

RESEARCH ARTICLE

Intellectual Property Rights in Traditional Knowledge: Enabler of Sustainable Development

Freedom-Kai Phillips*

Traditional knowledge (TK) plays an integral role in supporting sustainable development practices, and can act as an enabler of sustainable development in indigenous and local communities (ILCs) through recognition of intellectual property rights (IPRs). This paper explores points of convergence and divergence, arguing that the application of IPRs to TK held by ILCs can help facilitate sustainable development. An overview of the normative development, including key definitions, relating to sustainable development and TK is offered as background. Contemporary tensions and arguments favouring the application of IPRs to TK are summarised, followed by an analytical reconciliation of points of divergence based on international and domestic legal practices, and a discussion of the role of TK in achieving sustainable development. Recognition of IPRs in TK held by ILCs through a specialised internationally binding instrument could work to reconcile lack of trust, positively incentivise preservation, and act as an equitable enabler of sustainable development.

Keywords: Traditional knowledge; Sustainable development; Intellectual property rights; Nagoya Protocol; WIPO IGC; Access and benefit-sharing (ABS)

I. Introduction

Recognition of intellectual property rights (IPRs) over traditional knowledge (TK) held by indigenous peoples and local communities (ILCs), particularly TK associated with biodiversity and genetic resources (GRs), is an important step in actualising sustainable development. This paper argues that TK can act as an enabler of sustainable development for ILCs through recognition of IPRs over TK relating to natural capital and effective sharing of fair and equitable benefits as envisioned under international treaties and conventions. First, a brief background will be provided to illustrate the increasing trend in international law towards recognition and establishment of protections relating to TK, and to define sustainable development and TK for the purposes of this discussion. Second, contemporary points of divergence will be summarised to highlight perceived tensions relating to the use of IPRs to govern TK. Third, arguments favouring recognition of IPRs over TK held by ILCs are put forward to illustrate current legal trends and mechanisms supporting recognition. Fourth, critical considerations are provided to reconcile perceived tensions, illustrating the compatibility and importance of recognising IPRs in TK and of vesting ownership with ILCs in operationalising the 2030 development agenda. Finally, concluding thoughts are offered which summarise key findings and identify remaining challenges. For sustainable development to become a reality, legal recognition and protection of IPRs relating to TK through the empowerment of ILCs is a prerequisite enabling catalyst.

II. Towards Recognition of IPR in TK: Background

A. Background

Beginning around the mid-twentieth century, the international community began a progressive migration towards recognition of the need for sustainable development, and appreciation for the importance of TK held by ILCs in achieving such a profound policy objective. Early policy consideration, which began

* Research Associate, International Law Research Program (ILRP), Centre for International Governance Innovation (CIGI); Legal Research Fellow, Biosafety and Biodiversity Law Programme, Centre for International Sustainable Development Law (CISDL), McGill University (Canada).

among the United Nations Economic and Social Council, United Nations Educational, Scientific and Cultural Organization, and International Union for the Protection of Nature, expanded global recognition through the first UN Conference on the Human Environment held in Stockholm in 1972,¹ and gained wider appeal in policy nomenclature through the 1987 report of the World Commission on Environment and Development (WCED), 'Our Common Future'.² Where the *Brundtland Report* –named for the WCED Chair—established sustainable development as a policy objective, the 1992 United Nations Conference on Environment and Development in Rio de Janeiro (Rio Earth Summit) conceptually endorsed and empowered the model concurrent to the opening for signature of the *Rio Treaties*: 1992 United Nations *Convention on Biological Diversity* (CBD), the 1992 *United Nations Framework Convention on Climate Change* (UNFCCC), and the 1994 *United Nations Convention to Combat Desertification* (UNCCD), which collectively establish rules and regimes committed to sustainable development.³ Evolving in parallel, the World Trade Organization (WTO) in 1994 established as part of the covered agreements the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS),⁴ which aimed to standardise IPRs across Member States to facilitate international trade.

The CBD, along with the 2010 *Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization* (Nagoya Protocol), establish the preeminent international regime for the recognition and protection of TK. Under Article 8(j) of the CBD, Parties are required to respect and maintain knowledge held by ILCs, and to encourage wider application of TK based on fair and equitable benefit-sharing.⁵ TK is further recognised in Article 16 as a vital 'technology' for effective practices of conservation and sustainable use of biodiversity,⁶ with procedural requirements established in Article 15(4–5) for access to genetic resources including based on prior informed consent (PIC) and

¹ Stockholm Declaration on the Human Environment (adopted 16 June 1972) 11 ILM 1416. The International Union for the Protection of Nature was later renamed the International Union for Conservation of Nature (IUCN).

² Report of the Secretary-General, 'Development and International Co-operation: Environment' (1987) UN Doc A/42/427, Annex – Report of the World Commission on Environment and Development: Our Common Future (Brundtland Report); Marie-Claire Cordonier Segger and Ashfaq Khalfan, *Sustainable Development Law: Principles, Practices and Prospects* (OUP 2004) 15–18.

³ Patricia W Birnie, Alan E Boyle and Catherine Redgwell, *International Law and the Environment* (3rd edn, OUP 2009) 124.

⁴ Marrakesh Agreement Establishing the World Trade Organization (adopted 15 April 1994, entered into force 1 January 1995) 33 ILM 1144, Annex 1C: Agreement on Trade-Related Aspects of Intellectual Property Rights.

⁵ Convention on Biological Diversity (adopted 5 June 1992, entered into force 29 December 1993) 1760 UNTS 79 (CBD) art 8(j).

⁶ ibid art 16(1); Lyle Glowka and others, 'A Guide to the Convention on Biological Diversity' (1994) IUCN Environmental Policy and Law Paper No 30, 84–85.

mutually agreed terms (MAT). The Nagoya Protocol,⁷ which entered into force in 2014, expands upon the CBD provisions establishing a substantive regime governing access and benefit-sharing (ABS).⁸ Specifically requirements are established relating to: access to genetic resources and TK based on PIC and MAT,⁹ mandatory benefit-sharing obligations,¹⁰ recognition of community protocols and customary use of GRs and TK among ILCs,¹¹ and compliance and monitoring measures.¹² Other relevant evolutions relating to TK which developed concurrently to progress in the CBD leading up to the Protocol include the establishment of: (1) the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA) passed by the Food and Agriculture Organization Conference in 2001, and entering in force on 29 June 2004,¹³ which provides for protections relating to 'farmers rights' including TK and traditional breeding practices,¹⁴ (2) the Intergovernmental Committee (IGC) on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore established under the World Intellectual Property Organization (WIPO) in 2000,¹⁵ which provides a forum for negotiations on issues underlying development of a binding international instrument on TK,¹⁶ and (3) the 2007 United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) which vests rights relating to 'control, protection and development' of TK, as well as IPRs relating to TK, with ILCs.¹⁷

B. Defining Sustainable Development and Traditional Knowledge

Sustainable development which was defined in the 1987 *Brundtland Report* as development that does not compromise the needs of future generations to satisfy the desires of the present,¹⁸ requires, as noted by Justice Weeramantry, the establishment of a practical equilibrium between socioeconomic development and environmental protection.¹⁹ The *New Delhi Declaration of Principles of International Law related to Sustainable Development*, adopted at the 70th Conference of the International Law Association in 2002, establishes central tenets of sustainable development law,²⁰ including: (i) a duty to sustainably use natural resources, and (ii) principles of equity and poverty eradication, common but differentiated responsibilities, precaution, public participation, good governance, and integration.²¹ The Rio+20 Declaration, 'The Future We Want,' focuses on ways to push forward a green economy that supports sustainable development and poverty eradication, and strengthens the necessary institutional framework internationally to support sustainable development.²² Another significant outcome of Rio+20 was a commitment to establish a 2030 development agenda that includes the Sustainable Development Goals (SDGs) and a Working Group on the SDGs to review progress and ensure coordinated and coherent progress.²³ The '2030 Agenda for Sustainable

⁷ Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization to the Convention on Biological Diversity (adopted 29 October 2010, entered into force 12 October 2014) UN Doc UNEP/CBD/COP/DEC/X/1 (Nagoya Protocol).

⁸ ibid art 1; Thomas Greiber and others, 'An Explanatory Guide to the Nagoya Protocol on Access and Benefit-sharing' (2012) IUCN Environmental Policy and Law Paper No 83, 48–58.

⁹ Nagoya Protocol, arts 6–7.

¹⁰ ibid art 5.

¹¹ ibid art 12.

¹² ibid arts 15–16.

¹³ International Treaty on Plant Genetic Resources for Food and Agriculture (adopted 3 November 2001, entered into force 29 June 2004) 2400 UNTS 303 (ITPGRFA); Gerald Moore and Witold Tymowski, *Explanatory Guide to the International Treaty on Plant Genetic Resources for Food and Agriculture* (IUCN 2005) 1–13.

¹⁴ ITPGRFA, prmbl, arts 1, 9.

¹⁵ WIPO General Assembly (26th Session), 'Matters Concerning Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore' (Geneva, 25 September – 3 October 2000) WO/GA/26/6, paras 13–24.

¹⁶ Alexandra George, *Constructing Intellectual Property* (CUP 2012) 279–281.

¹⁷ Declaration on the Rights of Indigenous Peoples (adopted 13 September 2007) UNGA Res 61/295 (UNDRIP) art 31.

¹⁸ Brundtland Report (n 2) s 1 reads: '[s]ustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs'.

¹⁹ *Case Gabčíkovo-Nagymaros (Hungary v Slovakia)* (Judgment) (1997) ICJ Rep 7; *Case Gabčíkovo-Nagymaros (Hungary v Slovakia)* (Judgment) (Separate Opinion of Vice-President Weeramantry) (1997) ICJ Rep 88, 88–90, 95.

²⁰ Marie-Claire Cordonier Segger and Rajat Rana, 'Selecting Best Policies and Law for Future Generations' (2008) CISDL Legal Working Paper and Worked Examples 1.

²¹ ILA New Delhi Declaration of Principles of International Law Relating to Sustainable Development adopted at the 70th Conference of the ILA (2 April 2002) reprinted in 2 International Environmental Agreements: Policies, Law and Economics 211; Jorge Cabrera, Freedom-Kai Phillips and Frederic Perron-Welch, *Biodiversity Legislation Study: A Review of Biodiversity Legislation in 8 Countries* (World Future Council 2014) Annex I.

²² 'Report of the United Nations Conference on Sustainable Development: The Future We Want' (Rio de Janeiro, 20–22 June 2012) (13 August 2012) UN Doc A/CONF.216/16.

²³ ibid para 248.

Development', which includes the 17 SDGs and 169 goal-specific targets, was approved in September of 2015,²⁴ and represents the most-recent articulation of a systemic approach to define and actualise sustainable development.

Traditional Knowledge refers to knowledge, innovations and practices of ILCs curated and developed through intergenerational experience with the environment, and shared –often orally– with each generation.²⁵ Admittedly, TK is a broad category with inherent challenges underpinning effective definition and validation.²⁶ While multiple domestic jurisdictions provide definitions of TK that encompass intergenerational development, tangible and intangible knowledge, and innovations of both potential and actual value,²⁷ for the purposes of simplicity, clarity and objectivity, this paper will adopt a slightly truncated version of the definition of TK as negotiated under the WIPO IGC Draft Articles on TK, namely:

(...) knowhow, skills, innovations, practices, teachings [of ILCs relating to] fields such as agriculture, the environment, healthcare and indigenous and traditional medical knowledge, biodiversity, traditional lifestyles and natural resources and genetic resources.²⁸

More specifically, for the purposes of analysis and discussion of the interface between IPRs and TK, this paper will focus on TK as it relates to biodiversity, genetic resources and natural capital only, and will not address broader definitions of TK or consideration of traditional cultural expressions.

III. Perceived Tensions of IPRs relating to TK

A. Paradigm, Pragmatism and the Influence of Post-Colonial Legal Theory

A perceived tension exists in suggesting the use of IPRs as a result of the colonial history and nature of IPRs in relation to TK held by ILCs, and the relationship of IPRs juxtaposed to the cultural paradigm of many ILCs. For many ILCs, modern intellectual property regimes were developed by colonial powers and pre-independence developing countries were excluded from the negotiations of the Berne Conventions of 1883 and 1886. The 1971 revisions prompted by India and continued overtures by both India and Brazil for enhanced equity in the global IP regime marked a shift in this sense.²⁹ TRIPS, similarly grounded in western property assumptions, acts as a blunt instrument when attempting to reconcile TK, which is the product of ongoing and collective development, with the requirements for copyright or patent protection, such as the need for fixation, novelty, or an identifiable inventor at a static moment in time;³⁰ points that draw awareness to the ongoing injustice.³¹ As noted by Oguamanam, developing countries continue to leverage the debate

²⁴ UNGA 'Transforming our World: The 2030 Agenda for Sustainable Development' (18 September 2015) 17th Session, UN Doc A/70/L.1.

²⁵ Evanson Kamau, 'Protecting TK Amid Disseminated Knowledge: A New Task for ABS Regimes? A Kenyan Legal View' in Evanson Kamau and Gerd Winter (eds), *Genetic Resources, Traditional Knowledge & the Law: Solutions for Access and Benefit Sharing* (Earthscan 2009) 160–161; Jonathan Curci, *The Protection of Biodiversity and Traditional Knowledge in International Law of Intellectual Property* (CUP 2010) 14–16; CBD Secretariat, 'Factsheet: Traditional Knowledge' (2011) <<https://www.cbd.int/abs/infokit/revised/web/factsheet-tk-en.pdf>> accessed 18 July 2016.

²⁶ Kenichi Matsui, 'Problems of Defining and Validating Traditional Knowledge: A Historical Approach' (2015) 6 International Indigenous Policy Journal <<http://ir.lib.uwo.ca/iipj/vol6/iss2/2>> accessed 18 July 2016.

²⁷ See Ministry of Trade and Industries, Executive Decree No 12 (of 20 March 2001) art 2, for a definition on traditional knowledge; Law N° 27811 Introducing a Protection Regime for the Collective Knowledge of Indigenous Peoples Derived from Biological Resources [2002] art 2; Law N° 807 on the Conservation and Sustainable Use of Biological Diversity [2012] arts 10.3, 10.9.

²⁸ WIPO IGC on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore (31st Session), 'Protection of Traditional Knowledge Draft Articles' (Geneva, 19–23 September 2016) WIPO/GRTKF/IC/31/4, 5 (WIPO Draft Articles) defines traditional knowledge as follows:

[refers to]/[includes]/[means], for the purposes of this instrument, knowhow, skills, innovations, practices, teachings and learnings of [indigenous [peoples] and [local communities]]/[or a state or states].

[Traditional knowledge may be associated, in particular, with fields such as agriculture, the environment, healthcare and indigenous and traditional medical knowledge, biodiversity, traditional lifestyles and natural resources and genetic resources, and know-how of traditional architecture and construction technologies.]

²⁹ Chidi Oguamanam, 'Local Knowledge as Trapped Knowledge: Intellectual Property, Culture, Power and Politics' (2008) 11 Journal of World Intellectual Property 29, 34.

³⁰ Caroline JS Picart and Marlowe Fox, 'Beyond Unbridled Optimism and Fear: Indigenous Peoples, Intellectual Property, Human Rights and the Globalization of Traditional Knowledge and Expressions of Folklore: Part I' (2013) 15 International Community Law Review 319, 330–334.

³¹ Oguamanam (n 29) 34.

over TK in international forums as a point of resistance, with acceptance of IPRs regimes relating to TK based on pragmatism and a pre-emptive drive to avoid further cultural erosion,³² rather than an endorsement of the essential principles. An additional nuanced consideration is reconciling western property notions with the cultural paradigm of ILCs that aims to make decisions that positively empower future generations.³³

The notion of future generations or the 'seventh generation' is of profound importance in defining the paradigm of ILCs, as all decisions for ILCs are intended to ensure the survival of the present generation, as well as those up to seven generations removed.³⁴ A study carried out by Sarma and Barpujari with the Karbi people, an indigenous scheduled tribe of India, illustrates the cultural divergences relating to the use of IP protections around TK within and across ILCs.³⁵ First, TK is identified as a broad category that includes common cultural knowledge as well as specialist knowledge such as medicinal properties of biodiversity that is held and trans-generationally shared with 'worthy recipients'. Second, specialist knowledge is held by both the holder and the community—as owners and custodians—under a sacred duty to employ the knowledge for the 'welfare of humanity'. Third, disclosure of TK to 'outsiders' would not bring about the desired efficacious effect. Fourth, IPRs are seen as synonymous with commercialisation which would result in an 'outsider' establishing a value for the TK, which runs contrary to the humanistic application intended for TK. Fifth, there are divergent views between the youth and the elders of the Karbi relating to legal protection of TK, with the youth seeing potential in legal protection and commercial application and the elders expressing more suspicion and reluctance. Finally, if commercialisation were to occur—a development many of the youth support—benefits should be shared with the community generally and the specialist holder specifically.³⁶

B. Undermines Positive Incentives for Intellectual Creation

Granting of IPRs over TK to ILCs has been suggested to be an undue inhibitor on innovation, which through the restraint of information flows creates economic inefficiencies and negates creation incentives, ultimately undermining sustainability in the process.³⁷ Karjala argues that the impetus for IPRs such as copyright and patent is to incentivise the creation of 'socially desirable inventions and works', not to reward 'creative social contributions'.³⁸ Karjala suggests the fundamental question to consider is whether expansion of IPRs to TK 'increases creation incentives enough to outweigh the negative effect of tying up information in property rights'.³⁹ An early pillar of the Anglo-American tradition, the Statute of Queen Anne (1710),⁴⁰ provided economic rights over literary works to authors to incentivise continued scholarship and encourage broader learning.⁴¹ Indeed economic justifications are a longstanding aspect of IPRs, dating back to the Roman Venetian law of 1474,⁴² aiming to protect creations to create positive incentives and encourage continued investment of labour and/or capital into innovation in the market.⁴³ Application of a public-benefit or instrumentalist approach requires establishment of an appropriate balance between protections relating to intellectual property and basic democratic freedoms, with caution exercised in extending IPRs

³² *ibid* 30.

³³ Swakopmund Protocol on the Protection of Traditional Knowledge and Expressions of Folklore Within the Framework of the African Regional Intellectual Property Organization adopted by the Diplomatic Conference of ARIPO (9 August 2010) WIPO Lex No TRT/AP010/001; Constitution of the Iroquois Nation, The Great Binding Law, Gayanashagowa <<http://www.constitution.org/cons/iroquois.htm>> accessed 16 July 2016.

³⁴ Linda Clarkson, Vern Morrisette and Gabriel Régallet, 'Our Responsibility to The Seventh Generation: Indigenous Peoples and Sustainable Development' (1992) International Institute for Sustainable Development <https://www.iisd.org/pdf/seventh_gen.pdf> accessed 16 July 2016.

³⁵ Ujjal K Sarma and Indrani Barpujari, 'Revisiting the Debate on Intellectual Property Rights and Traditional Knowledge of Biodiversity: Accommodating Local Realities and Perspectives' (2012) 3 The International Indigenous Policy Journal <<http://ir.lib.uwo.ca/iipj/vol3/iss4/1/>> accessed 18 July 2016.

³⁶ *ibid* 5–7.

³⁷ Dennis Karjala, 'Sustainability and Intellectual Property Rights in Traditional Knowledge' (2012) 53 *Jurimetrics* 57, 62–64.

³⁸ *ibid* 62 reads as follows: '[w]e come out on the incentives question, the one thing that is clear is that we do *not* recognize IPRs as a reward for creative social contributions. Rather, reward to the inventor or author is simply the instrumental means of achieving the desired result' (emphasis added).

³⁹ *ibid* 63.

⁴⁰ Copyright Act 1710.

⁴¹ Elizabeth Judge and Daniel Gervais, *Intellectual Property: The Law in Canada* (2nd edn, Carswell 2011) 34–39.

⁴² Catherine Colston and Jonathan Galloway, *Modern Intellectual Property Law* (3rd edn, Routledge 2010) 2.

⁴³ William M Landes and Richard A Posner, 'An Economic Analysis of Copyright Law' (1989) 18 *Journal of Legal Studies* 325; William M Landes and Richard A Posner, *The Economic Structure of Intellectual Property Law* (HUP 2003) 11–36.

as a means of protection for knowledge grounded in cultural heritage.⁴⁴ As TK is by definition pre-existing, Karjala asserts there is no basis in IPRs that supports the protection of TK, since granting control of TK to an ILC with a cultural connection to the knowledge would undermine the fundamental principles of IPRs, and would not prove to incentivise further innovation.⁴⁵

C. Exclusivity and Inhibiting Disclosure of Information

A corollary to hampered incentives for creation is a tension that relates to disclosure and to the impact exclusivity in TK through IPRs has on broader dissemination of information. As noted by Karjala, an important cornerstone of IPRs, particularly under the patent system and to a lesser extent in copyright, is the balance of protections provided to intellectual creations and the disclosure of the underlying information to foster continued innovation.⁴⁶ Evolving from the practice of the Royal Prerogative to extend to traders or guilds exclusive privileges through 'Letters Patent', early patents granted by Henry VI (1449) or Elizabeth I, were latter tempered by the Statue of Monopolies (1623) which revoked all other monopolistic practices but for patents, illustrating the importance of encouraging inventions while balancing public access to information to stimulate ongoing innovation.⁴⁷ For Karjala the fundamental question to consider is whether recognition of TK under IPRs would create a meaningful incentive for disclosure of the information into the public domain, while also suggesting it is unlikely patent protection would be a sufficient incentive for disclosure.⁴⁸ Karjala opts to support a broad and growing public domain based on utilitarian grounds to encourage the continued public benefit achieved through cross-cultural creative pollination.⁴⁹

IV. Supporting IPR over TK held by ILCs: Legal Trends and Mechanisms

A. Fuller, Legality and Interactional Theory

Protections for TK under IPRs fits substantially the principles for legality as suggested by Lon Fuller and constructivist scholars, with the normative validity affirmed by interactional theory. As suggested by Brunnée and Toope, Lon Fuller and constructivist approaches provide an essential framework for assessing and understanding legal obligations under the international system, and how their emergence shapes social interactions.⁵⁰ Fuller's principles of generality, promulgation, non-retroactivity, clarity, non-contradictory, possibility, constancy and congruence provide criteria for consideration of the normativity of legal measures,⁵¹ and prove helpful in considering the recognition of TK under IPRs regime. First, regarding generality, conservation of biodiversity through acknowledgement of its intrinsic value, and recognition of the implicit connection of ILCs to TK, were identified as critical global catalysts underpinning the substantive aspects of both the CBD and the Nagoya Protocol.⁵² Second, the near universal adoption of the CBD, currently with 196 Parties, and the significant support for the Protocol currently with 78 Parties and 92 Signatories supports an assertion of promulgation.⁵³ Third, neither the CBD nor the Protocol act retroactively. Fourth, the procedural pillars relating to GRs and TK (PIC and MAT) enumerated in the CBD and subsequently elaborated upon in the Protocol illustrate a shared understanding among the Parties and provide for a *prima facie* conclusion of sufficient clarity. In practice the clarity of the regime has developed progressively since the inception of the CBD, with Party jurisdictions progressively implementing compliant legislation –albeit with nuanced differences– and the advent of the Protocol compliant regimes providing further clarification in support of a finding of sufficient clarity.

Fifth, regarding non-contradiction, the procedural provisions of the CBD and the Protocol are surely sufficient, but the substantive provisions, while not inherently contradictory, do identify aspects that are more dubious. Specifically, as the objectives of the Convention are the conservation and sustainable use

⁴⁴ Brian Paterson and Dennis Karjala, 'Looking Beyond Intellectual Property in Resolving Protection of the Intangible Cultural Heritage of Indigenous Peoples' (2003) 11 Cardozo Journal of International and Comparative Law 633, 647–648.

⁴⁵ Karjala (n 37) 66.

⁴⁶ Curci (n 25) 42–43; Judge and Gervais (n 41) 643–644.

⁴⁷ Colston and Galloway (n 42) 63–64.

⁴⁸ Karjala (n 37) 68.

⁴⁹ Paterson and Karjala (n 44) 649.

⁵⁰ Jutta Brunnée and Stephen J Toope, *Legitimacy and Legality in International Law: An Interactional Account* (CUP 2010) 32–36; Jutta Brunnée and Stephen J Toope, 'Interactional International Law: An Introduction' (2011) 3 International Theory 307, 308.

⁵¹ Lon Fuller, *Morality of Law* (YUP 1969) 39, 46–90; Colleen Murphy, 'Lon Fuller and the Moral Value of the Rule of Law' (2005) 24 Law and Philosophy 239, 240–241.

⁵² CBD, prmbl, arts 1–3; Nagoya Protocol, prmbl, art 1.

⁵³ CBD Secretariat, 'List of Parties to the Convention on Biological Diversity' <<http://www.cbd.int/information/parties.shtml>> accessed 18 July 2016; CBD Secretariat, 'List of Parties to Nagoya Protocol' <<https://www.cbd.int/abs/nagoya-protocol/signatories/>> accessed 11 September 2016.

of biodiversity and the equitable benefit-sharing arising from use, then the modestly worded provisions, continued subversion by global powers (particularly the US), limited capacity, and lack of enforcement measures may suggest elements of contradiction, with the Protocol exacerbating many of these concerns amid continued operationalisation at the national level. Notwithstanding, the Convention and the Protocol in principle and practice, if not universally in action, do sufficiently represent a non-contradictory regime governing biodiversity, including recognition and procedural protections for TK held by ILCs. Sixth, lack of implementation and compliance capacity in many developing and emerging economies to promote the objectives of the Convention and the Protocol might run contrary to the notion of non-impossibility. The mutually supportive nature envisioned under the Protocol, with 'user measures' relating to monitoring and disclosure aiming to supplement procedural measures in provider jurisdictions, works to temper concerns of non-impossibility, but as the regime is in its relative infancy more experience is needed to make a more definitive determination. Seventh, pertaining to the need for constancy, while the CBD is firmly rooted in national legislation, the evolving and deferential nature of the ABS regime does again identify a potential dilemma. While nuanced approaches to addressing TK under domestic ABS measures are being taken globally as operationalisation of the Protocol is underway,⁵⁴ the procedural pillars established by the CBD create adequate legal predictability to be considered constant, with the Protocol arguably sufficient as well. Lastly, with respect to the congruence between provisions of the CBD, the Protocol, and State practice, while some States and domestic organisations actively circumvent obligations under the Convention –for instance through forum shopping for access— the advent and entry into force of the Protocol which includes ratification by the EU, and ongoing negotiations at WIPO's IGC for a binding international instrument governing TK seek to settle the perceived weak congruence.

A further factor to weigh, as suggested by Brunnée and Toope when considering the nature of normative development, focuses on the acceptance of the obligatory aspects of law through adherence over time.⁵⁵ Leveraging Emanuel Adler's notion of 'communities of practice' which grounds individual identity and interests in the collective values of their self-identified community,⁵⁶ Brunnée and Toope propose that legal obligations arise through not simply legality of the normative pillars, but an interaction of legality in relation to shared understandings among States, as seen through treaty development for instance, and adherence to the normative framework through practice.⁵⁷ While State practice under the CBD and WIPO supports an assertion of a shared understanding relating to IPRs in TK, an additional aspect for consideration are the customary laws of ILCs relating to handling and governance of TK.⁵⁸ Customary laws of ILCs as seen through an assessment of community protocols and customary law, codified or not, illustrate a set of guidelines governing how, and the conditions under which, TK should be maintained, disseminated and handed down, and an intention to be bound through observance of these principles.⁵⁹ Based on the body of treaties and parallel negotiations which include TK, satisfaction of Fuller's factors of legality, observance to obligations of protection of TK held by ILCs, and recognition of the role of community protocols in Article 12 of the Nagoya Protocol, it is reasonable to conclude on interactional grounds that protection of TK under the intellectual property system would be reasonable for Brunnée and Toope.

B. Fair and Equitable Sharing of Benefits

Recognition of IPRs in TK held by ILCs supports the pillars of conservation and sustainable use of biodiversity, and equitable benefit-sharing enshrined in the CBD.⁶⁰ Recognised under the CBD are the 'traditional dependence' of ILCs on biodiversity and desirability for equitable benefit-sharing resulting from utilisation of TK,⁶¹ the importance of respecting, preserving and maintaining 'knowledge, innovations and practices' of ILCs with use being based on the approval and involvement of ILCs and resulting in equitable benefit-sharing,⁶² and access having been based on prior informed consent and establishment of mutually agreed

⁵⁴ Jorge Cabrera, Frederic Perron-Welch and Freedom-Kai Phillips, *Overview of National and Regional Measures on Access and Benefit Sharing: Challenges and Opportunities in Implementing the Nagoya Protocol* (3rd edn, CISDL 2014).

⁵⁵ Brunnée and Toope, *Legitimacy and Legality* (n 50) 22–23; Brunnée and Toope, 'Interactional International Law' (n 50) 308.

⁵⁶ Emanuel Adler, *Communitarian International Relations: The Epistemic Foundations of International Relations* (Routledge 2005) 11–12.

⁵⁷ Brunnée and Toope, *Legitimacy and Legality* (n 50) 55.

⁵⁸ WIPO Secretariat, 'Customary Law, Traditional Knowledge and Intellectual Property: An Outline of the Issues' (WIPO 2013).

⁵⁹ *ibid* 12–13.

⁶⁰ CBD, art 1.

⁶¹ *ibid* prmbl.

⁶² *ibid* art 8(j).

terms.⁶³ The Nagoya Protocol, in aiming to operationalise ABS as enshrined under the Convention, marked a turning point in the governance of biodiversity and TK, emphasising implementation of modalities for facilitation of PIC and MAT, recognising the connection of TK to the GRs, and reiterating the important role played by ILCs in the access process.⁶⁴ Pursuant to Article 6–7 of the Protocol, Parties are obliged to adopt measures which actively engage ILCs in the PIC/MAT process in relation to access of both GRs and associated TK,⁶⁵ reaffirming the inseparable nature for ILCs of TK from the related GRs.⁶⁶ This is a position developing countries consistently reaffirmed in the negotiations preceding the establishment of the Protocol.⁶⁷ The Protocol may be seen as complementing the recognition of rights of ILCs under Article 31(1) of UNDRIP relating to the maintenance, control, protection and development of TK and IPRs relating to TK,⁶⁸ and Article 27 of the Universal Declaration on Human Rights (UDHR) relating to protection of moral and material interests in intellectual creations.⁶⁹ Viewed holistically, the principles enumerated under the Protocol and UNDRIP may be considered to provide an implicit recognition of the substantive rights of ILCs to their TK,⁷⁰ and subsequently the underlying IPRs as well when seen in conjunction with the UDHR.

C. Empowerment of ILCs and Recognition of Self Governance

Establishing procedural obligations that engage ILCs relating to equitable access to TK reaffirm IPRs concerning TK and gives deference to community forms of self-governance and consent. As per Article 12, Parties in implementing obligations under the Protocol relating to TK, are to: (i) take into consideration community laws, protocols and procedures relating to access, (ii) inform potential users of domestic access requirements, (iii) assist ILCs in the development of community protocols, minimum requirements for mutually agreed terms, and model contractual clauses, and (iv) refrain from restricting customary use and exchange of GRs and TK in and amongst ILCs.⁷¹ Recognition of the importance of community protocols (also referred to as bio-cultural protocols),⁷² which are based on a written document or customary community laws and norms, explicitly affirms the right of self-determination of ILCs in general, and specifically in relation to governance over TK specifically.⁷³ Morgera has identified this as an 'unprecedented recognition of legal pluralism in international treaty law'.⁷⁴ Seen differently, community protocols can be interpreted as attempting to link international obligations with local customs, needs and aspirations to support local manifestations of self-determination as it relates to TK.⁷⁵ It is important to note, that while community protocols may support the affirmation of IPRs relating to TK held by ILCs, they are intended to embody a 'bio-cultural way of life' and are not intended to force ILCs to organise their community interests based on legal identity and commoditisation of TK.⁷⁶ Notwithstanding, recognition of community protocols and traditional mechanisms for providing consent in the international ABS regime support the conclusion based on state-practice that ILCs hold IPRs in and over TK associated with biodiversity.

⁶³ *ibid* art 15(4)–(5).

⁶⁴ María Julia Oliva, 'Sharing the Benefits of Biodiversity: A New International Protocol and its Implications for Research and Development' (2011) 77 *Planta Medica* 1221–1227.

⁶⁵ Nagoya Protocol, arts 6–7.

⁶⁶ *ibid* prmbl.

⁶⁷ Gurdial S Nijar, *The Nagoya ABS Protocol: A Record of the Negotiations* (University of Malaysia 2012) 137–38, 144–147, 154, 161–172, 175–178. See: African Group, Brazil, Costa Rica, India, Malaysia, Namibia, Peru, and Philippines.

⁶⁸ UNDRIP, art 31(1).

⁶⁹ Universal Declaration of Human Rights (adopted 10 December 1948) UNGA Res 217 A(III); John Mugabe, 'Intellectual Property Protection and Traditional Knowledge: An Exploration in International Policy Discourse' (Intellectual Property and Human Rights, Geneva, Switzerland, 9 November 1998) WIPO-UNHCHR/IP/PNL/98/INF/2.

⁷⁰ Elisa Morgera, Elsa Tsioumani and Matthias Buck, *Unraveling the Nagoya Protocol: A Commentary on the Nagoya Protocol on Access and Benefit-Sharing to the Convention on Biological Diversity* (Brill 2014) 171–172.

⁷¹ Nagoya Protocol, art 12(1)–(4).

⁷² Kabir Bavikatte and Harry Jonas (eds), *Bio-Cultural Community Protocols: A Community Approach to Ensuring the Integrity of Environmental Law and Policy* (UNEP 2009).

⁷³ Greiber and others (n 8) 137–139.

⁷⁴ Morgera, Tsioumani and Buck (n 70) 218.

⁷⁵ *ibid* 222–223.

⁷⁶ Bavikatte and Jonas (n 72) 16–17.

V. Reconciling the Divergence of IPRs and TK: Squaring the Circle and Support for Sustainable Development

A. *Intersection of Interactional and Post-Colonial Perspectives*

Interactional justifications for recognising IPRs relating to TK held by ILCs are not inconsistent with post-colonial critiques, while providing an opportunity for meaningful reconciliation through legal developments under international negotiations in WIPO and the CBD, which support sustainable development principles. Tensions relating to the Anglo-American influence in the development and substance of the international intellectual property regime provide a barrier to the use of IPRs for the protection of TK, with ILCs seeing intellectual property protections as a tool to defend against instances of bio-piracy.⁷⁷ Positivist approaches relating to TK which do not respect pre-existing community protocols or customary law additionally risk undermining established community rights, thus destabilising and disempowering ILCs.⁷⁸ Admittedly such is the case with the copyright and patent systems, which have been noted to be inadequate to address many forms of TK;⁷⁹ a fact which in-and-of-itself does not negate the notion that IPRs hold options for the protection of TK. What is needed is a specialised legal instrument to address the unique aspects of TK governance, and adequate protections in patent regimes to protect against misappropriation.

At the international level, the WIPO IGC, an intergovernmental and multi-stakeholder body,⁸⁰ has, since its inception, been the principle forum for negotiations towards a binding instrument relating to TK, with the IGC mandate to continue facilitation of substantive negotiations relating to the Draft Articles for the Protection of Traditional Knowledge renewed through 2017.⁸¹ The Draft Articles on TK are a response to identified shortcomings of the TRIPS system, and are an example of efforts to establish a representatively negotiated framework based on the interactional elements of shared understanding, legality and observance identified by Brunnée and Toope. While still under negotiation, the Draft Articles aim to establish a *sui generis* instrument which provides ILCs with a legal framework for protection and enforcement of rights related to TK to prevent misappropriation, control uses of TK, enable equitable benefit-sharing, and encourage traditional innovation.⁸² Moreover, the framework aims to:

1. Recognise the holistic and equal value of traditional knowledge systems;
2. Promote respect for traditional knowledge systems, with recognition of the contribution TK holders have made towards conservation and sustainable use of biodiversity;
3. Promote conservation and preservation of TK;
4. Operate in consistency with other international and regional instruments relating to IP and ABS;
5. Promote access to knowledge and safeguard the public domain;
6. Document and conserve TK;
7. Promote innovation through the protection of TK and the sharing of knowledge to the mutual benefit of the holders and users;
8. Provide specialised rules relating to TK; and
9. Not restrict customary use of TK within and among communities.⁸³

⁷⁷ Brendan Tobin, 'Setting Traditional Knowledge Protection to Rights: Placing Human Rights and Customary Law at the Center of Traditional Knowledge Governance' in Evanson Kamau and Gerd Winer (eds), *Genetic Resources, Traditional Knowledge and the Law: Solutions for Access and Benefit Sharing* (Earthscan 2009) 107.

⁷⁸ Harry Jonas, Kabir Bavikatte and Holly Shrumm, 'Community Protocols and Access and Benefit-Sharing' (2010) 12 Asian Biotechnology and Development Review 49, 59–60.

⁷⁹ Paterson and Karjala (n 44) 651–652.

⁸⁰ WIPO, 'The WIPO Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore' (2011) Background Brief No 2 <http://www.wipo.int/edocs/pubdocs/en/wipo_pub_tk_2.pdf> accessed 16 July 2016, which indicates that:

Participants comprise IGC members (WIPO member states) and a wide array of observers (. . .) [including] relevant intergovernmental organizations (notably the secretariats of the Convention on Biological Diversity, the World Trade Organization, UNESCO and the United Nations Food and Agriculture Organization) and numerous accredited non-governmental organizations (NGOs).

⁸¹ WIPO Assemblies of Member States (55th Session), 'Matters Concerning Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore' (Geneva, 5–14 October 2015) <http://www.wipo.int/export/sites/www/tk/en/igc/pdf/igc_mandate_1617.pdf> accessed 16 July 2016.

⁸² WIPO Draft Articles, policy objs.

⁸³ ibid prmbl, 2–3.

While yet to be concluded, the negotiated scope and objectives of the text thus far exemplifies an active attempt to reconcile post-colonial tensions through an instrument which illustrates shared understandings relating to IPRs in TK in support of conclusions grounded in an interactional approach.

National measures illustrate an increasing trend to utilise IPRs for protection of TK, in essence asserting a self-determination-based reformist approach to post-colonial IPRs. Namibia, in developing draft measures relating to ABS, uses IPRs for both substantive protections relating to TK and as a procedural trigger initiating institutional review. Namibia integrates procedural provisions that give deference to community governance, illustrative of an interactional approach. First, the objective of the proposed framework includes: the conservation and sustainable use of GRs and TK to sustain 'life support systems,' recognition and protection of the 'inalienable rights' of ILCs to TK, facilitation of access based on PIC and MAT including equitable benefit-sharing, and effective participation of ILCs –with a particular focus on the integration of women in decision-making and benefit-disbursement mechanisms.⁸⁴ Second, integrated definitions consist of among others: 'commercialisation' which includes filing, obtaining or transferring IPRs domestically or abroad, 'community intellectual property rights' that recognise community rights over TK, and 'community protocols' that incorporate ILCs' customary law into the framework as procedural norms.⁸⁵ Third, the Competent National Authority, designated as the Genetic Resources Unit under the Ministry of the Environment and Tourism,⁸⁶ is empowered with a wide range of governance powers and duties that include establishing procedures for recognition and protection of community IPRs relating to TK and ensuring that community IPRs of ILCs are protected.⁸⁷ Fourth, community rights are established inclusive of: a right to collectively benefit from utilisation of GRs/TK, a right to protect and use TK under the terms of the customary law of the ILC, and the right to refuse access to TK if such access would be detrimental to the cultural heritage of the community.⁸⁸ Lastly, under the right to benefit from access to GRs and TK, available benefits include joint ownership of intellectual property.⁸⁹ The approach adopted by Namibia illustrates an attempt to reconcile post-colonial tensions through an interactional approach that affirms and recognises community IPRs, gives deference to community protocols and customary law, and provides legitimisation of the use of IPRs as a communally acceptable tool for governance of collectively held TK. Taken holistically, actions at the international and national levels are indicative of a shift that evidences the interactional justification for IPRs in TK.

B. Intellectual Creation based on Equitable Benefit-Sharing

Recognition of IPRs in TK, with access to TK based on transparency, informed consultation and consent, and fair and equitable benefit-sharing, will generate intellectual creation grounded in a relationship of fairness rather than act as an inhibitor. The assertion made by Kajala that in applying IPRs to TK innovation is stifled, is fundamentally flawed, as such an approach presupposes that TK should remain open and accessible, without due consideration to the interests of the curators and owners of such TK. Kajala's perceived tension is partially resolved through the procedural requirements of Nagoya Protocol that emphasise PIC and MAT, and by providing a mechanism for monetary and non-monetary benefit-sharing, substituting *carte blanche* access for equitable access. It is conceded that intellectual creation relating to the use of TK will need to be conducted on different terms, but additional procedural hurdles added to an already intricate pre-existing web of procedural requirements underpinning IPRs related to biodiversity and TK are proportionately minimal relative to the impact of misappropriation of TK on an ILC. If Kajala is correct and we are to balance the perceived benefits of IPRs relating to TK with the negative consequences, we must also calibrate the proverbial scales based on a firm understanding of the inexplicable cultural significance held by TK in a particular community. As noted by Duthfield, the unique character of TK is derived from the method of acquisition, with communities having specially developed pedagogies and social processes for knowledge sharing, which denote a cultural significance and distinctive legal character.⁹⁰ As a distinctive knowledge system that is inherently connected to the cultural identity of the community,⁹¹ while admittedly not easily amenable to

⁸⁴ Access to Genetic Resources and Associated Traditional Knowledge Act, 2013 (Draft), prmbl.

⁸⁵ ibid s 1 defines 'community intellectual property rights [to] mean rights held by local communities over their traditional knowledge and technologies associated with genetic resources whether formally registered or not'.

⁸⁶ ibid ss 4(1), 4(3).

⁸⁷ ibid ss 4(2)(m), 4(2)(q).

⁸⁸ ibid s 9.

⁸⁹ ibid s 11(1)(d).

⁹⁰ Curci (n 25) 16.

⁹¹ WIPO, *Intellectual Property and Traditional Knowledge* (WIPO 2005).

precise analytical definition,⁹² the intrinsic importance of TK should not be undervalued in Kajala's suggested balancing exercise.

Internationally, developments proposed in the Draft Articles on TK also work to reconcile tensions around incentives identified by Kajala in a manner intended to be consistent with the Nagoya Protocol. First, TK for the purposes of the proposed framework is characterised as: (i) knowledge created and curated in a 'collective context,' (ii) that has a link to the social or cultural heritage of the community, (iii) has an inter-generational nature, (iv) may be codified or orally held, and (v) may be 'dynamic and evolving.'⁹³ Second, ILCs who are holders and curators of TK are identified as beneficiaries, with Contracting Parties required to develop legal measures which allow ILCs to develop and maintain TK, provide for PIC, ensure equitable benefit-sharing even relating to more widely available or publicly disclosed TK, require notification through disclosure triggers in registration of IPRs, and discourage unauthorised use or disclosure of TK.⁹⁴ Third, sanctions and remedies for misappropriation or unauthorised use of TK are to also be developed by Contracting Parties, which include dispute settlement procedures which are not overly burdensome and may be initiated by ILCs, and which can allow for equitable compensation in cases of violation.⁹⁵ Lastly, the proposed term of protections over TK, while able to be determined at the national level, are suggested to endure indefinitely subject to the continued satisfaction of the aforementioned criteria of held in 'collective context,' culturally significant, shared across generations, and dynamically evolving.⁹⁶ International experience illustrates a process of contextualisation of the incentive-focused pillars underlying the Anglo-American intellectual property system to respect and accommodate the views, needs and rights of ILCs.

At the national level, South Africa has integrated protection over TK through mutually supportive measures under both the biodiversity and intellectual property regimes.⁹⁷ A bioprospecting permit is required for access to TK for bioprospecting based on establishment with the provider community of PIC and a material transfer agreement, which includes terms relating to benefit-sharing.⁹⁸ Definitions utilised under the biodiversity regime relating to TK are integrated into the patent regime, in addition to a requirement for disclosure of the use of TK at the time of registration accompanied by demonstration of a proper permit for access based on the prescribed requirements.⁹⁹ South Africa additionally provides comprehensive guidelines which outline rights and obligations of users and providers relating to GRs and TK, identifies regulatory requirements and supplies ministerial resources to assist in bioprospecting.¹⁰⁰ The approach taken by South Africa is an example of a framework aimed at incentivising bioprospecting through substantive protections over TK, and procedural disclosure checkpoints to prevent misappropriation. The trend both domestically and internationally illustrates increased use of legal measures to provide clarity about how to navigate tensions relating to innovation and TK in a way that facilitates protections over ILC rights to TK and allows for equitable benefit-sharing. Inclusion of protections in national IP systems that are responsive to the unique characteristics of TK is not a reward for 'creative social contributions' as asserted by Kajala,¹⁰¹ but shows recognition for the ongoing, enduring, culturally-influenced and dynamically-developed innovation inherent in TK. Governance of TK should be viewed in a pluralistic manner that utilises an array of policy instruments including IPRs and localised governance regimes to respond to the cultural innovations embodied in TK.¹⁰²

C. Preservation of TK and Empowerment of ILCs

Empowerment of ILCs through recognition of community rights and protocols creates an incentive for preservation and for the controlled disclosure of TK in a culturally aware manner. Extending IPRs over TK is not primarily concerned with economic exploitation but rather cultural preservation. This creates a backdrop that aims to preserve TK and encourage continued innovation through the granting of procedural powers

⁹² Chidi Oguamanam, *Intellectual Property in Global Governance* (Routledge 2012) 143.

⁹³ WIPO Draft Articles, art 7.

⁹⁴ *ibid* arts 2–3, 8–10.

⁹⁵ *ibid* arts 4, 13.

⁹⁶ *ibid* arts 7, 18.

⁹⁷ Biodiversity Act 10 of 2004; Patents Amendment Act 20 of 2005; Regulations on Bioprospecting and Access and Benefit Sharing in GN R138 GG 30739 of 8 February 2008 (ABS Regulations).

⁹⁸ Biodiversity Act, arts 82–83; ABS Regulations, s 8(1).

⁹⁹ Patents Amendment Act, s 1–2.

¹⁰⁰ Rachel Wynberg and others, *South Africa's Bioprospecting, Access and Benefit-Sharing Regulatory Framework: Guidelines for Providers, Users and Regulators* (Department of Environmental Affairs 2012).

¹⁰¹ See text at n 38.

¹⁰² Miranda Forsyth, 'Making the Case for a Pluralistic Approach to Intellectual Property Regulation in Developing Countries' (2016) 6 Queen Mary Journal of Intellectual Property 3, 18–21.

to ILCs to govern disclosure or confidentiality of TK as opposed to outright misappropriation for public benefit. If we commence with the premise that misuse or unauthorised disclosure of TK does not benefit the public domain as it is grounded in an inequitable bargain, it follows that if TK is to contribute efficacy to the public domain, access must be arranged in a way that is equitable, culturally sensitive, and aligns with the needs of the community. Otherwise, the risk is run that TK will deteriorate into the void of time. While trust in the effectiveness or intentions of the domestic governments in protecting TK is limited among ILCs,¹⁰³ use of IPRs provides a reconciliatory opportunity to recognise and reaffirm community governance models through the development of a protective framework based on the principle of 'free prior informed consent,'¹⁰⁴ or a duty to consult.¹⁰⁵ Legal tools such as IPRs provide ILCs a means to prevent the erosion of their knowledge through declaratory collections, providing a digital counterpart to address concerns identified by elders that the younger generations are less inclined to undergo the rigors of TK preservation.¹⁰⁶ While Karjala rightly notes the need to consider incentives, in this case he missed the mark in suggesting to open the floodgates for TK to flow into the public domain as this should only occur, as discussed, if the community has a desire to equitably disclose such TK. Intellectual property protections for TK can provide an underlying system grounded in transparency and recognition of rights of ILCs intended to establish a system of trust that will allow for the collection, documentation and preservation of TK under a blanket of inalienable rights. Simply put, it is intellectual property protection to allow for the potential of future disclosure.

Elements of this notion of incentivising preservation of TK are found in both the international and national contexts. Internationally, the proposed Draft Articles on TK provide for the development of databases relating to GRs and TK, which maintain the confidentiality of the information provided, codify oral information related to TK, provide access based on PIC of the holder, and allow for collaboration across intellectual property offices to support the examination process.¹⁰⁷ A reciprocal obligation is also proposed, obliging applicants for patent or plant variety protection to disclose the country of origin (known or unknown) and uses of TK, along with proof of legal access, so as to facilitate an adequate review in preparation for granting IPRs.¹⁰⁸ This approach aligns with domestic practice in a broad set of jurisdictions where disclosure of country of origin in patent applications is required.¹⁰⁹ Lastly, Contracting Parties in appointing competent authorities may utilise bodies that administer rights relating to TK in accordance with community protocols or customary laws.¹¹⁰ Similarly, at the national level, digital registers have been developed in both India and Peru with the involvement of ILCs for the collection and preservation of TK,¹¹¹ while in Namibia and the Democratic Republic of Congo (DRC) communities are empowered through a system of declaratory forest conservancies to govern and utilise TK under the auspices of broader management powers relating to the granted concession.¹¹² The DRC additionally provides for commercial partnership and joint ownership of IP rights established.¹¹³ Collectively these national experiences illustrate the use of legal modalities for the preservation of TK through the establishment of rights relating to the TK and integration of governance, administration and cataloguing aspects as functional incentives to engagement with the framework. I can agree with Karjala that cross-cultural creative pollination is vital for achievement of sustainable development. However, I digress asserting alternatively that this cross-pollination is best achieved through recognition of

¹⁰³ Richard Gold and others, 'Toward a New Era of Intellectual Property: From Confrontation to Negotiation – Report by the International Expert Group on Biotechnology, Innovation and Intellectual Property' (2008) 26 <<http://dx.doi.org/10.2139/ssrn.1260099>> accessed 18 July 2016.

¹⁰⁴ ECOSOC 'Report of the International Workshop on Methodologies Regarding Free, Prior and Informed Consent and Indigenous Peoples' (17 February 2005) UN Doc E/C.19/2005/3; Tara Ward, 'The Right to Free, Prior, and Informed Consent: Indigenous Peoples' Participation Rights within International Law' (2011) 10 Northwestern Journal of International Human Rights 54.

¹⁰⁵ Dwight Newman, 'The Rule and the Role of Law: The Duty to Consult, Aboriginal Communities and the Canadian Natural Resource' (2014) 4 Aboriginal Canada and the Natural Resource Economy Series <<http://www.macdonaldlaurier.ca/files/pdf/DutyToConsult-Final.pdf>> accessed 16 July 2016.

¹⁰⁶ Sarma and Barpujari (n 35) 7.

¹⁰⁷ WIPO Draft Articles, art 3BIS.

¹⁰⁸ *ibid* art 4BIS.

¹⁰⁹ Thomas Henninger, 'Disclosure Requirements in Patent Law and Related Measures: A Comparative Overview of Existing National and Regional Legislation on IP and Biodiversity' in Alexander Werth and Susanne Reyes-Knoche (eds), *Triggering the Synergies between Intellectual Property Rights and Biodiversity* (GTZ 2010) 293–295. Key jurisdictions in addition to South Africa which include a disclosure of origin in patent applications include: Belgium, Brazil, Costa Rica, Denmark, Egypt, EU, India, Norway, Peru and Switzerland.

¹¹⁰ WIPO Draft Articles, art 5.

¹¹¹ Biological Diversity Act, (2002), sub sec 41(1); Biological Diversity Rules, (2004), r 22; Law N° 27811, arts 17–18, 24.

¹¹² Nature Conservation Amendments Act, 1996 (Act 5 of 1996) s 3; Promulgation of Forests Act, 2001 (Act 12 of 2001) prmbl, ss 15, 31; Decree N° 14/018 of 2 August 2014 Laying Down the Rules for Granting Forest Concessions to Local Communities, arts 3–4, 6.

¹¹³ Law N° 14/003 of 11 February 2014 Relative to the Conservation of Nature, art 62..

IPRs relating to TK and development of community-centric access models based on legal pluralism and empowerment of communities to govern what is rightfully their exclusive cultural heritage.¹¹⁴

D. Actualisation of Sustainable Development through Use and Protection of TK

The actualisation of sustainable development principles necessitates balancing socioeconomic and environmental pressures. TK plays a unique role here, as it is implicitly grounded in the doctrine of conservation and sustainable use of biodiversity.¹¹⁵ For Kajala, open access to TK plays an important role in achieving sustainability which, in conjunction with his philosophical disposition, underlays his rejection of IPRs as a valid means to address TK. While convergence can be noted with respect to the importance of access to TK in achieving sustainable development, our positions presumably diverge on the principles governing such access and the feasibility of IPRs in TK facilitating sustainable development. Protections established over TK, as envisioned under the Draft Articles on TK, which provide recognition of ILC rights and modalities for fair and equitable benefit-sharing, will play an integral role in transitioning sustainable development from developmental discourse into practical adoption through utilisation of market modalities that support a green economy shift. National experiences, while admittedly limited, illustrate practices that affirm self-governance and self-determination, identify community IPRs in TK, and give deference to community protocols relating to TK. Such legal measures empower communities to protect TK against erosion while utilising benefit-sharing as a means of incentivising conservation practices providing a realistic economic alternative to the informal sector and working as a systemic catalyst for sustainable development.

The 2030 development agenda, as defined by the recently adopted SDGs, provides various targets for the recognition of the role of TK, reinforcing the assertion that IPRs relating to TK can simultaneously act to disseminate indigenous innovations and practices, while also acting as an equitable driver for community prosperity. SDG 2 calls for the achievement of food security through the promotion of sustainable agriculture.¹¹⁶ SDG 2.5 calls for the maintenance of genetic diversity –including seeds, cultivated plants, and both wild and domesticated species of flora and fauna– and for the promotion of equitable benefit-sharing for access and utilisation of GRs and TK.¹¹⁷ Establishment of IPRs over TK supports the achievement of SDG 2.5 through the protection of ‘farmers rights’ relating to traditional cultivation and breeding practices under the ITPGRFA, and provides for mutually supportive implementation of ABS measures under the CBD and the Nagoya Protocol. SDG 6 calls for sustainable management of water, with SDG 6.6 calling for the protection and restoration of water-related ecosystems.¹¹⁸ SDG 15 calls for the protection, restoration and sustainable use of terrestrial ecosystems and biodiversity, with SDG 15.6 calling for equitable benefit-sharing relating to GRs.¹¹⁹ Protective and restorative practices of ILCs typify the breadth of the interface of TK and sustainable development, as such highly specialised ecosystem knowledge developed over generations is invaluable to effective ecological restoration,¹²⁰ with utilisation of TK envisioned at the onset of the CBD system to result in equitable benefit-sharing.¹²¹

Enshrinement of IPRs in TK relating to natural capital will undoubtedly ruffle status quo perspectives on public domain and the fundamentals which underpin modern intellectual property law, but will also act to codify community rights, facilitate equitable access and reinforce deference to ILCs relating to how and where their TK is utilised. For sustainable development to be realised, TK in natural capital must be protected in a way which empowers ILCs, provides for clear and transparent legal measures through use of IPRs, and establishes the groundwork for a relationship of respect and trust between users and providers of TK. Application of specialised IPRs relating to TK takes the character of both a defensive posture enshrining TK in a *sui generis* international legal instrument, and of a proactive mechanism to forester sustainable development through codification of community protocols and effective benefit-sharing.

¹¹⁴ Forsyth (n 102).

¹¹⁵ Marie-Claire Cordonier Segger and Freedom-Kai Phillips, ‘Indigenous Traditional Knowledge for Sustainable Development: The Biodiversity Convention and Plant Treaty Regimes’ (2015) 20 *Journal of Forest Research* 430.

¹¹⁶ UN Doc A/70/L.1 (n 24) SDG 2.

¹¹⁷ *ibid* SDG 2.5.

¹¹⁸ *ibid* SDGs 6, 6.5.

¹¹⁹ *ibid* SDGs 15, 15.6.

¹²⁰ Yadav Uprety and others, ‘Contribution of Traditional Knowledge to Ecological Restoration: Practices and Applications’ (2012) 19 *Ecoscience* 225.

¹²¹ ‘Report of the United Nations Conference on Environment and Development’ (Rio de Janeiro, 3–14 June 1992) (14 August 1992) UN Doc A/CONF.151/26 (Vol. III), Annex III: Non-legally Binding Authoritative Statement of Principles for a Global Consensus on the Management, Conservation and Sustainable Development of All Types of Forests.

VI. Concluding Thoughts: Remaining Challenges Going Forward

Establishment of IPRs over TK that empower ILCs with governance responsibilities and facilitate fair and equitable benefit-sharing is an essential step in achieving sustainable development. While tensions relating to incentivisation and protection of the public domain have been identified, the interface of the IGC Draft Articles on TK and the Nagoya Protocol provides points of reconciliation for ongoing divergence and has thus provided a viable route forward. The latter assisting through effectively resolving many of the contentious issues relating to TK in negotiations.¹²² Application of IPRs is not incompatible with TK; rather TK requires a specialised instrument established in collaboration with ILCs as holders and curators of TK. With the engagement of developing countries in the debate over the interface of TK, IPRs and biodiversity, under both the CBD and WIPO, post-colonial concerns can be constructively addressed, negotiated and adopted domestically, illustrative of an interactional approach to normative development. Through the recognition of ILC ownership over IPRs in TK and endorsement of community protocols, the foundational trust that underpins disclosure of TK can begin to be reconciled both domestically and internationally, while incentives are provided for the preservation and potential disclosure of TK based on fair and equitable benefit-sharing.

Admittedly concerns relating to the adequacy of the articulated rights, procedures and expected benefits (including affordability of the final product of the utilised TK), or in relation to capacity for enforcement of rights within ILCs, will be rightly identified by both communities and IP practitioners alike. Nonetheless, the establishment of IPRs in TK offers the most practical route to providing both protection and equitable access to TK held by ILCs, with the perceived shortcomings able to be addressed through common but differentiated domestic legislation, capacity building, and mutually-supportive compliance mechanisms. Sustainable development must be viewed holistically, and not in a vacuum, requiring engagement with ILCs based on a relationship of trust and mutual respect. The entry into force of the Nagoya Protocol is the most recent iteration of international legal instruments that affirm sustainable development principles.¹²³ With its substantive focus inclusive of TK and ILCs, the Protocol exemplifies a trend towards utilising legal measures to clarify rights and drive sustainable development through use of market mechanisms –such as contracts and IPRs– and mutually supportive institutions at the national regional and community level. Coartem, an artemisinin-based malaria treatment which was collaboratively developed by Novartis, the Chinese Institute of Microbiology and Epidemiology, and the Academy of Military Medical Sciences based on traditional medicinal knowledge, is an example of a benefit-sharing agreement that resulted in co-owned patents in over 50 jurisdictions, development of a highly successful drug, and dissemination to public health partners on a not-for-profit basis.¹²⁴

Sustainable development needs to be established on mutually beneficial pillars of mutual respect and legal clarity, with the active participation of ILCs, and must be aimed at protective, pragmatic and proactive measures designed to address poverty and inequality. The 2030 development agenda seeks to facilitate a cohesive international response to address the 2.2 billion global citizens facing 'multidimensional poverty',¹²⁵ the monumental threat of destabilisation to agricultural and economic markets posed by climate change,¹²⁶ and mainstream ecosystem integrity and conservation of natural capital.¹²⁷ Through recognition of ILCs as holders of IPRs in TK relating to biodiversity and natural capital, the development of complementary legal infrastructure to support equitable benefit-sharing, facilitating community governance and self-determination, and protecting against misappropriation, TK as a technology of biodiversity conservation and innovation can be preserved for future generations and respectfully shared based on mutually equitable terms in support of sustainable development.

¹²² Charles Lawson, 'WIPO, Genetic Resources and TK: The Evolution of a Formal Intellectual Property Agreement Protecting TK Associated with Genetic Resources' in Tania Bubela and Richard Gold (eds), *Genetic Resources and Traditional Knowledge: Case Studies and Conflicting Interests* (Edward Elger 2012) 50–56.

¹²³ Marie-Claire Cordonier Segger and Christopher G Weeramantry (eds), *Sustainable Justice: Reconciling Economic, Social and Environmental Law* (Martinus Nijhoff 2004); Cordonier Segger and Khalfan (n 2) 10–38.

¹²⁴ The Economics of Ecosystems and Biodiversity, *TEEB for Business* (Earthscan 2010) 12; Freedom-Kai Phillips, 'Sustainable Bio-Based Supply Chains in Light of the Nagoya Protocol' in Lydia Bals and Wendy Tate (eds), *Implementing Triple Bottom Line Sustainability into Global Supply Chains* (Greenleaf Publishing 2016) 295–296.

¹²⁵ UNDP, *Human Development Report 2014 – Sustaining Human Progress: Reducing Vulnerabilities and Building Resilience* (UNDP 2014).

¹²⁶ Stephane Hallegatte and others, *Shock Waves: Managing the Impacts of Climate Change on Poverty* (World Bank 2016).

¹²⁷ The Economics of Ecosystems and Biodiversity, *Mainstreaming the Economics of Nature: A Synthesis of the Approach, Conclusions and Recommendations of TEEB* (UNEP 2010).

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Competing Interests

The author declares that they have no competing interests.

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