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ARTICLE

From smokebush to spinifex: Towards recognition of Indigenous knowledge in the commercialisation of plants

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ABSTRACT

Indigenous Australians have diverse relationships with plants and their seeds. This cultural knowledge has been passed on through the generations, creating a deep history that has produced sophisticated fields of knowledge intimately linked to both diverse cultural geographies and the natural environment across the country. Western scientific, government and private sector commercial institutions have been collecting Australian plant material for over 200 years. Sometimes, such collectors simultaneously obtain the Indigenous knowledge with the plant material. On occasions, the culturally-based Indigenous ownership of that knowledge is acknowledged by collectors. However, in the majority of instances, that has not been the case. Furthermore, different Western institutions take different approaches to the collection, management and use of Australian plant material and associated Indigenous plant knowledge. A particular challenge in this arena is the lack of a shared understanding of Indigenous knowledge and intellectual property issues, and how those might best be addressed. But there is a gathering momentum, from diverse quarters, to face such challenges. This paper aims to contribute to consideration of the issues involved in order to promote more robust inclusion of Indigenous rights, interests and concerns.

Keywords

Indigenous knowledge; traditional knowledge; plant commercialisation; seeds; Indigenous Australians; intellectual property; patents; bioprospecting; access and benefit sharing

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Introduction

Indigenous¹ Australians, Aboriginal and Torres Strait Islanders, have diverse relationships with plants and their seeds. This cultural knowledge has been passed on through the generations, creating a deep history that has produced sophisticated fields of knowledge intimately linked to both diverse cultural geographies and the natural environment. Western scientific, government and private sector commercial institutions have been collecting Australian plant material for over 200 years. Sometimes, such ‘collectors’ simultaneously obtain the Indigenous knowledge with the plant material. On occasions, the culturally-based Indigenous ownership of that knowledge is acknowledged by collectors; however, this is not the norm.

There are many different approaches to the collection, management and use of Australian plant material and associated Indigenous plant knowledge. A particular challenge is the lack of a shared understanding of Indigenous knowledge and intellectual property issues. But there is a gathering momentum, from diverse quarters, to face the challenge. This paper considers the issues involved in order to promote more robust inclusion of Indigenous rights, interests and concerns.

In 2016, I chaired a special panel on Indigenous perspectives at the ‘National Seed Science Forum’, held at Mt Annan in Sydney. The panel was the first of its kind to address the seed industry and Indigenous knowledge rights. The panellists were brought together by Ninti One² with support from the Australian Centre for Agriculture and Law with the aim of highlighting the need for the seed industry to consider Indigenous knowledge and resource rights, particularly considering the *Convention on Biological Diversity* and the *Nagoya Protocol*, which set standards for access and benefit sharing with Indigenous peoples when accessing resources from Aboriginal lands.

Over 130 people attended the forum, including researchers, scientists and technical officers working in universities, agriculture and biodiversity conservation institutions; and in conservation seed banks.³ The Australian Plant Bank in Mt Annan holds a collection of Australian native seeds for conservation, research, propagation and supply to registered organisations for research. Some of that material has been collected from Indigenous lands and makes use of Indigenous knowledge. The Indigenous Panel at the Seed Forum gave a voice to Indigenous people to advocate their interests in this arena, and marked a significant change to how plant scientists and Indigenous people interact. I presented the story of the Australian ‘smokebush’ plant to raise a series of critical issues that need to be better understood and addressed if the Indigenous voice is to be more effectively recognised and supported.

The smokebush story

I first heard the story of the ‘smokebush’⁴ in 1996. I was attending a symposium on ‘Intellectual property protection for the arts and cultural expression of Aboriginal and Torres Strait Islander people’, in Brisbane. Two speakers referred to smokebush: Henrietta Marrie⁵ a Yidinji woman and Indigenous environmental rights advocate, and Professor Michael Blakeney, then an intellectual property lecturer with the University of Western Australia.

¹ ‘Indigenous’ means pertaining to Aboriginal or Torres Strait Islander people, from the mainland and islands of Australia. When using the term with a capital I will refer collectively to Aboriginal and Torres Strait Islander peoples however these groups have distinct cultures. When using the word ‘indigenous’ with a lowercase, I refer to world indigenous peoples.

² Ninti One is an Australian not-for-profit company that builds opportunities for people in remote areas. See www.nintione.com.au. The Australian Centre of Agricultural Law at the University of New England.

³ A ‘seedbank’ stores seeds as a source for planting, to protect vulnerable stock and in case seed reserves elsewhere are destroyed. It is a type of gene bank. The seeds stored may be food crops, or those of rare species to protect biodiversity. Seed banks hold the plants which can be accessed by third parties for commercialisation purposes.

⁴ Margaret G Corrick and Bruce Alexander Fuhrer, *Wildflowers of Southern Western Australia* (Rosenberg Pub, 3rd ed, 2009) 159.

⁵ Henrietta Marrie (Fourmile) writes on the protection of Indigenous cultural heritage, traditional knowledge and intellectual property. In 1997, Henrietta commenced work with the United Nations Secretariat for the Convention on Biological Diversity (SCBD), the *CBD* being an international environmental treaty under the UN Environment Program. She has also worked as Program Manager for North Australia with The Christensen Fund and is now at Central Queensland University.

The smokebush plant is predominant to the coastal areas between Geraldton and Esperance in Western Australia (WA). The plant is traditionally used by Aboriginal people as medicine.⁶ Since the 1960s, specimens had been collected by the US National Cancer Institute (NCI) for cancer research. In 1981, the NCI tested 17 specimens of the smokebush plant for cancer application. The tests were negative. In the late 1980s, the US Government screened the stored specimens again for treating the AIDS virus. This time the screening of the plants struck gold. Out of 7 000 plants screened internationally, the smokebush was one of only four plants found to contain the active property, *conocurovone*. Laboratory tests showed that *conocurovone* could destroy the HIV virus in low concentrations. The US Government's Department of Health and Human Services subsequently filed for a US patent in 1993⁷ and for an Australian patent in 1994.⁸ The patents gave the US Government the exclusive rights to use the compounds from the smokebush for treatment against AIDS, and to licence it to others for terms they saw fit.

The WA Government, under its own legislation, has powers to licence access to the species⁹ and so negotiated a commercial deal with the NCI whereby the rights were licensed to AMRAD, an Australian pharmaceutical company based in Victoria, as an exclusive worldwide licence to develop the patent. According to Blakeney, Amrad paid \$1.65 million to the WA Government for research and access rights to the plant.¹⁰ Michael Blakeney estimated that if *conocurovone* was successfully commercialised, the WA Government would recoup royalties of up to \$100 million per year by 2002.¹¹ No royalties or other compensation or even acknowledgement were targeted as forthcoming for Aboriginal people of WA, highlighting the shortfalls in patent law in protecting traditional knowledge.¹² This in spite of the fact that their intergenerational nurturing of the plant had resulted in knowledge of its current potency as a healing plant. Moreover, the Aboriginal people of WA noted that 'multinational drug companies could be sold exclusive rights to entire species of flora, preventing anyone from using those species for any other purpose without the consent of the companies and ... Aboriginal people would be prevented from using any plants which are the subject of the exclusive agreement'.¹³

The smokebush story has been referred to by commentators worldwide in articles, books and conference papers including by Gray,¹⁴ Janke,¹⁵ Davis¹⁶ and Drahos.¹⁷ The story is, sadly, a common one told by other world Indigenous peoples. For instance, the 'hoodia' story, from South Africa, is widely discussed in the literature and at international conferences.¹⁸ The hoodia plant is a succulent found in the Kalahari Desert which the San peoples of South Africa historically consumed to stave off hunger on their long journeys. The plant was the basis of an appetite suppressant patent, claimed by the South African Council for Scientific and Industrial Research (CSIR). In the 1990s, the CSIR had plans to commercialise a hoodia pharmaceutical product without any sharing of the benefits with Sans people. After much media attention and calls by the Sans and their supporters for rights recognition, a memorandum of understanding was signed between the

⁶ Phillip G Kerr, 'Bioprospecting in Australia: Sound Biopractice or Biopiracy?' (2010) 29(3) *Social Alternatives* 44; Ellen Reid and T J Betts, *The Records of Western Australian Plants Used by Aboriginals as Medicinal Agents*, (Planta Medica, Vol. 36, 1979)164-173.

⁷ The US patent 5672607, granted in September 1997, pertains to the novel antiviral naphthoquinone compounds, which may be isolated from plants of the genus *Conospermum* or synthesized chemically. <<https://www.google.com/patents/US5672607>>.

⁸ Australia patent 680,872 was granted in 1997.

⁹ Under the *Conservation and Land Management Act 1984 (WA)* and the *National Parks and Wildlife Act (WA)*, the WA Minister of the Environment has the power to grant exclusive rights to flora and forest species for research purposes in that state.

¹⁰ WA Government, 'Withdrawal of Australian Company from AIDS Treatment Project', (Media Statement, March 1995) <<https://www.mediastatements.wa.gov.au/Pages/Court/1995/03/Withdrawal-of-Australian-company-from-AIDS-treatment-project.aspx>>.

¹¹ Michael Blakeney, 'Bioprospecting and the Protection of Traditional Medical Knowledge' (Paper presented at the Symposium on Intellectual Property Protection for the Arts and Cultural Expression of Aboriginal and Torres Strait Islander People, Brisbane, 28 September 1996) 196.

¹² Henrietta Fourmile (Marrie) (Paper presented at the Symposium on Intellectual Property Protection for the Arts and Cultural Expression of Aboriginal and Torres Strait Islander Peoples', Brisbane, September 1996).

¹³ Centre of Indigenous History and the Arts, cited in Terri Janke, *Our Culture: Our Future: Report on Australian Indigenous Cultural and Intellectual Property Rights*, (Michael Frankel and Company, 1999).

¹⁴ Stephen Gray, 'Vampires Round the Campfire' (1997) 22(2) *Alternative Law Journal*.

¹⁵ Janke, above n 13, 24.

¹⁶ Michael Davis, 'Biological Diversity and Indigenous Knowledge' (Research Paper No 17, Parliamentary Library, Parliament of Australia, 1998).

¹⁷ Peter Drahos, *Intellectual Property, Indigenous People and their Knowledge*, (Cambridge University Press, 2014) 111.

¹⁸ Rachel Wynberg, Doris Schroeder and Roger Chennels (Eds), *Indigenous Peoples, Consent and Benefit Sharing, Lesson from the San-Hoodia Case*, (Springer Netherlands, 2009).

Sans and the CSIR and a Trust was established.¹⁹ However, Robinson reports on the problems with licensing and free riding which has resulted in a less than satisfactory outcome for the Sans.²⁰

The neem plant, native to India where it had been used as a pesticide for hundreds of years by Indian farmers, harbours a similar story. The plant is now exploited by multi-national companies who have patented its properties and thereby monopolise its pesticidal outputs.²¹

In combination, cases such as these highlight not only Indigenous people's role in the nurturing of native plants and the depth of their traditional knowledge of plant resources, but also that such expertise continues to be ignored by intellectual property and environmental laws and the parties who commercialise these resources.

The focus of this paper

It is against this background that the paper explores the context of how private and public-sector Western institutions go about researching, collecting and controlling Indigenous plant materials and related Indigenous knowledges for their own scientific and commercial purposes. The paper discusses the (in)effectiveness of Western laws for protecting Indigenous rights and interests in this context, especially with regard to Indigenous Australians' traditional knowledge rights in plant materials.

I first briefly introduce to the concept of Indigenous knowledge of plants then examine the national and international legal framework in environmental law, intellectual property and Indigenous rights. I follow the introduction by discussing a number of Australian case studies in which Indigenous people are co-owners of patents and are commercialising their knowledge and resources. The complex interplay between the practical challenges and implications facing Indigenous groups and individuals in protecting their traditional plant knowledge at the same time as progressing their own interests in commercialisation is a focus of the discussion. The aim is to identify factors that could be conducive to more equitable outcomes by encompassing a recognition of Indigenous rights and interests, including in commercialisation and scientific inquiry.

Indigenous knowledge of plants

Many Indigenous clans and groups live in Australia's biodiverse rich environment, including coastal, marine, wetlands, desert and rainforest environments. Each group has interacted with its particular environment, developing the natural resources²² and the knowledge associated with those resources, including for food, clothing, medicine, tools and ceremonial practices. Much of this knowledge has been decimated since colonisation, however, many Indigenous clans and groups still practice culture and others are in the process of revitalising cultural knowledge.

The term 'Indigenous Knowledge'²³ refers to the beliefs and understandings that Indigenous Australians have acquired and nurtured through long-term association with a place. It is knowledge based on the social, cultural, physical and spiritual understandings which have informed Indigenous people's survival for over 65 000 years and contributed to their sense of being in the world and knowing the world.

Indigenous Knowledge is also referred to as 'traditional knowledge' because the formation, understandings, beliefs, traditions and so forth have been transmitted from generation to generation. As each generation interacts with the content and underlying values, Indigenous Knowledge is added to and reinterpreted by indigenous people. Through the existence and transmission of this intangible cultural heritage, indigenous people can associate with and reproduce a collective identity.²⁴

¹⁹ Graham Dutfield, *Intellectual Property, Biogenic Resources and Traditional Knowledge*, (Earthscan, 2004).

²⁰ Daniel F Robinson, *Confronting Biopiracy: Challenges, Cases and International Debates* (Earthscan from Routledge, 2010) 61-63.

²¹ Vandana Shiva and Radha Holla-Bhar, 'Intellectual Piracy and the Neem Tree' (1993) 23(6) *The Ecologist* 223.

²² Bruce Pascoe, *Dark Emu: Black Seeds: Agriculture or Accident?* (Magabala Books, 2016).

²³ 'Indigenous Ecological Knowledge' is also used in Australia to define Indigenous knowledge of the ecology. It is considered a subset of 'Indigenous Cultural and Intellectual Property'; Terri Janke, 'Report on the Current Status of Indigenous Cultural and Intellectual Property, Indigenous Ecological Knowledge and Natural Resources in the NT' (Report produced by the National Centre of Indigenous Studies, Component 3 (of 3,) ANU College of Law Research Paper No. 10-27, April 2009).

²⁴ World Intellectual Property Organisation, <<http://www.wipo.int/tk/en/tk/>>. The World Intellectual Property Organisation defines 'Traditional Knowledge' as 'knowledge, know-how, skills and practices that are developed,

Indigenous Knowledge has three key characteristics. First, it has a social and cultural base, linked to people, land and seas, and identity. Indigenous Knowledge is holistic, linked to a belief system, a cosmology, which is sometimes called *dreamings* or *dreamtime*. Indigenous Knowledge is an integral part of Indigenous cultural heritage. Knowledge about land, seas and places are entwined with associated songs, stories, social practice and oral traditions. Indigenous Knowledge is an expression of cultural and spiritual practices.

Second, Indigenous Knowledge belongs to a community. Ownership involves roles and responsibilities to look after the knowledge and pass it on. There may be complex rules about who can use, know and continue to use the Indigenous Knowledge as a cultural practice. For instance, Indigenous Knowledge may be gender and age-specific knowledge which may mean that knowledge can only be known and used by Indigenous people with authority. Some information like sacred knowledge should not be made public. These inter-related cultural characteristics mean that sensitive negotiation, broad consultation and ongoing engagement is a prerequisite in order for the commercialisation of knowledge. Indigenous Knowledge is managed according to customary laws and community shared values.²⁵ There may be sacred or secret knowledge that is not to be published. Indigenous Knowledge is put at risk by being placed in the public domain. As Ambelin Kwamullina, Indigenous lawyer, describes it: 'Once [Indigenous] knowledge is released, there is little chance of Indigenous peoples from who the knowledge comes being able to control how it (or the plants it is associated with) are used, especially given the limited control Indigenous peoples now have over their homelands.'²⁶

Third, Indigenous Knowledge is constantly evolving. This means that the knowledge has been developed nurtured and refined (and continuously developed, nurtured and refined) by Indigenous people and passed on by Indigenous people as part of expressing their cultural identity. Indigenous Knowledge is not static. Indigenous Knowledge is being created by individuals, so new Indigenous Knowledge challenges the individual ownership paradigm that underpins the intellectual property system.

Indigenous Knowledge of plants, therefore, is a socially and culturally constructed field that draws on particular kinds of relationships, roles, responsibilities and purposes.

Ithkechi Mgbeoji, law professor and author of the book *Global Piracy*, uses the term traditional knowledge on the use of plants' (TKUP) to refer to the,

[D]iverse range of traditional-based innovations and creations arising from intellectual activity in the industrial, literary, or artistic fields of indigenous and traditional peoples. Its range includes agricultural products, the medicinal use of plants, and spiritual worldview.²⁷

Australia has a diverse biota of plant species and, through their long association, Indigenous people have developed a wealth of knowledge about these. As Clarke notes, the traditional 'Aboriginal pharmacopeia is vast'. Indigenous Australians have different bodies of knowledge, including horticulture and preparations which involve the seed, the bark, the fruit and the leaves.²⁸ This knowledge is also connected spiritually and holistically to clan groups. Plants also figure heavily in Indigenous Australian mythology, ceremony and ritual and sacred sites.²⁹ Particular plants are central to many dreaming stories and Indigenous people have totemic connections to species from their clan lands. They have responsibilities to these species to nurture and respect them, and to hand on knowledge about them to the next generations. Indigenous groups also

sustained and passed on from generation to generation within a community, often forming part of its cultural or spiritual identity.'

²⁵ Johanna Gibson, *Community Resources: Intellectual Property, International Trade and protection of Traditional Knowledge*, (Ashgate, 2005), 49.

²⁶ Ambelin Kwamullina, 'Research, Ethics and Indigenous Peoples: An Australian Indigenous Perspective on Three Threshold Considerations for Respectful Engagement' (2016) 12(4) *AlterNative: An International Journal of Indigenous People* 437, 446.

²⁷ Ithkechi Mgbeoji, *Global Biopiracy, Patents, Plants and Indigenous Knowledge*, (Cornell University Press, 2006) 9.

²⁸ Evidence of Aboriginal fire stick farming has been written about by Pascoe, above n 22, 121; A K Chase, 'Domestication and Agriculture in Northern Australia: A Social Perspective' in D R Harris and G C Hillman (Eds), *Foraging and Farming: The Evolution of Plant Exploitation* (Routledge, 2015); T Denham, M Donohue and S Booth, 'Horticultural Experimentation in Northern Australia Reconsidered' (2009) 83 *Antiquity* 634; R A Hynes and A K Chase, 'Plants, Sites and Domiculture: Aboriginal Influence Upon Plant Communities in Cape York Peninsula' (1982) 17(1) *Archaeology in Oceania*; L S Lee and K Courtenay, 'Enrichment Plantings as a Means of Enhanced Bush Food and Bush Medicine Plant Production in Remote Arid Regions: A Review and Status Report' (2016) 19 [Special Issue: Synthesis and Integration] *Learning Communities: International Journal of Learning in Social Contexts* 64, 66. <<https://www.cdu.edu.au/sites/default/files/the-northern-institute/10.18793-lcj2016.19.05-revised.pdf>>.

²⁹ Philip Clarke, 'Aboriginal Healing Practices and Australian Bush medicine' (2008) 33 *Journal of Anthropology Society of South Australia* <<http://www.friendsofglenthorne.org.au/wp-content/uploads/Clarke-Vol-33-2008.pdf>>.

traded knowledge and plant resources amongst each other for many thousands of years. This trading was, itself, subject to social rules and relationships and so reinforced inter-group networks and mutual responsibilities. In such ways, plant knowledge has become intrinsic to Indigenous identity and the legacy of tradition.

Colonising Indigenous Knowledge of plants

The impact of sustained colonisation has meant that, as with the land, Indigenous people came to be seen as not owning their plant resources and plant knowledge. The early settlers did not see the value in Indigenous plant applications, and it wasn't until the 1960s that research started to take place in this field. Mgeoji argues that, since the early days of Australian colonial settlement, Indigenous Knowledge was seen by non-Indigenous settlers as mere 'folk' knowledge. In the past, scientists ignored Indigenous people's role in identifying genetic resources and providing related information. Indigenous people were seen as primitive and not living cultures. Mgeoji says that this, inevitably, led to biopiracy, where Indigenous people's knowledge of plants has been taken without their consent.³⁰

Plant knowledge contributes to a range of industries, including food, agriculture building, clothing, medicine and cosmetics. The pharmaceutical industry is lucrative, with global spending on medicines estimated to reach \$1.4 trillion in 2020.³¹ The Australian pharmaceuticals industry sells over \$11 billion worth of medicines domestically.³² In 1993, Reid et al estimated that a quarter of the pharmaceutical drugs in the US are extracted or derived from plants.³³ There is little Australian data about the numbers of plant-derived medicines. Oddie, however, notes that advances in biotechnology and genetic engineering have encouraged a renewed interest in Indigenous knowledge of plants. According to Oddie, Indigenous Knowledge has been the source of various drugs 'discoveries', such as the rosie periwinkle, traditionally used for diabetes and discovered to also have properties beneficial for dealing with childhood leukaemia.³⁴ Moreover, Lingard points to the growing demand for Indigenous plants and bushfoods knowledge in the hospitality and health industries, specifically for bush tomato, quandong and bush limes.³⁵

As researchers, universities, companies and scientists seek to experiment and innovate using plants, the search takes them into examining Indigenous traditional knowledge. Today, this knowledge can be tapped into from archives, museums and other records that have been collected about Indigenous peoples and their systems of knowledge; often without having to directly negotiate with Indigenous people themselves. A well cited example is the *Dubosia pituri* plant, which is traditionally used by Australian Aboriginal people. European scientists found that there were similarities between *pituri* and tobacco. Aboriginal Australians had been collecting, preparing and trading the plant for generations. Despite this, there was little acknowledgement of Aboriginal horticulture or Indigenous Knowledge of *Dubosia* by the scientific or medical fraternity.³⁶

Davis states that companies search for useful plant related substances that can be developed into marketable commodities such as pharmaceuticals, pesticides and cosmetics.³⁷ Tapping into Indigenous Knowledge and Indigenous-used resources saves companies time and costs in screening and testing. Once identified, the Indigenous genetic resources and knowledge can be dealt with using biotechnological

³⁰ Robinson, above n 20.

³¹ IMS Institute for Healthcare Informatics, *Global Medicines Use in 2020* (November 2015) 1 <<https://s3.amazonaws.com/assets.fiercemarkets.net/public/005-LifeSciences/imsglobalreport.pdf>>.

³² Medicines Australia, *The Australian Pharmaceuticals Industry: Winds of Change Report of the 2009 Medicines Australia Member Economic Survey*, 1 <<https://medicinesaustralia.com.au/files/2011/03/20100603-pub-MedicinesAustralia-winds-of-Change.pdf>>.

³³ Walter Reid, et al, *Biodiversity Prospecting* (World Resources Institute, USA, 1993).

³⁴ Carolyn Oddie, 'Bioprospecting' (1998) 9 *Australian Intellectual Property Journal* 6, 9.

³⁵ Kylie Lingard, *Legal and Institutional Strategies to Support the Interests of Aboriginal and Torres Strait Islander Peoples in Bush Food Commercialisation* (Doctoral Thesis, University of New England, 2015) 2 <[http://www.nintione.com.au/resource/LingardK_PhD\(abridged\)_StrategiesSupportAboriginalTorresStraitIslanderPeoplesBushFoodCommercialisation.pdf](http://www.nintione.com.au/resource/LingardK_PhD(abridged)_StrategiesSupportAboriginalTorresStraitIslanderPeoplesBushFoodCommercialisation.pdf)>.

³⁶ In the 1870s, Dr Joseph Bancroft used the knowledge of the Aboriginal peoples about the *Duboisia* species and unlocked its properties. *Duboisia* is a shrub found growing in Eastern Australia. In 1879, Dr Joseph Bancroft identified that the active ingredient in the *Duboisia hopwoodii* was nicotine. Aboriginals used the plant to make 'pituri', a kind of chewing tobacco. According to the pharmacist/anthropologist Pamela Watson, Aboriginal people understood the *Duboisia*'s properties as a drug. Pituri was consumed in ceremonial life, and Aboriginals were also most likely cultivating *Duboisia hopwoodii*, possibly by fire-stick farming; Joseph Bancroft, *Pituri and Tobacco*, (Philosophical Society of Queensland, Brisbane, 1879); Pamela Watson, *This Precious Foliage: A Study of the Aboriginal Psycho-Active Drug Pituri*, (Sydney, 1983); Luke Keogh, 'Duboisia Pituri: A Natural History?' (2011) 22(2) *Historical Records of Australian Science* [online] 199; Clarke, above n 29.

³⁷ Davis, above n 16, 5.

techniques which transform them into 'acquired' and 'newly' discovered knowledge that is constructed in terms of Western science where it can be patented and owned. Hence the biotechnology industry has a substantial interest in Indigenous Knowledge and natural resources.³⁸

Within the context of environmental and intellectual property laws, Indigenous people's rights are often marginalised and ignored in such ways that effectively serve to alienate Indigenous groups from their own knowledge and natural resources. In this context, the contemporary quest of Indigenous people is to seek legal rights to their resources and knowledge. The question arises: To what extent do Australian and international frameworks facilitate or impede that Indigenous goal?

Australian frameworks

In Australia, the framework for access to genetic resources is developing in halting steps, with little coordination. The three frameworks of most relevance are environmental laws, intellectual property laws and land and heritage laws.

Environmental laws

Currently, only the Commonwealth, Northern Territory (NT) and Queensland governments have legislation in place, although other states are considering legal frameworks.

Environment Protection and Biodiversity Conservation Act 1999 (Cth)

Indigenous people can use the processes in the *Environment Protection and Biodiversity Conservation Act 1999 (Cth ('EPBC Act'))* and the associated *Regulations 2000 (EPBC Regulations)* to control access to resources on Commonwealth land.

A permit is required to access biological resources on Commonwealth areas.³⁹ Applicants for access must enter into a benefit-sharing arrangement with all access providers.⁴⁰ Under the *EPBC Regulations*, Indigenous people are regarded as access providers where the land is held under lease by the Commonwealth, where the land is Aboriginal land⁴¹ or where they are recognised as native title holders.⁴² A benefit sharing arrangement can include an Indigenous land use agreement,⁴³ or an access and benefit. Benefit-sharing agreements must provide for reasonable benefit-sharing arrangements, including protection for, recognition and valuing of any Indigenous knowledge given by the access provider.⁴⁴

The regulations provide that where the access provider is an Indigenous owner, the access provider must provide informed consent to the benefit sharing agreement.⁴⁵ The matters the relevant Australian Government Minister must consider in determining whether informed consent has been given include the adequacy of the information provided by the applicant, the conduct of the negotiations, adequacy of the time provided for consideration of the permit application, consultation and negotiation of the benefit sharing agreement, the views of representatives of the access provider, and the availability of independent legal advice for the provider.⁴⁶

The *EPBC Act* establishes an Indigenous Advisory Committee to advise the Minister for the Environment and Heritage on the operation of the *Act*, taking into account the significance of Indigenous people's knowledge of the management of land, and the conservation and sustainable use of biodiversity.

The *EPBC Act* provides a framework for Indigenous people to manage access to their land and their traditional knowledge in Commonwealth areas. This can allow Indigenous people to control access to their traditional knowledge, and negotiate intellectual property rights as well as benefits from

³⁸ Monica Michelle Sieni, *Bioprospecting and Access to Indigenous Flora: Policy Implications of Consented Ways of 'Knowing' and 'Owning'* (Griffith University, 2003) 48 <<https://www120.secure.griffith.edu.au/rch/file/e8a64575-073e-380f-d9b9-2d9e223930d6/1/02Main.pdf>>.

³⁹ The permit must be in force under pt 17 of the *Regulations*. If there is no permit, a 50-unit penalty may be imposed. Reg 8A.05 of the *Environment Protection and Biodiversity Conservation Regulations 2000 (Cth) ('EPBC Regulations')*.

⁴⁰ *EPBC Regulation* reg 8A.06 (1).

⁴¹ *Ibid* reg 8A.03(1)(c).

⁴² *Ibid* reg 8A.03(1)(j).

⁴³ Within the meaning of the *Native Title Act 1993 (Cth)*, reg 8A.06 (3) of the *EPBC Regulations 2000 (Cth)*.

⁴⁴ *EPBC Regulations* reg 8A.08.

⁴⁵ *Ibid* reg 8A.09.

⁴⁶ *Ibid* reg 8A.09(2).

commercialisation. Unfortunately, this mechanism is not readily used because people do not know about it, and there has been little support from industry to work within this framework. Further, there is more to be done by government to ensure the *EPBC Act* provisions are working effectively. The process provides that an applicant must negotiate, with the holder (or owner) of the biological resources, a benefit-sharing contract which covers the commercial and other aspects of the agreement. The Commonwealth Government has developed a model contract developed and agreed to by governments, industry, Indigenous organisations and other stakeholders.

The Commonwealth scheme fails to secure a robust right of free, prior informed consent and the scheme is designed with over-reliance on native title Indigenous land use agreements for benefit sharing. Furthermore, the *EPBC Act* fails to create Indigenous rights to traditional biological knowledge as intellectual property or resource rights, and there is no provisions for infrastructure arrangements for administering benefits of Aboriginal access providers to distribute or implement benefit sharing.⁴⁷ Another limitation is that the *EPBC Act* only requires an access and benefit sharing agreement when the use of the materials is for commercial purposes. Rimmer, an Australian Intellectual Property academic, notes that the regime draws a false distinction between research and commerce in the field of natural drug discovery.⁴⁸ To date, the majority of uses are for non-commercial purposes and, accordingly, do not require a benefit-sharing agreement.⁴⁹

Biological Resources Act 2006 (NT)

The *Biological Resources Act 2006 (NT)* promotes the conservation of biological resources in the NT in addition to establishing a framework to manage the conduct and interactions of 'bioprospectors'. This *Act* recognises the special knowledge held by Indigenous people about biological resources⁵⁰ and seeks to ensure that any benefits that arise through the biodiscovery process are shared equitably amongst stakeholders.

Within the *Act*, 'bioprospecting' is defined as the taking of samples of biological resources for research in relation to any genetic resources or biochemical compounds comprising of and contained in the biological resources.⁵¹ There are some exclusions in relation to what conduct amounts to bioprospecting; one of them being where the resources are collected by Indigenous people from their traditional land and water areas in accordance with their traditions.

A permit is required to take biological resources. The process involves a four-step procedure: initial application, review by permit authority provider, review by the departmental CEO, and confirmation of a benefit-sharing agreement. Failure to obtain an access benefit sharing agreement means the application will be rejected.⁵² The *Act* is silent on the required form of an access and benefit sharing agreement. However, as a condition to the agreements' validity, the CEO of the responsible department must be satisfied that the resources' access provider has given free prior informed consent to the terms of the benefit-sharing agreement.

Biodiversity Act 2004 (QLD)

The *Biodiscovery Act 2004 (QLD)* ('*QLD Act*') does not contain any provision for the protection of Indigenous Knowledge. However, the QLD Government provides the *Queensland Biotechnology Code of Ethics* ('*The Code*') which is mandatory for all QLD government agencies, research centres, public hospitals that conduct biotechnology activities, and any organisation or institution that receives financial assistance from the QLD government.⁵³ *The Code* requires biotechnology organisations to negotiate benefit sharing arrangements with Indigenous people, where traditional knowledge is obtained from Indigenous people in the course of biodiscovery.⁵⁴ *The Code* provides no guidance on how prior informed consent should be obtained. However,

⁴⁷ Marcia Langton and Zane Ma Rhea with Margaret Ayre and Juanita Pope, *Composite Report of the Status and Trends Regarding Knowledge, Innovations and Practices of Indigenous Local Communities*, Prepared for the Secretariat of the Convention on Biological Diversity, UNEP/CBD/WG8J/3/INF/4, (UNEP, CBD, 2003) 80–81. <<https://www.cbd.int/doc/meetings/tk/wg8jrwap-01/other/wg8jrwap-01-wg8j-03-inf-04-en.pdf>>.

⁴⁸ Matthew Rimmer, 'Blame it on Rio: Biodiscovery, Native Title and Traditional Knowledge' (2003) 7(1) *Southern Cross University Law Review* 1, 12.

⁴⁹ Natalie Stoianoff and Roy Alpana, 'Indigenous Knowledge and Culture in Australia: The Case for Sui Generis Legislation' (2015) 41(3) *Monash University Law Review* 745.

⁵⁰ *Biological Resources Act 2006 (NT)* s 3 (2)(d).

⁵¹ *Ibid* s 5.

⁵² *Ibid* s 18.

⁵³ Queensland Government, *Biotechnology Code of Ethics* ('*The Code*'), (Office of Biotechnology, Brisbane, 2006), 4.

⁵⁴ *Ibid* cl 11, 8.

if the collection of biological materials is on Aboriginal owned land, the biotechnology organisation would need to enter into a benefit sharing agreement. Furthermore, *The Code* requires compliance with the *Native Title Act 1993* (Cth) and the organisation must not conduct biopiracy. In summary, while *The Code* has general provisions on prior informed consent being required when collecting samples from privately owned land,⁵⁵ it does not have any specific requirements for consultation and consent where Indigenous Knowledge is involved.

Intellectual property laws

In Australia, the intellectual property laws relevant to the protection of plant based traditional knowledge are copyright, patents, plant breeder's rights, confidential information, and trade marks and geographical indications.

Copyright Act 1968 (Cth)

Copyright provides automatic protection over original works, sound recordings and films as soon as they are created. Indigenous Knowledge that is written down or recorded will be protected if it meets the requirements of these copyright categories.⁵⁶ However, the author of that knowledge is the person who writes down the information or who makes the recording or film. Given that Indigenous Knowledge is often orally transferred, and may be nurtured and handed down through many generations, it may not meet the requirements of copyright protection. In any case, copyright does not protect the underlying idea, only the expression.⁵⁷ This means Indigenous Knowledge about plants written in books and recorded in oral histories can be used by others without the need for people to obtain consent to apply that knowledge.

A further issue is that copyright only lasts for a limited time.⁵⁸ For instance, the copyright in a book written about Indigenous Knowledge of plants is protected as a literary work and would last for 70 years after the death of the author of the book. The problem for Indigenous people is that they are often not the author or copyright owners of the books that incorporate their Indigenous Knowledge.⁵⁹ This means that the cultural protocols relating to how communally owned Indigenous Knowledge can be disseminated are displaced by the general rules of copyright. In the Australian Knowledge economy, the copyright owner is the one who has the exclusive right to control the reproduction and use of the work, sound recording or film. There is, however, the case of *Bulun Bulun v R & T Textiles* ('*Bulun Bulun case*'),⁶⁰ which recognised that an Aboriginal artist, Mr Bulun Bulun, owed a fiduciary duty to the Ganalbingu clan to deal with the copyright in his artistic work consistent with his customary law obligations. The artistic work in question incorporated Ganalbingu ritual knowledge of the clan. The artist taking action to stop the infringement of his work by a fabric importer met that obligation. Would this fiduciary duty also apply to books, reports and recordings taken by researchers and scientists? It is arguable that the principles of the *Bulun Bulun case* apply to works, sound recordings and films that incorporate traditional ritual knowledge of plants.⁶¹

Patents Act 1990 (Cth)

Patents protect invented products and methods of manufacture which are novel and include an inventive step.⁶² The *Patents Act 1990* (Cth) aims to protect the intellectual property of an inventor by allowing them a commercial monopoly over the use of their invention. It gives the patentee exclusive rights over their patented material to exploit the invention, or to authorise another to exploit the invention, for the term of the patent.⁶³

⁵⁵ Ibid 8.

⁵⁶ *Copyright Act 1968* (Cth): literary, dramatic, musical or artistic works (s 32), sound recordings (s 89), Cinematograph films (s 90).

⁵⁷ Janke provides an overview of the application of copyright laws to traditional cultural expression in Terri Janke, 'Indigenous Intangible Heritage and Ownership of Copyright' in Toshiyuki Kono (ed), *Intangible Cultural Heritage and Intellectual Property, Communities, Cultural Diversity and Sustainable Development* (Intersentia, 2009) 159.

⁵⁸ *Copyright Act 1968* (Cth) for works with identified author (s 33), for works with an anonymous or pseudonymous author (s 34), for sound recordings (s 93), for films (s 94), for broadcast (s 95), and for published editions of works (s 96).

⁵⁹ Terri Janke, *Writing up Indigenous Research: Authorship, Copyright and Indigenous Knowledge Systems* (Terri Janke and Company, 2009).

⁶⁰ *Bulun Bulun v R & T Textiles Pty Ltd* ('*Bulun Bulun case*') (1998) FCA 1082.

⁶¹ Eamon Ritchie and Terri Janke, 'Who Owns Native Title Connection Reports?' (2015) 8(20) *Indigenous Law Bulletin*, 8 - 11.

⁶² Ibid s 18.

⁶³ Ibid s 13.

A plant existing in nature or a mere discovery is not patentable. To have a patent application approved, an inventor or organisation needs to demonstrate that the invention is new and involves an inventive step.⁶⁴ This could include a newly invented method of using the genetic material, or a new adaptation of it that serves a new purpose.⁶⁵ Assessments of the subject matter are made against the background of knowledge in the professional field, known as the 'prior art base'.⁶⁶ Biotechnology, pharmaceutical and research companies undertake the scientific research and technical processes which may then meet the inventive step requirements for the purposes of a patent.

However, Indigenous people across the world complain that researchers, scientists and global companies are patenting inventions that are derived from traditional knowledge such as medicinal remedies of plants, sourced from Indigenous people either directly or from published accounts of traditional knowledge in text books, guides or databases.⁶⁷ Two questions arise: whether there has been inventive step, because the traditional knowledge should be considered part of the prior art base; and whether, ethically, the Indigenous people who have nurtured the plant, and known of its properties for many years, should share in the benefits.⁶⁸

To file an application, a specification outlining the technical details of the patent inventiveness and the monopoly claimed must be prepared. Patents are filed in each country, so an international patent will need filing in every country in which the patent is likely to be marketed. It is a complex and expensive process. These all serve to put patents law out of reach of many Indigenous innovators. However, biotech companies have deeper pockets and universities can access research funding to afford the patent filing fees. The patenting of biotech inventions derived from genetic resources is a continuing concern for Indigenous communities, whose knowledge about biological products informs and sustains the industry. Despite these challenges, the patent system has been used by three Indigenous patent projects and I will discuss this later in this article.

Plant Breeders Rights Act 1994 (Cth)

The *Plant Breeders Rights Act 1994 (Cth)* gives plant breeders the exclusive commercial rights to market a new plant variety or its reproductive material.⁶⁹ Such rights allow the plant breeder to produce, reproduce, sell and distribute the new plant variety, receive royalties from the sale of plants, or sell the rights to do so.⁷⁰ Plant breeder rights holders can prevent others from selling seeds of that variety. Exceptions are that other breeders can use the protected seeds to develop new seed varieties; and growers do not have to pay royalties on the crop produced and may save the seeds for replanting.⁷¹

To be eligible for protection, plant breeds must illustrate that a new variety is distinct, uniform and stable. It must also be demonstrated by comparative trial that the new variety is different from the most similar varieties of common knowledge. Protection lasts up to 25 years for trees or vines, and 20 years for other species.⁷² Simpson and the Forest Peoples' Program note that this

[R]equires that Indigenous peoples conduct comprehensive propagation trials to conclusively demonstrate that the criteria are satisfied; submit a written description of the variety; and deposit samples in the form of seeds, a dried plant or a live plant. Clearly these requirements demand a considerable degree of legal and scientific expertise, as well as the labour and expense of plant breeders.⁷³

Like other intellectual property laws, the ability of plant breeders' rights laws to protect Indigenous plant breeders' rights is limited in that protection is restricted to a set period and usually vests in individuals and companies, while Indigenous Cultural and intellectual property rights last in perpetuity and are collective. Plant breeders' rights laws, like patent law, are about commercialisation and allowing licensing. This could

⁶⁴ Ibid s 18(1).

⁶⁵ *National Research Development Corporation v Commissioner of Patents* (1990) 102 CLR 252.

⁶⁶ *Patents Act 1990 (Cth)* s 7(1).

⁶⁷ Michael Blakeney, 'Bioprospecting and the Protection of Traditional Medical Knowledge' (1997) 6 *European Intellectual Property Reports* 298, 300.

⁶⁸ Terri Janke, 'Biodiversity, Patent and Indigenous Peoples' (1999) XLVI(2) *Media Development* <<https://sedosmission.org/old/eng/JankeTerry.htm>>.

⁶⁹ *The Plant Breeders Rights Act 1994 (Cth)* meets Australia's obligations under the *International Convention for the Protection of New Varieties of Plant 1961 (UPOV)*.

⁷⁰ *Plant Breeders Rights Act 1994*, s 11.

⁷¹ Ibid s 17.

⁷² Ibid s 22(2).

⁷³ Tony Simpson on behalf of the Forest Peoples' Program, *Indigenous Heritage and Self-Determination, The Cultural and Intellectual Property Rights of Indigenous Peoples* (International Working Group for Indigenous Affairs, June 1996) 88.

be useful when Indigenous people wish to take part in industry. It does not, however, give Indigenous people the right to be recognised as plant breeders over inter-generationally developed and nurtured plants. Aboriginal and Torres Strait Islander people can object to plant breeder rights applications on the basis that the variety is not distinctive from a variety known to them.⁷⁴ However, Lingard notes that to make an opposition to a plant breeder rights application requires Indigenous people to know about the application in the first place.⁷⁵ Furthermore, scientific and legal resources are needed to prove lack of distinctiveness.

Confidential Information

The law of confidential information and trade secrets protects knowledge that is deemed confidential in nature, where the publication of it would cause detriment to the owner of the knowledge. In 1976, the case of *Foster v Mountford*,⁷⁶ traditional knowledge was treated as 'confidential information'. Mountford tried to publish a book he had written containing information of religious and sacred significance to the Pitjantjatjara people. The court issued an injunction stopping the book from being published in the NT, because the anthropologist was found to have breached his duty to keep that information secret.

Although yet to be tested, there is an argument that Indigenous holders of plant knowledge may be able to control access to their knowledge of plant materials and other biological resources if the Indigenous Knowledge is secret and confidential. However, any material that has been previously published will not qualify for protection. If the Indigenous Knowledge has not previously been published, the law of confidential information can be used by Indigenous people when they are approached by researchers regarding the use of Indigenous Knowledge for commercial purposes. Indigenous people can keep Indigenous plant knowledge secret by using confidentiality agreements or non-disclosure agreements. The point of using a confidentiality agreement is to ensure that the researcher or scientist that is accessing the Indigenous Knowledge will not use that knowledge for purposes other than contained in the agreement without permission or further negotiations.⁷⁷

Trade marks and geographic indications

A trade mark identifies the maker of products and services. The certification mark is a sign used to distinguish goods and services which possess a certain quality or characteristic. Under the *Trade Marks Act 1995* (Cth) the registered owner of a trade mark is granted a right to use that trade mark in relation to the class of goods and services of which the trade mark is registered.⁷⁸ I canvassed the applicability of trade marks for protecting Indigenous knowledge in *Our Culture, Our Future*⁷⁹ and have written two case studies about trade marks and their applicability to Indigenous cultural expression.⁸⁰ There is an opportunity for trade marks and certification marks to be used as identifiers for the source of Indigenous Knowledge including as geographic indications. Labelling and marks can be useful to denote a product's Indigenous origin and to distinguish Indigenous sourced products from non-Indigenous ones.

A geographical indication (GI) is a name or sign used on products to indicate the particular place the product comes from. A GI is an intellectual property tool used to identify that a product has certain qualities or a reputation, due to its geographic origin. The GI protects the name by preventing the generic uses of the name and preserving it for use of products made in the traditional manner.

Given that Indigenous Knowledge is place-based, GIs may be useful for Indigenous communities as a way of registering a product in terms of its origin.⁸¹ For instance, the use of the language words for plants that are commercially applied may assist Indigenous people to develop a niche market and protect traditional

⁷⁴ *Plant Breeders Rights Act 1994* (Cth), s35(1)(b).

⁷⁵ Kylie Lingard, 'Legal Support for the Interests of Aboriginal and Torres Strait Islander Peoples in the Commercial Development of New Native Plant Varieties: Current Status and Future Options' (2015) 26 *Australian Intellectual Property Journal* 39, 46.

⁷⁶ *Foster v Mountford* (1977) 14 ALR 71.

⁷⁷ Jeremy Morse, *Know Your Rights to Your Aboriginal Plant Knowledge: A Guide for Aboriginal Knowledge Holders on Recording and Commercialising Aboriginal Plant Knowledge*, (Terri Janke and Company, prepared for Australian Bush Traders, 2010)

⁷⁸ *Trade Marks Act 1995* (Cth) s 20.

⁷⁹ Janke, above n 13, 68-72.

⁸⁰ Terri Janke, *Minding Culture: Case Studies on Intellectual Property and Traditional Cultural Expressions*, (Report for the World Intellectual Property Organisation, 2003). *Minding Culture* has two case studies on trade marks, one on trade marks use by Indigenous people and another on the Label of Authenticity, a certification mark for Indigenous art.

⁸¹ William Van Caenegem, Jen A Cleary and Peter Drahos, 'Pride and Profit: Geographical Indications as Regional Development Tools in Australia' (2014) 16(1, art 5, 7) *Journal of Economic and Social Policy*.

knowledge practices of harvesting.⁸² However, in Australia, the GI application is mostly used for wine, such as ‘Champagne’, and cheese, such as ‘Roquefort’.

Many individual Indigenous producers use trade marks and labelling for their products, such as ‘Indigiearth’, the bushfood product range created by Sharon Winsor, an Indigenous entrepreneur.⁸³ The trade marks system does allow for collective ownership of marks and certification marks which can be applied to form a national or regional system for protection of Indigenous Knowledge. However, as evidenced by the failed Label of Authenticity in 2000,⁸⁴ establishing labelling and certification systems require a high level of administration and marketing. There are also complexities as to who should authorise that a producer is ‘Indigenous’.⁸⁵ These issues have proved to be a significant barrier for Indigenous people making use of labelling in a coordinated and national level.

Land and heritage laws

Native Title Act 1993 (Cth)

Since the landmark judgment of *Mabo v Queensland*⁸⁶ in 1992, Indigenous people have native title rights to land and seas where they can show a continuity of connection. Section 223(1) of the *Native Title Act 1993* (Cth) provides that ‘the expression native title or native title rights and interests means the communal, group or individual rights and interests of Aboriginal peoples or Torres Strait Islanders *in relation to land or waters*, where ... (b) the Aboriginal peoples or Torres Strait Islanders, by those laws and customs, have a connection with the land or waters’.⁸⁷ It is important to note that the legislation does not provide specific protection for customs or cultural knowledge. Details of customs including knowledge practices such as bushfood preparations, songs, stories and knowledge of land and sites are recognised as evidence of an applicant’s connection to the land and waters to which they are claiming rights (either co-existing or exclusive).⁸⁸

Given that knowledge is linked to land and seas, it is often suggested that rights to knowledge should be part of the bundle of rights that make up native title. Lotz, for instance, argues that native title rights and interests should extend to rights over plant resources and traditional knowledge because such rights flow out of rights to land.⁸⁹ The development of native title case law supports this approach.

In 2002, the High Court in *Western Australia v Ward*⁹⁰ held that native title rights are rights in relation to land and waters and, as such, native title may only protect cultural knowledge in so far as it relates to land and waters and do not extend to the recognition of rights to protect cultural knowledge.⁹¹ The High Court considered that if claims to protect cultural knowledge ‘go beyond denial or control of access to land or waters’, they are not rights protected by the *Native Title Act*.⁹² The High Court further suggested that recognition of such a right would amount to something akin to a new kind of intellectual property right.⁹³ They were not prepared to create such a new right and considered that the existing intellectual property rights system was sufficient. Justice Kirby dissented from the majority. Kirby states:

If cultural knowledge, as exhibited in ceremony, performance, artistic creation and narrative, is inherently related to the land according to Aboriginal beliefs, it follows logically that the right to protect such knowledge is therefore related to the land for the purposes of the *Native Title Act 1993* (Cth).⁹⁴

The High Court in the *Croker Island Case*⁹⁵ acknowledged that the claimants held a non-exclusive native title right to access the sea and sea bed for the purpose of safeguarding their cultural and spiritual

⁸² Janke, above n 23, 58.

⁸³ Indigiearth is a 100% award winning Aboriginal owned and operated company based in Mudgee New South Wales founded by Sharon Winsor, a Ngemba Weilwan woman. <<https://indigiearth.com.au/>>.

⁸⁴ Janke, above n 80, 134-158.

⁸⁵ Matthew Rimmer, ‘Australian Icons: Authenticity Marks and Identity Politics’, (2004) 3(Fall) *Indigenous Law Journal* 139.

⁸⁶ *Mabo v Queensland* [1992] HCA 23.

⁸⁷ *Native Title Act 1993* (Cth) s 223.

⁸⁸ Terri Janke, *Follow the Stars: Indigenous Culture, Knowledge and Intellectual Property Rights* (Mabo Oration, Anti-Discrimination Commission Queensland, 2011) 18.

⁸⁹ Marianne Lotz, ‘Colliding Worlds: Indigenous Rights, Traditional Knowledge and Plant Intellectual Property’ (2002) 31(3-4) *Business and Professional Ethics Journal* 71.

⁹⁰ *Western Australia v Ward* (2002) 213 CLR 1.

⁹¹ *Ibid* [468].

⁹² *Ibid*.

⁹³ *Ibid* [59].

⁹⁴ Justice Kirby (dissent) *Western Australia v Ward*, 161-162.

⁹⁵ *Commonwealth v Yarmirr* (2001) (‘*Croker Island Case*’) 208 CLR 1.

knowledge. Although such a right is based on access, the case demonstrated some capacity of the common law to protect Indigenous Knowledge.

In 2013, *Akiba on behalf of the Torres Strait Regional Seas Claim Group v Commonwealth*⁹⁶ ('Akiba'), the High Court held that native title rights and interests could comprise a right to access resources in the native title claim area, and to take such resources for any purpose. Although the decision focused upon whether the native title holders could take resources for commercial purposes, and not on rights to traditional knowledge, *Akiba* raises questions as to whether native title rights should be broadly defined.

The Aboriginal Land Rights Act 1976 (NT)

There may be opportunities for NT Aboriginal 'traditional owner' groups who have inalienable freehold land rights to control the access and use of their cultural resources and associated traditional knowledge. In the NT, the *Aboriginal Land Rights 1976 (NT) Act* ('ALRA') establishes a permit system to allow NT Aboriginal Land Councils to manage, on behalf of traditional owners, issues of access to land controlled and owned by them. This provides a potentially strong basis for traditional owner groups to require researchers, scientists and biopharmaceutical companies to respect customary laws; but within the constraint of ALRA.

The ALRA allows for the maintenance of cultural practises and knowledge through customary law. Section 71 of the ALRA grants Aboriginal people the right to enter Aboriginal land and use or occupy that land where the entry, occupation or use is 'in accordance with Aboriginal tradition governing the rights ... with respect to that land'.⁹⁷ By granting legal title to land, the Act allows Aboriginal groups in the NT who can prove their traditional relationship to the land, to maintain their cultural identity through the practise and transmission of Indigenous Knowledge.

The ALRA also establishes a system of regulated access to Aboriginal land. People who wish to enter Aboriginal land require a written permit to do so.⁹⁸ Permits are issued only if the traditional owners or the Land Council grant approval, and they have the legal right to grant or refuse permission. People who propose to conduct research, environmental activities, filming or commercial projects on Aboriginal land or with Aboriginal communities first require a permit to enter the land, and also require a permit to undertake such activities. By making such permits conditional upon the observance of cultural protocols, Aboriginal landowners can ensure that they have continuing legal rights to their Indigenous Knowledge and biological resources.

Aboriginal Land Rights Act 1983 (NSW)

The *Aboriginal Land Rights Act 1983 (NSW)* provides land rights for Aboriginal people in NSW.⁹⁹ Given the inter-connectivity of land to Indigenous Knowledge, a question is to what extent land councils can have control over intangible heritage such as traditional knowledge about plants. There is a growing economic agenda through land councils and the commercialisation of plant-based businesses and associated traditional knowledge can offer great potential. NSW Local Aboriginal Land Councils are generally under-resourced. However, there may be opportunities to collaborate, especially where the plant is accessed from Aboriginal controlled land. For example, the Yaegl Local Aboriginal Land Council has a contract with Macquarie University to record Indigenous plant knowledge and to identify medicinal remedies. The contract provides for benefit sharing of any commercialisation outcomes. The collaboration has resulted in the identification of antimicrobial potential of plants used in the topical treatment of skin infections, wounds and sores.¹⁰⁰

Ngarrindjeri Regional Authority in SA

In South Australia (SA), the Ngarrindjeri traditional owners, have pursued recognition and protection of their rights through negotiation and contracts rather than reliance on statutory protection.¹⁰¹ This has been significant in the areas of Natural Resource Management and protection of cultural heritage. In 2009,

⁹⁶ *Akiba on behalf of the Torres Strait Regional Seas Claim Group v Commonwealth* (2013) 300 ALR 1.

⁹⁷ *Aboriginal Land Rights 1976 (NT) s 71(1)*.

⁹⁸ *Ibid s 48H*.

⁹⁹ *Aboriginal Land Rights Act 1983 (NSW) s 3*.

¹⁰⁰ Joanne Packer, Tarannum Naz, Yaegl Community Elders, David Harrington, Joanne F Jamie and Subramanyam R Vemulpad, 'Antimicrobial Activity of Customary Medicinal Plants of the Yaegl Aboriginal Community of Northern New South Wales, Australia: A Preliminary Study' (BMC Research Notes, 2015).

¹⁰¹ Steve Hemming, Daryle Rigney and Shaun Berg, 'Researching on Ngarrindjeri Ruwe/Ruwar: Methodologies for Positive Transformation' (2010) 2 *Australian Aboriginal Studies* 92, 94.

Ngarrindjeri negotiated a whole of government Kungun Ngarrindjeri Yunnan agreement with the South Australian Government which provide the legal framework for consultations and negotiations between the State and the Ngarrindjeri over issues to do with Ngarrindjeri Ruwe/Ruwar (country, body, spirit).¹⁰²

Overarching research agreements underpin research between universities and the Ngarrindjeri and include Indigenous Cultural and Intellectual Property clauses. Hemming and colleagues note that 'The creation of contractual rights between Indigenous groups and third parties provide certainty in relation to ownership and enforcement of ICIP rights not already explicit in the Australian law.'¹⁰³

This arrangement provides scope for collaborations with universities and other research and commercial entities which could include plant traditional knowledge. For instance, the Ngarrindjeri people operate a native nursery where they grow native flowers and bushfoods. They have entered into a commercial supply arrangement with a large commercial supplier of native flowers.¹⁰⁴

Aboriginal Heritage Act 2006 (Vic)

The formation of native title groups under the *Traditional Owner Settlement Act 2010 (Vic)* allows traditional owners to make decisions about their land, heritage and resources.¹⁰⁵ In 2016, amendments to the *Aboriginal Heritage Act 2006 (Vic)* provided a framework for traditional owner groups to register their intangible heritage including Indigenous knowledge.¹⁰⁶ Part 5A of the *Aboriginal Heritage Act 2006* establishes a process by which Aboriginal intangible heritage can be registered on the Victorian Aboriginal Heritage Register. Once registered, Traditional Owners may make Aboriginal intangible heritage agreements that outline whether and how their traditional knowledge is used and for what purpose.

The *Act* makes it an offence to 'knowingly' exploit registered Aboriginal intangible heritage for commercial purposes without the consent of traditional owners. 'Reckless' use of registered intangible heritage is also prohibited. This would mean that anyone commercialising knowledge that is registered as intangible heritage would need to enter into an agreement with the relevant traditional owners to commercialise that knowledge, and to conduct research as well. As yet, there has been no registration of knowledge, but it is possible that plant knowledge could be registered and therefore be protected from exploitation.

The *Act* defines Aboriginal intangible heritage as 'any knowledge of or expression of Aboriginal tradition, other than Aboriginal cultural heritage'¹⁰⁷ and includes oral traditions, performing arts, stories, rituals, festivals, social practices, crafts and visual arts. It also includes environmental and ecological knowledge and 'knowledge of medicinal and other properties of flora and fauna, minerals and other elements of the environment'.¹⁰⁸ However, Aboriginal intangible heritage does not include anything that is widely known to the public.¹⁰⁹ This means that protection over plant knowledge would only be eligible over registered knowledge that is not publicly known.

International legal framework

There are several international conventions and declarations that exhort countries to improve their sovereign laws and policies in this regard. However responses have been tardy and erratic, including by Australia.

Convention on Biological Diversity

The international *Convention on Biological Diversity ('CBD') 1992*, which Australia is signatory to, focuses on the conservation of biological diversity, sustainable use of its components, and fair and equitable sharing of benefits arising from genetic resources.¹¹⁰ The *Convention* grew out of the global recognition of the value

¹⁰² Ibid 95.

¹⁰³ Ibid 98.

¹⁰⁴ The Ngarrindjeri Regional Authority is the peak regional organisation of the Ngarrindjeri. They have established a commercial company to develop a native plant and bushfoods business. <<http://www.ngarrindjeri.org.au/ngarrindjeri-ruwe-contracting>>.

¹⁰⁵ *Traditional Owner Settlement Act 2010 (Vic)*.

¹⁰⁶ *Aboriginal Heritage Act 2006 (Vic)*.

¹⁰⁷ Ibid s 79B (1).

¹⁰⁸ Ibid s 4(1).

¹⁰⁹ Ibid s 79B (1).

¹¹⁰ *Convention on Biological Diversity ('CBD')*, opened for signature 5 June 1992 [1996] UNTS 29 (entered into force 23 December 1993).

of genetic resources, the need for sustainability and for the fair and equitable sharing of benefits between developed and developing states. Article 8(j) states that each contracting country must

[R]espect, 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.¹¹¹

The 2002 *Bonn Guidelines on Access to Genetic Resources and Fair and Equitable Sharing of the Benefits Arising out of their Utilization* created by the CBD aim to guide users, and providers of genetic resources, standards in access and benefit sharing strategies.¹¹² The *Guidelines* also aim to bring a high level of responsibility and transparency to parties dealing with providers of biological resources. The *Guidelines* did not specifically raise the issues of Indigenous Knowledge protection; however, they do provide standards and processes when dealing with Indigenous peoples, resources and traditional knowledge.

The *Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilisation to the Convention on Biological Diversity*¹¹³ ('*Nagoya Protocol*') was adopted in 2010, thereby creating a binding process. Its objective is the fair and equitable sharing of benefits arising from the use of genetic resources which contributes to the conservation and sustainable use of biodiversity. Countries that sign the *Nagoya Protocol* are required to take measures in order to ensure that where Indigenous Knowledge associated with genetic resources is used in research and development, the resulting benefits will be shared in a fair and equitable way with the Indigenous holders of that knowledge.¹¹⁴ Each party to the *Protocol* will also be required to take measures to ensure that traditional knowledge associated with genetic resources are only accessed with the knowledge holders prior informed consent, on mutually agreed terms.¹¹⁵

Consent must be obtained from the providing government, and/or any Indigenous peoples authorised under national law to grant access to the resource or knowledge. The *Protocol* further requires resource users to share the benefits of genetic research with resource and knowledge providers.¹¹⁶

The *Protocol* encourages each country to take legislative, administrative or policy measures, as appropriate, and to ensure that the benefits that arise from the utilisation of genetic resources are shared with the indigenous and local communities. Indigenous and local communities must also receive free prior informed consent or approval and involvement for access to genetic resources where they have the established right to grant access to such resources.

For Indigenous Australians, the *Protocol* opens the door for access and benefit sharing arrangements by requiring prior informed consent when Indigenous resources are being utilised. The critical issue then becomes how the process of free prior informed consent will be undertaken, and how the system will work together with the intellectual property system and the international system, including international trade laws.¹¹⁷

In 2015, the CBD Secretariat developed draft guidelines on free, prior informed consent and approval; involvement and fair and equitable benefit sharing for Indigenous people and local communities.¹¹⁸ Prior informed consent (PIC) was clarified as being 'a *continual* process building mutually beneficial, *ongoing*

¹¹¹ CBN art 8(j).

¹¹² *Bonn Guidelines on Access to Genetic Resources and Fair and Equitable Sharing of the Benefits Arising out of their Utilization*, p IV <<https://www.cbd.int/doc/publications/cbd-bonn-gdls-en.pdf>>.

¹¹³ *Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization (ABS) to the Convention on Biological Diversity*, opened for signature 2 February 2011 (entered into force 12 October 2014), art 6(1) ('*Nagoya Protocol*').

¹¹⁴ *Ibid* art 7.

¹¹⁵ *Ibid* art 12.1.

¹¹⁶ Lingard, above n 75, 41.

¹¹⁷ Anthony Taubman, 'Preface: Indigenous Innovation: New Dialogues, New Pathways' in Peter Drahos and Suzy Frankel, *Indigenous Peoples Innovation*, xix <<http://press-files.anu.edu.au/downloads/press/p154251/pdf/preface.pdf>>.

¹¹⁸ Secretariat of Convention on Biological Diversity, *Proposed Guidelines for the Development of Mechanisms, Legislation or Other Appropriate Initiatives to Ensure the Prior Informed Consent or Approval and Involvement of Indigenous Peoples and Local Communities for Accessing Their Knowledge, Innovations and Practices, the Fair and Equitable Sharing of Benefits Arising from the Use and Application of Such Knowledge, Innovations and Practices and for Reporting and Preventing Unauthorized Access to Such Knowledge, Innovations and Practices*, UNEP/CBD/WG8J/9/2, 24 September 2015.

arrangements between users of traditional knowledge and indigenous peoples and local communities.¹¹⁹ The guidelines set out desirable elements of consent and approval processes and establishment of mutually agreed terms, which may include:

- (a) A competent authority at the level of indigenous peoples and local communities with official recognition by the relevant Government, as competent authorities of indigenous and local communities;
- (b) Elements of a consent or approval process including:
 - (i) Written application in a manner and language comprehensible to the traditional knowledge holder;
 - (ii) Legitimate and culturally appropriate process and decision-making including possible social, cultural and economic impacts;
 - (iii) Adequate information, timing and deadlines;
 - (iv) Specification of use with clause to address change of use and transfer to third parties;
 - (v) Implementation and monitoring;
- (c) A template for applicants taking into account the possible actions required by potential users of traditional knowledge;
- (d) Prior informed consent or approval and involvement granted/established on the basis of mutually agreed terms ensuring the equitable sharing of benefits;
- (e) Consultation process with indigenous and local communities;
- (f) Procedures consistent with customary practices.¹²⁰

Morse considers that the *Protocol* promises to establish a more useful and comprehensive regime which access and benefit Sharing laws may finally deliver a real solution to the issues of biopiracy.¹²¹ Australia signed the *Nagoya Protocol* in January 2012 but has been slow to develop a national approach to implementation and is yet to clearly establish how Indigenous people can make use of the law to negotiate access and benefit sharing arrangement for their resource and knowledge.

Declaration on the Rights of Indigenous Peoples

Mick Gooda, former Aboriginal and Torres Strait Islander Social Justice Commissioner, describes the United Nations' *Declaration on the Rights of Indigenous People* ('*The Declaration*') as:

[A]n international instrument, the *Declaration* provides a blueprint for Indigenous peoples and governments around the world, based on the principles of self-determination and participation, to respect the rights and roles of Indigenous peoples within society. It is the instrument that contains the minimum standards for the survival, dignity and well-being of Indigenous peoples all over the world".¹²²

There are two articles that specifically reference culture and Indigenous Knowledge. Article 11 provides rights to culture and traditions and to maintain and protect all manifestations of their culture.¹²³ Article 31 relates to world indigenous people's right to maintain protect and control their cultural heritage, Traditional Knowledge and traditional cultural expressions as intellectual property. This includes genetic resources, seeds, and traditional knowledge about plants.¹²⁴

The Declaration is important for policy and law makers and Indigenous people alike as it provides a strong basis for recognition of Indigenous people managing and controlling their traditional knowledge and cultural expressions as intellectual property.

The Declaration has ramifications, Conway emphasises that article 31 'recognizes that the value of indigenous assets and resources extends to intangible commodities resulting from the creativity of the indigenous mind and the evolution of indigenous knowledge informed by indigenous cosmogony'. Hence, potential users of Indigenous Knowledge are put on notice that they may be subject to 'traditional

¹¹⁹ Elise Morgera, 'Towards International Guidelines on Prior Informed Consent and Fair and Equitable Benefit Sharing from the Use of Traditional Knowledge' *The Benelex Project* (2015), <<http://www.benelexblog.law.ed.ac.uk/2015/12/09/towards-international-guidelines-on-prior-informed-consent-and-fair-and-equitable-benefit-sharing-from-the-use-of-traditional-knowledge/>>.

¹²⁰ Secretariat of Convention on Biological Diversity, above n 118, 22-23.

¹²¹ Morse, above n 77, 6.

¹²² Australian Human Rights Commission, *The Community Guide to the UN Declaration on the Rights of Indigenous Peoples*, (Australian Human Rights Commission, 2010), 4.

¹²³ *United Nations Declaration on the Rights of Indigenous Peoples*, UN GAOR, 107th plen mtg, A RES 61/295 (adopted 2 October 2007), art 11.

¹²⁴ *Ibid* art 31.

intellectual property laws as well as indigenous customary laws or protocols in respect to the appropriate use of indigenous assets or resources.¹²⁵

Both nationally and internationally, Indigenous people are using it to set their intention in protocols and contracts. The international business community represented by the UN Business Global Compact have developed a guide on free, prior informed consent which includes references to dealing with Indigenous Knowledge.¹²⁶ Australia acceded to the *Declaration on the Rights of Indigenous Peoples* in 2009 and has an obligation to explore ways to bring effect to the articles relating to Indigenous Knowledge.

World Intellectual Property Organisation

Since 2000, the World Intellectual Property Organisation (WIPO) has convened an Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore (IGC). The interface between traditional knowledge and genetic resources and other intellectual property rights is the challenge for the IGC. Progress has been slow. The IGC's draft articles for the protection of traditional knowledge for discussion includes options for a provision for disclosure requirements.¹²⁷ There are four alternatives. One option is to require, by national law, that users of Traditional Knowledge shall comply with requirements concerning the disclosure of source and/or origin of Traditional Knowledge. The second option is that IP applications that concern use Traditional Knowledge shall include information on the country from which the applicant collected or received the knowledge and state whether prior informed consent or approval has been obtained. The third alternative requires disclosure only when 'protected traditional knowledge' meet the eligibility requirements yet to be agreed upon. The fourth alternative is to have disclosure requirements.

Disclosure requirements will aid transparency, helping Indigenous Knowledge owners to know when their plant material is being used for patents and so provide a trigger for researchers and potential patent owners of plant-based inventions to work out an access and benefit sharing agreement with the relevant Indigenous people. Already there are several countries, such as the Andean Community¹²⁸ and Switzerland¹²⁹ that have disclosure provisions.

Case studies: Australian Indigenous patent projects

So how are Indigenous Australians dealing with this highly fractured, uneven set of national and international frameworks? This section briefly examines three Australian case studies where Indigenous groups are the co-owners of a patent to explore the related challenges and opportunities for Indigenous Australians who might want to initiate commercialised projects around plants and plant knowledge. An important aim in describing these case studies is to identify any broadly relevant factors that may better enable success; not just in commercialisation and entrepreneurship, but also in balancing business with cultural imperatives.

Mudjala Plant Patent

In the 1986, Senior Nyinkina Mangala Lawman John Watson had half his finger bitten off by a crocodile when hunting on his country. He was hours away from a hospital and wrapped his finger in the bark of the 'nyardoo maja' tree to deal with the pain before making it to the hospital. The nyardoo majala tree has always been known to the Nyardoo Mangala community in this region. It holds cultural significance both in its healing powers and pain relief and features in the creation story of the Fitzroy River.¹³⁰

¹²⁵ Danielle M Conway, 'Promoting Indigenous Innovation, Enterprise and Entrepreneurship Through the Licensing of Article 31 Assets and Resources' (2011) 64 *SMU Law Rev* (2011) 1107.

¹²⁶ UN Global Compact, *A Business Reference Guide to the UN Declaration on the Rights of Indigenous Peoples* (United Nations Global Compact, 2015).

¹²⁷ Intergovernmental Committee on Intellectual Property and Genetic Resources, *Traditional Knowledge and Folklore, The Protection of Traditional Knowledge: Draft Articles, Facilitators' rev 2* (WIPO/GRTKF/IC/28/5 December 2, 2016) art 7.

¹²⁸ WIPO, *Key Questions on Patent Disclosure Requirements for Genetic Resources and Traditional Knowledge*, (WIPO, 2017) art 26 of decision No 486 (2000) Establishing the Common Industrial Property Regime, 26.

¹²⁹ *Federal Act of June 25, 1954 (Switzerland), on patents for inventions (status as of January 1, 2012)*, art 49(2).

¹³⁰ Sarah Holcombe and Terri Janke, 'Patenting the Kakadu Plum and the Marjarla Tree: Biodiscovery, Intellectual Property and Indigenous Knowledge' in Matthew Rimmer and Alison McLennan (eds), *Intellectual Property and Emerging Technologies, the New Biology* (Edward Elgar, 2012) 293, 331.

The elders wanted to explore the commercial potential for the plant and, with the help of adviser, Paul Marshall, met with Professor Ron Quinn of Griffith University, who is a research leader in natural product discovery and commercialisation. This led to a ground-breaking research partnership, which resulted in the isolation and identification of the active analgesic compounds in the plant.

The Jarlmadangah community and Griffith University became joint patent holders of the Indigenous biotechnology patent, and additional patents were registered in other countries.

In 2008, the co-owners licenced the IP technology to Avexis to develop commercial opportunities but, due to the global financial crisis, the obstacles to securing sufficient substantial investment capital meant that nothing became of it. The Jarlmadangah Buru community still hope to commercialise the patent. In 2013, it was reported that the community intended to participate in harvesting and monitoring trials and wild harvest management to ensure that wider Aboriginal communities' benefits will come out of any opportunity.¹³¹ As yet, no such trial has commenced and the community are still looking for opportunities for partners to licence and exploit the patent's rights.

Several difficulties can be identified in this case study. Critical challenges were the high costs of patenting and the very bureaucratic process. The community had to incorporate to hold the IP assets. The most challenging aspect was the commercial partnership agreement between the community and Griffith University. The community was represented by a pro-bono lawyer. Some cultural issues also had to be managed. This required a review of the benefits and risks so that members of the community understood the ramifications. The act of patenting Indigenous traditional knowledge was contentious because it requires exposing knowledge of traditional plant use in the public domain. In Indigenous Knowledge systems, knowledge of plants may be secret or only for use by members of the clan group. To gain patent protection, the details of the invention must be written in specifications which are published. Patent rights give the rightsholder the ability to exclusively commercialise the invention, but rights only last for 25 years. Once this period ends, the patent information can be used by anyone. This is problematic for protecting Indigenous Knowledge as rights in perpetuity.

University of South Australia and Chuulangun Aboriginal Corporation

The Chuulangun Aboriginal Corporation in North Queensland represents the Kuuku I'yu people, who are located on the upper Wenlock and Pascoe Rivers in Central Cape York Peninsula, Queensland. David Claudie, the CEO of the Chuulangun Aboriginal Corporation is an Indigenous knowledge holder of plants on his country. Claudie and the Corporation approached the University of South Australia to collaborate on a medicinal plant project.¹³²

Claudie's role in the project was to identify the plant knowledge and to collaborate with the scientists. The Chuulangun Aboriginal Corporation developed guidelines and protocols which promoted the involvement of traditional owners.

Dodonaea polyandra, also known as 'Uncha' is a shrub primarily found in the north and east of the Cape York Peninsula, in Queensland. Claudie identified the plant's traditional use is for the relief of pain and discomfort associated with infected teeth and toothache. The University of South Australia worked with the Chuulangun Aboriginal Corporation to patent the Uncha for research. Claudie is recognised as a co-inventor of the patent. He is a knowledge holder and worked with Susan Semple.¹³³ The patent is owned jointly by the University and the Chuulangun Aboriginal Corporation. Having the Aboriginal Corporation as the owner recognises the collective Indigenous intellectual property rights so that the patent rights can be managed according to customary laws. This shows the more useful flexibility in the approach to 'inventorship' to recognise the holders of Indigenous science knowledge. In the past, Western science took priority.

¹³¹ Virginia Marshall, Terri Janke and Anthony Watson, 'Community Economic Development in Patenting Traditional Knowledge: A Case Study of the Mudjala TK Project in the Kimberley Region of Western Australia', (2013) 8(6) *Indigenous Law Bulletin*.

¹³² University of South Australia, *Medicinal Plants Project Impresses Business and Higher Education Round Table* (2013), <<http://w3.unisa.edu.au/unisanews/2013/December/story8.asp>>.

¹³³ David J Claudie, Susan J Semple, Nicholas . Smith and Bradley S Simpson, 'Ancient but New: Developing Locally Driven Enterprises Based on Traditional Medicines in Kuuku I'yu Northern Kaanju Homelands, Cape York, Queensland, Australia' in Peter Drahos and Suzy Frankel, *Indigenous Peoples' Innovation, Intellectual Property Pathways to Development* (ANU E press, 2012), 29.

Spinifex Case Study

In 2015, I attended the Ochre, Spinifex, Foil Symposium convened by the University of Sydney. Dr Paul Memmott presented a paper about a collaborative project involving the University of Queensland and the Indjalandji-Dhidhanu people of the Camooweal/Upper Georgina River area to develop commercial applications for a locally grown species of spinifex.¹³⁴ Spinifex is an endemic native Australian grass. The spinifex grasses grow in abundance through the interior of the country. Traditionally, Aboriginal Australians widely used spinifex as waterproof roof-thatching as well as adhesive gum produced from a carefully controlled heating technique.¹³⁵ However, in the latter half of the 20th century, the traditional practices declined. This knowledge is being revitalised as part of a collaborative research project. The project has proven spinifex to be a strong and flexible material which has potential for a number of application including building technology.

The university and the Dugalunji Aboriginal Corporation's commercial entity, Myuma Pty Ltd, representing the relevant traditional owner groups, are working together. The university brings the scientific researchers, skill and equipment and the Aboriginal people bring the land, natural resources on them and the traditional knowledge. Myuma operates the Dugalunji Camp, which operates as a cultural heritage survey business, keeping place and training centre for Aboriginal people. In this way, the collaboration aims to find new technical solutions.¹³⁶

The collaboration allows for the Aboriginal people to gain skills in research and science. For instance, the Dugalunji Corporation established an Arid Zone Field Station with the support of the University of Queensland. In turn, the researchers gain insight into Indigenous knowledge. Memmott et al discuss the usefulness of Indigenous knowledge in the project explaining that 'oral histories from Indigenous people were not only insightful of ecological processes but also presented sensitivity to the ways these processes can be harnessed wisely'.¹³⁷

In 2015, a patent was registered over a composite material comprising an elastomer and nanocellulose derived from spinifex plants.¹³⁸ The patent is owned solely by University of Queensland and not co-owned with the Indigenous partner as was the case in the other two case studies. However, reports state that benefits will be shared with the community as negotiated in the research and collaboration agreement.¹³⁹ There is also the fact that the Dugalunji Aboriginal Corporation has the right to veto commercialisation. The benefits for both the Indigenous community and the university include employment for Aboriginal youth, research on efficacy of regular spinifex burns, positive publicity for the university and respect for Indigenous cultural rights. This enables the Aboriginal groups to exercise control over the research and set the agenda for how they want to benefit. In this way, the project recognised Indigenous self-determination.

In 2016, scientists involved in the project announced successful results which included the development of a condom that would be as thin as a human hair.¹⁴⁰

Case Study: Kakadu Plum

The 'Kakadu plum' (*Terminalia ferdinandiana*) is a small fruit-bearing tree found in the north of Australia, in the NT and WA. It is variously known by Indigenous people as 'Billy goat plum'¹⁴¹ and 'gubinge'.¹⁴² The fruit has long been used by NT and WA Indigenous clans for food and medicine, including as an antiseptic.

The plum has recently come under the spotlight because of its remarkably high concentration of vitamin C. The plum has been used in a range of products, particularly food products such as jams and teas but also

¹³⁴ Paul Memmott, (paper presented to Ochre, Spinifex, Foil, Symposium, University of Sydney, 24 September 2013).

¹³⁵ Paul Memmott, Richard Hyde and Tim O'Rourke, 'Biomimetic Theory and Building Technology: Use of Aboriginal and Scientific Knowledge of Spinifex Grass' (2009) 52(2) *Architectural Science Review* 117, 118.

¹³⁶ Paul Memmott 'Bio-Architectural Technology and the Dreamtime Knowledge of Spinifex Grass' in Stephen Kajewski, Karen Manley and Keith Hampson (eds), *Proceedings of the 19th CIB World Building Congress Construction and Society* (CIB, Brisbane, 2013).

¹³⁷ Memmott, Hyde and O'Rourke, above n 135, 125.

¹³⁸ International patent application PCT/AU2015/050773, filed 7 December 2015.

¹³⁹ Hailey Renault, 'Indigenous Community Signs Landmark Agreement with University of Queensland to Develop Spinifex 'Nanofibre' Industry, (ABC News, 29 April 2015) <<http://www.abc.net.au/news/rural/2015-04-29/spinifex-discoveries-drive-industry/6429716>>.

¹⁴⁰ University of Queensland, *Native Grass Could be Key to Super-Thin Condoms* (10 February 2016) <<https://www.uq.edu.au/news/article/2016/02/native-grass-could-be-key-super-thin-condoms>>.

¹⁴¹ Lorraine Williams, Larrakia woman with plant knowledge, as cited in Janke, above n 23, 151.

¹⁴² 'Gubinge' is a word from the Nyul Nyul language name for the Kimberley version of the Kakadu Plum which is also called the 'Billygoat Plum' or 'Murunga'.

health drinks. The commercial benefits for Indigenous communities was recognised in the 2006 report *Small-scale Commercial Plant Harvests by Indigenous Communities*, where the demand for the fruit was calculated at 10-12 tonnes per annum, with an estimated return of roughly \$10 per kilo.¹⁴³

In 2007, the US cosmetics company Mary Kay Inc, applied for an international patent with WIPO under the Patent Cooperation Treaty for 'compositions comprising Kakadu plum extract or acai berry extract'.¹⁴⁴ The international application status report prepared in July 2008 considered that a great deal of the patents' claims was obvious,¹⁴⁵ and arguably lacked an 'inventive step'. The applicant was asked to come back with further clarifications; and now each country patent office (listed in the world patent application) is considering the obviousness of the patent.

That application was examined by the Australian Patents Office in 2010,¹⁴⁶ including with respect to its novelty and an inventive step. To assess this question, the patent examiner had to determine whether the application of the plum extract to cosmetics is obvious. According to an article in *The Sydney Morning Herald*, a spokesperson of Mary Kay advised that the Kakadu plum has never been used for cosmetic formulation before.¹⁴⁷ Robinson, who has written extensively on biopiracy, contested this. According to Robinson's research, Kakadu plum has been used in cosmetics since the 1990s, but these products are not the subject of a patent.¹⁴⁸ Robinson filed a Section 27 submission to the Patents Office, which allows third parties to make statements regarding a patent's obviousness claim. Further, the Gundjeihmi Aboriginal Corporation, representative organisation of the Mirrar people of West Arnhem Land, protested in the media against the patent application. The Mirrar people claimed that the Kakadu plum has been used by the Mirrar as a food and medicine for 'as long as people can remember'.¹⁴⁹ During examination of the patent, the Australian patent office raised concerns about the novelty of the patent and, shortly after, Mary Kay withdrew the patent application.

However, it should be noted that Mary Kay holds US patents which include properties taken from the Kakadu plum. A year after the withdrawal of the Australian patent, Mary Kay filed US patents, which have since been examined and approved. The source of the genetic material is listed on the US patent as being a commercial supplier, Southern Cross Botanicals. There appears to have been no direct discussion between Mary Kay and any northern Aboriginal community that is supplying the Kakadu plum. This highlights the issues for international patents which are examined by offices that have no knowledge of the Australian plant. Indigenous Australians are less likely to know about the US patent going through and then, once approved, it is difficult to seek a re-examination or revocation of the patent.

Since 2009, the NT has had bioprospecting laws which requires biosprospectors to enter into a benefit sharing agreements with owners of the land they want to access to get the natural resources. But despite the law, as far as is known, there are no applications made by Mary Kay. The plum was allegedly not 'accessed' from NT land and this would mean that the access and benefit sharing (ABS) procedure in the NT law may not apply. As Robinson notes, Mary Kay may have obtained samples of the Kakadu Plum on a commercial basis through a nursery, in which case it would be under no obligation to share benefits with Indigenous communities for access to the genetic resources in question. Furthermore, even if the genetic resources had been accessed from Indigenous lands, but before the *Nagoya Protocol* has come into effect, it is unlikely that its provisions will apply unless they are made retrospective.

There is a strong and growing demand for the Kakadu fruit and extract. Yet there are considerable supply issues already impacting upon the emerging Kakadu Plum industry. There is a significant missed opportunity in Kakadu plum for Indigenous people. Robinson and Raven's study on Indigenous plants in patents identified 19 patents and applications internationally that relate to *Terminalia ferdinandiana*, several

¹⁴³ Julian Gorman and Peter Whitehead, *Small-scale Commercial Plant Harvests by Indigenous Communities*, (Rural Industries Research and Development Corporation, 2006) 17.

¹⁴⁴ WIPO PCT patent application number WO/2007/084998 filed on 19 January 2009.

¹⁴⁵ Obviousness is a rebuttal to inventive step. An invention will not be patentable if the inventive step claimed is obvious, and the reasonable person skilled in the prior art would have been able to reach the same conclusion.

¹⁴⁶ Patent application number 2007205838.

¹⁴⁷ Robin Powell and Lindsay Murdoch, 'Patent Fight Erupts Over Kakadu Plum', *The Sydney Morning Herald*, 4 December 2010, <<http://www.smh.com.au/national/patent-fight-erupts-over-kakadu-plum-20101203-18jud.html>>.

¹⁴⁸ Robinson, Daniel F, *Traditional Knowledge and Biological Product Derivative Patents: Benefit Sharing and Patent Issues relating to Camu Camu, Kakadu Plum and Acai Plant Extracts*, (United Nations University 2010), 4.

¹⁴⁹ Powell and Murdoch, above n 147.

assigned to Mary Kay Inc.¹⁵⁰ These overseas patents limit the ability of the Kakadu plum producing communities of the region to export their products.

One way to deal with this issue is to establish a process for negotiating an Access and Benefit Sharing Agreement. Before access would be allowed for the research and development of plant species to commence, the parties are to negotiate the Access and Benefit Sharing Agreement which clearly sets out all information to be provided and confirmed that the Indigenous groups will have control over the project and the intellectual property involved in commercialisation. This could form that basis of a best practice model for prior informed consent and by which to engage Indigenous people and use their knowledge.

Conclusion

Australia has many plants that are endemic to Australia, and there is a rich Indigenous knowledge base of their uses and applications, hence Indigenous people could benefit and move towards self-determination if there were changes in the legal landscape. The national and international intellectual property-based frameworks have potential but do little to practically recognise and support Indigenous ownership and/or commercial engagement with their own body of traditional plant knowledge. Indigenous people do not have the same opportunity to take part in industries that commercialise their knowledge in plants.

The *CBD* and the *Nagoya Protocol* has introduced an international framework for Indigenous people to assert rights to their plant knowledge, however the national legal framework for Australian Indigenous knowledge is yet to be consistently developed to define and practically protect Indigenous rights, ownership and interests in Indigenous plants and related knowledge. The development of an effective national consent access and benefit sharing framework must be given priority.¹⁵¹

Providing Indigenous people with the mechanisms to look after their own interests will enable self-determination. Posey and Dutfield, both leading authors and researchers in the international debate about the protection of traditional knowledge, promote the recognition of traditional resource rights. They state that 'knowledge and traditional resources are central to maintenance of identity for Indigenous peoples. Therefore, control over these resources is of central concern in their struggle for self-determination.'¹⁵² Traditional resource rights build on intellectual property rights protection while recognising that traditional resources, both tangible and intangible, are also covered under international agreements and could form the basis for sui generis systems.

The aims of sui generis laws could be to control access to, disclosure and use of traditional knowledge; exercise their prior informed consent for any access to or disclosure and use of traditional knowledge; ensure that they derive fair and equitable benefits from the wider application of their traditional knowledge, innovations and practices; and ensure continued customary use of traditional knowledge, innovations and practices and avoid negative effects thereon.¹⁵³ Stoianoff and Roy make the case for sui generis legislation as being one of substantive equality and social justice:

Given that the wrongs endured by Indigenous Australians have led to intergenerational loss of knowledge and culture through displacement from the land of their ancestors and separation from family and community, it would be a positive first step to establish a sui generis regime that would recognise and protect their unique knowledge and culture - and hopefully provide a platform to rebuild it. This would also signal a strong move towards genuine reconciliation in contemporary Australia.¹⁵⁴

However, as things stand, the current legal frameworks do not deliver self-determination.

Terri Janke called for infrastructure to provide Indigenous communities with the capacity, skills and tools to licence Indigenous Cultural and Intellectual Property rights to authorised third parties.¹⁵⁵ Janke argues that a National Indigenous Cultural Authority (NICA) could be established as an alliance organisation to enable negotiation of rights, contracts and protocols together with IP tools such as a distinctive trade mark. It is essentially a licensing model which can serve to empower Indigenous people to negotiate authorised uses of

¹⁵⁰ Daniel F Robinson and Margaret Raven, 'Identifying and Preventing Biopiracy in Australia: Patent Landscapes and Legal Geographies for Plants With Indigenous Australian Uses', (2017) 28(3) *Australian Geographer* 311, 320.

¹⁵¹ *Ibid* 326.

¹⁵² Darrell A Posey and Graham Dutfield, *Beyond Intellectual Property: Toward Traditional Resource Rights for Indigenous Peoples and Local Communities* (International Development Research Centre, 1996) 94.

¹⁵³ Janke, above n 23, 79.

¹⁵⁴ Stoianoff and Roy, above n 49, 783.

¹⁵⁵ Terri Janke, 'Guarding Ground: A Vision for a National Indigenous Cultural Authority' in Robert Tonkinson (ed), *Wentworth Lecture 50 years of AIATSIS* (Aboriginal Studies Press, 2015).

their traditional knowledge and traditional cultural expression. Through authorised and negotiated use, Indigenous people can licence these assets to approved users. In this way, they can control uses according to their cultural protocols, and economic interests.¹⁵⁶

There are also measures that can be introduced by seed banks. Seed banking involves the collection, storage and sustainable use of seeds for plant conservation and research. The main use of these collections has been non-commercial research, threatened species recovery programs, botanical gardens for education and awareness and safeguarding seeds for future use.¹⁵⁷ Seed banks have obligations to manage genetic resources and Indigenous Knowledge according to the *CBD* and the *Nagoya Protocol*.¹⁵⁸ In this way, seed banks must develop relationships between Indigenous people and ex-situ seed collectors. Shepherd advocates for recognising Indigenous Knowledge stewardship of seeds.¹⁵⁹ This means recognising and respecting that Indigenous peoples have an interest in seeds because they bring valuable traditional knowledge. Hence, this means recognising that Indigenous people have a relationship with seed collections. Shepherd says that the importance of this relationship is realised when it is used as the basis for a process to define the boundaries of accountability for Indigenous knowledge stewardship in seedbank systems.

Protocols have become common ground for Indigenous research¹⁶⁰ as well as the production of Indigenous art,¹⁶¹ film¹⁶² and museums.¹⁶³ Seed banks, as collectors and manager of plant materials and Indigenous knowledge, must develop Indigenous protocols. Seed and plant collection entities need to build relationships and establish practices of prior informed consent and protocols for the access and use relating to collection of seeds on Indigenous land, and the collection of Indigenous Knowledge as part of the collection.

Sutherland and Shepherd report that the Council of Heads of Australian Botanic Gardens Incorporated, through its Australian Seed Bank Partnership, is collaborating with the University of New England to define clear processes and develop protocols for Indigenous knowledge stewardship. The protocols aim to reduce the risks of compromising the cultural integrity of collected data. The protocol will provide practical steps for institutions to collaborate with Indigenous traditional owners and 'on country' to develop mutual benefits.¹⁶⁴ This leadership is an important step towards building long-term collaborative relationships between Indigenous people, scientists and seed institutions. However, Indigenous people's contribution should be valued. Indigenous people must be recognised as collaborators and not 'native informants', and this involves recognising Indigenous authorship and Indigenous Knowledge rights.¹⁶⁵

Finally, in moving towards Indigenous self-determination, there must also be opportunities for Indigenous people to establish their own seed banks,¹⁶⁶ with plant materials and Indigenous Knowledge, so that they can continue the caring of plants in accordance with their cultural practices while also being able to make informed decisions about commercialisation opportunities.

¹⁵⁶ Terri Janke, *Beyond Guarding Ground: A Vision for a National Indigenous Cultural Authority* (Terri Janke and Company, 2009) 258-280.

¹⁵⁷ Lucy Sutherland and Mark L Shepherd, 'Implementing Access and Benefit sharing for Seed Banking (2017) 102(2) *Annals of the Missouri Botanical Garden* 86, 386.

¹⁵⁸ Ibid.

¹⁵⁹ Mark Shepherd, 'Indigenous Knowledge Stewardship and Accountability of Seed Bank Institutions' (2015) 2 *International Journal of Rural Law and Policy* <<http://epress.lib.uts.edu.au/journals/index.php/ijrlp/article/view/4629/5423>>.

¹⁶⁰ Australian Institute of Aboriginal and Torres Strait Islander Studies, *Guidelines for Ethical Research in Australian Indigenous Studies* (AIATSIS, 2012) <<https://aiatsis.gov.au/sites/default/files/docs/research-and-guides/ethics/gerais.pdf>>.

¹⁶¹ Australia Council for the Arts, *Protocols for Working with Indigenous Artists* (Australia Council for the Arts, 2nd ed, 2007) <<http://www.australiacouncil.gov.au/about/protocols-for-working-with-indigenous-artists/>>.

¹⁶² Terri Janke, *Pathways and Protocols: A Filmmaker's Guide to Working with Indigenous People, Culture and Concepts*, (Screen Australia, 2009).

¹⁶³ National Museum of Australia, *Indigenous Cultural Rights and Engagement Policy 2015* <http://www.nma.gov.au/about_us/ips/policies/indigenous_cultural_rights_and_engagement_policy>.

¹⁶⁴ Sutherland and Shepherd, above n 157.

¹⁶⁵ Ambelin Kwaymullina, above n 26, 445.

¹⁶⁶ Natalie Jones, 'Kimberley Seed Bank: Traditional Knowledge Used to Protect Biodiversity', (ABC News, 27 March 2016) <<http://www.abc.net.au/news/2016-03-27/kimberley-seedbank-project-to-protect-biodiversity/7275344>>.

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