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USING PATENTS TO PROTECT TRADITIONAL KNOWLEDGE ON
THE MEDICINAL USES OF PLANTS IN SOUTH AFRICA

Emeka Polycarp Amechi

ARTICLE



VOLUME
11/1

LEAD Journal (Law, Environment and Development Journal)
is a peer-reviewed academic publication based in New Delhi and London and jointly managed by the
School of Law, School of Oriental and African Studies (SOAS) - University of London
and the International Environmental Law Research Centre (IELRC).

LEAD is published at www.lead-journal.org

info@lead-journal.org

ISSN 1746-5893

ARTICLE

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Emeka Polycarp Amechi

This document can be cited as
Emeka Polycarp Amechi, 'Using Patents to Protect Traditional
Knowledge on the Medicinal Uses of Plants in South Africa',
11/1 *Law, Environment and Development Journal* (2015), p. 51,
available at <http://www.lead-journal.org/content/15051.pdf>

Emeka Polycarp Amechi, PhD, Postdoctoral Fellow, Dept of Jurisprudence, College of Law, University of South Africa, Pretoria. Email: em_amechi@yahoo.com/amechep@unisa.ac.za

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* An earlier version of this article was presented at the Indigenous Knowledge Conference, hosted by the Department of Jurisprudence, University of South Africa, Pretoria on 8 July 2014, at Brooklyn House, Veale Street, Pretoria.

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1

INTRODUCTION

The movement towards the protection of traditional knowledge particularly on the medicinal uses of plants (TKMUP) in South Africa reflects a global albeit belated interest in the protection of traditional knowledge associated with biological resources. Indeed, the protection of the rich and diverse knowledge relating to the uses of biological resources for food, medicinal and agricultural purposes developed and nurtured over many generations by many indigenous communities, has increasingly received international attention since the adoption of the Convention on Biological Diversity.¹ The Biodiversity Convention through its article 8 (j) broadened the scope and mandate of the protection of TK associated with biological resources with wider objectives such as preservation and maintenance of such knowledge, the promotion of their wider application subject to the prior informed consent of the indigenous communities who are generally regarded as the principal knowledge holders, and the promotion of equitable sharing of the benefits arising from the utilization of the knowledge. The adoption of the Convention in 1992 and the growing recognition of the wider significance of TK have made the protection of the knowledge to have arisen in the agenda of diverse inter-governmental agencies particularly as it affects the erosion and misappropriation of the knowledge.² These international debates raise a host of issues relating to food and agriculture; biological diversity, desertification and the environment; human rights, especially the rights of indigenous peoples; cultural diversity; trade and economic development; and intellectual property (IP). The role that the IP system

can play in the protection of TK has been on the agenda of the World Intellectual Property Organisation (WIPO) through its Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore, and the World Trade Organisation (WTO) for more than fifteen years, with little or nothing to show for it.³

Despite the lack of a global consensus on the use of the IP system particularly patent in protecting TK associated with biological resources,⁴ South Africa sought to provide a measure of protection for such knowledge using the IP regime in response to instances of the misappropriation of its TKMUP and other biodiversity-based TK,⁵. This was evident in

- 3 See Surinder Kaur Verma, 'Protecting Traditional Knowledge: Is a Sui Generis System An Answer?' (2005) 7/6 *Journal of World Intellectual Property* 765, 778-83; Chidi Oguamanam, 'Patents and Traditional Medicine: Digital Capture, Creative Legal Interventions, and the Dialectics of Knowledge Transformation' (2008) 15/2 *Indiana Journal of Global Legal Studies* 489, 502; Jay Erstling 'Using Patents to Protect Traditional Knowledge' (2009) 15 *Texas Wesleyan L. R.* 295.
- 4 The lack of such consensus is not unconnected with the fact that the configuration of global economic, technological and political power tilts heavily and favourably towards developed countries and their industrial interests. These countries and commercial interests are deriving maximum benefits from the commercial exploitation of biodiversity and associated TK as facilitated by the conventional patent system. See Ikechi Mgbeoji, 'Patents and Traditional Knowledge of the Uses of Plants: Is a Communal Patent Regime Part of the Solution to the Scourge of Bio Piracy?' (2001) 9 *Indiana Journal Global of Legal Studies* 163, 171; Laurence R. Helfer, 'Regime Shifting: The TRIPS Agreement and New Dynamics of International Intellectual Property Lawmaking' (2004) 29 *Yale J. Int'l L.* 1, 15.
- 5 For instances of misappropriation involving South Africa biological resources and associated TK, Selvan Subroyen, 'Will the Nagoya Protocol Keep the Biopirates at Bay in South Africa?' < <http://www.iod.wowinteractive3.co.za/PUBLICATIONS/eMag/loDSAeZineIssue34January2011/Biopiracycanitbecurbed.aspx> > accessed 22 September 2013; 'Nestle Accused of SA Bio-piracy' *Times Live* (27 May 2010) < <http://www.timeslive.co.za/business/article473765.ece/Nestle-accused-of-SA-bio-piracy> > accessed 22 September 2013; Yolandi Groenewald, 'Town Like Alice Takes on German "Biopirate"' *Mail & Guardian* (22 Jan 2010); Bobby Jordan, 'Drug Companies Looting SA's bounty of Medicinal Plants: State to Protect Shrubs, and Traditional Healers' Rights' *The Times* (Johannesburg, 7 October 2007) < <http://www.grain.org/article/entries/2229-drug-companies-looting-sa-s-bounty-of-medicinal-plants> > accessed 25 September 2013.

1 5 June 1992, 30 I.L.M. 818. Available at <https://www.cbd.int/doc/legal/cbd-en.pdf>.

2 These include the World Trade Organisation and its Council for the Agreement on the Trade-Related aspects of Intellectual Property Rights (TRIPS), the World Intellectual Property Organisation (WIPO), the United Nations Environmental Programme (UNEP), the United Nations Conference on Trade and Development (UNCTAD), the World Health Organisation (WHO), the United Nations Human Rights Commission and The United Nations Permanent Forum on Indigenous issues.

the provisions of the Indigenous Knowledge System (IKS) Policy adopted by the South African government in 2004,⁶ and which laid the platform for the recognition, affirmation, development, and protection of indigenous knowledge system in the country.⁷ In addition, the Policy seeks to ensure that the benefits of on-going innovation associated with TK accrue to its holders and practitioners while enhancing socio-economic development.⁸ Towards this end, the Policy *inter alia* calls for the establishment of a formal recordal system for TK and the amendment of the South African patent law to formally require declaration of the use of TK in the prior art declarations in respect of patents.⁹ However, these anti-appropriation measures can be construed as being mostly reflective of a sceptical and often dialectical attitude to the IP system rather than an endorsement of the system. Indeed, the policy in a manner typical of developing countries' complex attitude to the IP system not only decried its unsuitability to the overall conceptual thrust of TK held by indigenous communities, but also, raises passion for the revision of the system's conceptual framework.¹⁰

This policy position changed with the adoption of the Policy Framework for the Protection of Indigenous Knowledge through the Intellectual Property System in 2008.¹¹ The policy framework which deals with the protection of TK using the

orthodox IP system,¹² arguably reflects a paradigmatic shift in South Africa's approach to, and experience with the IP system in the context of TK.¹³ This is evident from the fact that the IKIP policy framework moved from the erstwhile position of protecting TK systems from misappropriation in the context of innovation and patenting as espoused in the IKS policy to advocating for the protection and commercialisation of such knowledge. Such paradigmatic shift was motivated by the need not only to empower indigenous communities and TK practitioners thereby enhancing their assimilation into the mainstream of the economy, but also for the promotion of South Africa's comparative advantage in the global economy.¹⁴ In the context of TKMUP and other biodiversity-based TK, the patent system was identified under the policy framework as one of the major IP tools in the protection of TK. By virtue of this endorsement, it can be argued that policy-makers in South Africa seek not to overemphasise the cultural differences between the western and the indigenous or other non-western manner of acquiring, protecting, transmitting, legitimising and evaluating knowledge, as well as the fact that the conventional IP system was not designed to account for or accommodate epistemic narratives other than Western science.¹⁵ In fact, such

6 See *Republic of South Africa: Indigenous Knowledge System* (DST, 2004) <http://www.dst.gov.za/images/pdfs/IKS_Policy%20PDF.pdf> accessed 20 October 2013. (IKS Policy).

7 The terms 'Indigenous knowledge (IK)' is generally used synonymously with 'traditional knowledge TK' in South Africa to differentiate the knowledge developed by and within distinctive indigenous communities from the international knowledge system generated through universities, government research centres and private industry, sometimes incorrectly called the Western knowledge system. See IKS Policy (n6) 6.

8 *ibid* 27.

9 *ibid* 16.

10 *ibid* 15. See also Oguamanam, 'Patents and Traditional Medicine' (3) 490-97.

11 See *The Protection of Indigenous Knowledge through the Intellectual Property System: A Policy Framework* GN 552 in GG 31026 (Department of Trade and Industry, 5 May 2008) (IKIP Policy Framework).

12 *ibid* 8.

13 However, this is not an unabashed endorsement of the orthodox IP system as the principal mechanism for the protection of TK. Indeed, it was pointed out in the IKIP Policy Framework that in many circumstances, the IP system is not the best vehicle for the protection of TK, particularly if not adapted or used in conjunction with other mechanisms. *Ibid*.

14 *ibid* 6 & 9-13; Parliamentary Monitoring Group (PMG), 'Indigenous Knowledge protection policy using the Intellectual Property System' <<http://blogs.sun.ac.za/iplaw/files/2013/03/Indigenous-Knowledge-protection-policy-using-the-Intellectual-Property-System.pdf>>.

15 These cultural differences have ultimately been used by most developing countries and their advocates to justify the need for an entirely separate system of protection for TK. See Ruth Okediji, 'The International Relations of Intellectual Property: Narratives of Developing Country Participation in the Global Intellectual Property System' (2003) 7 *SJICL* 315, 354-56; Chidi Oguamanam 'Localising Intellectual Property in the Globalisation Epoch: The Integration of Indigenous Knowledge' (2004) 11/2 *Indiana Journal of Global Legal Studies* 135, 137,141,148-51; Mgbeoji (n4).

endorsement is arguably an acknowledgment not only of the eminent status of the conventional IP system in the global economy, but also the fact that TKMUP despite its uniqueness is still a 'knowledge', and must be considered in terms of the existing framework for the protection of knowledge. Hence, efforts by both the state and indigenous communities should be focussed not only on exploiting the current patent system despite its imperfections, but also, on exploring further avenues within the system for the protection of TKMUP in South Africa.¹⁶ This is necessary because as aptly observed by a prominent advocate of intellectual property and heritage rights of indigenous peoples, Roger Chennells, '...While awaiting possible reforms to the [IPR] system as they are slowly negotiated between states, indigenous peoples wishing to prevent the commodification of their traditional knowledge by others and the exploitation of aspects of their culture and heritage have little alternative but to use the existing IPR system'.¹⁷

This paper therefore examines the benefits and challenges involved in using the patent system in the protection of TK on the medicinal uses of plants (TKMUP). Such examination became necessary as South Africa's natural capital of biological diversity, together with its wealth of indigenous TK, has been recognised as important resource base for promoting economic growth through biological innovations under the recently adopted Bio-economy Strategy.¹⁸

16 Ibid 356-57. See also Daniel Gervais, 'Traditional Knowledge and Intellectual Property: A TRIPS-Compatible Approach' [2005] *MICH. ST. L. Rev.* 137, 138; Y Daya and N Vink, 'Protecting Traditional Ethno-Botanical knowledge in South Africa through the Intellectual Property Regime' (2006) 45/3 *Agrekon* 319, 325-26; Oguamanam, 'Patents and Traditional Medicine' (n3) (highlighting some important trends in the dialectics of developing countries' engagement with intellectual property systems).

17 See Roger Chennells, 'Putting Intellectual Property Rights into Practice: Experiences from the San' in Rachel Wynberg, Doris Schroeder and Roger Chennells (eds), *Indigenous Peoples, Consent and Benefit Sharing: Lessons from the San-Hoodia Case* (Springer 2009) 211, 216.

18 To be discussed later in this article.

2 UNDERSTANDING THE CONCEPT OF TKMUP IN SOUTH AFRICA

There is no universally accepted standard definition of TK due to the diversity not only of traditional knowledge holders but also, traditional knowledge systems.¹⁹ Despite this, what is apparent from the various characterisations of the term is that TK is neither old nor static as it evolves in response to changing physical or cultural environment.²⁰ Furthermore, it does not lack a scientific or technological basis.²¹ It is only traditional in the sense that it is part of the customs and cultural traditions

19 See Graham Dutfield, 'TRIPS-Related Aspects of Traditional Knowledge' (2001) 33 *Case. W. Res. J. Int'l L.* 239, 246; and World Intellectual Property Organization (WIPO) *Intellectual Property and Traditional Knowledge* Booklet no2 (Geneva, Switzerland) 4; Erstling (n3); Nuno Pires de Carvalho 'From the Shaman's Hut to the Patent Office: In Search of Effective Protection for Traditional Knowledge' (Conference on Biodiversity and Biotechnology and the Protection of Traditional Knowledge, April 4-6, 2003) p5, <<http://law.wustl.edu/centeris/Papers/Biodiversity/PDFWordDoc/Fromshaman2.pdf>> accessed 20 September 2013.

20 For some of the characterisations, see Biodiversity Convention (n1) art 8(j); WIPO Intergovernmental Committee on Intellectual Property and Genetic Resources, *Traditional Knowledge and Folklore Traditional Knowledge -Operational Terms and Definitions*, WIPO/GRTKF/IC/3/9 (20 May 2002), para 25, (WIPO Operational Terms and definitions); WIPO Intergovernmental Committee on Intellectual Property and Genetic Resources, *Traditional Knowledge and Folklore Recommendations on the Recognition of Traditional Knowledge in the Patent System*, Consultation Paper, WIPO/GRTKF/IC/13/7, Annex (18 September 2008) para 15, (WIPO Recognition of TK).

21 *ibid* paras 7 & 9-10. See also Stephen A Hansen and Justin W Van Fleet, *Traditional Knowledge and Intellectual Property: A Handbook on Issues and Options for Traditional Knowledge Holders in Protecting Their Intellectual Property and Maintaining Biological Diversity* (American Association for the Advancement of Science (AAAS) Science and Human Rights Program, Washington DC, July 2003) 3; Stephen R Munzer and Kal Raustiala, 'The Uneasy Case for Intellectual Property Rights in Traditional Knowledge' (2009) 27 *Cardozo Arts & Entertainment* 37, 48.

of the community that developed, and maintains it.²² It is also transmitted from one generation to the other mostly in oral form or recorded in ways different from accepted Western scientific methodology, terminology or modes of expression.²³ TK is usually communally held although the use of the some knowledge particularly those relating to medicinal knowledge may be restricted to certain community members.²⁴ In addition, TK can be understood either in a general sense (*lato sensu*),²⁵ or in a narrow sense (*strict sensu*). The latter refers to knowledge as such and includes know-how, practices, skills, and innovations resulting from intellectual activity in a traditional context.²⁶ Such knowledge which can be found in a variety of contexts includes agriculture, ecology, medicinal knowledge, and biodiversity.²⁷ This article uses the term 'traditional knowledge or TK' in this narrow sense.

Within the sphere of biodiversity and associated TK in South Africa, chapter 6 of the Biodiversity Act which regulates access to such resources for bio-prospecting purposes does not provide for a definition of the term.²⁸ However, the 2008 Regulations on Bio-Prospecting, Access and Benefit-Sharing,²⁹ adopted pursuant to the Act, defines TK as 'the customary utilisation or knowledge of indigenous biological resources by an indigenous community, in accordance with written or unwritten rules, usages, customs or practices traditionally observed, accepted and recognised by them, and includes discoveries about the relevant indigenous biological resources by

that community'. This definition accords with the generally accepted fact that only knowledge developed in a traditional context can be regarded as a TK. Another important characteristic flowing from this definition which is also in consonance with a universally accepted characteristic of TK is the communal nature of TK including the knowledge relating to the medicinal uses of plants (TKMUP). Such communal characteristic is also evident under the South African Patent Act which defines TK as 'the knowledge that an indigenous community has regarding the use of an indigenous biological resource or a genetic resource'.³⁰ The communal nature of TK as evident from these definitions reinforces the notion that indigenous peoples and communities in South Africa are characterised by a strong sharing ethos with respect to their knowledge and resources.³¹ This applies despite the fact that the use of certain knowledge such as the TKMUP which most often involves confidential or specialist form of TK,³² is usually the preserve of traditional healers in any given traditional or indigenous society.³³

22 *ibid* para 2. See also Gervais (n16) 140.

23 See Erstling (n3); WIPO Operational Terms and Definitions (n20).

24 See Gervais (n16), 140-141.

25 In a general sense, TK embraces the content of knowledge itself as well as traditional cultural expressions, including distinctive signs and symbols associated with traditional knowledge. See WIPO Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore *Glossary of Key Terms Related to Intellectual Property and Genetic Resources, Traditional Knowledge and Traditional Cultural Expressions* WIPO/GTRKF/IC/25/INF/7, Annex (7 May 2013) 40, (WIPO Glossary of Key terms).

26 *ibid*.

27 *ibid*.

28 National Environmental Management: Biodiversity Act 10 of 2004, (Biodiversity Act).

29 National Environmental Management: Biodiversity Act, 2004: Regulations on Bio-Prospecting, Access and Benefit-Sharing, No. R. 138, 8 February 2008, (BABS Regulations).

30 See Patent Act 57 of 1978, s 2, (SA Patent Act). (As amended by the Patents Amendment Act 20 of 2005).

31 See R Chennells, 'Traditional Knowledge and Benefit Sharing after the Nagoya Protocol: Three Cases from South Africa' (2013) 9/2 Law, Environment and Development Journal 163, 173-174; Dutfield (n19) 251.

32 Specialised TK are usually kept secret and can only be divulged under some culturally sanctioned protocol. See M Khalil, 'Biodiversity and Conservation of Medicinal Plants: Issues from the Perspectives of the Developing World' in T. Swanson (ed), *Intellectual Property Rights and Biological Diversity Conservation: Interdisciplinary Analysis of the Values of Medicinal Plants* (Cambridge University Press, 1995) 240; Seba S Semenya and Martin J Potgieter, 'Bapedi Traditional Healers in the Limpopo Province, South Africa: Their Socio-cultural Profile and Traditional Healing Practice' (2014) 10 *Journal of Ethnobiology and Ethnomedicine* 4; Ilse Truter, 'African Traditional Healers: Cultural and Religious Beliefs Intertwined in A Holistic Way' (2007) SA Pharmaceutical Journal 56, 57-58.

33 See Naomi Roht-Arriaza, 'Of Seeds and Shamans: The Appropriation of the Scientific and Technical Knowledge of Indigenous and Local Communities' (1995-1996) 17 *Michigan Journal of International Law* 919, 936-937; Paul Ongugo, Doris Mutta, Mohamed Pakia and Peter Munyi, *Protecting Traditional Health Knowledge in Kenya: The Role of Customary Laws and Practices* (IIED, October 2012) 14; Ikechi Mgbogji, 'Beyond Patents: The Cultural Life of Native Healing and the Limitations of the Patent System as a Protective Mechanism for Indigenous Knowledge on the Medicinal Uses of Plants' (2006) 5/1 *Canadian J. L. & Tech.* 1,5-9.

However, traditional healers holding such TKMUP recognise as individuals, that the knowledge is given to them in trust by the ancestors for the benefit of their community.³⁴

The communality of TKMUP applies even in instances where the knowledge being held by the traditional healers is not an inherited and intergenerational knowledge, but a new knowledge developed individually or collectively, often in an incremental manner and in response to the needs imposed by the physical and cultural environments obtainable within a given community.³⁵ This is because while individuals, such as traditional healers in South Africa, 'may themselves innovate, what makes their innovations "traditional" is that they are based on the community's collective heritage and the innovations are regarded as community-held.'³⁶ Hence, once knowledge is developed according to the rules, protocols and customs of a given indigenous community, it belongs to the community while the innovator is primarily regarded as rendering a

communal service.³⁷ However, the communal service nature of his achievement does not mean that an innovating traditional healer is not rewarded under the TK system. This is because the innovative traditional healer receives symbolic recognition mostly in the form of chieftaincy title and other honours and/or communal gifts for his invention. The healer is also entitled to the receipt of service payments/tokens given either during the transmission of the knowledge under some culturally sanctioned protocols or for treatment of patients.³⁸ A peculiar situation arises in instances where a traditional healer may derive inspiration from pre-existing TKMUP to invent something reflecting great skill and originality instead of the accretive and incremental process usually associated with the TK system.³⁹ Such knowledge is not regarded as TK but as contemporary or local knowledge belonging to the traditional healer that developed it.⁴⁰

The definition of TKMUP as a communal property under South African laws may not be faulted as it is

34 See Khalil (n32) 242; George Sombe Mukuka, "Reap What You Have Not Sown": *Indigenous Knowledge Systems and Intellectual Property Laws in South Africa* (PULP, Pretoria, 2010) 101; Parliamentary Monitoring Group (PMG) 'From translation of indigenous knowledge to innovation for the bio economy: briefing by the International Centre for Innovation Partnership in Science Phytomedicines' (6 September 2011), <<http://www.pmg.org.za/report/20110907-prof-quinton-johnson-international-centre-innovation-partnerships-sci>>.

35 See Yinliang Liu, 'IPR Protection for New Traditional Knowledge: With a Case of Traditional Chinese Medicine' (2003) *EIPR* 194, 194-95.

36 See World Intellectual Property Organisation (WIPO), *Intellectual Property and Traditional Medical Knowledge* Background Brief N°6 (2003), <available at http://www.wipo.int/export/sites/www/tk/en/resources/pdf/tk_brief6.pdf> accessed 20 May 2014; Carvalho 'From the Shaman's Hut to the Patent Office: In Search of Effective Protection for Traditional Knowledge' (n19) 7.

37 It has been argued by some experts that TKMUP should not be treated as community property in isolation as in some cases individuals can distinguish themselves and are recognized as informal creators or inventors separate from the community. (See World Intellectual Property Organisation (WIPO), *Intellectual Property Needs and Expectations of Traditional Knowledge Holders: WIPO Report on Fact-Finding Missions on Intellectual Property and Traditional Knowledge (1998-1999)* (Geneva, April 2001) 219, (WIPO FFM). However, despite the recognition as informal creators or inventors, the innovating traditional healers are expected to use the knowledge for the benefit of their communities. This effectively put the innovating healer in the same category with warriors and sometimes, great hunters, whose skills are also employed in the service of their communities. See Khalil (n32).

38 See Ongugo et al (n33) 16; Mgbeoji, 'Patents and Traditional Knowledge of the Uses of Plants' (n3) 182.

39 See Carvalho, 'From the Shaman's Hut to the Patent Office: In Search of Effective Protection for Traditional Knowledge' (n19) 8; Roht-Arriaza (n33) 936-937.

40 See IPIK Policy Framework (n11) 10-11. For example of such patenting by a traditional healer in Africa, see Kaltoum Abd B-ghgi, 'Sudanese Female Traditional Healer Attains 14 Patents on Treatment of Intractable Diseases' *SudaNow Magazine* (11 March 2013), <available at <http://suda-now.info/new/news-stories/sudanese-female-traditional-healer-attains-14-patents-on-treatment-of-intractable-diseases/>>, accessed 30 November 2013.

increasingly being recognised that for many communities, TKMUP and other forms of TK form part of a holistic world-view, and is inseparable from their very ways of life and their cultural values, spiritual beliefs and customary legal systems.⁴¹ This means that it is vital to sustain not merely the knowledge system but also the social and physical environment of which it forms an integral part.⁴² Hence, the reason why many developing countries including South Africa promote the protection of TK as integral part of broader initiatives to restore and protect traditional cultures and heritage.⁴³ However, the communal nature of TK may raise a peculiar problem in the context of the commercialisation of TKMUP and subsequent sharing of benefits resulting from such endeavour. This is because it gives rise to the presumption that the benefits arising from the commercialisation of innovations based or derived from TKMUP will go to the community or at the very best, that the interest of the traditional healers in profiting from such endeavour will be tied with that of their community. In essence, the interest of traditional healers who are primarily responsible for generating and nurturing such knowledge is effectively subsumed with that of their communities in instances where there is no legislative recognition of their contributions to the creation and preservation of TKMUP.⁴⁴ This issue will be discussed later in this article. Suffice it to state at this junction that entitlements to benefits from such

commercialisation should not be equal among all community members as they do not make equal contribution to innovation within the knowledge system or its conservation.⁴⁵ This is particularly important in view of the fact that due to socio-economic and political factors, traditional healers are increasingly emerging as the principal repositories or custodians of all forms of TKMUP including general plants medicinal knowledge which has long been abandoned by their larger communities.⁴⁶

3

WHY PATENTS MATTER FOR TKMUP IN SOUTH AFRICA

A WIPO Intergovernmental Committee consultation paper reported that ‘a significant number of patent applications concern inventions which are in some way related to traditional knowledge.’⁴⁷ Some of these applications may concern a community’s new and innovative advancements in TK which meet the requirements to qualify as patentable inventions.⁴⁸ More typically, most of these patent applications relate to inventions claimed by others that may be based on TK, may be derived from it, or may be guided by or make use of TK.⁴⁹ It is therefore clear that there are critical links between TK and the patent system. Traditionally, such linkages have never been used to the advancement of TK or to the benefit of indigenous communities responsible for generating and nurturing such knowledge system in South Africa. In fact, similar to the situation in other biodiversity-rich developing countries, the patent system has been

41 *ibid* 1. See also IKS Policy (n6) 10; The World Intellectual Property Organisation (WIPO), *The Protection of Traditional Knowledge: Revised Objectives and Principles* WIPO/GTRKF/IC/9/5, para 12, (WIPO Revised Objectives and Principles); Saskia Vermeylen, ‘The Struggle for Indigenous Peoples’ Land Rights: The Case of Namibia’ in Wynberg, Schroeder and Chennells (n17) 143, 144.

42 *ibid*. See also Chennells, ‘Putting Intellectual Property Rights into Practice’ (n17) 218-219.

43 *ibid* 11-13. See also IKS Policy (n6) 10-11, 14-16; ‘Minister Hanekom Launches Recordal System for Indigenous knowledge’ DST News Release (27 May 2013), <<http://www.dst.gov.za/index.php/media-room/latest-news/640-news-released-27may-2013-minister-hanekom-launches-recordal-system-for-indigenous-knowledge>>, accessed 30 October 2013 (note the statement attributed to Kgosi Nyalala Pilane, The traditional leader of Bakgatla-Ba-Kgafela Tribal Authority (BBKTA).

44 See IKS Policy (n6) 15.

45 See C. Oguamanam ‘The Protection of Traditional Knowledge: Towards A Cross-Cultural Dialogue on Intellectual Property Rights’ (2004) 15 Australian Intellectual Property Law Journal 34, 38.

46 See Mukuka (n32) 86; WIPO FFM (n37) 220, (Citing Prof. Penny Bernard of the Anthropology Department, Rhodes University, Grahamstown, South Africa).

47 See WIPO Recognition of TK (n20) para 1.

48 See Erstling(n3) 297.

49 See WIPO Recognition of TK (n20) para 1.

accused of facilitating the misappropriation of TKMUP by tolerating third-party patenting of TKMUP in South Africa.⁵⁰ Such act of unjust misappropriation of TKMUP is popularly referred to as biopiracy.⁵¹ However, as a result of the paradigmatic shift in South Africa's approach to the IP system in the context of TK noted earlier, the links between TK and patent system can be purposely exploited to foster protection for TK.⁵² Such links are likely to come to the fore with the adoption of the Bio-economy Strategy in South Africa.⁵³ The new strategy provides a high-level framework to guide biosciences research and innovation investments, as well as decision-making as South Africa transits from a primarily natural resource-driven economy to a knowledge-based economy.⁵⁴ It builds on the earlier "Farmer to Pharma" concept which was one of the grand challenges identified in the Ten-Year Innovation Plan launched by the Department of Science and Technology in 2008.⁵⁵ The strategy identifies South Africa's rich biodiversity and associated TK as one of the country's greatest assets, and seeks *inter alia* to utilise such resource base to establish the country as a world leader in research, development and manufacture of pharmaceutical products including African traditional medicine(ATM)/herbal medicines.⁵⁶ Patenting of such products is identified under the Strategy as an integral aspect of their commercialisation.⁵⁷ The term 'Bio-economy' is used under the strategy to refer to activities that make use of bio-innovations, based on biological sources, materials and processes to generate

sustainable economic, social and environmental development.⁵⁸

3.1 Preventing Misappropriation of TKMUP

The patent system can be used to prevent the misappropriation of TKMUP by third parties in South Africa.⁵⁹ However, the use of patents in this regards has raised concerns regarding whether the same system which hitherto has been used to promote biopiracy can provide an effective bulwark against the activities of pirating commercial interests.⁶⁰ Addressing these concerns require the institution of mechanisms that would ensure the denials of rights to inventions that are already known or lack a sufficient level of inventiveness through the recognition of TKMUP as 'prior art'; or by clarifying the duty that third parties owe to TK holders when that knowledge has contributed to an invention that is the subject of a patent application through an obligatory disclosure of origins requirement.

3.1.1 TKMUP as Prior Art

This can be achieved through the adoption of defensive legislative measures that would recognise TKMUP and other biodiversity-based TK (oral or written) as 'prior art' for patenting purposes. Such anti-appropriation measure is defensive as it serves to 'preserve the TK holders' right to use the TK they created against any third party who may later seek to patent inventions derived from it.⁶¹ Such defensive protection can be strengthened by the creation of information systems or databases to make TKMUP searchable by patent offices.⁶² This is exemplified by the Republic of India which not only

50 See IKIP Policy Framework (n11) 9; Erstling (n3) 299-300; Michael Blakeney, 'The Protection of Traditional Knowledge Under Intellectual Property Law' (2000) EIPR 251, 253.

51 See Graham Dutfield, *Intellectual Property, Biogenetic Resources and Traditional Knowledge* (Earthscan, London, 2004) 52.

52 See Erstling (n3) 297

53 See Department of Science and Technology, *The Bio-economy Strategy* (DST, 2013), <www.gov.za/documents/download.php?f=207579>, accessed 24 March 2014.

54 *ibid* 3, 6.

55 The concept envisaged to provide the interface for integrating South Africa's rich natural biodiversity, indigenous knowledge, and applied biotechnologies. *ibid* 3.

56 *ibid* 4, 6,19.

57 *ibid* 8,14,24.

58 *ibid* 6.

59 Popular instances of misappropriation in South Africa include the patents taken out on active ingredients derived from both the African Potato and the hoodia, although the latter is not really ranked as a biopiracy case since the government agency involved (the South Africa's Council for Scientific and Industrial Research) later entered into a benefit sharing arrangement with the affected indigenous community.

60 See Dutfield (n19) 259-263; Oguamanam, 'Localising Intellectual Property in the Globalisation Epoch' (n15) 142-146.

61 See Erstling (n3) 315.

62 See WIPO Recognition of TK (n20) para 13.

provided in its patent law that TK is in the public domain and thus, any invention which in effect is TK is unpatentable,⁶³ but also established the traditional knowledge digital library (TKDL), a project that aims at addressing the niggling issue of the exploitation of Indian traditional medicinal heritage and the scourge of biopiracy.⁶⁴ The National Recordal System (NRS) recently launched in South Africa by the Department of Science and Technology is another effective anti-appropriation mechanism.

Presently, the South African Patent Act describes the 'state of art' or prior art to comprise 'all matter (whether a product, a process, information about either, or anything else) which has been made available to the public (whether in the Republic or elsewhere) by written or oral description, by use or in any other way.'⁶⁵ By this description, TKMUP once disclosed whether written or orally, is regarded to be in the public domain and hence, any invention based or derived from it does not qualify for patenting under the Act. The absolute novelty requirement adopted by the Patent Act which is similar to the position under the European Patent Convention,⁶⁶ has extraterritorial application as it

effectively precludes from patenting any invention that involves the use of TKMUP disclosed elsewhere other than in South Africa whether oral or written.⁶⁷ However, the absolute novelty principle under the Act is only triggered when information about an invention, knowledge or technology has been disclosed to the public or the invention has been used secretly and on a commercial scale in South Africa. This raises a peculiar problem for TKMUP that may be held confidentially amongst groups of traditional healers or even by individual traditional healers within a community in South Africa. This is because in such instances of undisclosed confidential TKMUP which are not regarded as prior art under the Act, any invention based on or replicating such knowledge is patentable.⁶⁸

To avoid such misappropriation of TKMUP, it is suggested that indigenous communities in South Africa should employ effective disclosure strategies that should ensure that information relating to their TKMUP can easily be found by researchers and patent examiners.⁶⁹ Such strategies include ensuring that their disclosure is publicly available before the filing date or priority date of the patent application and contain an unambiguous publication date. The latter is very important in the instances of internet-

63 See the Patent Act 39 of 1970, ss 2 (1) (j), 3(e) &(p); and Office of the Controller General of Patents, Trademarks and Design *Guidelines for Processing of Patent Applications Relating to Traditional Knowledge and Biological Material* (IPIndia, 18 December 2012), <http://www.ipindia.nic.in/iponew/TK_Guidelines_18December2012.pdf>, accessed 30 March 2014.

64 For further analysis of the project, see Oguamanam (n3) 498-504; Erstling (n3) 319-322.

65 See SA Patent Act, s 25(6). See also *Ensign Bickford (South Africa) (Proprietary) Limited & Ors v AECI Explosives and Chemicals Limited*, Case Number: 4/95 (SCA), (21 September 1998) pp22-23, <<http://www.saflii.org.za/cases/ZASCA/1998/73.pdf>>, accessed 30 October 2013; *Schlumberger Logelco Incorporated v COFLIXIP SA 15*, Case No: 256/01(6 September 2002) pp15-16, paras 20-21, <http://www.justice.gov.za/sca/judgments/sca_2002/2001_256.pdf>, accessed 30 October 2013. For other inventions considered state of the art, see s 25 (7) & (8). For qualification to the absolute novelty criteria, see ss 25(9) & 26.

66 See Art 54(4), Convention on the Grant of European Patents, 5 October 1973, <[http://documents.epo.org/projects/babylon/eponet.nsf/0/00E0CD7FD461C0D5C1257C060050C376/\\$File/EPC_15th_edition_2013.pdf](http://documents.epo.org/projects/babylon/eponet.nsf/0/00E0CD7FD461C0D5C1257C060050C376/$File/EPC_15th_edition_2013.pdf)>; Patent Act 121 of 1959, art 29(1) (Japan).

67 Cf Patent Act 35 U.S.C. 2006, s102(a), (oral disclosure other than in United States not allowed).

68 See Daya and Vink (n16) 329.

69 In such instances, because of the disadvantages associated with disclosure, positive protection in form of patenting such TK is more desirable. (See WIPO Recognition of TK (n20) para 14; Erstling (n3) 318). Other options other the patent system includes the use of trade secrets. Although it has some advantages, the trade secret approach has an inherent weakness as if a trade secret is discovered legitimately, for example through reverse engineering or independent research and development activities, the trade secret would become known and would be unenforceable against such parties using the trade secret's subject matter. (See LA Tong, 'Protecting Traditional Knowledge - Does Secrecy Offer A Solution?' (2010) 13/4PER/PELJ 159; Deepa Varadarajan, 'A Trade Secret Approach to Protecting Traditional Knowledge' (2011) 36 Yale Journal of International Law 371). It should also be noted that once an invention is used in South Africa, secretly and on a commercial scale, the Patents Act regards such invention as prior art. Hence, once used, albeit in secret, the possibility of later obtaining a patent for the invention would be destroyed as the novelty requirement would no longer be met. See SA Patent Act, s 25(8).

based prior art disclosures.⁷⁰ This perhaps explains the recent drive by South Africa to document and digitise its rich source of TKMUP and other biodiversity-based TK through the NRS. The system seeks to provide a variety of services including serving as TK hubs to government departments and agencies, as well as international patent offices to enhance the defence and protection of TKMUP against biopiracy and other acts of misappropriation.⁷¹ For example, the patent office (the Companies and Intellectual Property Commission (CIPC)), can utilise it for prior art searches as part of the substantive search and examination of patent service being proposed under the Draft IP Policy 2013.⁷² In essence, the NRS will be used by patent examiners to search for prior art in order to determine whether the claims of a patent application are novel and inventive.⁷³

With regard to International patent offices, NRS just like the Indian TKDL upon which it was loosely

modelled upon, is designed to give them access to conduct searches on TK documented in the system.⁷⁴ Such access will enable the citation of TK captured in the system as prior art particularly in countries like the United States where oral disclosure other than within its territory is not allowed.⁷⁵ In essence, just like the TKDL which has been successfully utilised by India in pre-grant and post grant patent opposition proceedings in foreign countries,⁷⁶ the NRS can be utilised to ensure that South Africa's TKMUP are not unjustly commercialised in foreign countries. To aid searches by the international patent offices, the NRS will adopt similar appropriate classification tools as the TKDL, namely the Traditional Knowledge Resources Classification (TKRC).⁷⁷ The TKRC is a modern classification system created under the TKDL and fashioned after the framework of the International Patent Classification (IPC).⁷⁸ It seeks

70 See WIPO Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore, *Practical Mechanisms for the Defensive Protection of Traditional Knowledge and Genetic Resources Within the Patent System*, WIPO/GRTKF/IC/5/6 (14 May 2003), para 24(b) & (c), <www.wipo.int/edocs/mdocs/tk/en/wipo...ic.../wipo_grtkf_ic_5_6.doc>, accessed 20 October 2013>, accessed 21 October 2013, (WIPO Practical Mechanism).

71 See A Chander and M Sunder, 'The Romance of the Public Domain' (2004) 92 California Law Review 1331, 1357; Oguamanam (n3) 498-499; Erstling (n3) 315-316.

72 See *Draft National Policy on Intellectual Property (IP) of South Africa*, Notice 918 of 2013 (DTI, Pretoria, 3 September 2013)10-11, <www.gov.za/documents/download.php?f=198116>, accessed 20 December 2013.

73 It should be noted that the establishment of national databases for indigenous knowledge is provided under the Intellectual Property Laws Amendment Act 2013. The Act provides 'there shall be kept ...at the offices of the registrars of patents, copyrights, trademarks and designs, databases for indigenous knowledge as part of existing intellectual property registers, where applicable.' (s 26C. (1)). However, it is doubtful if there would be a conflict between the NRS and the databases envisaged under the IPLAA 2013 as it relates to prior art searches in South Africa. This is due to the fact the Act neither deals with matters relating to indigenous knowledge associated with biological resources, or patenting involving such resources. Thus, despite the reference to 'the registrars of patent', the databases envisaged under the Act relate to traditional works that can be the subject matter of copyrights, trademarks or design. See s 26C. (7)-(11).

74 See T Suchanandan, 'Explained: South Africa's Recordal System for Indigenous Knowledge' (Afro-IP, 12 June 2013), <<http://afro-ip.blogspot.com/2013/06/explained-south-africas-national.html>>, accessed 20 December 2013.

75 US Patent Act, s102(a).

76 See Traditional Knowledge Digital Library, 'About TKDL' <<http://www.tkdl.res.in/tkdl/langdefault/common/Abouttkdl.asp?GL=Eng>>, accessed 10 March 2014 (TKDL Manual); V K Gupta, *Protecting Indian Traditional Knowledge from Biopiracy* (WIPO 2011) <http://www.wipo.int/export/sites/www/meetings/en/2011/wipo_tkdl_del_11/pdf/tkdl_gupta.pdf>, accessed 20 November 2014.

77 See WIPO Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore, *Responses to Questions Regarding National-Level Databases and An International Portal*, WIPO/GRTKF/IC/27/INF/11 (27 MARCH 2014)25 para 183 (Hereinafter WIPO Responses). Presently, the TKRC has been evolved for about 25,000 subgroups related to medicinal plants, minerals, animal resources, effects and diseases, methods of preparations, mode of administration, etc. See TKDL Manual (n76).

78 The IPC was created pursuant to the World Intellectual Property Organization (WIPO) administered multilateral treaty, the Strasbourg Agreement Concerning the International Patent Classification. 1971. It provides a hierarchical system in which technological or innovation categories are divided into a range of sections, classes, and subclasses for easy identification in prior art examination. Most national Patent offices as well as the International Bureau of the WIPO and the Patent Corporation Treaty (PCT) rely on the IPC for prior art searches. The IPC divides technology into eight sections with approximately 70,000 subdivisions. Each subdivision has a symbol consisting of Arabic numerals and letters of the Latin alphabet. See World Intellectual Property Organisation *Preface to the International Patent Classification*.

to improve on the problem associated with the classification system regarding the documentation of traditional knowledge.⁷⁹ This Indian initiative resulted in a detailed and improved IPC structure relating to traditional medicine as evidenced by the inclusion of a new main group, A61K 36/00 with 207 subgroups covering different categories of plants.⁸⁰ Thus, adopting similar classification system in South Africa will effectively make the NRS like the TKDL database, to be an integral part of international and national patent administration.⁸¹

An important issue in this regard is whether the TK in NRS database constitutes “prior art” under the South African Patent Act.⁸² This is important as the similarly structured Indian TKDL principally captures TK in the public domain albeit contained in diverse but usually inaccessible classical literature in different traditional or local languages.⁸³ The fact that such TK are in the public domain made them to constitute prior art and thus, inventions replicating such knowledge would be unpatentable.⁸⁴ With regard to the NRS, it should be noted that the system’s intellectual property objective is to prevent placing undisclosed TK into the public domain in order to prevent unauthorized uses as well as enhance South Africa’s competitive advantage in the global economy. Such objective is in consonance with the objectives of the aforementioned Bio-economy Strategy.⁸⁵ Hence, NRS primarily focuses on capturing undisclosed and confidential TK rather than TK in the public domain although the latter is also stored in the system.⁸⁶ Such focus on confidential TK raises a doubt as to

the extent to which the undisclosed information in the NRS will be useful to prior art search in South Africa by both CIPC and the international patent offices in the absence of a mechanism to allow them access to such information. Presently, for purposes of searches and examinations, NRS allows limited authenticated access to confidential TK to approved scientists, researchers and patent offices as determined by adherence to the requirements of the legal framework between the parties.⁸⁷ Such restrictive strategy of using disclosure sparingly and to selected parties, allows the disclosed limited information about the confidential TK to be regarded as ‘prior art’ for the purpose of determining the novelty of an invention under patent law without unduly placing detailed information about the confidential TK in the public domain.⁸⁸ The only drawback is that since the patent examiners are only allowed access to limited details on the confidential information, such incomplete disclosure leaves open the possibility that patent claims on the undisclosed aspects of the TK will be considered valid.⁸⁹

3.1.2 Disclosure of Origins Requirement

The patent system can be used to promote the disclosure of the origins of TKMUP and evidence of prior informed consent and/or equitable sharing of benefits with the providers of the TKMUP.⁹⁰ At the heart of this informational requirement which relates to the legitimacy of the access to the TKMUP, is the TK holders’ right to maintain control over the use of their TKMUP.⁹¹ The requirement applies to any body seeking to patent inventions derived from or based on TKMUP irrespective of whether the knowledge is secret or would be considered as

79 See Oguamanan (n3) 501-502.

80 See TKDL Manual (n76).

81 *ibid.*

82 SA Patent Act, s 25 (1).

83 Such as such as Hindi, Sanskrit, Urdu, Tamil, and others. See TKDL Manual (n76).

84 Ordinarily, this would make inventions that replicate TK not captured in the TKDL to be patentable. However, TK in India is construed to be in the public domain and hence, there is an absolute prohibition on the patenting of any ‘invention which, in effect, is traditional knowledge or which is an aggregation or duplication of known properties of traditionally known component or components.’ See Indian Patent Act, s 3(p).

85 (n53).

86 See Suchanandan (n74); WIPO Responses (n77) 8, para 54.

87 This includes prior informed consent and non-disclosure agreements. See WIPO Responses (n77) 7, para 43.

88 *ibid* 13 paras 85 & 91. See also WIPO Practical Mechanism (n70) paras 10 & 20.

89 *ibid* 6 para 40. See also Carvalho, ‘From the Shaman’s Hut to the Patent Office: In Search of Effective Protection for Traditional Knowledge’ (n19) 26; Erstling (n3) 319.

90 See WIPO Practical Mechanism (n70) para 61.

91 See Oguamanan, ‘Patents and Traditional Medicine’ (n3) 517-518; Carvalho ‘From the Shaman’s Hut to the Patent Office: In Search of Effective Protection for Traditional Knowledge’ (n19) 28-30; Martin Girsberger, ‘Transparency Measures under Patent Law Regarding Genetic Resources and Traditional Knowledge’ (2004) 7/4 *The Journal of World Intellectual Property* 451.

prior art and hence in the public domain under the patent regime in South Africa.⁹² With regard to TKMUP in the public domain, it should be noted that it is not only publicly disclosed oral or written TKMUP that are regarded to be in the public domain. Also included as TKMUP in the public domain are TKMUP that is not exclusively known by the indigenous community that has developed or discovered it, and any TKMUP that is widely shared among a number of indigenous communities and there is no clarity as to which specific community developed or discovered the knowledge.⁹³

The adoption of this requirement by South Africa as well as many developing countries derives its impetus principally from the 2000 Bonn Guidelines on Access to Genetic Resources and Fair and Equitable Sharing of the Benefits Arising out of their Utilization.⁹⁴ The non-mandatory Bonn guidelines aim at enhancing the determination of prior art and the facilitation of efficient monitoring of prior informed consent (PIC) and access and benefit sharing (ABS), especially as elaborated under the Biodiversity Convention.⁹⁵ The requirement is provided in South Africa by virtue of the provisions of subsections 30(3A) and 30(3B) of the Patent Act.⁹⁶

These mandatory provisions require any patent applicant in South Africa to disclose any TK actually used in the course of developing the invention, and the actual source or origin of the TK; as well as provide an undertaking or evidence of prior informed consent and/or of equitable benefit-sharing with the TK holders.⁹⁷ These mandatory provisions which were inserted into the Act by virtue of the Patent Amendment Act 2005, seek to ensure some accountability or integrity in the use of TKMUP within the patent system by preventing the grant of bad patents in South Africa.⁹⁸

However, as an anti-appropriation strategy, the significance of the requirement in mitigating the grant of bad patent is perhaps marginal, both in terms of its approach and impact. For instance, the requirement have no extra-territorial application and thus, a bioprospecting company can patent outside South Africa, any TK-based invention in contravention of the Patent Act provisions relating to DRs.⁹⁹ However, it is doubtful if the company would be able to enforce such patent in South Africa. In addition, because of the centrality of disclosure of prior art to the patent law, compliance with this requirement is of no relevance in determining the inventiveness of any invention based on TKMUP. Despite this, failure to furnish evidence of compliance

92 See SA Patent Act, s 30(3A) & (3B).

93 See Department of Environmental Affairs and Tourism, *South Africa's Bioprospecting, Access and Benefit-Sharing Regulatory Framework: Guidelines for Providers, Users and Regulators* (DEAT, Pretoria, 2012) 13, (BABS Guidelines).

94 COP 6 Decision VI/24 (Secretariat of the Convention on Biological Diversity, 2002). <<http://www.cbd.int/decision/cop/?id=7198>>; (Bonn Guidelines).

95 Biodiversity Convention, arts 8(j), 15.7.

96 "(3A) Every applicant who lodges an application for a patent accompanied by a complete specification shall, before acceptance of the application, lodge with the registrar a statement in the prescribed manner stating whether or not the invention for which protection is claimed is based on or derived from an indigenous biological resource, genetic resource, or traditional knowledge or use.

(3B) The registrar shall call upon the applicant to furnish proof in the prescribed manner as to his or her title or authority to make use of the indigenous biological resource, genetic resource, or of the traditional knowledge or use if an applicant lodges a statement that acknowledges that the invention for which protection is claimed is based on or derived from an indigenous biological resource, genetic resource, or traditional knowledge or use."

97 See WIPO Recognition of TK (n20) para 64.

98 See the Patents Amendment Bill, 2005, B 17B- 2005, para 4 (memorandum on the objects of the Bill); and WIPO Responses (n77) 10 para 68.

99 Presently, strong opposition and scepticism have trailed the introduction of DRs. Opponents representing mostly developed countries and their interests have found the requirement to be an extra burden on patent applicants in so far as it seems to be out of proportion with the problem that it seeks to solve. In addition, questions have been raised concerning its compatibility with the global patent system. Hence, some developed countries do not require such disclosure in patent application while those that enacted laws incorporating the requirement like the EU, do not make compliance mandatory like obtainable in South Africa and other developing countries. See Oguamanam, 'Patents and Traditional Medicine' (n3) 518-520; Carvalho, 'From the Shaman's Hut to the Patent Office: In Search of Effective Protection for Traditional Knowledge' (n19) 30-36; Nuno Pires de Carvalho, 'From the Shaman's Hut to the Patent Office: In Search of A TRIPS-Consistent Requirement to Disclose the Origin of Genetic Resources and Prior Informed Consent' (2005) 17 Journal of Law & Policy 111, 148.

with this formal requirement which implicate the title or authority of the applicant to make use of the TKMUP in South Africa,¹⁰⁰ constitutes a ground for the registrar to refuse acceptance of the patent application.¹⁰¹ This power of refusal is important for the protection of TKMUP as unlike the Indian Patent Act which also incorporated disclosure requirement,¹⁰² there is no scope for pre-grant opposition in South Africa as the patent system is structured as a formal or a depository patent registration system. This means that the Registrar examines in the prescribed manner, every application for a patent and every complete specification accompanying such application, and if it complies with the requirements of the Patent Act, the Registrar is obliged to accept the patent application for registration.¹⁰³ Thus, in instances where applicants make false statements under the provisions of section 30(3A) and hence, fraudulently obviate the need to comply with disclosure requirements, the only option left to aggrieved TK holders is to approach the high court to seek a revocation of the resulting bad patent under section 61(1)(g) of the Patent Act. A prospect that generally may not appeal to traditional healers as the South African Legal system is quite expensive.¹⁰⁴

100 Patent Regulations 1978, reg 44A(2), (SA Patent Regulations).

101 *ibid* regs 42-43. Cf the Indian Patent Act which does not oblige the patent applicant to obtain the prior informed consent of the TK holder or to enter into a benefit-sharing agreement regarding the use of the TK. However, the applicant is required to disclose the source and geographical origin of any TK used in the invention. See Indian Patent Act, s10(4)(d).

102 *ibid* (Indian Patent Act).

103 See SA Patent Act *supra* note 26 at s 34; SA Patent Regulations, regs. 40-14. Cf Indian Patent Act, s 25(1)(d)(f)(j) & (K).

104 See David Kaplan, 'Intellectual Property Rights and Innovation in South Africa: A Framework' in World Intellectual Property Organisation (WIPO), *The Economics of Intellectual Property in South Africa* (June 2009) 1, 3; Yu-Fang Wen and Thapi Matsaneng, 'Patents, Pharmaceuticals and Competition: Benefiting from An Effective Patent Examination System' (Seventh Annual Conference on Competition Law, Economics & Policy, 5- 6 September 2013, Sandton Sun, Sandton) pp3-4, <<http://www.compcom.co.za/assets/Uploads/events/Seventh-Annual-Conference-on-Competition-Law-Economics-Policy/Parallel-3B/Patents-Pharmaceuticals-and-Competition-Yu-Fang-Wen-and-Thapi-Matsaneng-Annual-Competition-Conference-2013.pdf>>, accessed 22 October 2013.

3.2 Promoting Commercialisation of TKMUP

It is increasingly being recognised by developing countries including South Africa that TKMUP and other biodiversity-based TK as a knowledge form is one of the intangible assets which can be used as driving forces of economic growth and social well-being in any given society.¹⁰⁵ The economic value of such intangible asset could be further enhanced by the use of intellectual property particularly patent in commercialising inventions based on or derived from TKMUP and other biodiversity-based TK.¹⁰⁶ It is therefore not surprising that the Bio-economy Strategy recognises that achieving its overall objectives including using South Africa abundant biodiversity and associated TK to establish the country as a world leader in research, development and manufacture of pharmaceutical products, is dependent on the development of an effective domestic intellectual property system particularly patent.¹⁰⁷ By virtue of this recognition, it can be argued that policy-makers in South Africa seek to learn from experiences within the field of innovations in traditional medicines which implicates TKMUP in other developing countries. For example, the Chinese government policy of encouraging the patenting of innovative Traditional Chinese Medicinal products has been credited with incentivising investment in TCM, increasing TCM knowledge base, and transforming TCM into a major global export asset.¹⁰⁸

However, the commercialisation of TKMU Praises concerns mostly within the indigenous and scholarly circles about the suitability of conventional patent system to the nature of TKMUP and other biodiversity-based TK. Some of these concerns relate to the communal and incremental nature of

105 See the Bio-economy Strategy (n53) 7, 19; Madhavi Sunder, 'The Invention of Traditional Knowledge' (Spring 2007) 70 *Law and Contemporary Problems* 97, 111.

106 See Kamil Idris, *Intellectual property: A Power Tool for Economic Growth* (2ndedn, World Intellectual Property Organization (WIPO), Geneva, June 2003) 27; and IKIP Policy (n11) 10-11.

107 See the Bio-economy Strategy (n53) 21.

108 See Erstling (n3) 331-333.

TKMUP, difficulty of providing evidence of a single act of discovery (novelty and non-obviousness), compliance with technical patent specifications, the limited term of patent protection, and prohibitive cost of the application and enforcement of patent;¹⁰⁹ as well as the fact that some indigenous communities may oppose the commercialisation of their TKMUP on religious or cultural grounds.¹¹⁰ While such concerns are not without merits,¹¹¹ this article argues that there is the need to promote commercialisation of TKMUP in South Africa, as not doing so may render such knowledge vulnerable to undesirable uses by third parties and consequent

increase in incidences of biopiracy. Indeed, TKMUP despite their generally acknowledged confidential nature may be prone to outside exploitation.¹¹² This is due to a combination of factors such as rural-urban migration and consequent diffusion of knowledge, economic globalisation, and increase progress in genetic research and bioprospecting activities by pharmaceutical companies seeking novel cures for existing or emerging diseases.¹¹³ The importance of commercialisation in the prevention of biopiracy in South Africa is further underlined by the fact that defensive patent measures earlier discussed generally only prevent third parties from gaining patent rights over the TKMUP and not from using it.¹¹⁴

109 *ibid* 329-331. See also Dutfield (n19) 259-263; Oguamanam, 'Localising Intellectual Property in the Globalisation Epoch' (n15) 142-146; Hanson and Van Fleet (n21).

110 See Chennells, 'Traditional Knowledge and Benefit Sharing after the Nagoya Protocol' (n31) 174-176, 180; WIPO Recognition of TK (n20) para 10; Saskia Vermeylen 'Trading Traditional Knowledge: San Perspectives from South Africa, Namibia and Botswana' in Wynberg, Schroeder and Chennells (n17) 193, 200-204; Djims Milius, 'Justifying Intellectual Property in Traditional Knowledge' (2009) 2 I.P.Q187, 194.

111 This does not imply that they are insurmountable when the need arises. As observed by Erstling, since 'neither TRIPS nor the PCT imposes rules on ownership, and community ownership is little more than an extension of joint ownership, which is quite common. Assuming the traditional community itself is not culturally averse to asserting ownership rights, that an inventor or inventors can be identified, and that some mechanism exists, including customary law, to transfer the rights from the inventor or inventors to the community, community ownership is perhaps the least of the challenges that TK patenting faces'. With regard to the limited term of protection and consequent loss of confidentiality, he further observes that 'the decision to seek patent protection for TK needs to be based on a careful weighing of the benefits the TK holder will derive from the grant of exclusive rights for a limited period of time balanced against the potential drawbacks of permanently divulging the TK' (See Erstling (n3) 330-331). In addition, experiences from the commercialisation of hoodia in South Africa show that despite the San viewing their TKMUP as collective and the idea of 'owning' life is abhorrent, that the principle of 'no patents on life' was considered 'too expensive' and the poverty-stricken San opted for a share of royalties See Rachel Wynberg and Roger Chennells 'Green Diamonds of the South: An Overview of the San-Hoodia Case' in Wynberg, Schroeder and Chennells (n17) 89, 102.

Commercialisation of TKMUP can also be used to encourage indigenous communities to actively exploit their plant medicinal knowledge for economic benefits in South Africa.¹¹⁵ Such exploitation will enhance not only their assimilation into the mainstream of the economy,¹¹⁶ but also help in motivating efforts towards the conservation of the knowledge system. This is not surprising as the prospects of derivation of financial benefits and economic assimilation of TKMUP holders are very important factors in promoting innovations within the TK system thereby sustaining and rejuvenating the system.¹¹⁷ It should be noted that it has been argued that TK holders particularly their traditional

112 See Groenewald (n5); Jordan (n5).

113 See Oguamanam, 'Patents and Traditional Medicine' (n3) 491; Roht-Arriaza (n33) 957.

114 *ibid*. See also Munzer and Raustiala (n21) 81-82.

115 TKMUP can be the subject matter of patentable invention in South Africa provided the criteria of patentability under the Patent Act are met. Perhaps, the main issue is whether communities and their traditional healers would be able to muster the financial wherewithal to be able to patent their medicinal knowledge. However, hope towards meeting these criteria has been enhanced by the recent drive by the South African government towards the 'scientification' of its traditional medicinal products through the establishment of the Indigenous Knowledge System Bioprospecting and Product Development Platform. The IKS Platform seeks to identify and add value to products, processes and services inspired by indigenous knowledge holders and practitioners.

116 See IKIP Policy Framework (n11) 10-11, 14; Verma (n3) 770.

117 See Erstling (n3) 332-333.

healers do not require the incentives offered by patents in order to innovate within the TK system.¹¹⁸ The reason being that 'From time immemorial, groups of all kinds developed specialised knowledge and folklore'.¹¹⁹ Such argument fails to take cognisance of the fact that the ancient reward system for innovations discussed earlier can to a certain extent be likened to that offered by patents.¹²⁰ Furthermore, the argument fails to take into cognisance that the collapse of communal governance with its reward and sanctions system in most indigenous communities in South Africa,¹²¹ and the changing socio-economic status of traditional healers aided by world-wide resurgence of interest in traditional medicines as alternative to orthodox medicines, or at least for primary healthcare,¹²² that the prospects of deriving financial benefits from commercialisation of TKMUP presents probably the only opportunity for traditional healers to innovate within their practice. In addition to encouraging innovation, derivation of financial benefits from commercialisation is also important in arresting the rapid erosion of TKMUP as a result of lack of motivation or indifference on the part of the younger generation towards learning the traditional skill associated with the knowledge.¹²³ Such apathy which could lead to a serious discontinuities in the inter-generational flow

of TKMUP,¹²⁴ is driven by the fact that until recently, the practice of traditional medicine was not seen a profitable profession due to lack of a viable market both nationally and internationally.¹²⁵ The lack of viable market was due to the fact that TKMUP as well as practitioners within such system were marginalized, suppressed and subjected to ridicule as '...[the knowledge] does not conform to the accepted scientific methods of learning in the context of modern reductionist approach of science.'¹²⁶

Furthermore, commercialisation of TKMUP can be helpful in protecting and conserving the biodiversity base upon which the TKMUP thrives. While the protection of biodiversity may not be a direct consequence of patenting of TKMUP, it is arguable that such patenting increases the economic value of TKMUP and which in turn may promote the conservation of the biological resources upon which the knowledge is based. This is not surprising as knowledge associated with a given biological resource is an intangible component of the resource itself. As aptly observed by Anil Gupta, '[c]onserving the biological diversity without conserving associated knowledge systems is like building and maintaining a library without a catalogue.'¹²⁷ Admittedly, the commercialisation of any TKMUP when not properly managed may lead to overharvesting of the wild population of the indigenous biodiversity associated with the knowledge to meet increasing demand.¹²⁸

118 See Munzer and Raustiala (n21) 73-74; Mgbeoji, 'Beyond Patents' (n33)2-4.

119 *ibid* 73.

120 Just like patents reward innovation in conventional scientific system, the ancient reward system discussed earlier also rewards innovation through the conferment of chieftaincy title and other honours and/or communal gifts.

121 See Emeka Polycarp Amechi, 'Traditional Knowledge Relating to Medical Uses of Plants and the Patent Regime in South Africa: Whither the Traditional Healers?' [2015] South African Mercantile Law Journal (forthcoming).

122 *ibid*. See also Oguamanam, 'Patents and Traditional Medicine' (n3) 508-510; Robert Thornton 'The Transmission of Knowledge in South African Traditional Healing' (2009) 79/1Africa 17, 20; *Draft Policy on African Traditional Medicine for South Africa*, Notice 908 of 2008 (Dept of Health, Pretoria, 2008) 8-9, < http://tradmed.ukzn.ac.za/Libraries/Traditional_Medicine_Documents/Draft_Policy_on_African_Traditional_Healers.sflb.ashx >, accessed 20 October 2013.

123 *ibid*.

124 See Anil Gupta 'Getting Creative Individuals and Communities Their Due: Framework for Operationalizing Article 8(j) And 10(c)' Draft Paper prepared for the CBD Secretariat, < <http://citeseerx.ist.psu.edu/viewdoc/download;jsessionid=5876346DB99DEB3FEA05BDA2792BCE9F?doi=10.1.1.13.3740&rep=rep1&type=pdf> >, accessed 23 May 2014.

125 *ibid* 8.

126 Verma (n3) 770. See also IKS Policy (n6) 10.

127 (n124) 1.

128 See Myles Mander, Jenny Mander and Charles Breen, 'Promoting the Cultivation of Indigenous Plants for Markets: Experiences from KwaZulu-Natal, South Africa', < <http://www.fao.org/docrep/w3735e/w3735e16.htm> >; Stephen R. Munzer and Phyllis Chen Simon, 'Territory, Plants, and Land-Use Rights Among the San of Southern Africa: A Case Study in Regional Biodiversity, Traditional Knowledge, and Intellectual Property' (2009) 17 William & Mary Bill of Rights Journal 831, 850; Cobus Coetzee, 'Buchu Commercialization: South Africa' < http://tcdc2.undp.org/GSSDAcademy/SIE/Docs/Vol7/Buchu_Commercialization_South_Africa.pdf >.

Nevertheless, the fact remains that the loss or extinction of any plant genetic resource has never been due principally to overharvesting unlike other factors such as deforestation, agriculture and industrialisation. Indeed, the fear of overharvesting and consequent loss as a result of commercialisation of some valuable indigenous plants such as the buchu, hoodia, and *Lippia javanica*, has increased efforts towards not only the conservation of their wild population, but also their commercial cultivation.¹²⁹

4 CHALLENGES INVOLVED IN USING PATENTS TO PROTECT TKMUP IN SOUTH AFRICA

As evident from the discussion in the preceding section, patents despite the imperfections can offer some significant measures of protection to indigenous communities in South Africa either by preventing the fraudulent exploitation or misappropriation of their TKMUP or promoting the commercialisation of such knowledge. With regard to the latter, it is increasingly being recognised that the commercialisation of third-world traditional products including contemporary innovations by their traditional healers is 'ultimately perhaps the most effective way to protect their traditions.'¹³⁰

Such protection is boosted by the fact that the patent system as operated in South is highly advanced and relatively inexpensive.¹³¹ Despite this, some challenges can be identified in the quest to use patents to protect TKMUP in South Africa. These include

4.1 The Nature of Patent System in South Africa

There are inherent deficiencies associated with the operation of the South African patent system which may undermine the effectiveness of patents in protecting TKMUP from misappropriation. For instance, there is no substantive examination of patents as the Companies and Intellectual Property Commission, (CIPC) practices a formal or depository system. This simply means that there is no examination of the quality of patents as the substantive novelty and inventiveness of patent applications are not subjected to verification by the patent office prior to the granting of patents.¹³² With regard to inventions from TKMUP, this would include veracity of the statement lodged with Registrar and authenticity of the documents supporting proof of title or authority to use the TKMUP under the Biodiversity Act. The limited power of examination conferred on the examiner under the Patent Act as earlier noted, relates only to the form or documentation. In addition, the Patent Office only offers simple prior art searches.¹³³ The absence of detailed prior art searches and substantive patent examination before the grant of patents may lead to a situation where inventions involving or derived from TKMUP are fraudulently patented by private and corporate bodies.¹³⁴ The scenario is

¹²⁹ *ibid.* See also Wynberg and Chennells (n110) 110-112, 117; Rachel Wynberg 'Policies for Sharing Benefits from Hoodia' in Wynberg, Schroeder and Chennells (n17) 127; VJ Maharaj, G Fouche, J Senabe, R Nthambeleni and F Kotze, *Agro-Processing Opportunities Identified through A Novel Mosquito Repellent from a Medicinal Plant* (CSIR 2008); Department of Water Affairs and Forestry, *Medicinal Plants Trade*, Forestry Sub-Sector Studies, Briefing 5 (January 2005), <<http://www2.dwaf.gov.za/dwaf/cmsdocs/Elsa/Docs/FED/SubSector%20Medicinal%20plants%202005.pdf>>, accessed 15 March 2014.

¹³⁰ Graham Dutfield, 'Developing and Implementing National Systems for Protecting Traditional Knowledge: A Review of Experiences in Selected Developing Countries' (UNCTAD Expert Meeting on Systems and National Experiences for Protecting Traditional Knowledge, Innovations and Practices, 30 October – 1 November 2000, Geneva) pp5-7. See also Sunder (n105) 111-113.

¹³¹ See Kaplan (n104) 1-3.

¹³² *ibid.* See also Yu-Fang and Matsaneng (n104) 3; Anthipi Pouris and Anastassios Pouris, 'Patents and Economic Development in South Africa: Managing Intellectual Property Rights' (2011) 11/12 S. Afr. J. Sci. 107, 112.

¹³³ *ibid.*

¹³⁴ See Mara Kardas-Nelson, 'Battle on the Horizon Over Intellectual Property Policy Draft' *Mail & Guardian* (11 September 2013); Linda Daniels, 'New Draft South African IP Policy Receives Initial Positive Reactions', (Intellectual Property Watch, 9 September 2013), <<http://www.ip-watch.org/2013/09/09/new-south-african-ip-policy-receives-initial-positive-reactions/>>, accessed 22 October 2013.

exacerbated by the lack of pre-grant and post grant opposition procedures under the South African Patent Act. Such procedures which would have represented a cheaper and easily accessible means for aggrieved communities to oppose the patenting of inventions from fraudulently obtained TKMUP both before and after the grant of the patent. The unappealing alternative as earlier noted is through a court challenge in the high court.¹³⁵

The recent Draft National Policy on Intellectual Property,¹³⁶ issued by the Department of Trade and Industry (DTI) is a step in the right direction of effectively using the patent system to protect TKMUP held by indigenous communities and traditional healers from misappropriation. The Draft Policy proposes the amendment of the Patent Act to provide for pre- and post-grant opposition to effectively foster the spirit of granting stronger patents.¹³⁷ It also proposes detailed prior art search and examination of patents to co-exist with the current registration-based patent system, and complemented by pre- and post-opposition processes and capacity-building for an efficient patent system.¹³⁸ For indigenous communities and their traditional healers, this will translate to the establishment of an effective search and examination office with strong technologies to prevent the grant of bad or fraudulent patents.¹³⁹ The establishment of a search and examination system invariably requires the training of patent examiners in relevant technical fields including training and awareness in TKMUP and other TK system especially for those that will work in the areas of life sciences and environmental technology to enable them to effectively assess the novelty and inventiveness of any invention derived from TK. For effective prior art searches relating to TKMUP, the proposed substantive search and examination office will be

linked to the National Indigenous Knowledge Management System (NIKMAS), a digital TK repository which is an integral component of the NRS.

4.2 Entitlement to Benefits Arising From Patenting of TKMUP or Inventions Derived From TKMUP

Ownership of TKMUP in South Africa as earlier noted is communal despite the fact that it may have originated from an individual or collection of individuals working together. The issue of which indigenous communities constitute 'knowledge holders' for the purposes of benefit sharing arrangement where the use of the TKMUP is widespread and cut across many indigenous communities is beyond the scope of this paper.¹⁴⁰ It suffices to mention that from available evidence gleaned from some known cases of benefit sharing arrangements in South Africa, indigenous communities have shown a predilection for accommodating adverse communal claims in order to effectively negotiate such arrangements with bioprospectors.¹⁴¹ For instance, following the publicity raised by the benefit arrangement between CSIR and the San and the consequent agitation by other indigenous communities to be recognised as knowledge holders, steps have been taken to include them in initiatives aimed at sharing the benefits arising from the commercialisation of the Hoodia.¹⁴² Rather, the challenge here is on the issue of who gets to benefit within a given community from the commercialisation of any TKMUP. Two potential scenarios are principally identified in this article vis-a-vis where the patenting involved an innovative TKMUP developed by a traditional healer working within the TK system; and where the patenting involved inventions based or derived

¹³⁵The inexpensive method of such proceeding is exemplified by the Indian patent system where pre-grant opposition notice is usually handled by the Controller, while for post grant opposition, the Controller is required to constitute a board that examine the notice and submit its recommendation to the Controller. See Indian Patent Act, s 25 (1) & (3).

¹³⁶(n72).

¹³⁷ibid 9-10, para v.

¹³⁸ibid 10-11 para viii.

¹³⁹ibid 31-33.

¹⁴⁰This has been a subject of critical discussion. See Munzer and Simon (n128); Saskia Vermeylen 'Law as A Narrative: Legal Pluralism and Resisting Euro-American (Intellectual) Property Law through Stories' (2010) 61 *Journal of Legal Pluralism*53.

¹⁴¹See Vermeylen, 'Law as A Narrative' (n140) 6-65; Chennells, 'Traditional Knowledge and Benefit Sharing after the Nagoya Protocol'(n31) 169-170; Wynberg and Chennells (n110) 104-106.

¹⁴²ibid.

from existing TKMUP nurtured over many generations by traditional healers.¹⁴³

As earlier noted, TKMUP is of a communal nature irrespective of whether it is a new knowledge developed by an innovative healer operating within the TK system or an existing knowledge. Since such new knowledge might meet the condition for patentability under the South African Patent Act, the implication is that it cannot be patented except perhaps with consent of the concerned indigenous community. The requirement of communal consent may discourage innovative traditional healers from seeking to protect their innovations using the patent system as such consent might be refused by a community generally opposed to the commodification of their TKMUP on cultural or religious grounds. However, the possibility of such permission being refused may be remote as most indigenous communities are not only desirous of being recognised for their creativity and contributions to science, but also, interested in reaping the financial benefits arising from the utilisation of their TK particularly those relating to the medicinal uses of plants.¹⁴⁴ In instances where the innovative healer cannot patent his new TKMUP, he can disclose the knowledge to a third party with the financial wherewithal to process and patent it. In such instances, the traditional healer can be recognised as a co-owner of the resulting patent.¹⁴⁵ Such co-ownership right can be negotiated by a traditional healer independent of his community as a condition for the disclosure of his innovative TKMUP,¹⁴⁶ provided the community's

interest is catered for in the sharing of benefits accruing from the patented invention.¹⁴⁷ Co-ownership rights which can be construed as just compensation for their direct inventive contribution towards the invention sought to be patented arguably can be justified under the Patent Act which seeks to empower not only TK holders but also practitioners of TK system.¹⁴⁸ In addition, since the provisions of the Biodiversity Act recognise that a traditional healer can be the provider of TKMUP,¹⁴⁹ the right can be justified as part of the benefit-sharing arrangements which the inventor has with the traditional healer independent of any subsequent arrangement with his indigenous community.¹⁵⁰ Finally, the grant of such right may not infringe the culturally-sanctioned protocols governing the use of TKMUP which as earlier noted recognise that entitlement to usage and benefits from such knowledge is not equal amongst the members of their respective communities.

Perhaps, the main challenge arises in instances, where the patenting involved an invention based or derived from TKMUP held exclusively by traditional healers in any given community. As earlier noted, this may lead to the presumption that the benefits arising from such commercialisation of invention based on the TKMUP will go to the community or at the very best, that the interest of the traditional healers in profiting from such commercialisation will be tied with that of their community. In view of the confidential nature of the TKMUP, the issue is whether traditional healers, who are primarily responsible for nurturing such

143 This article is not interested in discussing scenarios where the use of TKMUP is widespread in an indigenous community. This is due to the fact that in such scenario as evident in the commercialisation of hoodia, which has developed into a symbol for the commodification of traditional knowledge, all the members of the community are entitled equally to share in the resulting benefits following from the commercialisation of such knowledge.

144 See Sunder (n105) 111-113.

145 See Carvalho, 'From the Shaman's Hut to the Patent Office: In Search of a TRIPS-Consistent Requirement' (n99) 146.

146 It can also be negotiated where what the innovative traditional healer is providing as an inventive contribution to the invention is not TKMUP, but contemporary knowledge based on or derived from pre-existing TKMUP.

147 For other TKMUP, because of their accretive and intergenerational character, it may be unethical for a traditional healer or groups of traditional healers within a community to negotiate for a co-ownership right. In such situations, such right should go to the community providing the knowledge.

148 See IKIP Policy Framework (n6) paras 10-11, 14. Note that the Biodiversity Act also specifies that an individual can be the provider of TKMUP. See BABS Guidelines (n93) 11.

149 S 82(1)(b) &(3). See also BABS Guidelines (n93) 11-12.

150 Since the individual ownership of TKMUP is not recognised in South Africa, the inventor is still required to furnish further evidence of prior informed consent and equitable benefit-sharing arrangement with the community of the traditional healer. See BABS Regulation (n29) reg 8.

knowledge system despite the political and social upheavals experienced by many communities, would be willing to disclose such knowledge to third parties for the purpose of further processing into innovative medicinal products. In essence, is the joint sharing of benefits with their respective communities enough incentives for traditional healers to share their knowledge with interested bio-prospectors? It should be noted that traditional healers are secretive and have generally shown a high propensity of unwillingness to disclose the source of their medicinal knowledge to non-initiates.¹⁵¹ This would not present a problem where the indigenous community has a culturally sanctioned protocol providing for the beneficial interest of traditional healers which can be incorporated into the benefit-sharing arrangements. However, this may not always be the case because as aptly observed by Gupta,

It is unlikely that the communities which kept most of the local healers poor by not valuing their knowledge systems adequately will pass on the externally generated incentives to such individual experts who have reproduced this knowledge (if not produced in all cases). The assumed homogeneity of local communities and supposed convergence between the interest of local community leaders and that of local experts in every case is difficult to accept.¹⁵²

4.3 Awareness of the Uses of the Patent System by Indigenous Communities

Finally, indigenous communities and their traditional healers can only take advantage of the patent system if they are aware of its usefulness in the protection and commercialisation of their TKMUP. It should be noted that in contrast to the Hoodia case where up until 2001, the San remained oblivious to the fact that their knowledge of Hoodia had commercial application,¹⁵³ most indigenous communities and their healers are presently not totally oblivious to the potential commercial value of their knowledge in view of the global resurgence of interest in natural and herbal products.¹⁵⁴ However, it is doubtful as to the extent to which indigenous communities and their healers are aware of the relevance of the patent system in the protection of their TKMUP against “poaching” by both local and foreign companies and research institutions.¹⁵⁵ In fact, available evidence from instances of biopiracy in South Africa suggests that it is usually non-governmental organisations (NGOs) rather indigenous communities that usually utilise the patent system (although on behalf of indigenous communities) to oppose the patenting of inventions based or derived from such “poached” knowledge.¹⁵⁶ Equally relevant is their knowledge of mechanisms

151 See IKS Policy(n6) 14; Mgbeoji, ‘Beyond Patents’ (n33) 6-7; See Department of Science and Technology (DST) and National Science And Technology Forum (NSTF), ‘Proceedings of Workshop on Indigenous Knowledge Systems and Intellectual Property Rights’(14 - 15 July 2011, Premier Hotel, Pretoria) p14; Oguamanam, ‘The Protection of traditional Knowledge’ (n45) 38.

152 See Anil K. Gupta, WIPO-UNEP Study on the Role of Intellectual Property Rights in the Sharing of Benefits Arising from the Use of Biological Resources and Traditional Knowledge (2004) 4, <http://siteresources.worldbank.org/EXT/INDKNOWLEDGE/Resources/WIPO_Unep.pdf>, accessed 17 march 2014.

153 See Rachel Wynberg, ‘Rhetoric, Realism and Benefit Sharing: Use of Traditional Knowledge of Hoodia Species in the Development of an Appetite Suppressant’ (2004) 7/6The Journal of World Intellectual Property 851.

154 For instance, the Medical Research Council (MRC) has reportedly received an increased number of medical claims since 2002 from persons seeking to economically exploit such resurgence. The majority of such claims originated from the African population and claimed to contribute to curing a wide variety of diseases, particularly HIV/AIDS. In addition, several TK holders have reportedly approached the SARChI Chair at University of KwaZulu Natal (UKZN) requesting that their herbal products be tested. See Proceedings of DST and NSTF Workshop on Indigenous Knowledge Systems and Intellectual Property Rights (n151) 13-14.

155 See IKIP Policy Framework (n6) 6-9.

156 See Wynberg, ‘Rhetoric, Realism and Benefit Sharing’ (n152); Groenewald (n5); *Andre van der Merwe, Protection from Biopirates’ Mail & Guardian*(10 Mar 2010), <<http://mg.co.za/article/2010-03-10-protection-from-biopirates>>, accessed 15 October 2013.

such as the IKS Bioprospecting and Product Development Platform,¹⁵⁷ which can be used in developing and patenting their inventive knowledge thereby improving not only their livelihood options but also benefiting the national economy. The challenge therein lies in teaching indigenous communities to use the patent system in protecting their knowledge.¹⁵⁸

5 CONCLUSION

Patents offer great potential not only in protecting TKMUP from misappropriation, but also in promoting the commercialisation of innovative TKMUP or inventions based or derived from TKMUP in South Africa. However, using patents to protect TKMUP has raised concerns within the indigenous and scholarly circles on the compatibility of patents with the TKMUP and the overall TK system. While noting these concerns, it is argued that a combination of factors such as economic globalisation, progress in genetic research and

increase in incidences of biopiracy has non-engagement with the patent system an ill-afforded option for the protection of TKMUP and other biodiversity-based TK in South Africa. Such engagement with patent system can only be possible if the challenges discussed in this paper can be successfully navigated. Admittedly, some of these challenges are not caused by the patent system and thus, tackling such challenges would require a multi-disciplinary and interdepartmental approach before they can be successfully addressed. For instance, issue of benefit sharing arrangement from inventions derived from TKMUP can be better resolved by the Department of Environmental Affairs and Tourism in conjunction with representatives of traditional communities and their traditional healers. Other challenges such as the adoption and subsequent effective implementation of the newly proposed draft IP policy if adopted; and teaching indigenous communities to use the patent regime in protecting their knowledge, fall within the realm of the patent system and thus, must be effectively tackled to maximise the potential of patent in protecting TKMUP. With regard to the latter particularly as it affects the establishment of an effective search and examination system as well as pre- and post grant opposition procedures, there is a need to muster enough financial resources that would enable the patent office to acquire the necessary skill and capacity towards the implementation of such undertakings.¹⁵⁹

¹⁵⁷ Initiated in 2007 to identify and add value to products, processes and services inspired by indigenous knowledge holders and practitioners. The IKS-BPD platform is divided into three flagships, viz. the African Traditional Medicines (ATM), the Cosmeceuticals and the Nutraceuticals. The ATM flagship undertakes research and product development on plant-based traditional medicines, while the Cosmeceuticals flagship's focus is on plant based traditional cosmetic formulations that possess medicinal properties. The Nutraceuticals flagship performs research on traditional food and feed preparations for commercialization. While NIKSO provides the general oversight for all three flagships, each flagship is managed by an elected stakeholder institution, i.e. the ATM, Cosmeceuticals and Nutraceuticals flagships are managed by the University of KwaZulu-Natal (UKZN), the University of Pretoria (UP) and the Council for Scientific and Industrial Research (CSIR) respectively. See A Grootboom, M Tang and H Chabalala, *Role of IKS in Bioprospecting and Product Development* (CSIR 2011), <<http://www.nstf.org.za/ShowProperty?nodePath=/NSTF%20Repository/NSTF/files/Workshops/2011/IKSRole.pdf>>, accessed 10 April 2014.

¹⁵⁸ See Sunder (n105) 112.

¹⁵⁹ One of the strongest criticisms of the Draft policy relates to the lack of skills and capacity for establishing a substantive patent examination system. See Kardas-Nelson (n133) 112.

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