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Protection of Traditional Knowledge of Agricultural Interest in International Law

Seeing property is an act of imagination[1]

Five hundred years after Columbus, a more secular version of the same project of colonization continues through patents and intellectual property rights.[2]

This chapter deals with the international protection and promotion of indigenous traditional knowledge (TK) associated with agriculture, with a special focus on biodiversity-related knowledge. Interest in this knowledge has intensified greatly over the past two decades, along with a growing awareness of the contribution it can make, in a time of climate and environmental change, towards developing more sustainable models of agriculture and contrasting the erosion of both biodiversity and cultural diversity. The chapter analyzes the international legal framework for TK protection, as well as current international efforts to develop *sui generis* protection systems that are culturally more appropriate and capable of valorizing the collective and intergenerational nature of TK. In this context, the protection of indigenous TK is put against the backdrop of the protection of TK hold by rural communities of peasants, shepherds, and fishermen. The chapter finally investigates the role of intellectual property in preserving indigenous peoples' TK and promoting their economic empowerment. More precisely, attention is paid to the question as to whether TK falls within the boundaries of protected property under international human rights law.

[1] C.M. Rose, *Property and Persuasion: Essays on the History, Theory, and Rhetoric of Ownership* (Boulder, CO: Westview Press 1994) 296.
[2] V. Shiva, *Biopiracy: The Plunder of Nature and Knowledge* (Boston, MA: South End Press 1997) 126.

1. *Preliminary Remarks*

This contribution tackles the international protection and promotion of indigenous traditional knowledge (TK) associated with agriculture, i.e. the set of knowledge and practices accumulated and transmitted from generation to generation of the 'First Nations' to face the challenges of the natural environment. Interest in this knowledge has intensified greatly over the past two decades, along with a growing awareness of the contribution it can make, in a time of climate and environmental change, towards developing an agriculture more sustainable than those intensive and industrialized models with high environmental impact, which are at the origin of a worrisome erosion of biodiversity and of the cultural diversity associated with it. The extreme drought that has gripped California over the last few years is just one of the numerous episodes that cast light on the fragility of agricultural systems even in industrialized countries.[3] All this has increased awareness of the important role for global food security of traditional genetic strains resistant to water stress, as well as irrigation techniques developed by rural populations that for centuries have had to grapple with adverse environmental conditions.[4]

Traditional knowledge is marked by considerable diversity. On the one hand, its diversity is due to its development by a large variety of social groups. On the other hand, it also depends on the purpose of TK, which may comprise techniques of soil protection and fertilisation, systems for managing forests, terracing, irrigation and water harvesting, handicraft skills for tool making, farming and breeding methods (including inter-cropping and polyculture systems), and so on.[5]

However, knowledge associated with genetic resources is particularly important. Local landraces and farmers' varieties, with their inherently broad genetic base, are in fact more resilient and resistant under adverse growing

[3] On the risks (also in terms of loss of biodiversity and soil erosion) connected to the spread of industrial modes of agricultural production see the Report of the Special Rapporteur on the Right to Food, Olivier de Schutter, UN Doc. A/HRC/25/57, 24 January 2014 and Bioversity International, *Mainstreaming Agrobiodiversity in Sustainable Food Systems: Scientific Foundations for an Agrobiodiversity Index* (Fiumicino: Bioversity International 2017).

[4] See IFAD, 'The Traditional Knowledge Advantage. Indigenous Peoples' Knowledge in Climate Change Adaptation and Mitigation Strategies' (Rome: IFAD 2016) <https://maintenance.ifad.org/documents/38714170/40320989/traditional_knowledge_advantage.pdf/58c15785-2072-4265-993f-3ac7ae9127c9> accessed 4 May 2019.

[5] For some best-practices, see the Traditional Knowledge World Bank's inventory, at <www.tkwb.org> accessed 4 May 2019.

conditions than the more uniform and improved cultivars provided in the centralized seed supply system in industrialized countries; they can therefore serve as a precious source of material for plant breeding.[6] Two examples among many are provided by the recent use of traditional Ethiopian wheat varieties for plant breeding purposes[7] and by the patenting of the aluminium tolerance gene obtained from a Tanzanian farmers' variety of sorghum.[8] In the livestock sector as well, pastoral communities have contributed to the selection and improvement of resilient breeds, often suited to harsh environments, which are a precious reservoir of genetic diversity.[9]

A rather broad body of international treaty and customary rules governs the safeguarding and promotion of this knowledge, which is presently the object of studies and intergovernmental negotiations within the framework of various international organizations. The Western system for protecting intellectual property rewards scientists' intellectual work and guarantees remuneration of businesses' investment in research and development. Yet, it does not provide adequate protection for the practical knowledge and collective innovations handed down from generation to generation within indigenous peoples or local communities embodying traditional lifestyles. This asymmetry of legal protection lies at the origin of the phenomenon commonly known as 'biopiracy' – a neologism that indicates the exploitation, by individuals or enterprises, of TK related to biodiversity, obtained without the prior informed consent of, and with no remuneration to, TK holders.[10] In more general terms, entirely similar forms of unlawful

[6] O. De Schutter, *Seed Policies and the Right to Food: Enhancing Agrobiodiversity, Encouraging Innovation. Background document to the Report* (A/64/170) Presented by Prof. Olivier De Schutter, Special Rapporteur on the Right to Food, at the 64th Session of the UN General Assembly (October 2009), <http://www.srfood.org/images/stories/pdf/officialreports/20091021_report-ga64_seed-policies-and-the-right-to-food_en.pdf> accessed 4 May 2019.

[7] D. K. Mengistu and M. E. Pè, 'Revisiting the Ignored Ethiopian Durum Wheat (Triticum Turgidum Var. Durum) Landraces for Genetic Diversity Exploitation in Future Wheat Breeding Programs' (2016) 8 *Journal of Plant Breeding and Crop Science* 45–59.

[8] E. Hammond, 'Africa's Granary Plundered: Privatization of Tanzanian Sorghum Protected by the Seed Treaty (African Centre for Biosafety 2009) <http://acbio.org.za/wp-content/uploads/2015/02/ACB_Briefing_Privatising-Tanzanian-Sorghum_sbMATE-Gene_Dec_2009.pdf> accessed 4 May 2019.

[9] For further information see B. D. Scherf and D. Pilling, *The Second Report on the State of the World's Animal Genetic Resources for Food and Agriculture* (Rome: FAO 2015) <www.fao.org/3/a-i4787e.pdf>; <www.pastoralpeoples.org> both accessed 4 May 2019.

[10] See, among others, P. R. Mooney, *Seeds of the Earth: A Private or Public Resource* (Ottawa and London: Canadian Council for International Co-operation and the International Coalition for Development Action (ICDA) 1979); V. Shiva, *Biopiracy: The Plunder of*

exploitation may regard all knowledge and techniques of agricultural interest, in terms of engineering or plant protection, or of any other nature.

The process of 'extracting value' from the TK held by the communities often passes through third parties securing patents and other exclusive rights to inventions obtained thanks to the preponderant contribution of TK. This can take place in two distinct ways. First, in certain cases, intellectual property rights (IPRs) are erroneously attributed for claimed inventions or creative works that actually make no contribution to the state of the art. An instructive case that became notorious in international public opinion involved the European patent issued to a United States firm for the fungicidal properties of the neem tree, whose leaves had been used for decades by rural populations in India for the preparation of plant protection extracts.[11] Second, and more frequently, traditional knowledge and practices have been used by third parties to make products and procedures that meet all the requirements normally established for obtaining patents or other intellectual property rights, with no benefit to TK holders.

The phenomena just described are rife with geopolitical implications, as the interests of poor countries rich in biodiversity and TK (located mostly in the Southern hemisphere) clash with those of industrialized countries that are poor in biodiversity but have advanced technologies.[12] This polarization is also reflected in international law, which – as we shall see – plays an ambivalent role in combating biopiracy. From one standpoint, the adoption of the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPs)[13] at the World Trade Organization (WTO) has fostered expansion trends in the area of intellectual property, by extending Western protection models on a global scale. Regulation of international trade has therefore made a decisive contribution to what Boyle defined as the 'Second Enclosure Movement.'[14] Scholars discuss the 'commodification' of genetic resources – caused by extending the area of patentable subject matter to living

Nature and Knowledge (Boston, MA: South End Press 1997); R. Chandra, *The Cunning of Rights. Life, Law and Biocultures* (Oxford: Oxford University Press 2016).

[11] See V. Shiva and R. Holla-Bhar, 'Piracy by Patent: the Case of the Neem Tree', in J. Mander and E. Goldsmith (eds), *The Case Against the Global Economy: And for a Turn Toward the Local* (San Francisco: Sierra Club Books 1996) 146–159.

[12] Cf. I. Mgbeoji, *Global Biopiracy: Patents, Plants, and Indigenous Knowledge* (Vancouver: UBC Press 2006); L. Whitt, *Science, Colonialism and Indigenous Peoples. The Cultural Politics of Law and Knowledge* (New York: Cambridge University Press 2014).

[13] Agreement on Trade-Related Aspects of Intellectual Property Rights, 15 April 1994, 1869 UNTS 299.

[14] J. Boyle, 'The Second Enclosure Movement and the Construction of the Public Domain' (2003) 66 *Law and Contemporary Problems* 33–74.

organisms and their (micro and macro) components – that is depriving millions of farmers of control over productive cycles, to the benefit of the restricted number of large agrochemical companies that dominate much of the seed market.[15] Moreover, under Free Trade Agreements (FTAs), a number of developing countries have been required to introduce protection standards even higher than those required by WTO law. In particular, some trade agreements expressly include 'TRIPS–plus' provisions, requiring the Contracting Parties to introduce the patentability of plants and animals into their own legal systems.[16]

From another standpoint, international law can also constitute a tool of redistribution and solidarity, by protecting the cultural, economic, and social rights of farming communities and of indigenous peoples, as well as safeguarding global food security. As we shall see, recent years have seen a particularly intense effort to adopt international instruments aimed at promoting the 'bio-cultural' rights of indigenous peoples and farming communities, by also creating *sui generis* forms of protection of TK.

This chapter will examine emerging trends in the protection of TK held by indigenous peoples after the adoption of the United Nations Declaration on Indigenous Peoples' Rights (UNDRIP)[17]. In particular, it will analyse the role of intellectual property in preserving indigenous peoples' TK and promoting their economic empowerment. In this context, attention will be paid to the decisive question as to whether TK falls within the boundaries of protected property under international human rights law.

[15] On the relationship existing between patentability of plant genetic resources and the right to food, see J. Douwe Van der Ploeg, *The New Peasantries: Struggles for Autonomy and Sustainability in an Era of Empire and Globalization* (London and Sterling, VA: Earthscan 2008); S. Vezzani, 'Le risorse fitogenetiche per l'alimentazione e l'agricoltura nel dibattito sui *global commons*' (2013) 31 *Rivista critica del diritto privato* 433–464. The concentration and integration of the agro-chemical and of the seed industry has undergone unprecedented acceleration in recent years, most recently with the merger between Bayer and Monsanto.

[16] For some concrete examples: S. Mullapudi Narasimhan, *Towards a Balanced 'Sui Generis' Plant Variety Regime: Guidelines to Establish a National PVP Law and Understanding of TRIPS-plus Aspects of Plant Rights* (New York: UNDP 2008) <www.undp.org/content/dam/aplaws/publication/en/publications/poverty-reduction/poverty-website/toward-a-balanced-sui-generis-plant-variety-regime/TowardaBalancedSuiGenerisPlantVarietyRegime.pdf> accessed 4 May 2019, 25; A. G. Micara, 'International Law on Plant Genetic Resources for Food and Agriculture: Towards a New Balance?', in M. Alabrese, M. Brunori, S. Rolandi, and A. Saba (eds), *Agricultural Law* (Cham: Springer 2017) 53–82.

[17] Declaration on the Rights of Indigenous Peoples, 13 September 2007, G.A. Res. 61/295, U.N. Doc. A/RES/47/1 (2007).

2. *Passive Protection of Traditional Knowledge*

TK is safeguarded first by means of defensive strategies aimed at preventing it from being wrongfully exploited by third parties. In these circumstances, the aim of indigenous peoples is not to obtain exclusive rights over their knowledge (active protection), but to ensure that IPRs are not granted for inventions based on previously known traditional knowledge (passive protection). Essential here is the monitoring of the patent offices' activity, with a view to challenging patents that do not meet the requirements of novelty and/or of involving an inventive step. The revocation of the patent for the fungicidal properties of the neem tree shows that this strategy can be successful in contrasting biopiracy; however, it is very costly for indigenous peoples and above all comes up against the difficulty of demonstrating, through adequate proof, the prior use of knowledge and practices that in most cases are transmitted orally.[18]

For TK holders and the NGOs representing their interests, extrajudicial strategies may be preferable, such as: *i*) the creation of databases to bring TK into the public domain and/or to assist patent examiners in foreign patent offices in carrying out prior art searches,[19] or *ii*) campaigns of denunciation and raising public awareness, aimed at making patent holders relinquish controversial patents. In fact, 'naming, blaming, and shaming' is often the only possible solution in cases where IPRs have been properly accorded to third parties on the basis of the applicable law.

In intellectual property law, a preventive mechanism to combat biopiracy consists of establishing an obligation, for those applying for patents, trademarks, or certificates of production of plant varieties for products or procedures that use genetic or biological resources, to declare

[18] See S. Vezzani, 'Conoscenze tradizionali e attività inventiva: due recenti decisioni del Board of Appeal dell'Ufficio europeo dei brevetti riaccendono il dibattito sulla "biopirateria"' (2005) 88 *Rivista di diritto internazionale* 773–777.

[19] See, for instance, the Indian *Traditional Knowledge Digital Library*, accessible to patent examiners in all the patent offices that have concluded with it an agreement to that effect (see the website of the Library: <www.tkdl.res.in>). For further discussion on the role of databases and platforms to preserve and protect TK, see A. Haider, 'Reconciling Patent Law and Traditional Knowledge: Strategies for Countries with Traditional Knowledge to Successfully Protect Their Knowledge From Abuse' (2016) 48 *Case Western Reserve Journal of International Law* 347–370; WIPO, 'Report on the Compilation of Materials on Databases Relating to Genetic Resources and Associated Traditional Knowledge', Doc. GRTKF/IC/37/8 Rev., 1 August 2018. On the importance of databases to prevent biopiracy, see V. Vadi, 'Intangible Heritage, Traditional Medicine and Knowledge Governance' (2007) 2 *Journal of Intellectual Property Law and Practice* 682–692.

the origin of the resources in question, and any use of TK, when filing the application. These disclosure obligations are contemplated by a number of domestic laws, including for example those of the Member States of the Andean Community[20] and South Africa.[21] Moreover, since the late 1990s, there has been discussion on amending Article 27, para. 3, letter *b*), of the TRIPs Agreement, expressly legitimating states (or requiring them) to introduce procedural obligations of this kind, and to exclude the patenting of inventions resulting from biopiracy.[22] Scholars have also argued that by virtue of the principle of mutual supportiveness between international trade law and human rights, there is a genuine international obligation for states to cooperate in good faith to facilitate the such amendment.[23] Unfortunately, the modifications to the TRIPs Agreement proposed in this sense have not attracted sufficient support yet. Therefore, compliance with WTO law by regulations excluding the patentability of the inventions made with the decisive contribution of TK (obtained without the consent of the rights holders and/or in violation of the laws in the country of origin) remains in doubt: according to some, these regulations are incompatible with the TRIPs Agreement, because they introduce an additional requirement of patentability on top of those listed as mandatory by its Article 27.[24]

[20] Decision n. 486/2000 issued by the Commission of the Andean Community, available at <www.comunidadandina.org/Seccion.aspx?id=83&tipo=TE&title=propiedad-intelectual> accessed 4 May 2019, Article 26, letters *h*) and *i*).

[21] Cfr. Patents Amendment Act 2005, 9 December 2005, entered into force on 14 December 2007 (Act No. 20 of 2005), in *Government Gazette*, No. 28319.

[22] The revision of Article 27, para. 3, letter *b*), was envisaged by the Doha Agenda (Doc. WT/MIN(01)/DEC/1, 20 November 2001, para. 19). Among the proposals made by states, see the communication presented to the TRIPs Council by Brazil, China, Cuba, Dominican Republic, Ecuador, India, Pakistan, Thailand, Venezuela, Zambia and Zimbabwe (Doc. IP/C/W/356, 24 June 2002), commented by W. Abdelgawad, 'Brevetabilité du vivant, commerce de la biodiversité et protection des savoirs traditionnels: les pays africains et le réexamen de l'article 27:3 b) de l'Accord sur les ADPIC de l'OMC' (2004) 12 *African Yearbook of International Law* 121–167.

[23] R. Pavoni, 'Biodiversity and Biotechnology: Consolidation and Strains in the Emerging International Legal Regime', in F. Francioni and T. Scovazzi (eds) *Biotechnology and International Law* (Oxford/Portland, OR: Hart 2006) 29–57, 54.

[24] According to a thesis regrettably not accepted by the majority of patent offices and national judges, the refusal to grant patents for inventions obtained through the misappropriation of TK might be justified on morality or public order grounds (S. Vezzani, 'Le risorse fitogenetiche per l'alimentazione e l'agricoltura nel dibattito sui *global commons*', 776–7). One might also argue that obligations under international customary law concerning the protection of TK relating to genetic resources, prevail over obligations stemming from the TRIPs Agreement according to the principle *lex specialis derogat generali.* On this argument, see S. Vezzani, 'Normative brevettuali e accesso alle risorse

States are discussing the suitable ways to ensure the passive protection of the traditional knowledge associated with biodiversity in another intergovernmental forum as well: the Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore (WIPO Committee), instituted in 2000 by the World Intellectual Property Organization. The WIPO Committee has adopted a consolidated document relating to intellectual property and genetic resources, most recently revised on 23 March 2018, that might in the future take on the form of an international convention.[25] According to this document, the objective of combating biopiracy should be pursued: *i*) by fostering patent offices' access to information on TK to prevent the erroneous granting of patents;[26] *ii*) by requiring, when filing the patent applications, disclosure of the origin of the genetic resources and of the TK used, accompanied by appropriate administrative sanctions in the event of violations;[27] *iii*) by promoting the creation of TK databases;[28] *iv*) by fostering international cooperation and technical assistance.[29] The WIPO Committee's consolidated document is composed of several parts still in square brackets and articles which contain possible alternative formulations. To date, in fact, the states represented in the Committee have been unable to reach agreement as to such basic questions as whether the disclosure is obligatory or optional, whether and what kind of sanctions there should be, or whether to require patent offices to put in place measures aimed at ascertaining that TK has been acquired

biologiche e genetiche: ripartizione giusta ed equa dei vantaggi o "biorazzia"?', in N. Boschiero (ed), *Bioetica e biotecnologie nel diritto internazionale e comunitario. Questioni generali e tutela della proprietà intellettuale* (Torino: Giappichelli 2006) 261–281, 270.

[25] WIPO, Doc. GRTKF/IC/35/REF/FACILITATORS TEXT REV. 2, 'Consolidated Document Relating to Intellectual Property and Genetic Resources, Rev. 2 (clean)', 23 March 2018, available at <http://www.wipo.int/edocs/mdocs/tk/en/wipo_grtkf_ic_35/wipo_grtkf_ic_35_ref_facilitators_text_rev_2.pdf> accessed 4 May 2019. See also the Information note prepared by Mr. Ian Goss, the Chair of the WIPO Committee, for its 2018 session <http://www.wipo.int/edocs/mdocs/tk/en/wipo_grtkf_ic_37/wipo_grtkf_ic_37_chair_info_note.pdf> accessed 4 May 2019, and WIPO, 'The Protection of Traditional Knowledge: Updated Draft Gap Analysis', Doc. GRTKF/IC/37/6, 20 July 2018. On the works of the WIPO expert committee see D. F. Robinson, A. Abdel-Latif and P. Roffe (eds), *Protecting Traditional Knowledge: The WIPO Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge, and Folklore* (New York: Routledge 2017).

[26] 'Consolidated Document Relating to Intellectual Property and Genetic Resources, Rev. 2 (clean)' Article 8.

[27] *Ibid.* Article 6.

[28] *Ibid.* Article 8, para. 2.

[29] *Ibid.* Articles 11–13.

with the consent of the rights holders.

2.1. *Litigation before Domestic Courts: The* Murmuru *Case*

In 2002, a distinguished scientist suggested establishing a special UN-sponsored tribunal to resolve disputes relating to the misappropriation of TK.[30] However, this suggestion has never been seriously taken into consideration by states and international organizations. In the (*prima facie*) absence of effective international remedies, many legal scholars have discussed possible remedies that indigenous peoples might pursue before domestic courts in the event of biopiracy.[31] In particular, it has been emphasized that, in case of misappropriation of secret TK, infringements may give rise to a civil action for unfair competition, in order to obtain a ban on the commercialization of the products and compensation for material loss. Furthermore, compensation might be claimed for damages related to the non-material harm suffered as a consequence of the divulgation of sacred knowledge, for breach of confidence, or for breach of the moral right to be recognized as the authors of a creative work.[32] Because TK is generally handed down from a generation to another orally, it is quite difficult for plaintiffs to prove the existence of TK and they often have to produce reports by anthropologists and ethnobiologists.

Overall, little attention has been paid to the few known cases of TK abuse litigated before domestic courts.[33] Among them, particularly worthy of discussion is the *murmuru* case, decided by a Brazilian federal court.[34]

[30] I. M. Verma, 'Biopiracy: Distrust Widens the Rich-Poor Divide' (2002) 5 *Molecular Therapy* 95.

[31] For a *tour d'horizon*, see S. Vezzani, 'Sciamani e "cacciatori di geni": proprietà intellettuale e diritti dei popoli indigeni', in I. Papanicolopulu (ed) *Incontro di studio dei giovani cultori delle materie internazionalistiche* (Milano: Giuffrè 2008) 85–123.

[32] See F. Fontanarosa, 'Common property rights e traditional knowledge: appunti comparatistici in tema di diritti di proprietà intellettuale delle collettività locali' (2016) 12 *Agricoltura istituzioni mercati* 136–174.

[33] See, however, S. Bhutani and K. Kohli, 'Litigating India's Biological Diversity Act. A Study of Legal Cases' (2016) <https://www.aipla.org/committees/committee_pages/Biotechnology/GeneticResources/Shared%20Documents/India_s_Biological_Diversity_Act-List_of_legal_cases.PDF> accessed 4 May 2019.

[34] Third Court of the Judicial Section of the Acre State, *Ministério Público Federal v. Fábio F. Dias – ME, Chemyunion Química Ltda., Natura Cosméticos S.A., Instituto Nacional de Propriedade Indistrial (INPI)*, ação civil pública2007.30.00.002117-3, Judgment 22 May 2013 <http://portal.trf1.jus.br/sjac/comunicacao-social/imprensa/noticias/justica-federal-profere-sentenca-no-caso-murmuru.htm> accessed 4 May 2019. On the *murmuru* case see

Murmuru is an Amazonian plant that produces a palm fruit used by the Ashaninkas for food and cosmetic purposes. In 2007, the Federal Public Ministry initiated an *ação civil pública* against four legal persons who had allegedly unlawfully accessed indigenous TK relating to murmuru, in order to obtain patents (granted by the Brazilian National Institute of Industrial Property) for products and processes concerning uses of murmuru to produce soap and other cosmetic products with emollient and moisturizing properties. The Public Ministry asked the court either to declare the said patents null and void, or to declare an association representing the indigenous people as holder of the patents; the court was also asked to award the Ashaninka people part of the economic income deriving from the sale of products incorporating their TK.

The court rejected the argument that the Ashaninka could claim intellectual property rights over TK concerning the emollient properties of murmuru, ruling that information concerning these properties was widely disseminated and described in old publications, and thus belonged to the public domain.[35] However, the judgment found that murmuru nuts and related information concerning their potential commercial value had been accessed in the framework of a research programme carried out under an agreement between the Ashaninka and an NGO. The agreement required prior informed consent and benefit sharing. In light of all this, the court thus condemned the respondents to pay an indemnity to the indigenous people, corresponding to 15% of the profit gained from the sale of products obtained from murmuru. It also ruled that the National Institute of Industrial Property had to rectify the patent application, indicating the association representing the Ashaninka as the applicant.[36]

This judgment is notable, as it is the only known case in which a court has ruled that an indigenous community should be considered the owner of patent granted to a company that has wrongfully obtained biodiversity-associated knowledge held by that community. It reveals that, even in the absence of *ad hoc* legislation, indigenous peoples may successfully bring proceedings in circumstances where third parties have exploited TK (whether or not in the public domain) shared in confidence or used in

M. C. Vidotte Blanco Tarrega and R. Donizete Franco, 'Os conhecimentos tradicionais associados e a propriedade intelectual da biotecnologia: reflexões a partir do caso do murmuru' <http://www.publicadireito.com.br/artigos/?cod=dabd8d2ce74e782> accessed 4 May 2019.

[35] Third Court of the Judicial Section of the Acre State, *Ministério Público Federal v. Fábio F. Dias*.

[36] *Ibid.* 52.

breach of a contract. Conversely, the impact of this case is limited by the fact that, as acknowledged by the judgment itself, in most cases patents resulting from biopiracy fail to satisfy patentability requirements.

3. *Active Protection*

Turning to the 'active' protection, the need of *sui generis* systems capable to safeguard and promote TK, enabling rights holders to share the benefits derived from its use, has been noted for some time in the international community.[37] Numerous treaties and soft law instruments contemplate the protection of TK of agricultural interest.[38] Moreover, as far as the knowledge held by indigenous peoples is concerned, protection is also provided by general international law.

It is often argued that, by failing to recognize collective rights and being based on a market value system, intellectual property rights are ill-suited to protect TK.[39] Nevertheless, it cannot be completely ruled out that local communities or indigenous peoples can strategically use select elements of

[37] On the emerging principle of benefit sharing, see E. Morgera, 'The Need for an International Legal Concept of Fair and Equitable Benefit Sharing' (2016) 27 *European Journal of International Law* 353–383.

[38] See, for instance, the UNESCO Convention for the Safeguarding of the Intangible Cultural Heritage, 17 October 2003, in force 20 April 2006, 2368 *UNTS* 1, Article 2(2)(d) (also including in the notion of intangible cultural heritage 'knowledge and practices concerning nature and the universe'). The Convention's List of Intangible Heritage includes culinary traditions and traditional practices related to agriculture, such as 'Traditional Knowledge and Technology Relating to the Growing and Processing of the Curagua', inscribed in 2015.

[39] See, for instance, G. Aguilar, 'Access to Genetic Resources and Protection of Traditional Knowledge in the Territories of Indigenous Peoples' (2001) 4 *Environmental Science & Policy* 241–256, 250–251. A more multifaceted analysis is made by Coombe in her scholarly output. On one hand, she has noted that the use of Western intellectual property language may unintentionally serve neoliberal ideology and the mainstream agenda: '[t]he CBD recognition of indigenous and local communities' traditional knowledge as relevant to the conservation of biological diversity, for example, is embedded in a neoliberal regime that defines the latter as a 'resource' for humankind best valued through market mechanisms' (R. J. Coombe, 'Possessing Culture: Political Economies of Community Subjects and their Properties', in V. Strang and M. Busse (eds), *Ownership and Appropriation* (Oxford/New York: Berg 2011) 105–127, 112). On the other hand, she has emphasized that proprietary claims have in some places been linked to emancipatory struggles for resistance to hegemonic globalization, and for recognition and social justice (ibid).

IPRs for safeguarding collective TK.[40] Traditional IPRs that can protect TK in the agricultural field are geographical indications, trade secrets, plant breeders' rights, collective trademarks, denominations of origin, and (for inventions developed thereof) patents.[41] For example, indigenous peoples obtained the protection of the fine Rooibos tea from South Africa through a geographical indication.[42] Several domestic laws also protect TK as industrial secrets, if such knowledge has been kept confidential and does not belong to the public domain.[43]

However, the main challenge is to develop *sui generis* protection systems that are culturally more appropriate and capable of better valorizing the collective and intergenerational nature of the rights claimed by communities to their own heritage of knowledge, even in cases where the relevant practices and knowledge do not satisfy the requirement of novelty. A number of states, especially developing and least developed countries, have adopted *ad hoc* legislation to protect 'intellectual community rights', particularly as regards knowledge associated with biodiversity.[44] The adopted solutions diverge considerably. For example, some legislations have filing procedures

[40] See, for instance, I. Mgbeoji, *Global Biopiracy: Patents, Plants and Indigenous Knowledge*; L. Whitt, *Science, Colonialism and Indigenous Peoples. The Cultural Politics of Law and Knowledge*, 12 and A. K. Gupta, 'Conserving Biodiversity and Rewarding Associated Knowledge and Innovation Systems: Honey Bee Perspective', in T. Cottier and P. C. Mavroidis (eds), *Intellectual Property: Trade, Competition and Sustainable Development* (Ann Arbor: The University of Michigan Press 2003) 373–402.

[41] For some concrete examples concerning use of traditional IPRs to protect indigenous peoples' TK, see *Protect and Promote Your Culture. A Practical Guide to Intellectual Property for Indigenous Peoples and Local Communities* (Geneva: WIPO 2017).

[42] L. Daniels, 'Local Rooibos Tea Gowers Take Charge in Effort to Gain GI Protection', *Intellectual Property Watch*, 12 January 2016. More in general, on the potential of geographical indication to protect TK, see A. Di Blase, 'I diritti di proprietà intellettuale applicabili alla cultura indigena e tradizionale' (2008) 9 *Direito e Democracia* 4–38, 34–35; D. Gervais, 'Traditional Innovation and the Ongoing Debate on the Protection of Geographical Indications' in P. Drahos and S. Frankel (eds), *Indigenous Peoples' Innovation: Intellectual Property Pathways to Development* (Camberra: Australian National University Press 2012) 121–146.

[43] See on this point G. Aguilar, 'Access to Genetic Resources and Protection of Traditional Knowledge in the Territories of Indigenous Peoples', 254; P. D. Farah and R. Tremolada, 'Diritti di proprietà intellettuale, diritti umani e patrimonio culturale immateriale' (2014) 63 *Rivista di diritto industriale* 21–47, 39–40.

[44] For an overview of some domestic legislation, see E.C. Kamau and G. Winter, *Genetic Resources, Traditional Knowledge and the Law: Solutions for Access and Benefit Sharing* (London and Sterling, VA: Earthscan 2009); C. Antons (ed), *Traditional Knowledge, Traditional Cultural Expressions and Intellectual Property Law in the Asia-Pacific Region* (Alphen aan den Rijn: Kluwer Law International 2009).

or other administrative obligations for the purposes of granting exclusive rights,[45] while most merely identify the facts giving rise to the rights not subject to registration. Quite different is the role entrusted to the state authorities and to indigenous peoples' representatives, both in negotiating the 'mutually agreed terms' with the persons interested in the use of TK, and in subsequently sharing the (monetary and non monetary) benefits with the rights holders. Some legislative systems, such as the 2002 Peruvian law on access to biological diversity and related TK, also require a base percentage of gross sales stemming from the marketing of goods developed thanks to TK to be paid to the community of origin, in order to avoid abuses by outside parties having much stronger bargaining power.[46] Also highly variable is the effectiveness recognized for indigenous law, which in many cases contains detailed rules on accessing TK.[47]

At the international level, some regionally-based organizations have developed model laws on the protection of traditional technologies and knowledge in the form of recommendations. Distinguished among these are those developed by the African Union[48] and by the Pacific Islands Forum.[49] Moreover, in 2010, the African Regional Intellectual Property Organization (ARIPO) adopted a full-blown international agreement on the protection

[45] See, e.g., the South African legislation, which imposes no formality upon TK bearers: '*Protection, Promotion, Development and Management of Indigenous Knowledge System Bill, 2014*', *Government Gazette*, 20 March 2015, n. 38574.

[46] Peru, Law No. 27811 of 10 August 2002, 'The Protection of Access to Peruvian Biological Diversity and the Collective Knowledge of Indigenous People' <http://www.wipo.int/wipolex/en/details.jsp?id=3420> accessed 4 May 2019, Article 8. On this law see R. G. Alvarez Núñez, 'Intellectual Property and the Protection of Traditional Knowledge, Genetic Resources and Folklore: The Peruvian Experience' (2008) 12 *Max Planck Yearbook of United Nations Law* 485–549, 536–547.

[47] Cf. B. Tobin, 'The Role of Customary Law in ABS and Traditional Knowledge Governance: Perspectives from Andean and Pacific Island Countries' (WIPO and United Nations University, 2013) <www.ip-watch.org/weblog/wp-content/uploads/2013/04/customary_law_in_abs_and_tk_governance_perspectives_from_andean_and_pacific_island_countries.pdf> accessed 4 May 2019. See also P. Drahos, *Intellectual Property, Indigenous People and Their Knowledge* (Cambridge: Cambridge University Press 2014) (examining ancestral systems of knowledge governance).

[48] 'African Model Legislation for the Protection of the Rights of Local Communities, Farmers and Breeders, and for the Regulation of Access to Biological Resources (2000).' For commentary, see T. Kongolo, *Unsettled International Intellectual Property Issues* (Alphen aan den Rijn: Kluwer Law International 2008) 79–86.

[49] 'Model Law for the Protection of Traditional Knowledge and Expressions of Culture 2002', available at <www.forumsec.org/resources/uploads/attachments/documents/PacificModelLaw,ProtectionofTKandExprssnsofCulture20021.pdf> accessed 4 May 2019.

of TK, the Swakopmund Protocol, which entered force in May 2015.[50] The Protocol enshrines the right of local and indigenous populations – as well of the individuals who, within these populations, have made an innovative contribution to the development of new practices and knowledge[51] – to exclude others from using their knowledge, without requiring entry in registers or any other formality.[52] In a highly flexible manner, the Protocol entrusts the communities with negotiating the licensing contracts containing agreements as to the amount of the fee and/or other non-financial benefits.[53] The role of the relevant administrative authorities is reduced to mediating between the parties, in order to help achieve fair and equitable benefit sharing.[54] The jurisdictional authorities are thus tasked with ascertaining, should disputes arise, whether the necessary prerequisites exist so that a given knowledge might be called traditional pursuant to the Protocol and, in that case, what community can claim ownership of the *ius excludendi*.

As we shall see, a variety of universal international instruments also contain provisions on the protection and promotion of TK. However, the heterogeneous nature of the solutions upheld by the individual domestic legal systems reveals how hard it is to work out a universal convention that contemplates, in a detailed way, uniform protection instruments. An attempt in this sense is underway within the WIPO; regrettably, however, the intergovernmental negotiation has thus far failed to yield appreciable results.

4. *Conventions Aimed to Face Loss of Biological Diversity and Climate Change*

Obligations to safeguard TK are put in place by the two international conventions adopted after the 1992 Rio 'Earth Summit': the Convention on Biological Diversity (CBD)[55] and the United Nations Convention to Combat Desertification in those Countries Experiencing Serious Drought

[50] Swakopmund Protocol on the Protection of Traditional Knowledge and Expressions of Folklore within the Framework of the African Regional Intellectual Property Organization (ARIPO), 9 August 2010, <www.wipo.int/wipolex/en/other_treaties/text.jsp?file_id=201022> accessed 4 May 2019. The Protocol entered into force on 11 May 2015.
[51] Swakopmund Protocol, section 6.
[52] *Ibid.* section 5 (also encouraging states to maintain registers of TK for the sake of transparency)
[53] *Ibid.* sections 7–9.
[54] *Ibid.* section 9.2.
[55] Convention on Biological Diversity, Rio de Janeiro, 5 June 1992 (1992) 31 *International Legal Materials* 818.

and/or Desertification, particularly in Africa (Convention to Combat Desertification).[56]

The CBD is mainly based on the idea that the sharing of the benefits deriving from genetic resources is a matter for states to decide, as a matter of state sovereignty.[57] Nevertheless, Article 8, letter *j*) of the CBD requires the Contracting Parties, subject to their national legislation, to

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

A provision similar in content may be found in the Convention to Combat Desertification: under Article 18, para. 2, it requires the parties to protect the technology, knowledge, know-how, and practices of use to combat desertification, using inventories to be made with the participation of local populations and, where appropriate, in collaboration with relevant inter-governmental and non-governmental organizations.[58] With the aim of spreading knowledge potentially useful for all humanity, the Convention encourages the improvement and dissemination of such knowledge and practices,[59] also with a view to their integration with modern technologies.[60] In any event, it provides that the parties must 'ensure that such technology, knowledge, know-how, and practices are adequately protected and that local populations benefit directly, on an equitable basis and as mutually agreed, from any commercial utilization of them or from any technological development derived therefrom.'[61] More recently, an important reference to the role of indigenous peoples' TK in facing climate changes has been included in the

[56] United Nations Convention to Combat Desertification in those Countries Experiencing Serious Drought and/or Desertification, particularly in Africa, Paris, 17 June 1994 (1994) *International Legal Materials* 1328.
[57] See D. S. Tilford, 'Saving the Blueprints: The International Legal Regime for Plant Resources' (1998) 30 *Case Western Reserve Journal of International Law* 373–446, 440–442 (referring to Brazil's opposition, during the *travaux préparatoires*, to mentioning indigenous peoples' rights in the Convention.)
[58] *Ibid.* Article 18, para. 2, letter *a*). See also Article 17, para. 1, letter *c*).
[59] *Ibid.* Article 18, para. 2, letter *c*).
[60] *Ibid.* Article 18, para. 2, letter *d*).
[61] *Ibid.* Article 18, para. 2, letter *b*).

2015 Paris Agreement on Climate Change.[62]

The CBD institutionalized international cooperation, favouring, among other things, in-depth studies as to the procedures for guaranteeing an equitable sharing of the benefits (monetary and otherwise) derived from the use of TK.[63] In 2002, the Sixth Conference of the Parties (COP) developed the 'Bonn Guidelines',[64] a non-binding document recommending some good practices for the states and other stakeholders, and containing an indicative list of standard clauses to be included in the Mutually Agreed Terms (MATs), i.e. contracts on the supply of genetic materials.

The protection afforded by Article 8, letter *j*) of the CBD was strengthened – albeit in a circumscribed context – by the 2001 Food and Agriculture Organization (FAO) Treaty on Plant Genetic Resources for Food and Agriculture (also known as the 'Seed Treaty'),[65] the first binding international instrument to expressly recognize farmers' rights.[66] Adopted to permit an adequate international flow of germplasm indispensable for guaranteeing global food security, the Treaty requires the Contracting Parties to guarantee facilitated access to the samples of sixty-four species of fundamental agricultural interest, and institutes a trust fund to finance projects benefitting small farmers in developing countries.[67]

All three of these treaties have common features. They identify as their objective the equitable sharing of the benefits that derive from the use of TK, through the involvement of the rights holders. However, the Contracting Parties are left a very broad margin of discretion in identifying the most appropriate means to guarantee achieving this objective. Moreover, the protection obligation is set out in extremely loose terms, and is above all

[62] Paris Agreement on Climate Change, Paris, 12 December 2015 (2016) 55 *International Legal Materials* 740–755, Article 7, para. 5.

[63] CBD, Article 8, letter *j*). See in particular the works of the *Ad Hoc Open-ended Working Group on Article 8(j) and Related Provisions of the Convention on Biological Diversity* <www.cbd.int/traditional> accessed 4 May 2019. To date (December 2018), the Convention has obtained 196 ratifications, by almost all the states in the international community, with the major exception of the United States.

[64] *Bonn Guidelines on Access to Genetic Resources and Fair and Equitable Sharing of the Benefits Arising out of Their Utilization* (COP 6 Decision VI/24).

[65] FAO Treaty on Plant Genetic Resources for Food and Agriculture, Rome, 3 November 2001, *United Nations Treaty Series*, I-43345. On the FAO Treaty, with a special focus on farmers' rights, see C. Chiarolla, *Intellectual Property, Agriculture and Global Food Security* (Cheltenham-Northampton: Elgar 2011).

[66] With special regard to TK, see the FAO Seed Treaty, Article 9, para. 2, letter *a*).

[67] Cf. FAO, *Report on the First Round of the Project Cycle of the Benefit-sharing Fund* (FAO: Rome 2013) <www.planttreaty.org/node/4355> accessed 4 May 2019.

conditioned upon compliance with national legislation.[68]

5. *The Nagoya Protocol*

After having discussed the combined role that the CBD, the Convention to Combat Desertification, and the Seed Treaty play in protecting TK, this section will now examine the 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 (Nagoya Protocol)[69]. This instrument was adopted in 2010 by the tenth COP, in order to reinforce and better detail the content of the CBD's access and benefit sharing provisions. In reality, the most significant obligations that the Protocol places upon the Contracting Parties are of a procedural nature. The Protocol provides the issuance by the national authorities of internationally recognized administrative authorizations or certificates of compliance, attesting the compliance with the regulations of the state of origin in the matter of access to genetic resources and benefit sharing (ABS regulations), which is to say respect for prior informed consent and the establishment of MATs.[70] The Protocol also requires states other than those of origin of the genetic resources to put in place measures aimed at verifying compliance with the obligations incumbent upon the users,[71] through designated checkpoints at stages of the genetic resources' value-chain.[72]

[68] The two UN conventions, of 1992 and 1994, use respectively the expression '[s]ubject to [their] national legislation' (Convention on Biological Diversity, Article 8, letter *j*)) and 'according to their respective capabilities, and subject to their respective national legislation and/or policies' (Convention against Desertification, Article 18, para. 2). Also the 'Seed Treaty', after stating that responsibility for the protection of farmers' rights is incumbent upon national Governments, uses a very loose expression, little more than optative, providing that '[i]n accordance with their needs and priorities, each Contracting Party should, as appropriate, and subject to its national legislation, take measures to protect and promote Farmers' Rights…' (Article 9, para. 2).

[69] Adopted by the COP to the Convention on Biological Diversity on 29 October 2010, the Protocol entered into force on 12 October 2014 and has obtained 109 ratifications. Its text can be read at <www.cbd.int/abs>. In the vast literature existing on the Protocol, see E. Morgera, E. Tsioumani and M. Buck (eds), *The 2010 Nagoya Protocol on Access and Benefit-Sharing in Perspective. Implications for International Law and Implementation Challenges* (Leiden/Boston, MA: Martinus Nijhoff 2013).

[70] Nagoya Protocol, Article 6, para. 3, letter *e*) and Article 17, paras. 2–4.

[71] *Ibid.* Articles 15 and 16.

[72] *Ibid.* Article 17, para. 1.

As for the states' substantial obligations in the matter of safeguarding TK, the Nagoya Protocol marks a timid step forward from the three conventions discussed in the previous section. Unlike the CBD, the Protocol expressly requires access to TK to take place with prior informed consent or with the approval and involvement of indigenous and local communities.[73] Another difference concerns the reference to domestic law. Both the CBD and the Convention to Combat Desertification required the adoption of those measures necessary to ensure a fair and equitable benefit sharing in accordance with the mutually agreed terms, 'subject to domestic law.' Conversely, in the Nagoya Protocol the same obligation is in part decoupled from subordination to domestic law.[74] Lastly, the Protocol encourages the adoption of contractual models and the development, by indigenous and local communities, of 'Community Protocols,' which we will see to be one of the most innovative instruments for the protection of TK.[75]

De lege ferenda, Article 10 of the Nagoya Protocol requires the parties to consider the appropriateness of instituting a global mechanism for sharing the benefits derived from the use of TK spread in transboundary situations, or for which it was not possible to obtain the prior informed consent of the rights holders. With a view to global solidarity, a fund of this kind might be contributed to by utilizers of widely disseminated TK (starting from patent holders for inventions made with the preponderant contribution of said knowledge), for which it is difficult to identify mechanisms for involving the affected populations.

Despite the positive aspects just discussed, the Protocol presents many ambiguities and weaknesses.[76] In the first place, the substantial obligations for the states remain rather generic: for example, the Protocol does not identify the content of the sanctioning measures that the states must adopt when they find a violation of the regulations of the country of origin.[77] Furthermore, the very object of protection is undefined. As Flavia Zorzi Giustiniani has observed, in the absence of a clear and precise definition of the notions of 'traditional knowledge linked to genetic resources' and

[73] *Ibid.* Article 7.

[74] *Ibid.* Article 5, para. 5. Some other provisions (Article 6, para. 2; Article 7 and Article 12, para. 1) still contain a reference to domestic legislation, although the CBD's formula 'subject to domestic law' has been replaced with another, more nuanced one: 'in accordance with domestic law.'

[75] *Ibid.* Article 15, para. 3, letter *a*).

[76] See *inter multos* T. Burelli, 'Faut-il se réjouir de la conclusion du Protocole de Nagoya?' (2012) 37 *Revue juridique de l'environnement* 45–61; Drahos, *Intellectual Property, Indigenous People and Their Knowledge*, 83.

[77] Nagoya Protocol, Article 17.

of 'local communities',[78] there is a risk that some Contracting Parties will circumvent their obligation, by excluding certain categories of TK from the Protocol's sphere of application. For example, they might exclude TK for which no well-delimited community of reference can be identified, or even TK belonging to the public domain.[79] Moreover, in an 'effort of creative ambiguity',[80] the negotiators managed to include a definition of 'derivative' products (i.e. products derived from genetic resources)[81] in the Protocol, without using this notion elsewhere in the Protocol. Left open, then, was the question – one that was highly debated and risked scuttling the talks – of whether the obligation to share the benefits also regards the use of the biochemical compounds expressed by the genetic resources.[82]

Also the mechanism for monitoring compliance with the Protocol is highly unsatisfactory. Pursuant to Article 27 of the CBD, referenced by the Protocol under Article 30, disputes may be submitted to jurisdictional mechanisms only under the condition that the disputing parties have made a declaration accepting the jurisdiction of an arbitral tribunal or of the International Court of Justice. Article 30 of the Protocol referred the preparation of procedures and mechanisms to promote implementation of the Protocol to the first meeting of the parties, during which a Compliance

[78] On the problems of definition relating to the notion of 'local communities', see also the note of 17 September 2013 of the Executive Secretary of the Biodiversity Convention, Doc. UNEP/CBD/WG8J/8/INF/10/Add.1 <www.cbd.int/doc/meetings/tk/wg8j-08/information/wg8j-08-inf-10-add1-en.pdf> accessed 4 May 2019.

[79] F. Zorzi Giustiniani, 'Protezione delle conoscenze tradizionali dalla biopirateria: quali prospettive dopo l'adozione del Protocollo di Nagoya?', in *Diritto internazionale e pluralità delle culture*, XVIII Convegno SIDI di Napoli, 13-14 giugno 2013 (Napoli: Editoriale scientifica 2014) 315–330. In the same sense Burelli also stresses that the Protocol regulates exclusively access to TK associated with genetic resources. (Burelli, 'Faut-il se réjouir de la conclusion du Protocole de Nagoya?'). As a consequence, according to him, the Protocol has a more restricted ambit of application than Article 8, letter *j*), of the CBD, which protects all knowledge and practices of interest for the conservation of biological diversity not directly associated with specific genetic resources, relating for instance to the functioning of natural ecosystems or to the struggle against climate change.

[80] J. Beqiraj, 'L'equa condivisione dei benefici derivanti dall'utilizzo delle risorse genetiche secondo il Protocollo di Nagoya: fra obblighi degli Stati e diritti delle comunità indigene' (2011) 5 *Diritti umani e diritto internazionale* 188–193, 190.

[81] Nagoya Protocol, Article 2, letter *e*).

[82] E. Morgera, E. Tsioumani, and M. Buck, *Unraveling* the *Nagoya Protocol: A Commentary on the Nagoya Protocol on Access and Benefit-Sharing to the Convention on Biological Diversity* (Leiden/Boston: Brill 2014) 65–71; S. Brizioli, 'Shifting Variables in Regulating Genetic Resources: Definition, Legal Status and Access', *forthcoming* in *Diritto e Processo*.

Committee,[83] patterned after the mechanisms established by numerous multilateral environmental agreements,[84] was created. However, according to the instituting decision, the non-compliance procedure can be set in motion only by the states that are party to the agreement, or by the Conference of the Parties.[85] Considering the nature of the interests that the Protocol aims to protect, it would have been decidedly preferable to grant NGOs and representatives of indigenous peoples the power to activate the procedure as well, on the basis of a triggering mechanism inspired by that of the Aarhus Convention. On the other hand, also domestically, no monitoring obligations by national checkpoints are provided for with regard to the misappropriation of genetic resources-related TK.[86]

Consequently, the Protocol's entire approach is state-centric: it only requires states to verify compliance with the Access and Benefit Sharing (ABS) regulations of the country of origin, regardless of whether these regulations adequately protect TK holders, in accordance with what international law requires. Also, very little importance is given to customary indigenous law: after a reference in the preamble to the 2007 UNDRIP, the Protocol merely states that the customs of indigenous peoples must be taken 'into consideration.'[87]

Pursuant to Article 4(1) of the Nagoya Protocol, '[its] provisions … shall not affect the rights and obligations of any Party deriving from any existing international agreement, except where the exercise of those rights and obligations would cause a serious damage or threat to biological diversity. This paragraph is not intended to create a hierarchy between this Protocol and other international instruments.' As noted by Di Blase, a state might exceptionally derogate from obligations under the TRIPs Agreement, in the event that the granting of a patent would result in a serious infringement of TK. However, as noted by the same author, the term 'serious' has been left undefined[88] and 'there is the risk that an IPRs-oriented approach might

[83] See 'Cooperative procedures and institutional mechanisms to promote compliance with the Nagoya Protocol and to address cases of non-compliance', MOP-1, Decision NP-1/4.
[84] See, on this point T. Treves, L. Pineschi, A. Tanzi, C. Pitea, C. Ragni, and F. Romanin Jacur (eds), *Non-Compliance Procedures and Mechanisms and the Effectiveness of International Environmental Agreements* (The Hague: Asser Press 2009).
[85] MOP-1, Decision NP-1/4, point D, n. 1.
[86] Nagoya Protocol, Article 17.
[87] *Ibid.* Article 12, para. 1.
[88] A. Di Blase, 'Traditional Knowledge: Cultural Heritage or Intellectual Property Right?', in V. Vadi and B. de Witte (eds), *Culture and International Economic Law* (London: Routledge 2015) 143–159, 147.

prevail in a case before the WTO bodies for TRIPs infringement.'[89]

5.1. *The Protocol's Implementation in the European Union*

The Nagoya Protocol's entry into force was the occasion for adopting ABS legislation in Europe. In a sector where Africa, Latin America, and Asia are in the vanguard, this is a continent lagging far behind, both because poorer in biodiversity and related TK, and because hosting multinational companies that have benefited a lot from biopiracy.[90]

In the European Union, the Protocol was implemented by regulation no. 511/2014.[91] This regulation states that all users of genetic resources and associated TK should exercise due diligence to ascertain whether genetic resources and traditional knowledge associated with them have been accessed in accordance with applicable legal or regulatory requirements,[92] and tasks the competent authorities in the individual Member States with ascertaining that the users have obtained prior informed consent and established mutually agreed terms.[93] Going beyond what the Protocol requires, the regulation extends the monitoring measures to TK as well, obligating the users – during the stage of final development of a product incorporating this knowledge – to declare, and to prove where required, that they have fulfilled their obligations.[94]

On the other hand, as regards regulating access to European genetic resources and to the TK associated with these genetic resources, the competence belongs to the Member States. In this connection, draft legislation is currently under debate in several national parliaments, also in the EU Member States that have yet to ratify the Protocol, like Italy.[95]

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[89] *Ibid.*

[90] Cf. B. Coolsaet, F. Batur, A. Broggiato, J. Pitseys, and T. Dedeurwaerdere (eds), *Implementing the Nagoya Protocol. Comparing Access and Benefit-sharing Regimes in Europe* (Leiden: Brill Nijhoff 2015).

[91] Regulation (EU) No 511/2014 of the European Parliament and of the Council of 16 April 2014 on compliance measures for users from the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization in the Union Text with EEA relevance, OJ L 150, 20.5.2014, 59–71. For commentary, see I. R. Pavone, 'Il Protocollo di Nagoya e l'attuazione del principio di A*ccess and Benefit Sharing* con particolare riferimento all'*user compliance pillar*' (2018) 5 *BioLaw Journal* 251–273.

[92] Regulation (EU) No 511/2014, Article 4.

[93] *Ibid.* Article 7.

[94] *Ibid.*

[95] Italy has signed the Protocol on 23 June 2011.

6. *Specificities relating to Indigenous Peoples' Traditional Knowledge*

At this juncture, the specificities concerning the international protection of the knowledge held by indigenous peoples are worth discussing. Unlike other farming communities, indigenous peoples have an articulated organizational structure and are bearers of a non-state law. The safeguarding of indigenous knowledge, which is often subject to cultural limits and taboo, is closely linked to the preservation of the group's collective identity and to its survival as a people.[96]

The international legal framework governing indigenous peoples' rights establishes a particularly advanced level of protection, founded upon the innovative recognition of the collective dimension of rights.[97] As regards TK specifically, protection is contemplated, albeit in rather generic terms, in ILO Convention no. 169/89.[98] Overcoming the old assimilationist approach, its very preamble enshrines the need to safeguard the social and cultural identity of indigenous and tribal peoples, with a view to promoting cultural diversity. Pursuant to Article 23, para. 1 of the Convention,

[96] On the protection of TK there is a vast bibliography: see *inter multos* H.-P. Sambuc, *La protection internationale des savoirs traditionnels. La nouvelle frontière de la propriété intellectuelle* (Paris: l'Harmattan 2003); S. von Lewinski (ed), *Indigenous Heritage and Intellectual Property. Genetic Resources, Traditional Knowledge and Folklore* (The Hague/London/New York: Kluwer Law International 2004); G. Dutfield, *Intellectual Property, Biogenetic Resources and Traditional Knowledge* (London: Earthscan 2004); H. Ullrich, 'Traditional Knowledge, Biodiversity, Benefit-Sharing and the Patent System: Romantics v. Economics?', EUI Working Paper LAW No. 2005/07 <https://core.ac.uk/download/pdf/41100902.pdf> accessed 4 May 2019; C. Oguamanam, *International Law and Indigenous Knowledge. Intellectual Property Rights, Plant Biodiversity and Traditional Medicine* (Toronto/Buffalo/London: University of Toronto Press 2006); A. Di Blase, 'I diritti di proprietà intellettuale applicabili alla cultura indigena e tradizionale' (2007) 23 *Comunicazioni e studi* 511–563; R. J. Coombe, 'First Nations' Intangible Cultural Heritage Concerns: Prospects for Protection of Traditional Knowledge and Traditional Cultural Expressions in International Law', in C. Bell and R. Patterson (eds), *Protection of First Nations' Cultural Heritage: Laws, Policy and Reform* (Vancouver: University of British Columbia Press 2009) 247–277; F. Macmillan, 'The Protection of Cultural Heritage: Common Heritage of Mankind, National Cultural "Patrimony" or Private Property?' (2013) 64 *Northern Ireland Legal Quarterly* 351–364; G. Singh Nijar, 'Traditional Knowledge Systems, International Law and National Challenges: Marginalization or Emancipation?' (2013) 24 *European Journal of International Law* 1205–1221; C. Mayorga Muñoz and F. Treggiari (eds) *Biodiversidad y conocimientos tradicionales. Perspectivas históricas, sociosulturales y juridicas* (Temuco: Ediciones Universidad de la Frontera 2018).

[97] See Di Blase's chapter in this edited volume.

[98] ILO Convention No. 169/89 Concerning Indigenous and Tribal Peoples in Independent Countries, Geneva, 27 June 1989, *United Nations Treaty Series*, vol. 1650, 83.

> [h]andicrafts, rural and community-based industries, and subsistence economy and traditional activities of [indigenous] peoples …, such as hunting, fishing, trapping and gathering, shall be recognised as important factors in the maintenance of their cultures and in their economic self-reliance and development. Governments shall, with the participation of these people and whenever appropriate, ensure that these activities are strengthened and promoted.

Far more incisive is the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP),[99] whose Article 31 is worth reproducing here in full:

> 1. Indigenous peoples have the right to maintain, control, protect and develop their cultural heritage, traditional knowledge and traditional cultural expressions, as well as the manifestations of their sciences, technologies and cultures, including human and genetic resources, seeds, medicines, knowledge of the properties of fauna and flora, oral traditions, literatures, designs, sports and traditional games and visual and performing arts. They also have the right to maintain, control, protect and develop their intellectual property over such cultural heritage, traditional knowledge, and traditional cultural expressions.
>
> 2. In conjunction with indigenous peoples, States shall take effective measures to recognize and protect the exercise of these rights.

The Declaration was adopted by the UN General Assembly, by a very large majority, on 13 September 2007.[100]. Like all the UN declarations, though not formally binding, the UNDRIP bears witness to the existence of a widespread *opinio juris* and must also be thought of as codifying, in many of its parts, the general international law in force[101]. If accompanied

[99] *United Nations Declaration on the Rights of Indigenous Peoples*, 13 September 2007, UN Doc. A/61/295.

[100] The Declaration has been adopted with 143 votes in favour, 4 against (Australia, Canada, New Zealand and United States) and 11 abstentions.

[101] See M. Barelli, 'The Role of Soft Law in the International Legal System: The Case of the United Nations Declaration on the Rights of Indigenous Peoples' (2009) 58 *International and Comparative Law Quarterly* 957–983; Id., *Seeking Justice in International Law. The Significance and Implications of the UN Declaration on the Rights of Indigenous Peoples* (London and New York: Routledge 2016).

by the states' uniform practice, it can contribute in the future, in its remaining parts, towards forming new customary rules.[102] Aside from the correspondence of Article 31 of the UNDRIP with customary law, eminent scholars suggest that the recommendations of international organizations produce a 'lawfulness effect.'[103] In other words, if states adopt measures to protect the TK of indigenous peoples in accordance with the UNDRIP, they will not incur international responsibility, even where such measures, harmful to the interests of foreign investors, fail, in and of themselves, to comply with WTO law and/or with any TRIPS-plus agreements.

In 2016 also the General Assembly of the Organization of American States (OAS) adopted the American Declaration on the Rights of Indigenous Peoples.[104] Although generally welcomed for its contribution to the consolidation of international customary law in this field, this instrument has been also criticized by many observers, who have stressed that some of its provisions represent a step back from the 2007 UNDRIP.[105] In any event, this criticism cannot be applied to the provisions about TK protection. Article XXVIII of the American Declaration on the Rights of Indigenous Peoples is worded in terms similar to Article 31 of the UNDRIP, but places more emphasis on the need for states to engage in consultation with indigenous peoples to obtain their free, prior and informed consent before adopting 'measures necessary to ensure that national and international agreements and regimes provide recognition and adequate protection of indigenous peoples and intellectual property associated with that heritage.'[106]

[102] It is no coincidence that many international instruments and domestic legislations refer to the UNDRIP: see, for instance, the references made in the Preamble of the Nagoya Protocol and in Regulation (EC) No 1007/2009 of the European Parliament and of the Council of 16 September 2009 on trade in seal products, OJ: JOL_2009_286_R_0036_01, recital n. 14.

[103] B. Conforti, *Diritto internazionale* (8th ed, Napoli: Editoriale Scientifica 2010) 161; F. Salerno, *Diritto internazionale. Principi e norme* (5th ed, Milano: Woulters Kluwer 2019) 127.

[104] American Declaration on the Rights of Indigenous Peoples: AG/RES.2888 (XLVI-O/16), adopted on 15 June 2016.

[105] In particular, it has been noted that Article XXV of the American Declaration on the Rights of Indigenous Peoples, entitled 'Traditional forms of property and cultural survival. Right to land, territory, and resources', conflicts with Article 26 of the UNDRIP. In fact, it recognizes the states' prerogative to establish the appropriate methods to recognize and protect indigenous peoples' property rights, obliging them merely to take into consideration the customs, traditions, and land tenure systems of the indigenous peoples concerned (B. Clavero, 'La Declaración Americana sobre Derechos de los Pueblos Indígenas: el reto de la interpretación de una norma contradictoria' (2016) 21 *Pensamiento Constitucional* 11–26).

[106] American Declaration on the Rights of Indigenous Peoples, Article 31(3).

This circumstance is not surprising if one considers that, unlike the United Nations, the OAS is mainly composed of TK-providing states, where the indigenous component of the population is particularly substantial. While states hosting indigenous communities are very cautious in affirming rights (such as the right to land) that strongly impact upon the conflicting interests of domestic non-indigenous constituencies, in the case of TK, their prevailing interest is to reinforce international regimes of protection against misappropriation by foreign states and companies.

7. *Biocultural Community Protocols*

One of the most significant trends in the area of international environmental law consists of granting 'local communities' a set of 'biocultural' rights associated with the management of lands and of natural resources.[107] The objective pursued by the multilateral environmental agreements (MEAs) that safeguard these rights is the conservation and the sustainable, shared management of ecosystems, through the involvement of the affected communities in the decision-making processes, and by enhancing the identities, values, and cultural manifestations these communities express. Borrowing the definition given by the Colombian Constitutional Court, one may define biocultural rights as

> the rights of ethnic communities to administer and exercise autonomous guardianship over their territories – in accordance with their own laws [and] customs – and the natural resources that make up their habitat, where their culture, traditions and way of life are developed based on the special relationship they have with the environment and biodiversity. Indeed, these rights result from the recognition of the deep and intrinsic connection that exists between nature, its resources and the culture of the ethnic and indigenous communities that inhabit them, which are interdependent with each other and cannot be understood in isolation.[108]

[107] See S. Kabir Bavikatte, *Stewarding the Earth: Rethinking Property and the Emergence of Biocultural Rights* (New Delhi: Oxford University Press 2014) (noting the convergence between environmental/post-colonial movements and indigenous peoples' claims in the emergence of bio-cultural rights.)

[108] Colombia, Constitutional Court, *Caso de comunidades étnicas que habitan la cuenca del río Atrato y manifiestan afectaciones a la salud como consecuencia de las actividades mineras*

As Giulia Sajeva has observed, although biocultural rights have a certain affinity with the collective rights of indigenous peoples, they guarantee less intense protection – a protection conditioned, moreover, upon the pursuit by local communities of the general interest in respecting the environment.[109] As mentioned, the Nagoya Protocol aims at furthering benefit sharing through 'Biocultural Community Protocols' (BCPs).[110] Developed by local communities after a broad consultation process that generally involves specialized non-governmental organizations, like Natural Justice[111] or the Global Diversity Foundation,[112] such instruments set out the communities' preferences with regard to sharing TK and the resulting benefits. In particular, BCPs specify how communities intend to relate to researchers and enterprises that wish to use the genetic resources and TK held by them. BCPs promote the conclusion of MATs that respect the local communities' concrete needs and cultural preferences. It the case of BCPs elaborated by indigenous peoples, they codify, to a great degree, unwritten indigenous law. In the end, however, respect for the indications contained in the BCPs depends on the users' good will in all those cases where applicable national laws and regulations (ABS legislation or *ad hoc* laws on the protection of TK) fail to sanction breaches of the said protocols.

Of the BCPs whose implementation has produced more positive results, an example is usually made of Peru's 'Potato Park' Protocol which helped strengthen a democratic, shared management of the numerous

ilegales, judgment 10 November 2016, case T-622/16, para. 5.11, translation of the author (in the original Spanish version: '*derechos que tienen las comunidades étnicas a administrar y a ejercer tutela de manera autónoma sobre sus territorios - de acuerdo con sus propias leyes, costumbres - y los recursos naturales que conforman su hábitat, en donde se desarrolla su cultura, sus tradiciones y su forma de vida con base en la especial relación que tienen con el medio ambiente y la biodiversidad. En efecto, estos derechos resultan del reconocimiento de la profunda e intrínseca conexión que existe entre la naturaleza, sus recursos y la cultura de las comunidades étnicas e indígenas que los habitan, los cuales son interdependientes entre sí y no pueden comprenderse aisladamente*').

[109] G. Sajeva, 'Rights with Limits: Biocultural Rights – between Self-determination and Conservation of the Environment' (2015) 6 *Journal of Human Rights and the Environment* 30–54; *Eadem*, *When Rights Embrace Responsibilities. Biocultural Rights and the Conservation of Environment* (New Delhi: Oxford University Press 2018).

[110] The text of many BCPs can be read at <www.community-protocols.org>. For further analysis see K. Bavikatte and D. F. Robinson, 'Towards a People's History of the Law: Biocultural Jurisprudence and the Nagoya Protocol on Access and Benefit Sharing' (2011) 7 *Law, Environment and Development Journal* 35–51 <http://www.lead-journal.org/content/11035.pdf> accessed 4 May 2019.

[111] See <www.natural justice.org>.

[112] See <www.global-diversity.org>.

varieties of potato selected and conserved by the farmers belonging to six Andean indigenous communities.[113] Many other experiences are known of community level seed activities involving indigenous peoples, carried out to conserve and manage local crop varieties through the creation of community seed banks.[114]

While BCPs are developed largely with regard to local plant varieties, there is no shortage of protocols adopted by herding communities to regulate access to animal genetic resources and associated traditional practices. Noteworthy among these is the BCP adopted in 2009 by the *Raika*, an indigenous population of Rajasthan (Northwestern India)[115] that has practised nomadic pastoralism for more than 700 years, helping to preserve the territory's delicate ecological balances. Over the centuries, the Raikas have selected and preserved breeds of camel, sheep, and goat that are particularly resistant to the region's pathogens and arid climate,[116] and whose genetic material has become momentous for ensuring food security in a time of global warming. The Protocol sets out what procedures are established by indigenous law for gaining access to animals for reproductive purposes, as well as to indigenous veterinary knowledge and to selection and breeding techniques.[117]

[113] Cfr. A. Argumedo *et al.*, *Community Biocultural Protocols. Building Mechanisms for Access and Benefit Sharing among the Communities of the Potato Park based on Quechua Customary Norms. Detailed Case Study*, March 2012 <http://pubs.iied.org/pdfs/G03340.pdf> accessed 4 May 2019.

[114] R. Feyissa, 'Community Seed Banks and Seed Exchange in Ethiopia: A Farmer-Led Approach', in E. Friis-Hansen and B. Sthapit (eds), *Participatory Approaches to the Conservation and Use of Plant Genetic Resources* (Rome: IPGRI 2000) <https://www.bioversityinternational.org/fileadmin/_migrated/uploads/tx_news/Participatory_approaches_to_the_conservation_and_use_of_plant_genetic_resources_603.pdf> accessed 4 May 2019, 142–148; M. Worede, 'Establishing a Community Seed Supply System: Community Seed Bank Complexes in Africa', in L. Li Ching, S. Edwards and N. El-Hage-Sciallaba (eds), *Climate Change and Food Systems Resilience in Sub-Saharan Africa* (Rome: FAO 2011) 361–377; O. T. Coomes *et al.*, 'Farmer Seed Networks Make a Limited Contribution to Agriculture? Four Common Misconceptions' (2015) 56 *Food Policy* 41–50.

[115] *Raika Biocultural Protocol-2009* <www.community-protocols.org/wp-content/uploads/documents/India-Raika_Community_Protocol.pdf> accessed 4 May 2019.

[116] *Ibid.* 5 and 15–17.

[117] *Ibid.* 7–14 (referring to indigenous customary law).

8. *Towards a Uniform International Regulation?*

With the sole exception of the Swakopmund Protocol, the international agreements reviewed here set out obligations to safeguard TK of agricultural interest in various sectors. Nonetheless, their content remains vague and generic. All these agreements leave it to the states to identify the instruments most suited for ensuring the protection (active and passive) of the knowledge in question, at most making reference to the principles of consultation and of the prior informed consent of the rights holders. In other words, they establish an *obligation of result* (achieving an equitable sharing of the benefits to the advantage of TK holders), leaving the states great freedom to identify the means suitable for achieving this objective.

For 18 years the representatives of national governments sitting on the already mentioned WIPO Committee have been negotiating the text of an international convention that should place upon the Contracting Parties more precise obligations of means. The latest version of the Draft Articles dates to 31 August 2018.[118] However, like previous versions, the draft remains highly provisional and contains a variety of alternative formulations. Virtually all the main sticking points remain unresolved. In particular, agreement has yet to be reached as to the procedures for purchasing the rights attributed to the communities that hold them, or as to the need for a registration procedure or other formalities.[119] Differences of opinion also persist on the highly delicate points of the role of indigenous customary law[120] and of introducing disclosure requirements for users of TK.[121] As for the sphere of *ratione materiae* application, the question still remains open of whether protection should also be accorded to widely diffused TK.[122]

[118] Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore, *The Protection of Traditional Knowledge:* Draft Articles Facilitators' Rev. 2, 31 August 2018 <https://www.wipo.int/edocs/mdocs/tk/en/wipo_grtkf_ic_37/wipo_grtkf_ic_37_facilitators_text_tk_rev_2.pdf> accessed 4 May 2018.

[119] *Ibid.* Article 11.

[120] *Ibid.*, Article 1 (definition of 'misappropriation', Alt. 3); Article 5(1) (Alt. 2); Article 7 (Alt. 1 e Alt. 2). A vague reference to the exigency to respect 'the cultural norms and practices of the beneficiaries' appears at Article 5(2) (Alt. 3). Regrettably, no reference to indigenous customary law is present in the various alternative versions of Article 2, entitled 'Objectives.'

[121] *Ibid.* Article 7.

[122] *Ibid.* Article 5. See C. Oguamanam, 'Tiered or Differentiated Approach to Traditional Knowledge and Traditional Cultural Expressions The Evolution of a Concept', CIGI Papers No. 185 — August 2018 <https://www.cigionline.org/sites/default/files/documents/Paper%20no.185web.pdf> accessed 4 May 2019 (arguing that one of the most innovative results of the intergovernmental negotiation is the emergence of a differentiated approach,

The effort for the adoption of an international convention with universal scope, that puts obligations in place that are substantial and more stringent than the Nagoya Protocol, appears appreciable. However, the scanty results that have been achieved after many years of preparatory work leaves much scepticism as to the possibilities for the negotiation to have a positive outcome. Some countries, *in primis* the United States, staunchly oppose adopting a binding instrument, which would, in its opinion, offer excessive protection to public domain knowledge, thereby throwing up excessive obstacles to technological innovation and compromising the interests of the companies using genetic resources and the associated knowledge. Added to this are the objective difficulties encountered by negotiators grappling with the apparent paradox of an instrument aimed at safeguarding and promoting cultural diversity through the preparation of uniform protection instruments.[123]

The extremely flexible solution upheld in the Swakopmund Protocol, not requiring registration by TK holders or any other formality, is a useful reference point, and is particularly suited for protecting the knowledge held by indigenous peoples or traditional communities. Nevertheless, as regards protecting the knowledge held by local communities, especially in the industrialized countries, forms of registration might be useful for avoiding a situation of legal uncertainty that would risk giving rise to major litigation. Moreover, in the case of knowledge held by diverse communities (considering, for example, farming communities covering portions of Italian territory comparable in area to provinces or regions), problems inevitably arise in connection with identifying a representative entity able to express prior informed consent and negotiate MATs, in addition to taking legal action in cases of unauthorized use of knowledge subject to protection.[124] A realistic solution might be to precisely identify, on an international level, the object of protection, while also indicating alternative modes of protection to be calibrated to the various types of knowledge and of rights holders.

In any case, to remain in line with the most recent trend in international

whereby TK should be classified in reference to its degree of diffusion - secret, sacred, narrowly or widely diffused - and be subjected to different legal regimes).

[123] A. Taubman, 'Saving the Village: Conserving Jurisprudential Diversity in the International Protection of Traditional Knowledge', in K. E. Maskus and J. H. Reichmann (eds) *International Public Goods and Transfer of Technology Under a Globalized Intellectual Property Regime* (Cambridge: Cambridge University Press 2005) 521–564, 525–527.

[124] Unsurprisingly, the question was not addressed by Italian Law No. 194 of 1st December 2015, on the conservation and enhancement of agricultural and food biodiversity, for a critical analysis of which see L. Paoloni, 'Biodiversità e risorse genetiche di interesse agroalimentare nella legge nazionale di tutela e valorizzazione' (2016) 1 *Diritto agroalimentare* 151–176.

practice, inaugurated by the Philippines,[125] any WIPO Convention should necessarily require Contracting Parties to give importance to indigenous law and decision-making systems in the matter of accessing indigenous TK, as well as to the BCPs prepared by the local communities at the conclusion of a shared consultation procedure. Otherwise adoption by states of complex rules to regulate indigenous knowledge systems, requiring high levels of technical expertise, is not developmental for indigenous peoples and rather drives them 'into the arms of lawyers.'[126]

9. *Protection of Knowledge of Agricultural Interest, and Peasants' Rights*

A brief scrutiny of the initiative by the UN Human Rights Council for the adoption of a Declaration on the Rights of Peasants and Other People Working in Rural Areas (UN Declaration on the Rights of Peasants) completes this overview of the international instruments for the safeguarding of TK. After many years of talks, on 17 December 2018, the UN General Assembly finally adopted a document prepared by the Human Rights Council in the form of a declaration of principles.[127]

Despite attracting relatively little attention among legal scholars, as compared to the adoption of the UNDRIP, the UN Declaration on the Rights of Peasants is of considerable interest. It expresses a general reconceptualization of individual rights in their specific social dimension. This is one of the latest evolutionary trends in the protection of fundamental rights – one that can be seen in the new constitutionalism of the Latin American states and, albeit with less emphasis, in the EU Charter of Fundamental Rights.[128] The UN Declaration on the Rights of Peasants represents one of the most significant examples of 'international law from

[125] Cf. Indigenous Peoples Right Act of 1997, section 35: 'Access to indigenous knowledge … shall be allowed within ancestral lands and domains … only with a free and prior informed consent of such communities, *obtained in accordance with customary laws of the concerned community*' (section 35, emphasis added).
[126] Drahos, *Intellectual Property, Indigenous People and Their Knowledge*, 96.
[127] UN General Assembly, United Nations Declaration on the Rights of Peasants and Other People Working in Rural Areas, 17 December 2018, UN Doc. A/RES/73/165 <https://www.un.org/en/ga/73/resolutions.shtml> accessed 4 May 2019.
[128] See L. Paoloni and S. Vezzani, 'La Dichiarazione ONU sui diritti dei contadini e delle altre persone che lavorano nelle aree rurali: prime riflessioni' (2019) 1 *Federalismi.it – Focus Human Rights* 1–33.

below,'[129] as its adoption was mainly promoted by Via Campesina, a movement of peasants and indigenous peoples' organizations from all over the world, engaged in promoting food sovereignty and alternative agro-food models.[130] In an historical juncture characterized by the weakening of social and economic rights, the adoption of this Declaration reveals the decisive role that international civil society can play in counterbalancing the lobbying activity of corporations and in promoting the collective interests of the international community.

The UN Declaration on the Rights of Peasants sets out the states' obligation to respect, protect, and promote the TK of peasants and other people working in rural areas, with particular regard to knowledge relevant to plant genetic resources. It contains several references to peasants' rights over TK, notably 'traditional ways of farming, fishing, livestock rearing and forestry to develop community-based commercialization systems';[131] practices concerning local climate change adaptation and mitigation;[132] TK relevant to plant genetic resources;[133] and conservation and sustainable use of biological diversity.[134] Drawing inspiration from the UNDRIP, it states at Article 26:

> 1. Peasants and other people working in rural areas have the right to enjoy their own culture and to pursue freely their cultural development, without interference or any form of discrimination. They also have the right to maintain, express, control, protect and develop their traditional and local knowledge, such as ways of life, methods of production or technology, or customs and tradition. No one may invoke

[129] The expression is borrowed from B. Rajagopal, *International Law from Below. Development, Social Movements, and Third World Resistance* (Cambridge: Cambridge University Press 2003).

[130] On social struggles for food sovereignty see D. Thivet, 'Peasants' Transnational Mobilization for Food Sovereignty in La Via Campesina', in C. Counihan and V. Siniscalchi (eds), *Food Activism: Agency, Democracy and Economy* (London/New York: Bloomsbury 2014) 193–209; N. C. S. Lambek, P. Claeys, A. Wong and L. Brilmayer (eds), *Rethinking Food Systems: Structural Challenges, New Strategies, and the Law* (Dordrecht/Heidelberg/New York/London: Springer 2014); J.L. Vivero-Pol, T. Ferrando, O. De Schutter, U. Mattei (eds), *Routledge Handbook of Food as a Commons* (London/New York: Routledge 2019).

[131] UN Declaration on the Rights of Peasants and Other People Working in Rural Areas, Article 16, para. 1.

[132] *Ibid.* Article 18, para. 3.

[133] *Ibid.* Article 19, para. 1, letter *a*).

[134] *Ibid.* Article 20, para. 2.

> cultural rights to infringe upon the human rights guaranteed by international law or to limit their scope.
>
> 2. Peasants and other people working in rural areas have the right, individually and/or collectively, in association with others or as a community, to express their local customs, languages, culture, religions, literature and art, in conformity with international human rights standards.
>
> 3. States shall respect, and take measures to recognize and protect, the rights of peasants and other people working in rural areas relating to their traditional knowledge and eliminate discrimination against the traditional knowledge, practices and technologies of peasants and other people working in rural areas.

With specific regard to the right to seed, the UN Declaration on the Rights of Peasants also stipulates, at Article 19(8) that 'States shall ensure that seed policies, plant variety protection and other intellectual property laws, certification schemes and seed marketing laws respect and take into account the rights, needs and realities of peasants and other people working in rural areas.' The emphasis placed on seed policies is particularly appreciable.[135] As noted above, community-managed genetic resources conservation and improvement through community seed banks is one of the most interesting attempts of social innovation in the agricultural field, aimed at promoting the emancipation of indigenous and small farmers through a cooperative and solidaristic model of agriculture. Yet, seed legislation in many countries constitutes an obstacle to the marketing of farmers' seeds.[136]

The UN Declaration on the Rights of Peasants also remarkably emphasizes the need to counter discriminatory practices against women.[137] This calls for some considerations in terms of gender equality, which is still an underexplored perspective in international legal studies. Indeed, in many indigenous societies there is a diversification of TK held by man and woman, and women play a fundamental role in the conservation and

[135] C. Golay, 'Legal Analysis on the Rights of Peasants and Other People Working in Rural Areas. The Right to Seeds and Intellectual Property Rights', 19 May 2016 <https://www.ohchr.org/Documents/HRBodies/HRCouncil/WGPleasants/Session3/StatementsPresentations/Cristophe_Golay_GENEVA_ACADEMY.pdf> accessed 4 May 2019.

[136] See O. De Schutter, *Seed Policies and the Right to Food: Enhancing Agrobiodiversity, Encouraging Innovation.* Background Document to the Report (A/64/170) Presented by Prof. Olivier De Schutter, Special Rapporteur on the Right to Food, at the 64th Session of the UN General Assembly (October 2009), paras 48–51.

[137] See in particular Article 4 of the Declaration.

development of TK in the field of food and agriculture.[138] Accordingly, they should play an active role in the decision-making process and reap the economic benefits deriving from the exploitation of TK. As also recognized by the UNESCO Universal Declaration on Cultural Diversity[139] and the UNDRIP,[140] cultural diversity and indigenous customary law should never be invoked to infringe upon internationally recognized human rights, including the equality principle.

10. *Traditional Knowledge and Property Rights*

Lying in the background of the debate on the ways to protect TK is the question of whether to rely on the proprietary scheme to convey the collective interests connected with the management of intangible assets. Italian legal doctrine is not foreign to this debate, having also explored the effectiveness of the institution of civic uses as an instrument for granting farming communities powers for managing the intangible heritage connected with traditional plant varieties.[141]

In the past, *fora* of international discussion have seen strong cultural resistance, by the representatives of indigenous peoples, to extending proprietary logic to knowledge and practices considered – in a holistic sense – as an expression of a deeply-rooted cultural identity.[142] Still today, part of the doctrine underlines the risk for forced epistemological assimilation.[143] A

[138] C. Mayorga-Muñoz, H. Pacheco-Cornejo, and F. Treggiari, 'El rol de la mujer indígena mapuche en la preservación de recursos genéticos y conocimientos tradicionales asociados. Un análisis jurídico desde la perspectiva de género' (2017) 14 *Revista Jurídicas* 29–45; A. Guzmán Jiménez, 'Conocimientos tradicionales de mujeres mapuches en la agricultura tradicional, territorio Naqche de La Araucanía, Chile', in C. Mayorga Muñoz and F. Treggiari (eds) *Biodiversidad y conocimentos tradicionales. Perspectivas históricas, socioculturales y juridicas* (Temuco: Ediciones Universidad de la Frontera 2018) 97–110.
[139] UNESCO Universal Declaration on Cultural Diversity, Paris, 2 November 2001, (2002) 41 *International Legal Materials* 57, Article 4.
[140] UNDRIP Articles 34 and 46.
[141] L. Paoloni, *Diritti degli agricoltori e tutela della biodiversità* (Torino: Giappichelli 2005) 142–148.
[142] See also K. McAfee, 'Selling Nature to Save It? Biodiversity and Green Developmentalism' (1999) 17 *Environment and Planning D: Society and Space* 133–154, 148–152 (criticising the IPR and the 'marked-based' solution as extending the post-neoliberal environmental-economic paradigm).
[143] On the emergence of the concept of intellectual property within an indigenous context, see C. Oguamanam, 'Local Knowledge as Trapped Knowledge: Intellectual

paradigm shift, however, was inaugurated by the aforementioned UNDRIP, which makes express reference to the now widely accepted notion of 'intellectual property.' This approach has been confirmed and consolidated by the American Declaration on the Rights of Indigenous Peoples.[144]

As argued elsewhere,[145] in an anti-hegemonic perspective of combating biopiracy and the 'enclosure' of commons through IPRs, the claim of collective property rights to TK appears quite appropriate, being grounded upon a multicultural reinterpretation of property rights as safeguarded by the leading international instruments for the protection of human rights.[146] A development of this kind would be consistent with the jurisprudence of many international bodies tasked with monitoring compliance with human rights treaties, *in primis* the Inter-American Court, which has interpreted property rights, as to protect the collective exploitation of ancestral lands on the basis of indigenous customary law.[147]

In a perspective similar to the 'politics of recognition'[148] of the Inter-American Court, General Comment no. 17/2005 of the Committee on Economic, Social, and Cultural Rights carved out, from Article 15, para. 1, letter *c*), of the UN Covenant of 1966, the obligation to protect

> the interests of indigenous peoples relating to their productions, which are often expressions of their cultural heritage and traditional knowledge. In adopting measures to protect scientific, literary and artistic productions of indigenous peoples, States parties should take into account

Property, Culture, Power and Politics' (2008) 11 *The Journal of World Intellectual Property* 29–57; J. E. Anderson, *Law, Knowledge, Culture - The Production of Indigenous Knowledge in Intellectual Property Law* (Cheltenham/Northampton, MA: Edward Elgar 2009).

[144] American Declaration on the Rights of Indigenous Peoples, Article XXVIII.

[145] S. Vezzani, 'I saperi tradizionali e le culture popolari alla luce del paradigma dei "beni comuni"', in M. R. Marella (ed) *Oltre il pubblico e il privato. Per un diritto dei beni comuni* (Verona: Ombre Corte 2012) 149–160, 156–160.

[146] On the point, see also *inter alios* W. P. Nagan, E. J. Mordujovich, J. K. Otvos and J. Taylor, 'Misappropriation of Shuar Traditional Knowledge (TK) and Trade Secrets: A Case Study on Biopiracy in the Amazon' (2010) 15 *Journal of Technology Law & Policy* 9–63.

[147] See the leading case *Awas Tingni Mayagna (Sumo) Indigenous Community v. Nicaragua*, judgment 31 August 2001, reproduced in *Arizona Journal of International and Comparative Law* (2002) 415. The connection between land rights and progress on the protection of indigenous knowledge has been emphasized by P. Drahos and S. Frankel, 'Indigenous Peoples' Property: The Issues', in P. Drahos and S. Frankel (eds), *Indigenous Peoples' Innovation: Intellectual Property Pathways to Development* (Camberra: Australian National University Press 2012) 1–28, 12 and 17.

[148] See C. Taylor, 'The Politics of Recognition', in A. Gutmann (ed), *Multiculturalism and the Politics of Recognition* (Princeton: Princeton University Press 1992) 25–73.

> their preferences. Such protection might include the adoption of measures to recognize, register and protect the individual or collective authorship of indigenous peoples under national intellectual property rights regimes and should prevent the unauthorized use of scientific, literary and artistic productions of indigenous peoples by third parties. In implementing these protection measures, States parties should respect the principle of free, prior and informed consent of the indigenous authors concerned and the oral or other customary forms of transmission of scientific, literary or artistic production; where appropriate, they should provide for the collective administration by indigenous peoples of the benefits derived from their productions.[149]

Thus far, international human rights courts and quasi-judicial bodies have not directly decided allegations by indigenous peoples of interferences in the ability to use, share, and possibly market TK. Yet, especially in cases of forced evictions – where allegations were made of violations of the right to property over ancestral lands, or of other rights (to family, to a decent existence, to enjoy their own culture and religion, etc.) – such courts have emphasized the spiritual and physical link between ancestral lands and natural resources and the conservation of TK, as a fundamental component of indigenous culture.[150] Indeed, in 2005, representatives of the Inuit communities in the United States and Canada submitted a petition to the Inter-American Commission, seeking relief from violations resulting from global warming caused by acts and omissions of the United States.[151] In that context, they alleged that, by failing to take effective action to reduce greenhouse gas emissions, the United States had interfered with the 'Inuit's

[149] Committee on Economic, Social and Cultural Rights, General Comment No. 17/2005, 'The right of everyone to benefit from the protection of the moral and material interests resulting from any scientific, literary or artistic production of which he or she is the author (article 15, paragraph 1 (c), of the Covenant)', UN Doc. E/C.12/GC/17, 12 January 2006, para. 32.

[150] See, for instance, Inter-American Court of Human Rights, *Case of the Saramaka People v. Suriname*, Judgment of 12 August 2008 (Interpretation of the judgment on preliminary objections, merits, reparations and costs) para. 41, which also refers to the 'Akwé: Kon Guidelines for the Conduct of Cultural, Environmental and Social Impact Assessments Regarding Developments Proposed to Take Place on, or which are Likely to Impact on, Sacred Sites and on Lands and Waters Traditionally Occupied or Used by Indigenous and Local Communities', adopted by the COP to the Rio Convention and dealing extensively with the protection of biodiversity-related TK.

[151] Petition submitted on 7 December 2005.

intellectual property, in the form of their traditional knowledge,' considered to be 'a valuable intangible possession protected under the definition of protected property described in the *Awas Tingni* decision.'[152] Unfortunately, the case was not decided on the merits.

In 2011, the Waitangi Tribunal reached an interesting verdict. As is known, the tribunal is tasked with inquiring, at the petition of individuals or of groups belonging to New Zealand's indigenous population, into compliance by New Zealand with the Treaty of Waitangi, an international agreement concluded between the British government and representatives of the Maori tribes in 1840.[153] Article 2 of the Treaty guarantees the Maori 'the full exclusive and undisturbed possession of their Lands and Estates, Forests, Fisheries and other properties [in the Maori linguistic version: "*taonga*"] which they may collectively or individually possess.' This provision has been broadly construed by the Tribunal to cover the property rights claimed by the Maori not only to lands and fisheries, but also to such intangible assets as radio frequencies.[154] Moreover, in the *wai 262* report of 2 July 2011, the Tribunal found a violation by New Zealand of Article 2, for not having protected indigenous TK regarding fauna and flora, assets that indigenous law requires the Maori to safeguard as cultural guardians (*kaitiaki*).[155] The long report makes reference to certain specific cases of biopiracy, i.e. the granting to third parties, by the New Zealand authorities, of plant breeders' rights for certain plant varieties used by the Maori since ancestral times. The Waitangi Tribunal thus fully upheld the claims of the six petitioning tribes, which had reported a violation of the right to respect for their own (intangible) assets, a right protected by the '*Mātuaranga Māori*' – the set of unwritten rules aimed at maintaining the secrecy of certain ancestral knowledge and at keeping unauthorized persons from gaining possession of the tangible assets that incorporate it.

While the reports of the Waitangi Tribunal have no binding force, they must be taken into due consideration by the New Zealand authorities. In the case in point, a few months after the *wai 262* report, the New Zealand Parliament adopted the 2013 *Patents Act*, in order to provide at least a partial response to the recommendation to modify intellectual property law so as to prevent the wrongful use of TK. The legislative reform instituted the Māori

[152] *Ibid.* 84.
[153] For further information, see the website of the Tribunal, www.justice.govt.nz/tribunals/waitangi-tribunal (displaying all the reports issued by the Tribunal.)
[154] See the reports relating to the cases *wai 26* (1990) and *wai 776* (1999).
[155] J. C. Lai, *Indigenous Cultural Heritage and Intellectual Property Rights. Learning from the New Zealand Experience?* (Cham: Springer 2014) 223–276.

Advisory Committee, which intervenes in the phase prior to the granting of patents, thus reinforcing the passive protection of the *Mātuaranga Māori*. The Committee performs a consultative function, being called upon to adopt opinions as to whether the claimed inventions run counter to public order and morality, when these inventions make use of Maori TK or indigenous plants or animals.[156]

11. *Final Observations*

A number of international instruments require states to safeguard, protect, and promote knowledge and practices of agricultural interest that are the fruit of the intellectual work of indigenous peoples and local communities. However, these instruments contain lax rules, leaving the states the task of identifying the solutions suitable for ensuring effective protection of TK. To date, the most advanced laws have been adopted by DCs and LDCs, where most of the planet's biodiversity – as well as indigenous peoples and communities that express traditional lifestyles – are concentrated. Europe and the United States lag considerably. Almost everywhere, the regulation of access to genetic animal resources and to the associated TK is still undeveloped.

The entry into force of the Nagoya Protocol and its progressive ratification by the industrialized countries present a challenge for national lawmakers, who are called upon to adopt ABS regulations and to prepare mechanisms to monitor compliance with the regulations in the countries of origin by the users of the genetic resources under their jurisdiction.

As for passive protection, pending an amendment of the TRIPs Agreement, or the adoption of a convention by the WIPO, it would be quite appropriate for lawmakers to introduce disclosure obligations. There may also be hopes for generalizing what we might define as the 'New Zealand model' in industrialized countries, through the creation of committees of experts in TK, tasked with assisting the patent examiners' activity.

Turning now to active protection, the stalled WIPO talks cast light on how complicated it is to reach an agreement on a global scale that identifies uniform solutions to the challenge of governing TK. In any event, especially in the current globalization phase, the preparation of effective protection instruments and the recognition of the suitability of TK as the

[156] *Patents Act 2013*, 13 September 2013, *Public Act* 2013, n. 68, sections 225–228.

subject matter of intellectual property are a necessary counterweight to the expansionistic trends in patent law, also from the perspective of a fair and equitable benefit sharing.

In a phase of economic globalization characterized by strong legal protection of property rights, it is all the same legitimate to wonder whether exclusive rights over TK will have to encounter limitations.[157] Like patents for plants, restricted access to TK might also produce a 'logjam',[158] leading to an underuse of assets functional to the satisfaction of basic rights. This increasingly seems more to be the case as the object and scope of protection broadens: consider, in particular, the case in which very large local communities are granted, with no time limits and requiring no formality, an exclusive right to the use of TK in the public domain. It must be kept in mind that Article 15 of the CBD rightly states that access to genetic resources must not be limited by restrictions that run counter to the objectives of the Convention. Similarly, the very Convention to Combat Desertification identifies, among its objectives, the goal of disseminating and perfecting the TK deemed useful for the well-being of humankind. The above considerations should not be used to lower the level of protection of TK or to restrict the object of protection. Rather, they should spur the establishment of mechanisms aimed at guaranteeing that exclusive rights granted to local communities and indigenous peoples do not conflict with social utility and with the pursuit of the international community's collective interests.

Both patent law and the laws for the protection of plant breeders contain rules limiting exclusive rights for reasons of public interest. In particular, among the interests to be taken into account public health has a prominent role. In this connection, one should consider that traditional medicine can help developing medicines to cure rare illnesses (the so-called orphan drugs) or even diffused and lethal diseases. The Swakopmund Protocol admits the possibility of an intervention by the public authorities through institutions similar to those of compulsory licensing, in cases where rights

[157] See F. Lenzerini, 'Indigenous Peoples' Cultural Rights and the Controversy over Commercial Use of Their Traditional Knowledge', in F. Francioni and M. Scheinin (eds), *Cultural Human Rights* (Leiden: Martinus Nijhoff 2008) 119–149, 145–149 and Vadi, 'Intangible Heritage, Traditional Medicine and Knowledge Governance' (both posing this question with regard to traditional medicine (TM) which, if kept secret, might prejudice the enjoyment of the fundamental right to health).

[158] Cf. M. Heller, *The Gridlock Economy: How Too Much Ownership Wrecks Markets, Stops Innovation, and Costs Lives* (New York: Basic Books 2008).

holders wrongfully deny access to traditional knowledge.[159] Exceptions to exclusive rights are also contemplated in the WIPO Draft Articles,[160] albeit to a limited degree and without mentioning the possibility of compulsory licensing. Precisely with reference to the latter, it would, however, be highly appropriate to introduce a specific measure that grants the states the power to limit the communities' right to exclude others (*ius excludendi*) in order to protect the right to food and the right to health.

As Vincenzo di Cataldo has observed making reference to the classical instruments for the protection of intellectual property, '[o]nly by evolving towards a greater willingness to serve collective interests, including interests other than those (of incentivizing research) for which the protection was born, or at least not to hinder them, will the patent system be able to fully legitimate – and thus conserve – its role.'[161] The same may also be stated with regard to the more recent *sui generis* forms of protection of intellectual property over TK. Such forms of protection will become more and more robust and obtain broad social acceptance, if adequate institutions are established to promote the collective interests of indigenous peoples and peasants' communities, while at the same time ensuring the social function of intellectual property and safeguarding other relevant public interests protected under international law.

[159] See, in this sense, section 12 of the Protocol: '12.1. Where protected traditional knowledge is not being sufficiently exploited by the rights holder, or where the holder of rights in traditional knowledge refuses to grant licences subject to reasonable commercial terms and conditions, a Contracting State may, in the interests of public security or public health, grant a compulsory licence in order to fulfil national needs. 12.2. In the absence of an agreement between the parties, an appropriate amount of compensation for the compulsory licence shall be fixed by a court of competent jurisdiction.'

[160] A possible option envisaged by the WIPO Draft Articles is the faculty for the state to exclude from protection diagnostic, therapeutic and surgical methods for the treatment of humans or animals (WIPO, *Draft Articles*, cit., Article 9(3) (Alt. 2). Moreover, one of the alternative versions of Article 9.3 contemplates, at letter *c*), an exception 'in the case of a national emergency or other circumstances of extreme urgency, to protect public health or the environment [or in cases of public non-commercial use].'

[161] V. Di Cataldo, *Biotecnologie e diritto. Verso un nuovo diritto, e verso un nuovo diritto dei brevetti,* in *Studi di diritto industriale in onore di Adriano Vanzetti. Proprietà intellettuale e concorrenza* (Milano: Giuffrè 2004) volume I, 443–524, 523 (translation from Italian of the author).

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