the traditional knowledge which sustains them.

TRADITIONAL KNOWLEDGE⁵

A crucial component of the traditional proprietary paradigm is traditional knowledge (TK) also referred to as local knowledge. Experience gained from the colonial existence

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² K Deininger (ed) *Land Policies for Growth and Poverty Reduction, A World Bank Policy Research Report* (2003) xvii.

³ C Pearson, 'Case to Put the Land Right' *The Weekend Australian* (Australia) 11-12 December 2004, 18.

⁴ A Trotman, *International Chamber of Commerce* (1997) 3.

⁵ The ideas discussed here were first presented at a workshop: CSIRO Sustainable Ecosystems Workshop: Property Rights – Key to Achieving Ecologically Sustainable Development in Outback regions, Undara, Queensland, Australia, 1-3 March 2005.

of non-western cultures suggests that whenever western values and institutions come into conflict with those of non-western culture the later must yield to the primacy of their western counterparts. Non-western cultural values and institutions – political, social and legal – deserved recognition and protection only to the extent they approximate their western counterparts. Pluralism or coexistence of multiple cultural values and institutions was at best tolerated.⁶

The position is not any different in respect of traditional knowledge also, because the discourse of intellectual property excludes any consideration of traditional knowledge as a specie of interest or right informed by proprietary indicia. If land, the most concrete representation of property, was not so long ago considered as encompassed by indigenous ideas of property,⁷ is it any wonder that indigenous products of the intellect are excluded from the categories of legally recognisable and protectable rights and interests?

The globalisation process has even exacerbated the problem in its drive toward the evolution of a universal commercial monoculture in which goods and services are beyond the regulatory powers of individual territorial sovereigns.⁸

However, it is simplistic to generalise the conception of TK; for to do so will be an experiment in trivialisation. Most of such knowledge is context specific and designed for the solution of localised problems. It is therefore important that its indicia be determined. It must be critically evaluated and validated. Such validation will enhance its protection and indiscriminate dissemination and exploitation.

Indigenous people assert ownership rights to their peculiar knowledge and practices relating to the bush which enabled them and their forebears before them to nurture and sustain the regenerative qualities of country in fishing, hunting and gathering and controlled burning of the bush. Additionally, indigenous people possess knowledge of the medicinal and curative properties of plants and vegetation which have been scientifically validated and are in great demand by pharmaceutical companies in western countries.⁹

This knowledge has been transmitted in a continuum through oral tradition from generation to generation and cannot be said to belong to particular individuals as its creators. Indigenous people are under enormous pressure to concretise such knowledge, reducing it into writing which makes it more amenable to piracy. The term bio-piracy was not coined by indigenous people. Bio-piracy is the unauthorised appropriation of plant related substances for development into commercial commodities – such as pharmaceuticals, cosmetics and pesticides. This is the crux of the concern of traditional peoples today regarding intellectual property that is, the non-recognition and protection of TK from commercial exploitation.

⁶ See Geertz, *Local Knowledge: Further Essays in Interpretive Anthropology* (1983) 16.

⁷ *Milirpum v Nabalco Pty Ltd* (1971) 17 FLR 141; contra *Mabo v Queensland* (1992) 175 CLR 1.

⁸ See generally H P Martin, *The Globalisation Trap* (1999). See also Ellen R et al (eds), *Indigenous Environmental Knowledge and Its Transformation* (2000).

⁹ See M Davies, 'Indigenous Rights in Traditional Knowledge and Biodiversity: Approaches to Protection' (1999) 4 *Australian International Law Review* 1.

Attempting to define TK can be likened to the proverbial Tropical African baobab tree which is so large that it is said it cannot be encompassed by two human hands. It is embodied in the norms, customs and traditional practices of a people and passed down by oral tradition from generation to generation. It is sacred and cannot be revealed to outsiders. It is inextricably bound with the land and its tenure. Entitlement to its use and enjoyment is communal and resides in the group. It embraces knowledge of places and of their ecology, knowledge of vegetation and plants and their properties as food to sustain life or as medicine to assist in curing maladies and diseases, knowledge of minerals and their uses etc. And just as there is no such thing as knowledge, but rather systems of knowledge,¹⁰ so also there are many systems of TK.¹¹ And there could be knowledge according to sex, age, status or other social stratification.¹²

Intellectual property in this context will be confined to patent law and away from copyright law because of the nexus between the World Intellectual Property Organisation's (WIPO's) trade related aspects of intellectual property rights (TRIPS) regime and traditional knowledge.¹³

OWNERSHIP OF TRADITIONAL KNOWLEDGE

The emergence of traditional/indigenous knowledge (TK/IK) as an intellectual expression has serious implications for development and scientific exploitation of natural resources outside the predominantly western industrialised nations. Western and industrialised nations have tended to idolise intellectual prowess as the product of formal education buttressed in schools, colleges and universities. This posture has nurtured the inauguration of a mono-cultural intellectualisation which would not countenance the existence of other systems of knowledge in a world made up of multiple cultures. Non-western forms of knowledge are denigrated as unscientific and dismissed as based on superstition.

The realisation now, albeit grudgingly conceded, that knowledge can be formal or informal means there has to be a re-evaluation of those interests, rights and claims built on the presumption of a universal monolithic intellectual culture. The North/South cleavage palpably demonstrates the correctness of the dichotomy of formal and informal knowledge systems.¹⁴

¹⁰ See F Cooper and R Packards, *International Development and the Social Sciences: Essays in the History of Politics of Knowledge* (1997) 1-41.

¹¹ See D Brokensha et al, *Indigenous Knowledge Systems and Development* (1980); and J Lewinger et al, *Diversity, Farmer Knowledge and Sustainability* (1992).

¹² See J Fairhead, *Indigenous Technical Knowledge and Natural Resources Management in Sub-Saharan Africa* (1992).

¹³ See M Blakeney, 'Bio-prospecting and the Protection of Traditional Medicinal Knowledge of Indigenous Peoples: An Australian Perspective' (1997) 19 *European Intellectual Property Review* 298; M Blakeney, 'Biodiversity Rights and Traditional Resource Rights of Indigenous Peoples' (1998) 2 *Bio-Science Law Rev* 52; *Intellectual Property Aspects of Ethnobiology* (1999), 1; and M H Fourmile, 'Protecting Indigenous Property Rights in Bio-diversity' (1996) *Current Affairs Bulletin* Feb/Mar 36.

¹⁴ Geertz, above n 6, chapter 6.

By relying on the knowledge of local people about resources and their properties, those interested in the acquisition of such knowledge save themselves the expense and trouble of engaging in long and drawn out experiments to arrive at such knowledge. However, even when such secret knowledge has been revealed by local people to bio-prospectors there is still the task of validating it scientifically.

The question regarding ownership of TK does not lend itself to an easy solution. It could begin initially as the thought of one individual which was then subsequently embraced by direct descendants and later practiced by the community as a whole.¹⁵

Mobility, the extended family system and inter-tribal marriage could lead to the transportation of the knowledge so that over time it spread over regions and even countries and is transformed or refined into other knowledge products. As Sillitoe observes, local knowledge 'is never still'.¹⁶ Sikana echoes the same idea when he says local knowledge 'is dynamic and strategic'.¹⁷

Native title claims in Australia demonstrate how difficult identifying the beneficiaries of a native title interest can be. Shiva states the matter eloquently:

[W]ithin indigenous communities, despite some innovations being first introduced by individuals, innovation is seen as a social and collective phenomenon and results of innovation are freely available to anyone who wants to use them. Consequently, not only the biodiversity but its utilization has also been in the commons, being freely exchanged both within and between communities. Common resource knowledge based innovations have been passed on over centuries to new generations and adopted for newer uses, and these innovations have over time been absorbed into the common pool of knowledge about that resource. This common pool of knowledge has contributed immeasurably to the vast agricultural and medicinal plant diversity that exists today.¹⁸

It is perhaps therefore not feasible to always determine with finality who is/are entitled to payment of compensation for particular knowledge, whether a group or tribe, because they are considered currently to be the rightful owners of some knowledge. Doing so could well work injustice on unidentified but potential beneficiaries.¹⁹

¹⁵ See *Bulun Bulun v R & T Textile Pty Ltd* (1998) 157 ALR 193 at 210 per Von Doussa J.

¹⁶ P Sillitoe, 'The Development of Indigenous Knowledge: A New Applied Anthropology' (1998) 39 *Current Anthropology* 223-252.

¹⁷ P Sikana, 'Indigenous Soil Characterisation in Northern Zambia' in I Scoones and J Thompson (eds), *Beyond Farmer First: Rural Peoples Knowledge, Agricultural Research and Rural Practice* (1994) 80-82.

¹⁸ V Shiva, *Protect or Plunder: Understanding Intellectual Property Rights* (2001) 46-47.

¹⁹ See B R Smith, 'All Been Washed Away Now: Tradition, Change and Indigenous Knowledge in Queensland Aboriginal Land Claim', in J Pottier et al (eds), *Negotiating Local Knowledge: Power and Identity in Development* (2003) 121, 127-131.

SUSTAINABLE DEVELOPMENT AND HARMONISATION OF THE CONFLICTING PROPERTY PARADIGMS: THE RELEVANCE OF ENVIRONMENTAL LAW

After centuries of ruthless exploitation of the world's natural resources often accomplished through subjugation of local populations, the real owners and custodians of such resources, the realisation has dawned on humankind that such natural resources, despite nature's boundless bounty are not inexhaustible and that unless humankind's extant patterns of exploitation and use of natural resources are drastically adjusted, there will be nothing left to bequeath posterity and future generations. The conception of the ideology of sustainable environment and its institutional gestation resulted in the United Nations Conference on Environment and Development (UNCED), also called the "Earth Summit" in 1992 at Rio de Janeiro, and is very critical to humankind's survival. Among the outcomes of the UNCED, three instruments are significant and pertinent to the theme of this gathering viz:

1. The *Rio Declaration on Environment and Development*;²⁰
2. *Agenda 21*;²¹ and,
3. The *Convention on Biological Diversity* (CBD).²²

The *Rio Declaration on Environment and Development* is significant for its recognition of the potential of indigenous and other traditional or local peoples for the management and development of the ecosystem through the deployment of their TK systems. Principle 22 states:

Indigenous people and their communities, and other local communities, have a vital role in environmental management and development because of their knowledge and traditional practices. States should recognise and duly support their identity, culture and interests and enable their effective participation in the achievement of sustainable development.

Agenda 21 is a comprehensive plan of action that can be implemented on global, national and local proportions. Though more hortatory than a legally binding document, it wields a moral force and provides a yardstick by which the performance of states could be measured. Its significance lies in the recognition it accords the 'holistic tradition of scientific knowledge of their lands, natural resources and environment'²³ of indigenous, traditional and other local peoples.

The CBD, the world's first legal instrument on biodiversity and its conservation is the most significant in its impact on the world's traditional peoples not only for

²⁰ UN Doc. A/CONF. 151/26/Rev.1.

²¹ *Agenda 21* (Adopted in the United Nations Conference on Environment and Development, Rio de Janeiro, June 14 1992).

²² (Entered into force December 29 1993 .

²³ N Ribis and A Mascarenhas, 'Indigenous Peoples After UNCED' (1994) 18 *Cultural Survival Quarterly*, <http://www.culturalsurvival.org> (Accessed 3 September 2004).

²⁵ Art. 2 *CBD*; (1992) 31 *International Legal Materials* 818.

its objective of the conservation of biological diversity and the sustainable use of its components but also for its objective of equitable sharing of benefits from the exploitation and use of genetic resources. To that effect Article 8(j) enjoins each contracting party:

Subject to its national legislation, 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.

Article 10 buttresses Article 8(j) by obligating each contracting party to:

- c. Protect and encourage customary use of biological resources in accordance with traditional cultural practices that are compatible with conservation and sustainable use requirements...
- d. Support local populations to develop and implement remedial action in degraded areas where biological diversity has been reduced.

As is always the case with governance whether national or global, good intentions are not enough, and since the CBD is short on details of mechanisms for the implementation of articles 8(j) and 10(c) and (d), the issue of 'the equitable sharing of the benefits arising from the utilization of (traditional) knowledge, innovations and practices' is still mired in endless debates, because in recognising TK and requiring that users of such knowledge pay for the product, the rich and developed countries see an end coming to their monopoly and stranglehold on the economic gains arising from intellectual property rights. Such a proposition sounds odious and preposterous to corporate interests. TK must remain entrenched in the public domain and exploitable without compensation being paid to their so-called owner.

However, there is an obvious correlation between securing legal protection of indigenous knowledge and the dictates of biodiversity – ie. the variety of all life forms – the different plants, animals and micro organisms, the genes they contain, and the ecosystem of which they form a part²⁵ and the integrity of the environment. It is a fact that in recognising and protecting one, interests in the other are enhanced automatically. Needless to say, in ratifying the CBD in 1993 Australia is under an international obligation to take legal measures to protect the rights of indigenous people relevant to biodiversity related knowledge and practices.²⁶

²⁶ Current literature on the matter includes: D M Bodansky, 'International Law and the Protection of Biological Diversity' (1995) 28 *Vanderlinden Journal of Transnational Law* 623; N Roht-Arriaza, 'Of Seeds and Shamans, The Appropriation of the Scientific and Technical Knowledge of Indigenous and Local Communities' (1996) 17 *Michigan Journal of International Law* 919; C M Horton, 'Protecting Biodiversity and Cultural Diversity under Intellectual Property Law: Toward a New International System' (1995) 10 *Journal of Environmental Law and Litigation* 1; A Hubbard, 'The Convention on Biological Diversity's Fifth Anniversary: A General Overview of the Convention – Where has it Been and Where is it Going?' (1994) 10 *Tulane Environmental Law Journal* 415; M H Huft, 'Indigenous Peoples and Drug

ADVENT OF TRADE RELATED ASPECTS OF INTELLECTUAL PROPERTY RIGHTS (TRIPS)

Developing countries, home for majority of the world's traditional and indigenous peoples find it difficult to understand the trappings of intellectual property law which is essentially an European legal contraption.²⁷ Some such laws were designed solely to protect patents already granted by the parliament of a colonial power.²⁸ Be that as it may, the introduction in 1994 of TRIPS into the Uruguay Round of the GATT negotiations by the United States of America can be regarded as the turning point in the world's intellectual property regime.²⁹ It was a move strategically designed to foist on the rest of the world the US type intellectual property regime. The idea was conceived and hatched by the Intellectual Property Committee (IPC) of the United States made up of thirteen US based multinational corporations (MNC), and assisted by industry associations of Europe and Japan.³⁰ The TRIPS regime is an outgrowth of the World Trade Organisation's

Discovery Research: A Question of Intellectual Property Rights' (1995) 89 *Nebraska University Law Review* 1678; J Kushan, 'Biodiversity: Opportunities and Obligations' (1995) 28 *Vanderlinden Journal of Transnational Law* 755; C D Jacoby and C Weiss, 'Recognizing Property Rights in Traditional Biocultural Contribution' (1997) 16 *Stanford Environmental Law Journal* 74; R L Margulies, 'Protecting Biodiversity: Recognizing International Property Rights in Plant Genetic Resources' (1993) 14 *Michigan Journal of International Law* 322; T Cottier, 'The Protection of Genetic Resources and Traditional Knowledge' (1998) 10 *Journal of International Economic Law* 555; and A Kothari, 'Biodiversity and Intellectual Property Rights: Can the Two Co-Exist?' (1999) 4(2) *Linkages Journal* <http://www.iisd.ca/journal/Kothari.html> (Accessed 15 July 2007).

²⁷ See M Forsyth, 'Intellectual Property Laws in the South Pacific: Friend or Foe' (2003) 7 *Journal of South Pacific Law* <http://paclii.org.vu/journals/fJSPL/vol07no1/8.shtml>; C Oguamanan, 'The CBD and Intellectual Property Rights: The Challenge of Indigenous Knowledge' (2003) 7 *Southern Cross University Law Review* 89.

²⁸ See M Ahmadu, 'Vanuatu's Accession to the WTO and the WIPO: A Reflection on Patent and Pharmaceutical Technology' (1998) 2 *Journal of South Pacific Law* http://www.vanuatu.usp.ac.fj/journal_splaw/articles/Ahmadu1.htm 30. Typically, the relevant legislation for Vanuatu, Kiribati and Solomon Islands and Tuvalu are titled *Registration of United Kingdom Patents Act*. The French term, *propriete industrielle* (industrial property) is more appropriate. In French the word *industrielle* encompasses the whole gamut of human endeavour or labour. And again in French the word *propriete* does not connote property as in the strict common law sense. It connotes the power to restrain unauthorised replication in the form of imitation or other types of infringement of an art. See dicta of Holmes J in *White Smith Music Publishing Co v Apollo Co* 209 US 1 at 19 (1908). On the development of intellectual property see, P J Federico, 'Origin and Early History of Patents' (1929) 2 *Journal of the Patent Office Society*, 293-295; J Kase, *Copyright Thought in Continental Europe: Its Development, Legal Theories and Philosophy* (1967) 1-15; P Drahos, *A Philosophy of Intellectual Property* (1996); World Intellectual Property Organisation, *Introduction to Intellectual Property: Theory and Practice* (1997); O Lippert, *Individualism, Intellectual Property and the Future of Capitalism* (1999) 8-10; the *Statute of Monopolies 1620*; F Warshofsky, *Patent Wars* (1994); and B Sherman and L Bentley, *The Making of Modern Intellectual Property Law* (1999).

²⁹ This contrast sharply with the most significant of the objectives of the Uruguay Declaration of 1986, namely, 'to...bring about further liberalisation and expansion of world trade to the benefit of all countries, especially less developed contracting parties, including the improvement of access to markets by the reduction and elimination of tariffs, quantitative restrictions and other non-tariff measures and obstacles': Para B (iv); see (1986) 25 *International Legal Materials* 1623.

³⁰ The membership of the US IPC consisted of corporations such as: Bristol Myers, Dupont, General Electric, General Motors, Hewlett Packard, IBM, Johnson and Johnson, Merck, Monsanto, Pfizer,

(WTO's) objective of forging a global or multilateral trade system by 'promoting sustainable growth and development while contributing to a more stable and secure climate in international relations.'³¹

Here was the genesis of the inauguration of the agenda of linkage between global trade and the environment, an issue which would exacerbate the North-South cleavage with disastrous consequences for future WTO deliberations. At the Seattle Ministerial Conference in 1999, matters came to a climax with developing state members' refusal to accept or condone any such linkage. The developing countries regard the linkage as a diversion from real, proper and legitimate trade and economic issues. The conference ended in a fiasco.³²

TRIPS was therefore not a case of a negotiated agreement by the GATT member nations, and with the simultaneous establishment in 1994 of the World Trade Organisation (WTO) as the administration body of GATT the success of the scheme was assured. It was obligatory for member states to take steps to legislate the law by January 1 2000. For developing nations this entails amendments of existing legislation on intellectual property. The least developed nations were given up to 2005 to sign up. In the case of Australia for example this was accomplished by the *Patents Amendment (Innovation Patents) Act 2000* (Cth). In adopting an amending legislation, Australia was obviously acting as if it has no indigenous population whose concerns regarding the TRIPS may be similar to those of developing nations.³³

Problems Emanating From the TRIPS Agreement

The first thing to note about this agreement is that it was not negotiated in the manner multilateral treaties are customarily negotiated and concluded among nations. As noted earlier, it was more an imposition than a negotiated outcome. Second, by affirming in the Preamble the exclusivity of patent rights as conferring private and individual rights, communal interests and interests of groups such as those held by indigenous people based on group entitlement are denied legal recognition.³⁴ Thirdly, the agreement flies in the face of the sovereignty of nations over their natural resources enshrined in several United Nations documents and reiterated in the CBD as it treats national natural resources as private rights and up for grabs under the TRIPS regime.³⁵ The question is: which of the

Rockwell and Warner. See J Croome, *Reshaping the World Trade System: A History of the Uruguay Round* (1995). See also R Buder, *Engines of Tomorrow: How the World's Best Companies are Using Their Research Labs to Win the Future* (2000).

³¹ Para 2, Singapore Ministerial Declaration, 1996. The Ministerial Conference is the WTO's apex decision making body. See the *Marrakesh Agreement Establishing the World Trade Organisation* (April 15 1994, entered into force January 1 1994); (1994) 33 *International Legal Materials* 1125.

³² See S Subedi, 'The Road from Doha: The Issues For The Development Round of The WTO And The Future of International Trade' (2003) 52 *International and Comparative Law Quarterly* 425.

³³ For the text of the Agreement see GATT, *The Results of the Uruguay Round of Multilateral Trade Negotiations* 365 (1994), reproduced in (1994) 33 *International Legal Materials* 1179.

³⁴ See Art. 28.

³⁵ Some critics argue that limiting access to bio-resources globally would be tantamount to dispossession of the public of rights in the public domain: See W Van Caenegem, 'The Public Domain: Scientia Nullius?' (2002) 24 *European Intellectual Property Review* 324.

two takes precedence over the other? Without a doubt, nations would place the integrity of their sovereignty over and above every other consideration.³⁶ The exceptions in Article 27(2) of human, animal or plant life from patentability on grounds of public order or morality is stultified by the provisions of Article 27(3). It reads:

Members *may* exclude from patentability:

- (a) diagnostic, therapeutic and surgical methods for the treatment of humans or animals;
- (b) plants and animals other than micro-organisms, and essentially biological processes for the production of plants or animals other than non-biological and microbiological process. However, Members shall provide for the protection of plant varieties either by patents or by an effective *sui generis* system or by any combination thereof. The provisions of this subparagraph shall be reviewed four years after the date of entry into force of the WTO Agreement.

This is a very controversial provision the interpretation of which has received innumerable commentary.³⁷ And fourthly, there should be a prohibition of patent protection for genetic resources relating to food and medicine, indeed, agriculture generally. This is because, for developing nations, food and medicine are life-sustaining matters and should not be allowed to be transformed or converted into industries simply to churn profits.

The United States is unlikely to accept any *sui generis* system which does not meet the rigorous standard of Article 8, that is, 'appropriate measures' that are 'consistent with the

³⁶ See the seminal discussions of reconciling the two documents: M Kruger, 'Harmonizing TRIPS and the CBD: A Proposal from India' (2001) 10 *Minnesota Journal of Global Trade* 169; S Young, 'The Patentability of Maori Traditional Medicine and the Morality Exclusion in the *Patents Act* (NZ) 1953' (2001) 32(1) *Victoria University of Wellington Law Review* 1; S K Verna, 'Access to Plant Genetic Resources and Intellectual Property: The Case of India' (2001) *CASP Newsletter* Spring/Summer; C R McManis, 'The Interface Between Intellectual Property and Environmental Protection: Biodiversity and Biotechnology' (1998) 76(1) *Washington University Law Quarterly* 255; J P Mishra, 'Biodiversity and Intellectual Property Rights: Implications for Indian Agriculture' (2002) 3(2) *Journal of World Intellectual Property* 211; V Cullet, 'Revision of the TRIPS Agreement Concerning the Protection of Plant Varieties' (1999) 2(4) *Journal of World Intellectual Property* 617; and L Helfer, 'Regime Shifting: The TRIPS Agreement and New Dynamics of Intellectual Property Lawmaking' (2004) 29 *Yale Journal of International Law* 1.

³⁷ See R Cunningham, 'Rights for All', 120 *Managing Intellectual Property*, 34-37; P Braga and A Carlos, 'International Transactions in Intellectual Property and Developing Countries' (2000) 19 *International Journal of Technology Management* 35; P Braga, 'Intellectual Property Rights: Imperatives for a Knowledge Industry' (2000) 22 *World Patent Information* 167; S K Mathur, 'Domestic Challenges and the TRIPS Agreement: The way Forward for India' (2001) 4(3) *Journal of World Intellectual Property* 337; 'The Right to Good Ideas' (2001) *The Economist* 359(8227) 25-29; B Chaytor, 'The Convention on Biological Diversity: Exploring the Creation of a Mediation Mechanism' (2002) 5 *Journal of World Intellectual Property* 157; S Elwyn-Jonas, 'Report of the Commission on Intellectual Property Rights' (2002) 5(3) *Bio-Science Law Review* 101; A Viswanathan, 'From Marrakesh to Doha: WTO's Passage to India for Pharmaceutical Patents' (2002) 17 *World Intellectual Property Report* 22; K Stegemann, 'The TRIPS Agreement as an Alliance for Knowledge Production' (2003) 6(4) *Journal of World Intellectual Property* 529; W Pretorius, 'TRIPS and Developing Countries: How Level is the Playing Field' in P Drahos (ed), *A Philosophy of Intellectual Property* (2002).

... Agreement.’ These are the same expressions employed in section 301 of the United States *Trade and Competitiveness Act 1988* under which retaliating measures are often taken against nations whose intellectual property laws are not consistent with standards ordained by the United States Government.

Domestic Implementation of the TRIPS Agreement

The implementation of the TRIPS agreement nationally as indicated earlier was accomplished through amending existing patent legislation in many countries.³⁸ In Australia the *Patents (Amendment) Act 2000* (Cth) was passed amending the *Patents Act 1990* (Cth) ‘by repealing the petty patent scheme (old s62) and providing for innovation patents...’³⁹ A new Section 7 defines “innovative step”. It states:

- (4) For the purposes of this Act, an invention is to be taken to involve an innovative step when compared *with the prior art base* unless the invention would, to a person skilled in the relevant art, in the light of the common general knowledge as it existed in the patent area before the priority date of the relevant claim, *only vary from the kinds of informative set out in subsection (5) in ways that make no substantial contribution to the working of the invention.*
- (5) For the purposes of subsection (4), the information is of the following kinds:
 - (a) prior art information made publicly available in a *single document* or through doing a single act;
 - (b) prior art information made publicly available in 2 or more related documents, or through doing 2 or more related acts, if the relationship between the documents or acts is such that a person skilled in the relevant art in the patent area would treat them as a single source of that information.
- (6) For the purposes of subsection (4), each kind of information set out in subsection (5) must be considered separately.

It is ironic that when existing knowledge is “shuffled around” it is considered a new knowledge and therefore patentable. However, in the case of TK which is not always reduced into recorded instruments or documents, it is regarded as part of the public domain and therefore exploitable by those with the means and ability to do so.

A new subsection added to Section 18 defines patentable inventions. It provides:

- (1A) Subject to subsections (2) and (3), an invention is a patentable invention for the purposes of an innovation patent if the invention, so far as claimed in any claim:
 - (a) is a manner of manufacture within the meaning of section 6 of the Statute of Monopolies; and

³⁸ See for example the Indian *Patent (Amendment) Act 1999* amending the *Patent Act 1970* to remove the exceptions from patentability of food, medicine and drugs in the old legislation: Shiva, above n 18, 104-105.

³⁹ Preamble of the Act. Innovative patents are so called because they involve “innovative steps”.

- (b) when *compared with the prior art base* as it existed before the priority date of that claim:
 - i. *is novel; and*
 - ii. *involves an innovative step; and*
- (c) *is useful; and*
- (d) *was not secretly used in the patent area before the priority date* of that claim by, or on behalf of, or with the authority of, the patentee or nominated person or the patentee's or nominated person's predecessor in title to the invention.

Applied to existing TK which is of unquestioned antiquity, it becomes a new idea because although it is practised openly ('not secretly used in the patent area') it has become a novelty through its encounter with another culture's so called "innovative step".

Again Section 18 is amended to include two new subsections – which together provide for the exceptions to patentability. They read:

- (3) For the purposes of an innovation patent, plants and animals, and the biological processes for the generation of *plants and animals, and not patentable inventions*.
- (4) Subsection (3) does not apply if the invention is a *microbiological process or a product* of such a process.

Section 18(4) reverses everything that Section 18(3) is designed to accomplish. It is however consistent with the intention behind Article 27.3(b) of TRIPS and the US Supreme Court decision in *Diamond v Chakrabarty*⁴⁰ – i.e. humans playing God. All the amendments were carried through without any hint of consultation with Australia's indigenous people who live and order their lives around TK.

TRIPS and Plants and Seed

For developing nations and indigenous peoples the most troubling aspect of the TRIPS regime is its effect on peoples' daily livelihood and traditional existence – food, plants (medicine), and seed (farming). Indeed traditional existence is encompassed by the entire philosophy of biodiversity. This has been overwhelmed by external economic and monopolistic forces over which they have no control.

Newly invented plants are patentable in the developed nations. In the US since 1930 this has been the case.⁴¹ In 1970 the *Plant Variety Protection Act* was passed which allowed farmers to sell seeds among themselves. That privilege was taken away by the *Plant Variety (Amendment) Act 1994* which established virtual monopoly over seed in favour of

⁴⁰ 447 US 303 (1980).

⁴¹ *Plant Patent Act 1930*.

the US seed industry.⁴² In Australia the new *Plant Breeders Act 2000* accomplishes similar objectives.

Since the handing down of the US Supreme Court decision in *Diamond v Chakrabarty*⁴³ to the effect that an invention of a new bacterium genetically engineered to degrade crude oil was patentable because the micro-organism ‘is not...a hitherto unknown natural phenomenon but a non-naturally occurring manufacture or composition of matter – a product of human ingenuity...a discovery that is not nature’s handiwork...’⁴⁴ the stage was set for human claims to nature’s products. The Court even went further: ‘anything under the sun made by man’ was patentable!⁴⁵ Does the mere shuffling of genes and changing of already existing bacteria constitute invention? The Court however concluded that the discovery of a hitherto unknown phenomenon of nature is not patentable ‘if there is to be invention for such a discovery it must come from the application of the law of nature to a new and useful end.’⁴⁶

The controversial “appropriation” of the neem tree (*Azadirachta indica*) of India by W R Grace and the patenting of chemical compounds obtained from the seed for the processing and manufacture of pesticides was challenged in the European Patent Office by over 200 organisations. The claims were vindicated in spite of the arguments on behalf of the patentee that ‘the neem tree itself has not been patented, nor have its parts such as leaves, twigs, roots, stems etc.’⁴⁷ However, in the USA itself the US Patent and Trade Mark Office continue to protect the operations of W R Grace.

The patenting of Indian aromatic basmati rice lines and grains by RiceTec Inc of Texas in 1997 is another example of how TK of a whole subcontinent can be easily appropriated. Basmati rice is as indigenous to India as the neem tree. By patenting basmati the patentee is assured ‘novelty’ rights and privileges appurtenant to it. It is exported under the brand names Kasmati, Texmati and Jasmati.⁴⁸

However, it is in the area of medicinal plants that the issue becomes quite acute. The examples are infinite. A few cases will be referenced here.

(a) The Fox Chase Centre of Philadelphia applied for a patent on *Phyllanthus niruri* for the treatment of hepatitis to the European Patent Office citing an Indian text, *India Materia Medica* which reports that the chemical substance derives from the Indian tree,

⁴² See *Asgrow Seed Co v Winterboer* 513 U S 179 (1995) See also *JEM Ag Supply Inc v Pioneer Hi-Bred Int’l Inc.* 534 US 124 (2001).

⁴³ See above, n 39.

⁴⁴ *Ibid.*

⁴⁵ *Ibid.*, 309.

⁴⁶ *Funk Bros Seed Co v Kalo Co.* 333 US 127, 130 (1948).

⁴⁷ Shiva, above n 18, 60.

⁴⁸ *Ibid.* at 56-57 Notice the similarity between the brand names and the original name, basmati. See also I Hering, ‘Culture Clash’ (2001) 113 *Managing Intellectual Property*, 14-17; O Das, ‘Patenting and Ownership of Genes and Life Forms’ (2000) 3(4) *Journal of World Intellectual Property* 577; L E Jackson, ‘Agricultural Biotechnology and the Privatisation of Genetic Information’ (2000) 3(6) *Journal of World Intellectual Property* 825.

Bhudharti, or *Jar amla* or *Bhuin amla* promotes the treatment of jaundice. Since both diseases relate to liver malfunctioning, the success of the application can only be described as an example of bio-piracy.⁴⁹

(b) Cromak Research Inc, a New Jersey based medicinal company, obtained a patent on *Karela* or *jamun*, an Indian plant used in the treatment of diabetes in Indian traditional medicine.⁵⁰

(c) Brazil's effort to manufacture and promote its AIDS cocktail, which would reduce the cost of AIDS treatment and make AIDS fighting drugs cheaper under its *Patent Law 1997*, has been resisted by US drug companies assisted by the US Government.⁵¹

(d) In Australia, Davis records the Western Australia case of the smokebush plant (*Conospermum*) which the US National Cancer Institute collected and screened under licence from the WA Government in the 1980s. The plant has medicinal properties which, it is believed, could assist in curing AIDS.⁵²

The current posture of the WIPO on TK is clearly quite the reverse of that of other agencies of the UN which actively promote self-reliance and self-sufficiency in the developing nations by providing financial support for institutional programmes that foster integration of traditional and non-traditional institutions and practices. For example the World Bank has demonstrated how cooperation – i.e. engaging traditional medicinal practitioners in bio-prospecting rather than antagonism towards them can be beneficial to all concerned.⁵³

WHOSE INTEREST IS REALLY SERVED BY BIOPROSPECTING?

Staggering corporate profits⁵⁴ resulting from the diversion of biological resources from developing to developed nations belie the altruistic posturing of the companies involved of poverty alleviation in developing nations.⁵⁵ Only state intervention, whether legal or political can halt the depletion and waste of a nation's natural resources. However, such state legislative action as has been taken is directed at revenue collection not at forest protection.

⁴⁹ See Shiva, above n 18, 54-55.

⁵⁰ *Ibid* 55.

⁵¹ See L Onaga, 'Cashing in on Nature's Pharmacy' (2001) 2(4) *European Molecular Biology Organisation (EMBO) Reports* 263.

⁵² M Davis, 'Biological Diversity and Indigenous Knowledge' (Research Paper No 1,7 Canberra Parliamentary Library, 1998); See also Fourmile, above n 13.

⁵³ World Bank, 'Traditional Medicine Practice in Contemporary Uganda' (March, 2003) 54 *I K Notes*; See also K Moran et al, 'Biodiversity Prospecting: Lessons and Prospects' (2001) 30 *Annual Review of Anthropology* 505.

⁵⁴ For some figures see G Rausser and A A Small, 'Valuing Research Leads: Bio-prospecting and the Conservation of Genetic Resources' (2000) 108 *Journal of Political Economy* 173.

⁵⁵ See P Sillitoe and R A Wilson, 'Playing on the Pacific Ring of Fire: Negotiation and Knowledge in Mining in Papua New Guinea' in J Pottier et al (eds) *Negotiating Local Knowledge: Power and Identity in Development* (2003) 241.

State laws are typically designed to protect state interests in biodiversity thus exposing indigenous interests to exploitation.⁵⁶ Indigenous people are therefore left to their own devices and usually find solace in the only legal option available to them, that is concluding contracts with bio-prospecting companies. The unequal bargaining power of the parties in such situations is clearly conducive to the conclusion of unfair deals. Thus, while the state appears interested in “cashing in” on the loot of “nature’s pharmacy” by commercial conglomerates, the depletion of our forests continues unabated. As Onaga observes:

The whole business structure is aimed at making human beings richer, not making forests conserved. However, the growing understanding that destroying rain forests means depleting Mother Nature’s medicine cabinet has raised the expectation among conservationists that some of these profits could, and should, be used to finance measures to preserve biodiversity, particularly in species-rich developing countries.⁵⁷

TRADITIONAL KNOWLEDGE OF HERBS AND MEDICINAL PLANTS

Alternative medicine, a burgeoning health care area, is medicine based on non-western medicinal precepts. In Africa, Asia and North America, long before the introduction of European type medicine, plants and herbs provided the only sources of medicine. In West Africa Dalziet’s treatise⁵⁸ is a classic text on such matters supplemented by research outcomes of the Centre for Scientific Research into Plant Medicine (CSRPM) in Ghana and its counterpart in Nigeria, Nigeria Institute of Pharmaceutical Research and Development (NIPRD). In Australia there are numerous texts on indigenous pharmacology.⁵⁹

In Asia, China and India there are leaders in the field.⁶⁰ In Central and Southern Africa the situation is the same.⁶¹ In the South Pacific region, Vanuatu, Fiji and Papua New Guinea, are leaders in the production of kava reputed for its medicinal quality in the alleviation of stress-related ailments.⁶²

⁵⁶ See for example *Biodiscovery Act 2003 (Qld)* while bio-prospecting is seemingly based on consent, bio-piracy is not!

⁵⁷ Onaga, above n 50.

⁵⁸ H M Burkill *The Useful Plants of Tropical Africa* (1964).

⁵⁹ See D Levitt, *Plants and People: Aboriginal Uses of Plants on Groote Eylandt*, (1981); L R Sharp, *The Social Anthropology of a Totemic Society in Northern Australia*, (PhD Dissertation, Harvard University, 1937); and G Stewart, *People, Plants and Wangarr Wirrs: Notes on Traditional Healing* (undated, Kowanyama Aboriginal Land and Natural Resource Management Office).

⁶⁰ Systems of medicine – *Ayurveda*, *Unani* and *Siddha* – are covered by treatises which include K M Nadkarni, *Indian Material Medica; Wealth of India; Compendium of Indian Medicinal Plants*; and *Treatise on Indian Medicinal Plants*. See Shiva, above n 18, 53-55 for details. See also, Y Liu, ‘IPR Protection for New Traditional Knowledge: A Case Study of Traditional Chinese Medicine’ (2003) 25 *European Intellectual Property Review* 194.

⁶¹ See J F Esegu, *Research in Medicinal Plants in Uganda Kampala* (2002); R H Bannerman et al, *Traditional Medicine and Health Care Coverage* (1993).

⁶² Samoa is reported to have developed a drug from the bark of *mamala* tree (*homalantus*) which can check the spread of HIV virus. See Forsyth, above n 29, fn 77.

What Prospects for the Future?

Uneven apportionment of rights and obligations in any legal setting bespeaks of discrimination and unequal treatment. Democracy thrives only in environments suffused with egalitarian and equalitarian ideals. The current TRIPS regime is an affront to the dignity and self-sufficiency of indigenous populations all over the world as it is weighted against their interests while it upholds the primacy of the interests of western and industrialised countries. Injustice breeds alienation which in turn fosters temptation to resort to extralegal means for redress.⁶³ Only fairness can ensure social tranquillity and the reign of law.

Review Process

Article 27.3 provides for the review of its provisions four years after coming into force of the WTO Agreement in 1999. Not much has happened on that front since the fiasco of the Seattle and Concu Conferences. Shiva has argued that a review should have preceded the coming into force of the Agreement.⁶⁴ This writer argues that the shortcomings of any instrument become evident only after it has gone into force. Without experiencing problems with implementation, review and reform is otiose and meaningless. First, it is not just Article 27 that must be reviewed; rather the entire Agreement must be reworked because it is important to resolve the discrepancy between the CBD and TRIPS and to enshrine the primacy of the former. Second, it is important to provide for the recognition and protection of TK. Third, TK should be patentable in its own right, and the problem of bio-piracy ought to be addressed as well.

In areas where patent rights have already been established and therefore protected under an appropriate patent regime, it is necessary to inaugurate a knowledge bank in order to advance development in those areas where knowledge-related innovations and inventions come into play are critical to such development.⁶⁵

Challenging Patent Applications

Some have hailed the Indian success at getting the European Patent Office to revoke European Patent No 0436257 on neem tree oil granted to W R Grace as a victory for developing countries and shows that developing countries have clout and the wherewithal to have their rights vindicated.⁶⁶ However, the expenditure involved in such litigation is

⁶³ The closure of the Bougainville copper mine by forces opposed to the mining operations of the Australian mining giant BHP Billiton in Papua New Guinea is a pointer to this modality of self-help: See Silitoe and Wilson above n 54.

⁶⁴ Shiva, above n 18, 117.

⁶⁵ For example, India's Traditional Knowledge Digital Library (TKDL) and the World Intellectual Property Organization's (WIPO's) Portal of Online Databases and Registries of Traditional Knowledge and Genetic Resources (PODTKGR). See Documents WIPO/GRTKF/IC/3/6 and WIPO/GRTKL/IC/3/17.

⁶⁶ See S Kadidal, 'Subject-Matter Imperialism? Biodiversity, Foreign Prior Art and the Neem Patent Controversy' (1997) 37 *IDEA* 371.

prohibitive and beyond the financial resources of most indigenous peoples and developing countries.

Adoption of a Sui Generis System

Countries which rushed into meeting the deadline for the implementation of the TRIPS Agreement believing that a safety net has been provided in Act 27.3 for the protection of their peculiar national intellectual property interests now realise that the Article 27.3 protection is illusory. The conjunction of ‘non-biological’ and ‘microbiological’ in Article 27.3(b) is to say the least a red-herring, for while they undoubtedly refer to biotechnology involving genetic engineering, that is the mixing of animal and plant genes, the consequential production of permutations of animals and plants are essentially reproduction through biological processes. Man has no part in nature’s reproduction processes.⁶⁷ Further, Article 27.5.3(b) aims at the protection of plant varieties by patents or a *sui generis* system, without reference to the time-honoured practices of ordinary farmers and peasants across the globe. This is the part of the Agreement that threatens most the survival of peasant farmers world-wide. The plant varieties are of course those connected with the system of plant breeders rights recognised under the *International Convention for the Protection of New Varieties of Plants 1961-1991*.

Article 8(1) enjoins member states when formulating or promulgating their national laws to implement the TRIPS Agreement to:

[A]dopt measures necessary to protect public health and nutrition, and to promote the public interest in sectors of vital importance to their socio-economic and technological development, provided that such measures are consistent with the provisions of this Agreement.

Other measures necessary to ‘prevent the abuse of intellectual property rights by right holders or the resort to practices which unreasonably restrain trade or adversely affect the international transfer of technology’ run the risk of being considered inconsistent with the provisions of the Agreement.⁶⁸

These provisions, when juxtaposed with Article 8(j) of the CBD evince an indisputable contradiction. Article 8(j) of the CBD places on each contracting party the obligation, as far as possible and appropriate to:

[R]espect, preserve and maintain knowledge, innovation and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation of sustainable use of biological diversity and promote their wider application with the approval and involvement of the holders of such knowledge,

⁶⁷ For some views on the moral and ethical implications see International Plant Genetic Resources Institute, ‘Ethics and Equity in Conservation and Use of Genetic Resources for Sustainable Food Security’ (Proceedings of a Workshop to Develop Guidelines for the CGIR, Rome, April 1997).

⁶⁸ Article 8(2).

innovations and practices and encourage the equitable sharing of benefits arising from the utilization of such knowledge, innovations and practices.

It seems apparent therefore, that whereas the CBD seeks to promote in-situ conservation of resources, the TRIPS Agreement ordains their exploitation, asportation and depletion.

An example of a *sui generis* regime is The Model Law for the Protection of Traditional Knowledge and Expression of Culture (The Model Law), 2002 crafted by the South Pacific Commission and Pacific Island Forum in collaboration with UNESCO and endorsed by the Forum Regional Ministers in the same year. The Model Law seeks to protect TK and expressions of culture as traditional cultural rights and not as things in the public domain and therefore amenable to private appropriation by outsiders.⁶⁹ Culture in the South Pacific embraces all traditional practices, usages and knowledge of the peoples of Melanesia, Polynesia and Micronesia. The rights are perpetual,⁷⁰ inalienable,⁷¹ but, subject to the consent of the owners, who may be constituted as a Cultural Authority, exploitable in a manner that ensures appropriate profit sharing.⁷² These rights are not categorised as tangible or intangible and do not negate or supplant the extant intellectual property regime, hence their *sui generis* character.

Adoption of a Compulsory Registration System and Disclosures

Some advocate a system of compulsory registration of TK which provides for the granting of a licence to those who require access to it.⁷³ Some people advocate just the opposite, that is, giving developing nations access to information obtained by developed nations in respect of TK.⁷⁴ Neither system however addresses the perennial issue of ownership of TK. Similar to the idea of registration is the call for the establishment of a system of disclosure of the source (i.e. country of origin) of TK employed in a biotechnology process.⁷⁵ This is akin to the requirement of acknowledgment and attribution of authorship implicit in the moral rights regime of the Australian copyright law.⁷⁶ It is a mere palliative measure which protects the integrity of the work of an author and does not address economic issues which is an aspect of the concern of the customary owners of TK.

Capacity Building

The deficit in indigenous people's ability to negotiate and enter into contracts with well-heeled corporate entities, some believe, can be cured through a process of training euphemistically labelled "capacity building." By this, it is thought that indigenous people's representatives could be tutored and nurtured in such particular western and

⁶⁹ Section 7.

⁷⁰ Section 9.

⁷¹ Section 10.

⁷² Part 4.

⁷³ See Cottier, above n 25.

⁷⁴ Ibid.

⁷⁵ Ibid.

⁷⁶ *Copyright Amendment (Moral Rights) Act 2000 (Cth)*.

corporate-based acumen and techniques of management and technical legal know how as to position them to deal with business people and other corporate structures and institutions on equal footing. It is as if overnight people can be imbued with corporate wisdom and transformed into shrewd business executives appreciative of, and competent in, the processes of negotiation and contract formation, the logic of the capital market system, resource and environmental protection laws and myriads of internationally ordained ethical and legal prescriptions regarding the exploitation of natural resources. Contracts, the Canadian-based advocacy group Rural Advancement Foundation International (RAFI) has argued, could usher in economic opportunities – training, employment and infrastructure – but they do not address the perennial and critical indigenous concerns – that is control and ownership of the outcomes of bio-prospecting.⁷⁷

Change in Corporate Culture

It has been appropriately observed:

When the company officials step out of their offices and into the village or into the forest clearing to meet with landowners they step into a customary law setting. When liaison officers make their regular trips to villages to hear the “talk”, they hear verbiage which comes from a customary law context and insofar as the talk raises disputations matters they are so in reference to the villagers aspirations for justice to be done according to custom. Land is the physical basis of the sovereignty of the community and customary law is the cultural and legal basis of the sovereignty of the community. In order to deal with these matters effectively community liaison officers must have a knowledge of, and sympathy for, customary law issues.⁷⁸

That observation in relation to mining operations in Papua New Guinea holds good for all investments in development projects. The *locus* and *situs* of such initiatives are quite different from the environment in which corporate decisions are made. Often development agencies enter such alien terrain with their own corporate ideas – operation of market forces, the logic of capital, representative bodies to negotiate with, principles of accountability, majority decision making processes, management by hierarchies etc. – which are all foreign to indigenous institutions and traditional practices, and expect local people to understand such matters and play the game according to the rules. If local people exhibit an attitude of non-cooperation or antagonism as a consequence of their ignorance of such matters, developers are irked and become impatient and adopt a strategy of compliance through imposition. Without an appreciation of the cultural climate of these places, developers would be “playing with fire” as Sillitoe and Wilson have demonstrated in respect of mining in Papua New Guinea.⁷⁹

⁷⁷ This is in relation to the Merck/National Biodiversity Institute (INBio) Costa Rica Agreement 1996. See also C Oddie, ‘Bio-prospecting’ (1998) 9 *Australian Intellectual Property Journal* 18-19.

⁷⁸ J Rivers and H A Amankwah, ‘Sovereignty and Legal Pluralism in Developing Nations: A Reappraisal of the PNG Case’ (2003) 10 *James Cook University Law Review* 85, 108.

⁷⁹ Sillitoe and Wilson above n 54, 241.

The authors provided an example of how fatal a lack of understanding of the implications of compensation payment in Melanesia in respect of mining on land could be. A “one for all times” lump sum payment to landowners in Melanesia is a fond hope in a culture in which relationships are viewed as continuing. They assert:

Compensation is one of the key aspects of the company and community relationship. The egalitarian ethos that informs land rights should influence the process by which a mine recompenses local people for damages and disruption of lifestyle. People equate mining company compensation payments with traditional indemnity payments such as those given in repatriation for kin killed in tribal fights. Both involve negotiated recompense for loss. *The corporate view of transactions is single cash payments made to settle claims for loss or damage. In contrast, the traditional view embraces long-term reciprocity, consolidation and reconciliation involving a web of associated persons.*⁸⁰ [Emphasis added]

Obviously a change in the paradigm of corporate culture will go a long way in improving the climate of economic development in a non-western cultural terrain.

Two high-ranking officers of the Monsanto Corporation, a United States multinational corporation (MNC) recently issued a report in which they called for a change in United States corporate policy on patents which currently is antithetical to the realisation of food security in developing nations.⁸¹ A change in policy, they argued could simultaneously augment food sufficiency in developing nations and the broader global interests of the United States. The authors of the report say:

Important components of the biotechnology tool kit – gene traits, plant transformation tools, and genetically improved germplasm – have been patented in the United States and elsewhere by companies that have little economic incentive to develop and disseminate the technology to meet the needs of these farmers...There is flexibility within the TRIPS agreement, but it is important the developing countries are supported in using that flexibility to devise systems that meet their needs...If successful, this approach to harmonisation could hinder developing countries in adopting patent regimes tailored to their particular needs, including the need to foster dissemination of biotechnology for food security purposes...⁸²

They say further:

There are changes the United States could make in both its domestic and foreign policies that would improve developing-country access to the patented tools of

⁸⁰ Ibid at 265.

⁸¹ M Taylor and J Cayforth, ‘US Should be More Flexible on Patent Law’ in D Dickson (ed) *Science and Development* (2003).

⁸² Ibid.

biotechnology without significantly undercutting the core invention incentives of the patent system...⁸³

They urge the United States:

[A]s the richest and most powerful country in the world...[the US] has a duty to avoid actions and policies with unnecessary and avoidable adverse impacts on progress elsewhere. This includes patent policies that adversely affect food security in developing countries.⁸⁴

Agro-forestry Strategy

Several years' scientific studies have concluded that sustainable agricultural development globally is achievable only through agro-forestry. Implicit in agro-forestry is the integration of multipurpose trees into farming systems.⁸⁵ Agro-forestry, the studies indicate, has long been understood and embraced by subsistence farmers in poor developing nations.⁸⁶

Clearly not only is commercial agriculture based on indiscriminate tree clearing, as is the practice in some Australian states, incompatible with the tenets of agro-forestry, it is also antithetical to the principle of sustainable development.

CONCLUSION

A change is required in peoples' perceptions of rights and interests under traditional laws and customs. In the real world today, land is an economic asset. Land per se is valueless unless it can be put to some economic use. The concept of property under the general law encompasses all things, tangible and intangible. In respect of traditional and customary rights however, interests and rights are consigned to a legal terrain of relicts and souvenirs of antiquity devoid of economic viability. They remain embedded in the past while new property rights are constantly being forged and evolved for all other species of interests. A knowledgeable Peruvian leader was quoted as saying recently:

⁸³ Ibid.

⁸⁴ Ibid.

⁸⁵ For some details, see <http://www.conference.ifas.ufl.edu/wca/>.

⁸⁶ See E D Schulze and H A Mooney (eds), *Biodiversity and Ecosystem Function* (1993); W W Collins and C O Qualset (eds) *Biodiversity and Agroecosystems* (1999); G Schroth et al, *Agroforestry and Biodiversity Conservation in Tropical Landscapes* (2004); M van Hoordwijk et al (eds), *Below-ground Interactions in Tropical Agrosystems: Concepts and Models with Multiple Plant Components* (2004); N W Simmonds and J Smartt, *Principles of Crop Improvement* (1999); J E Arnold and P A Deweer, *Farms, Trees and Farmers: Responses to Agricultural Intensification* (1997); P Huxley, *Tropical Agroforestry* (1999); L E Buck et al, *Agroforestry in Sustainable Agricultural Systems* (1999); C A Palm et al, *Slash and Burn: The Search for Alternatives* (2005); L Guarino, *Traditional African Vegetables* (1997); S A Laird, *Biodiversity and Traditional Knowledge: Equitable Partnerships in Practice* (2002); R Kindt, *Methodology for Tree Species Diversification Planning for African Ecosystems* (PhD Thesis, University of Ghent, 2002); R R Leakey and A C Newton, *Tropical Trees: The Potential for Domestication and the Rebuilding of Forest Resources* (1996); R R Leakey et al (eds), *Domestication and Commercialization of Non-Timber Forest Products for Agroforestry, Non-Wood Forest Products* (1996).

The land is the only thing you cannot forge. Once you have that, you can build mortgages and secondary mortgages, and then securities based on mortgages, and then you can create chattel mortgage systems and relate them like ships relate to the coast...And then you forget the land. But the land is the crucial information system.⁸⁷

Land under traditional tenure remains inalienable today. The anomaly this situation represents today in terms of economic viability is emphasised by Ahmat, the Cape York Land Council Chief Executive:

Indigenous land for good reason is inalienable. It must remain so. However, inalienability represents a huge difficulty for our economic development. It is a difficulty we must overcome.⁸⁸

That goes for TK and all its attributes also. However, any attempt to balance the imperatives of economic development and those of cultural survival of developing nations and indigenous populations outside the matrix of sustainable development is quixotic and an exercise in futility.

⁸⁷ P Botsman, 'Aboriginal Prosperity Through Property' *The Australian*, (Australia) 11 December 2003, 11.

⁸⁸ *Ibid.*