

## USING PATENTS FOR THE PROTECTION OF TRADITIONAL KNOWLEDGE ON THE MEDICINAL USES OF PLANTS IN NIGERIA

Emeka Polycarp Amechi<sup>1</sup>

### Abstract

Due to opposition by developed countries and their industrial interests, the clamour by developing countries for the review of the conceptual framework of the patent system at the global level in order to accord recognition to traditional knowledge on medicinal uses of plants (TKMUP) and other biodiversity TK, has not yielded any tangible result. In view of such reluctance to reform the global patent system, most developing countries have resorted to the adoption of radically different strategy in their approach to intellectual property, particularly as it concerns the protection of their biodiversity TK from misappropriation. This is particularly important with respect to the patent system which has been used to legitimise such misappropriation. As a biodiversity rich nation, Nigeria has been active in the clamour for the reformation of the global patent system. Hence, it is to be expected that it will be amongst the developing nations that resorted to the adoption of radical patent strategy. This article seeks to examine the extent to which Nigeria has sought to use the patent system in the protection of its TKMUP against misappropriation.

### I. Introduction: The Uneasy Relationship

Biological resources and associated TK held by indigenous communities have historically been an important component of many technological innovations including medicinal drugs, which are considered part of the scientific or technical mainstream.<sup>2</sup> Although in industrialized countries, medicinal plants gradually lost importance in the course of major scientific and technological progress in chemistry during the 20th century, bioactive plant constituents are recently experiencing an impressive revival.<sup>3</sup> Crucial to such revival is

<sup>1</sup> LLM & PhD (Wits). Senior Lecturer, Faculty of Law, Bowen University Iwo. Formerly, a postdoctoral fellow with the Department of Jurisprudence, College of Law, University of South Africa, Pretoria. E-mail: e.amechi@gmail.com.

<sup>2</sup> See A.J. Beattie, W. Barthlott, E. Elisabetsky, R. Farrel, C.T. Kheng, I. Prance, J. Rosenthal, D. Simpson, R.R.B. Leakey, M. Wolfson, K. ten Kate & S. Laird, 'New Products and Industries from Biodiversity' in Rashid Hassan, Robert Scholes & Neville Ash (eds) *Ecosystems and Human Well-being: Current State and Trends*, Vol. 1 (Millennium Ecosystem Assessment, Island Press, Washington, 2005) 273.

<sup>3</sup> See Thomas Efferth, Hayato Miyachi & Helmut Bartsch 'Pharmacogenomics of a Traditional Japanese Herbal Medicine (Kampo) for Cancer Therapy' (2007) 4 *Cancer Genomics & Proteomics* 81 at 82; Thomas Efferth, Paul C.H. Li, Venkata S. Badireenath Konkimalla and Bernd Kaina, From traditional Chinese medicine to rational cancer therapy (2007) 13/8 *Trends in Molecular Medicine* 353; and Murat Kartal, 'Intellectual Property Protection in the Natural Product Drug Discovery, Traditional Herbal Medicine and Herbal Medicinal Products' (2007) 21 *Phytotherapy Research* 113 at 115.

the failure of combinatorial chemistry, a technology conceived about 20 years ago, and envisaged as a promising strategy towards addressing terminal diseases such as cancer.<sup>4</sup> Currently, nearly 50% of the drugs introduced in the past 20 years have been derived directly or indirectly from natural products, and arguably about three quarters of plant-derived drugs in clinical use today came to the attention of pharmaceutical companies because of their use in traditional medicines.<sup>5</sup> The leads provided by traditional medicines in the form of traditional knowledge on the medicinal uses of plants (TKMUP) serve as a useful source of information for researchers in the pharmaceutical and biotechnological field who seek to identify new chemical and biological elements, as well as new approaches to disease treatment.<sup>6</sup> Most importantly, relying on such leads usually ensure a higher success ratio in the screening of plants for medicinal purposes.<sup>7</sup>

However, the resurgence of interest in traditional medicines and the increase in the exploitation of the associated TKMUP in the production of innovative products in the pharmaceutical and biotechnological sectors,<sup>8</sup> have not led to corresponding benefits to indigenous communities in Africa either in the form of attribution or compensation.<sup>9</sup> This has

---

<sup>4</sup> *Ibid.* See also Benjamin Liu, 'Comment, Past Cultural Achievement as a Future Technological Resource: Contradictions and Opportunities in the Intellectual Property Protection of Chinese Medicine in China' (2003) 21 *UCLA Pac. Basin L. J.* 75. Presently, it would appear that the limitations associated with combinatorial chemistry are encouraging the promotion of 'a multidisciplinary approach combining natural product diversity with total, combinatorial synthetic and biosynthesis may provide an apt solution to the current innovation quandary', (Bhushan Patwardhan & Raghunath Anant Mashelkar, 'Traditional medicine-inspired approaches to drug discovery: can Ayurveda show the way forward?' (August 2009) 14 (15/16) *Drug Discovery Today* 804). The implication is that contrary to Dutfield's assertion that '...advances in biotechnology and new drug discovery approaches based for example on combinatorial chemistry and human genomics will in the long term reduce industrial interest in natural product for ... health, as well as associated TK', (Graham Dutfield, *Developing and Implementing National Systems for Protecting Traditional Knowledge: A Review of Experiences in Selected Developing Countries* (Geneva, 30 October – 1 November 2000) 6), the reverse might be the case as 'traditional medicine-based bioprospecting may offer promising new leads with compounds generally recognized as safe', (Patwardhan & Mashelkar, at 805).

<sup>5</sup> See Nancy W. Hanna, *Pharmacogenomics: The Significance of Genetics in the Metabolism of Natural Medicines* (2012) 3 *Journal of Biomaterials and Nanobiotechnology* 452 at 453; and Thomas Efferth, Stefan Kahl, Kerstin Paulus, Michael Adams, Rolf Rauh, Herbert Boechzelt, Xiaojiang Hao, Bernd Kaina, and Rudolf Bauer 'Phytochemistry and pharmacogenomics of natural products derived from traditional Chinese medicine and chinese materia medica with activity against tumor cells' (2008) 7 *Mol Cancer Ther* 152.

<sup>6</sup> See N.P. de Carvalho, 'From the Shaman's Hut to the Patent Office: In Search of Effective Protection for Traditional Knowledge', paper presented at the conference: 'Biodiversity and Biotechnology and the Protection of Traditional Knowledge' April 4-6, 2003, at p. 17, available at: <http://law.wustl.edu/centeris/Papers/Biodiversity/PDFWordDoc/Fromshaman2.pdf>; N. Roht-Arriaza, 'Of Seeds and Shamans: The Appropriation of the Scientific and Technical Knowledge of Indigenous and Local Communities' (1995-1996) 17 *Mich. J.I.L.*, 919 at 926; and A. Chander & M. Sunder, 'The Romance of the Public Domain' (2004) 92 *Cali. L. R.* 1331 at 1348-49.

<sup>7</sup> See Vandana Shiva, *Patents: Myths and Realities* (Penguin Books, New Delhi, 2001) 52.

<sup>8</sup> See Jay McGown *Out of Africa: Mysteries of Access and Benefit Sharing* (The Edmonds Institute, Washington, 2006), available at [http://www.news.castmedia.com/4investors\\_africa.pdf](http://www.news.castmedia.com/4investors_africa.pdf), accessed 24 September 2013; Oduor Ong'wen 'Biopiracy, the intellectual property regime and livelihoods in Africa' *Pambazuka News*, 6 October 2010, available at <http://pambazuka.org/en/category/features/67523>, accessed 22 September 2013; Ikechi Mgbеoji 'Bio-Cultural Knowledge and the Challenges of Intellectual Property Rights Regimes for African Development' (2012) 35/2 *Dalhousie Law Journal* 397 at 403-404; and Roger Chennells, 'Traditional Knowledge and Benefit Sharing after the Nagoya Protocol: Three Cases from South Africa' (2013) 9/2 *Law, Environment and Development Journal* 163.

<sup>9</sup> See John Mugabe, *Intellectual Property Protection And Traditional Knowledge: An Exploration in International Policy Discourse* (ACTS Press, Nairobi, 1999) 8, available at

made a large number of African countries like other biodiversity rich developing countries, to decry the situation whereby their indigenous communities have been deprived of benefits from the use of their TK which have been monopolised and used by others, mainly multinational corporations without authorisation.<sup>10</sup> Such state of affairs which is manifested in the grant of intellectual property rights particularly patents to inventions based on or otherwise derived from indigenous genetic resources and associated TK, has given rise to a phenomenon popularly known as biopiracy.<sup>11</sup> Although the term has been criticised as reflecting more of emotional and rhetorical value,<sup>12</sup> its continuing relevance as well as juridical significance lie in the perceived injustice within the global intellectual property (IP) system that it popularly represents – ‘the patent claims over biodiversity and [associated] indigenous knowledge that are based on the innovations, creativity and genius of the people of the Third World’.<sup>13</sup>

The use of the patent system in legitimising such misappropriations, which has allegedly deprived developing countries of approximately \$5 billion of unpaid royalties every year,<sup>14</sup> is due to the fact that the global IP regime as presently structured is based entirely on Western description of knowledge, and its conceptions of individual intellectual property ownership.<sup>15</sup> Indeed, the criteria for patenting are primarily based on Western scientific narrative with no regard to any other cultural accounts of scientific knowledge thereby leading to the direct exclusion of TKMUP and other non-Western narratives.<sup>16</sup> In fact,

---

*http://www.wipo.int/tk/en/hr/paneldiscussion/papers/pdf/mugabe.pdf*, Stephen A. Hansen & 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) 5; and Ruth Okediji, ‘The International Relations of Intellectual Property: Narratives of Developing Country Participation in the Global Intellectual Property System’ (2003) 7 *SJICL* 315 at 355.

<sup>10</sup> See Shiva *op cit* note 6 at 768; and A. Chander & M. Sunder *op cit* note 5 at 1350-135.

<sup>11</sup> Biopiracy generally refers ‘either to the unauthorized commercial use of biological resources and/or associated TK from developing countries, or to the patenting of spurious inventions based on such knowledge or resources without compensation’. The term was originally coined as part of a counter attack strategy on behalf of developing countries, to ‘inspire critical perspectives and political activism relating to the role of the IPRs in determining the skewed distribution of benefits from the biotrade...’ See Graham Dutfield ‘TRIPS-Related Aspects of Traditional Knowledge’ (2001) 33 *Case. W. Res. J. Int’l L.* 239 at 243-44.

<sup>12</sup> *Ibid.*, at 243-244. See also Graham Dutfield, ‘Disclosure of origin: time for a reality check?’ in Martha Chouchena-Rojas, Manuel Ruiz Muller, David Vivas and Sebastian Winkler (eds.), *Disclosure Requirements: Ensuring mutual supportiveness between the WTO TRIPS Agreement and the CBD* (IUCN, Gland, Switzerland and Cambridge, UK and ICTSD, Geneva, Switzerland, November 2005) 43 & 44. (Hereinafter Dutfield II).

<sup>13</sup> Vandana Shiva, *Protect or Plunder? Understanding Intellectual Property Rights* (Penguin Books India and Zed Books, 2001) 49. See also Mgbeoji *op cit* note 7 at 408; and Chidi Oguamanam, ‘Localizing Intellectual Property in the Globalization Epoch: The Integration of Indigenous Knowledge’ (2004) 11:2 *Indiana Journal of Global Legal Studies* 135.

<sup>14</sup> See T.W. Dagne, *Intellectual Property, Traditional Knowledge and Biodiversity in the Global Economy: The Potential of Geographical Indications for Protecting Traditional Knowledge--Based Agricultural Products* (Halifax, Nova Scotia: Dalhousie University, 2012) 154.

<sup>15</sup> See 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 at 495-497 (hereinafter Oguamanam II); and Laurence R. Helfer, ‘Regime Shifting: The TRIPS Agreement and New Dynamics of International Intellectual Property Lawmaking’ (2004) 29 *Yale J. Int’l L.* 1 at 29-30.

<sup>16</sup> *Ibid.*, at 496. See also Oguamanam *op cit* note 12 at 151-152.

TKMUP has been denigrated and denied of innovative and scientific value by being dismissed as anecdotal, quaint or primitive knowledge as opposed to the evidence-based nature of Western scientific knowledge.<sup>17</sup> In addition, TKMUP is regarded as not suitable for patent protection as it is usually community property derived from communal effort; is transmitted orally; and does not constitute original information as it is generally historical and often incremental information that reside in the public domain.<sup>18</sup> Ironically, while TKMUP is regarded as being in the public domain, when appropriated and represented “scientifically” by corporate bodies and research institutions, such knowledge ceases to reside in that domain and becomes entitled to patent protection.<sup>19</sup> The same attitude allows the patenting in the original form of oral TKMUP in countries that do not consider unwritten TK as a form of prior art.<sup>20</sup>

The failure of the global patent system to accord recognition to TKMUP and other TK associated with biodiversity reinforces distrust of the system by indigenous and local communities and developing countries while simultaneously raising passion and pressure for the review of its conceptual framework in order to enhance the protection of TK.<sup>21</sup> Indeed, 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),<sup>22</sup> and the World Trade Organisation (WTO) for more than fifteen years, albeit with little or nothing to show for it.<sup>23</sup> The lack of such progress 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 that are deriving maximum benefits from the commercial exploitation of biodiversity and associated TK as facilitated by the international patent

---

<sup>17</sup> For example, the then vice-president of W.R. Grace, a U.S multinational corporation that received a patent for an insecticide based on the active ingredient in neem, dismissed the Indian people’s discovery and development of the plant’s uses as ‘folk medicine’. See S. Tolan, ‘Against the Grain: Multinational Corporations Peddling Patented seeds and Chemical Pesticides are Poised to Revolutionise India’s Ancient Agricultural System. But at What Cost’ (10 July 1994) *L.A. Times Magazine* 20.

<sup>18</sup> See Oguamanam *op cit* note 12 at 142-143; Carvalho *op cit* note 5 at 12-15; Chika B. Onwuekwe ‘The Commons Concept and Intellectual Property Rights Regime: Whither Plant Genetic Resources and Traditional Knowledge?’ (2004) 2(1) *Pierce Law Review* 56 at 66-67; Ikechi Mgbeoji ‘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 Journal of Law & Technology* 1 at 8-9 (hereinafter Mgbeoji II); Madhavi Sunder, ‘The Invention of Traditional Knowledge’ (spring 2007) 70 *Law and Contemporary Problems* 97 at 104-109; and Stephen R. Munzer & Kal Raustiala ‘The Uneasy case for Intellectual Property Rights in Traditional Knowledge’ (2009) 27 *Cardozo Arts & Entertainment* 37 at 56-80. It should be noted that the protection of a subject matter that has fallen into the public is not mandatory under international patent law. See Article 70 (3) *Agreement on Trade-Related Aspects of Intellectual Property Rights* (1994).

<sup>19</sup> C. Oguamanam, ‘The Protection of traditional Knowledge: Towards a cross-cultural dialogue on intellectual property rights’ (2004) 15 *Australian Intellectual Property Law Journal* 34 at 40, (hereinafter Oguamanam III). See also Roht-Arriaza *op cit* note 5 at 921-926.

<sup>20</sup> See Helfer *op cit* note 14 at 30; and Mgbeoji *op cit* note 7 at 408.

<sup>21</sup> See Oguamanam II *op cit* note 14 at 497

<sup>22</sup> Through its Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore.

<sup>23</sup> 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; Oguamanam II *op cit* note 14 at 502; and Jay Erstling ‘Using Patents to protect Traditional Knowledge’ (2009) 15 *Texas Wesleyan L. R.* 295.

system'.<sup>24</sup> In view of such reluctance to reform the global patent system, most developing countries have resorted to the adoption of a radically different strategy in their approach to intellectual property, particularly as it concerns the protection of their TKMUP and other TK associated with biodiversity from misappropriation.<sup>25</sup> The adoption of such strategic approach has positive implications in the empowerment and protection of TKMUP from misappropriation through 'foisting the latter on the formal patent system in what translates into a direct encounter between the local and the cosmopolitan.'<sup>26</sup>

Nigeria is one of the African countries that are rich and diverse in biological resources and associated TK.<sup>27</sup> Such endowment has made the country to experience its fair share of biopiracy as evidenced by the instances of alleged misappropriation of its TKMUP.<sup>28</sup> Although, a unique feature of the reported instances of biopiracy in Nigeria is the fact that most of the misappropriations of TK and patenting of the resulting inventions are done by Nigerian citizens. A state of affairs that has been described as 'insider bioiracy'.<sup>29</sup> In addition, Nigeria has been vocal in seeking a review of patent's conceptual framework or the adoption of a *sui generis* regime in multilateral forums in order to effectively protect its TKMUP and other biodiversity TK.<sup>30</sup> Due to this activism at the global level, it is to be expected that in view of the failure to achieve the reformation of the global patent system in order to effectively protect TK, Nigeria would be amongst most developing countries have resorted to the adoption of radically different strategy in their approach to IP. This article therefore seeks to examine the extent to which Nigeria has sought to use the patent system in the protection of its TKMUP against misappropriation. It starts by the examining what patents can offer for the protection of TKMUP and other biodiversity TK. This followed by

---

<sup>24</sup> 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 at 171 (hereinafter Mgbeoji III). See also Helfer *op cit* note 14 at 15.

<sup>25</sup> This is evident in the adoption of diverse measures for the protection of various aspects of their knowledge forms including TKMUP from misappropriation using the IP system. Such measures include the digitisation of TKMUP as evidenced by India's traditional knowledge digital library (TKDL) project, China's Traditional Chinese Medicine Patents Database, and South Korea's Traditional Knowledge Portal; recent attempt at incorporating innovations in CHM in Taiwanese patent law; and efforts to enshrine disclosure of origin requirements (DRs) in patent application, and developments around geographical indications (GIs). For an in-depth discussion of these measures, see Oguamanam II *op cit* note 14 at 498-527.

<sup>26</sup> Oguamanam *ibid*, at 497.

<sup>27</sup> See *Nigeria - first National Biodiversity Report* (Convention on Biological Diversity (CBD), 2001), at pp. 3-4, available at: <https://www.cbd.int/doc/world/ng/ng-nr-01-en.pdf>.

<sup>28</sup> See C.A. Ezeanya, 'Maurice Iwu and the Sale of Nigeria's Collective Inheritance' *Sahara Reporters*, 19 May 2011, available at: <http://saharareporters.com/article/maurice-iwu-and-sale-nigeria%E2%80%99s-collective-inheritance>, (discussing the various patents granted to the U.S. Patent Office on various extracts of Nigerian indigenous medicinal plants to Dr Maurice Iwu, a professor of Pharmacognosy, and former United Nation's Lead Consultant for the development of Nigeria's National Biodiversity Strategy and Action Plan).

<sup>29</sup> See Babatunde A. Oni & Emeka P. Amechi, 'Combating the Scourge of Insider Biopiracy in Nigeria: Can the Law of Unjust Enrichment Offer a Solution to the Misappropriation of Traditional Knowledge of the Medicinal Uses of Plants?' (July 2016) 5(2) *International Journal of Law and Policy Review* 159 at 162.

<sup>30</sup> For instance, Nigeria is a member of the W52 group, comprising the EU, ACP and African Group, and which has been active in seeking the amendment of 'the TRIPS Agreement to include a mandatory requirement for the disclosure of the country providing/source of genetic resources, and/or associated traditional knowledge for which a definition will be agreed, in patent applications'. See World Trade Organization, *Draft Modalities for Trips Related Issues*, TN/C/W/52 (Trade Negotiations Committee, 19 July 2008).

an examination of the extent to which Nigeria has sought to use its patent system for the protection of this medicinal knowledge. It finds that there are no robust measures to that effect in Nigeria. It therefore suggests what need to be done in order to ensure that the patent system helps in the protection of the medicinal knowledge from biopiracy or any other acts of misappropriation.

## II. What Can The Patent System Offer?

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.’<sup>31</sup> Some of these applications may concern a community’s new and innovative advancements in TK which meet the requirements to qualify as patentable inventions.<sup>32</sup> More typically, most of these patent applications relate to inventions claimed by others that may be based on TK, or otherwise derived from the knowledge.<sup>33</sup> It is therefore clear that there are critical links between TK and the patent system. Hence, it is not surprising that TK is often assessed through the lens of patent law, insofar as it concerns traditional medicinal practice and associated TK including TKMUP.<sup>34</sup> Even though, as apparent from the discussion in the preceding section, 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 Nigeria.

This does not mean that patent is the only IPR regime that could be used to protect TKMUP from misappropriation as trade secret can equally be relevant due to the often confidential nature of the medicinal knowledge. Trade secret which encompasses far broader subject matter than patent is particularly important in instances where the TK holders are not only interested in controlling particular uses of their medicinal knowledge, but also, in obtaining a share of the profits from the commercialization.<sup>35</sup> However, trade secret offers weaker exclusionary rights than patent,<sup>36</sup> and the protection ceases once the information has entered into the mainstream of public knowledge.<sup>37</sup> Such limitations perhaps explain why developing states are not so keen on using the regime. Indeed, as would be evident from the discussion in this article, developing nations seeks to adopt patent measures not only to exploit the economic potentials of their medicinal knowledge, but also, to prevent the misappropriation irrespective of whether the knowledge is confidential or not. The latter accords with the broader misappropriation regime outlined in the WIPO Intergovernmental

---

<sup>31</sup> See 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. 1, (hereinafter WIPO Recognition of TK).

<sup>32</sup> See Erstling *op cit* note 22 at 297.

<sup>33</sup> See WIPO Recognition of TK *op cit* note 30 at para 1.

<sup>34</sup> D. Varadarajan, ‘A Trade Secret Approach to Protecting Traditional Knowledge (2011) 36 *Yale JIL* 371 at 396; and S. Rajavan, ‘Protection of Traditional Knowledge’ (2001) 2 *Minn Intell Prop Rev* 1 at 8.

<sup>35</sup> *Ibid*, at 396-404. See also Dutfield *op cit* note 10 at 259-60; and L.A. Tong, ‘Protecting Traditional Knowledge – Does Secrecy Offer A Solution?’ (2010) 13/4 *PER/PELJ*, 159 at 160-61.

<sup>36</sup> *Ibid*, at 397-98 & 409-410.

<sup>37</sup> *Ibid*, at 397.

Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore draft provisions.<sup>38</sup>

The patent system can therefore be purposively used or exploited to foster the protection of TKMUP in Nigeria in the following ways:

**(a) Defensive Measures (Preventing Misappropriation of TKMUP)**

Defensive measures aim to make it impossible or at the least, difficult for third parties to claim or acquire patent rights on TKMUP or some elements of the knowledge. This would entail intentionally disclosing information about TKMUP, so that the information may count as prior art. As a prior art, it will be used to defeat any third-party patent application over an invention which claims the TKMUP, and which if granted, could interfere with the TK holder's right to use the knowledge. Effective measures in this respect would entail the adoption of legislation recognising TKMUP and other biodiversity TK (oral or written) as 'prior art', and the creation of information database or system to make TKMUP searchable by patent offices in a documented and organised fashion as evident in the Indian Traditional Knowledge Digital Library (TKDL).<sup>39</sup> Considering the mostly oral nature of TKMUP in Africa, this is particularly important in opposing patent applications in countries like the United States where oral disclosure other than within its territory is not recognised as prior art.<sup>40</sup>

However, defensive patent measures generally do not prevent third parties from using TKMUP as their impact is restricted to preventing the acquisition of patent rights on such knowledge.<sup>41</sup> This 'may actually undermine the interests of TK holders, particularly when this involves giving the public access to TK which is otherwise undisclosed, secret or inaccessible'.<sup>42</sup> Most importantly, unlike India where most of the TKMUP are in the public domain,<sup>43</sup> TKMUP in Africa are mostly oral and confidential in nature.<sup>44</sup> Hence, disclosure of

<sup>38</sup> Although the potential expansiveness of this approach, and its potential inclusion of publicly available information, is a subject of ongoing debate in the current text-based negotiations. For example, see WIPO Intergovernmental Committee on Intellectual Property & Genetic Resources, *Traditional Knowledge & Folklore, Revised Provisions for the Protection of Traditional Knowledge: Policy Objectives and Core Principles*, WIPO/GRTKF/IC/18/5 (Jan. 10, 2011) 20-27 & 35-48, available at: [http://www.wipo.int/edocs/mdocs/tk/en/wipo\\_grtkf\\_ic\\_18/wipo\\_grtkf\\_ic\\_18\\_5.pdf](http://www.wipo.int/edocs/mdocs/tk/en/wipo_grtkf_ic_18/wipo_grtkf_ic_18_5.pdf), (hereinafter WIPO Revised Objectives).

<sup>39</sup> See WIPO Recognition of TK *op cit* note 30 at para. 13; and Carvalho *op cit* note 5 above at 23. Other existing databases similar to the TKDL include the China Traditional Chinese Medicine (TCM) Patent Database, which contains 12,024 deeply indexed records of China TCM patent literature with 31,283 TCM formulas in Chinese and English versions; and the Korean Traditional Knowledge Portal, which is accessible in Korean and English.

<sup>40</sup> See U.S. Patents Act 35 U.S.C. 2006 at s 102(a)-(b), (a patent will not be granted if the invention was patented or described in a printed publication in the US or a foreign country).

<sup>41</sup> See Oguamanam II *op cit* note 14 at 491; and Munzer & Raustiala *op cit* note 17 at 81-82.

<sup>42</sup> 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. 3, available at [www.wipo.int/edocs/mdocs/tk/en/wipo...ic.../wipo\\_grtkf\\_ic\\_5\\_6.doc](http://www.wipo.int/edocs/mdocs/tk/en/wipo...ic.../wipo_grtkf_ic_5_6.doc), (hereinafter WIPO Practical Mechanism).

<sup>43</sup> Albeit contained in diverse but usually inaccessible classical literature in different traditional or local languages such as Hindi, Sanskrit, Urdu, Tamil, and others. See Traditional Knowledge Digital Library, 'About TDKL', available at: <http://www.tkdil.res.in/tkdil/langdefault/common/Abouttkdil.asp?GL=Eng>.

documented confidential TKMUP as prior art may further undermine the interest of TK holders particularly traditional healers and indigenous communities in commercialising their knowledge.<sup>45</sup> To that extent, it has been suggested that to ensure comprehensive protection of TKMUP, TK holders should explore the option of managing the downside of such disclosure by using it sparingly or limiting it to selected parties subject to the signing of confidentiality agreements.<sup>46</sup>

Also relevant as a defensive measure is the disclosure of the origin of the TKMUP and evidence of prior informed consent and/or equitable sharing of benefits with the providers of the knowledge.<sup>47</sup> At the heart of this informational requirement which relates to the legitimacy of the applicant's access to the TKMUP, is the TK holders' right to maintain control over the use of their knowledge.<sup>48</sup> Implicit in this requirement is the acknowledgement that the invention at least must have been based or derived from some elements of TKMUP. Hence, it ensures some accountability in the use of TKMUP in patent applications.<sup>49</sup> However, as an anti-appropriation strategy, since it is not used in determining the novelty or non-obviousness of an invention, the significance in mitigating the grant of bad patent is perhaps marginal, both in terms of its approach and impact.<sup>50</sup>

### **(b) Affirmative Measures (Commercialization of TKMUP)**

Defensive patent measures must be supported by affirmative measures in order to effectively protect TKMUP from biopiracy.<sup>51</sup> Indeed, some scholars have questioned the utility of defensive measures alone in combating biopiracy. For instance, Carvalho has questioned the creation of some databases which 'considering the high costs involved may well represent a waste of resources if it has no other purposes other than opposing patent application'.<sup>52</sup> While for others like Sunder, defensive measures such as the disclosure requirements which seek to enhance benefit sharing, inadvertently perpetuate a culture that 'rewards the poor only as warden, not also as cultivators. ..., benefit sharing may be "the equivalent of stealing a loaf of bread and then sharing the crumbs"'.<sup>53</sup> Affirmative patent

---

(hereinafter TKDL manual); and V.K. Gupta, *Protecting Indian Traditional Knowledge from Biopiracy* (WIPO 2011), at p. 3, available at [http://www.wipo.int/export/sites/www/meetings/en/2011/wipo\\_tkdl\\_del\\_11/pdf/tkdl\\_gupta.pdf](http://www.wipo.int/export/sites/www/meetings/en/2011/wipo_tkdl_del_11/pdf/tkdl_gupta.pdf).

<sup>44</sup> Although evidence exists mostly from colonial botanists records about various medicinal uses of indigenous plants in Africa. See S. Laird & R. Wynberg, *Bioscience at a Crossroads: Implementing the Nagoya Protocol on Access and Benefit Sharing in a Time of Scientific, Technological and Industry Change* (Secretariat of the Convention on Biological Diversity 2012) 21-22 & 32.

<sup>45</sup> See WIPO Recognition of TK *op cit* note 30 at para. 14; and Munzer & Raustiala *op cit* note 17 at 81-82.

<sup>46</sup> *Ibid.* See also Munzer & Raustiala, note 19 above at 84.

<sup>47</sup> *Ibid.*, at para. 61.

<sup>48</sup> See Oguamanam II *op cit* note 14 at 517-18; and Carvalho *op cit* note 5 at 28-30.

<sup>49</sup> *Ibid.*, at 517.

<sup>50</sup> *Ibid.* See also Dutfield II, *op cit* note 11 at 44.

<sup>51</sup> See WIPO Practical Mechanism *op cit* note 41 at 2, para. 3.

<sup>52</sup> *Op cit* note 5 at 32. However, a database like the National Recordal System (NRS) in South Africa was developed to go beyond serving a defensive purpose, to promoting the knowledge in such a way as to enable researchers and commercial entities to interrogate the recorded TK and identify those with the potential for economic or social benefit. For a discussion of the NRS, see Emeka P. Amechi, 'Leveraging Traditional Knowledge on the Medicinal Uses of Plants within the Patent System: the Digitisation and Disclosure of Knowledge in South Africa' (2015) 18/1 *PER/PELJ* 3072 at 3075-3079.

<sup>53</sup> *Op cit* note 17 at 108. See also Dutfield II *op cit* note 11 at 44.

protection measures are important as they seek to prevent undesirable uses of TKMUP by third parties, by encouraging indigenous communities including their traditional healers to actively exploit their plant medicinal knowledge for economic benefits.<sup>54</sup> It should be noted that TKMUP despite their generally acknowledged confidential nature may be prone to outside exploitation.<sup>55</sup> This is due to a combination of factors such as rural-urban migration and consequent diffusion of knowledge, economic globalisation, and increased progress in genetic research and bioprospecting activities by pharmaceutical companies seeking novel cures for existing or emerging diseases.<sup>56</sup> Hence, it is increasingly being recognized that promoting the commercialization of third-world traditional products including contemporary innovations by their traditional healers, is 'ultimately perhaps the most effective way to protect their traditions.'<sup>57</sup> This is not surprising as although TKMUP is generally threatened, when it is supported, rewarded, and encouraged, a general revitalisation does usually occur,<sup>58</sup> as traditional healers are encouraged to innovate within their practice.<sup>59</sup> Understandably, some indigenous communities or elements within an indigenous community might be opposed to the commercialisation of their medicinal knowledge on religious or cultural grounds.<sup>60</sup> Nevertheless, as point out by Sunder, most indigenous people are becoming interested in commercialisation not just for purely economic reasons,<sup>61</sup> but also, they want 'recognition of their creativity and their contributions to science and culture'<sup>62</sup>

### III. The Extent To Which The Patent System Has Been Used In Nigeria

It must be stated at the earliest that Nigeria has not adopted robust measures towards the protection of its TKMUP through the patent system. Admittedly, measures have been adopted towards promoting the documentation and commercialization of TKMUP. But their

<sup>54</sup> See WIPO Recognition of TK *op cit* note 30 at para. 14.

<sup>55</sup> See Y. Groenewald, 'Town like Alice takes on German "Biopirate', *Mail & Guardian*, 22 January 2010; and B. Jordan, 'Drug companies looting SA's bounty of medicinal plants: State to protect shrubs, and traditional healers' rights' *The Times* (Johannesburg), 7 October 2007.

<sup>56</sup> See Oguamanam II *op cit* note 16 at 491; and Roht-Arriaza *op cit* note 5 above at 957.

<sup>57</sup> M. Leibl & T. Roy, 'Handmade In India: Traditional Craft Skills In A Changing World' in J.M. Finger & P. Schuler (eds), *Poor People's Knowledge: Promoting Intellectual Property in Developing Countries* (2004), 53 at 70. See also Sunder *op cit* note 17 at 109-118.

<sup>58</sup> See D. Gervais, 'Traditional Knowledge and Intellectual Property: A TRIPS Compatible Approach' (2005) *Mich. St. L. Rev.* 137 at 138; and R. Coombe, 'The Recognition of Indigenous Peoples and Community Traditional Knowledge in International Law' (2001) 14 *St. Thomas L. Rev* 275 at 279.

<sup>59</sup> See Erstling *op cit* note 22 at 332; and Carvalho *op cit* note 5 at 14.

<sup>60</sup> Particularly as it relates to the importance of co-operation and open-sharing among all the members within a community or within specific select groups of practitioners subject to the knowledge-protection protocols within the indigenous community. See Chennells *op cit* note 7 at 174-176 & 180; WIPO Recognition of TK *op cit* note 30 at para 10; D. Milius, 'Justifying Intellectual Property in Traditional Knowledge' (2009) 2 *Intellectual Property Quarterly* 185 at 194; and S. Vermeulen 'Trading Traditional Knowledge: San Perspectives from South Africa, Namibia and Botswana' in R. Wynberg, D. Schroeder & R. Chennells (eds), *Indigenous Peoples, Consent and Benefit Sharing: Lessons from the San-Hoodia Case* (Springer 2009) 187 at 193 & 200-204.

<sup>61</sup> Although economic factor do play a huge role as evident from in the statement attributed to Kgosi Nyalala Pilane, the traditional leader of the Batgatla-Ba-Kgafela Tribal Authority (BBKTA), a community participating in the South African National Recordal System project that 'it is our firm belief that our culture and identity are the pillars of our economic development journey, which is why we are participating in this project'. See 'Minister Hanekom Launches Recordal System for Indigenous knowledge' DST News Release(27 May 2013), available at: <http://www.dst.gov.za/index.php/media-room/latest-news/640-news-released-27may-2013-minister-hanekomlaunches-recordal-system-for-indigenous-knowledge>.

<sup>62</sup> Sunder *op cit* note 17 at 112.

effectiveness in leveraging TKMUP within the patent system and preventing biopiracy has been curtailed by poor funding. This is exacerbated by various shortcomings in patent law and administration in Nigeria,<sup>63</sup> a state of affairs that has been described as ‘a disservice to Nigeria and to bio-cultural knowledge’.<sup>64</sup>

### (a) Defensive Measures in Nigeria

The Nigerian Natural Medicine Development Agency (NNMDA) is currently developing a digital virtual library for Nigeria’s traditional medical system, which will be a dedicated focal reference centre for traditional medicine knowledge and practice, as well as for the promotion and safeguarding of IP arising from such knowledge.<sup>65</sup> The digital library which is modeled after the TKDL, seeks to document and conserve medicinal, aromatic and pesticidal plants (MAPPs) used in traditional medicine in Nigeria.<sup>66</sup> The mostly oral TKMUP will be captured, identified and documented using the scientific and common English names, as well as the local names of the affected plant in the three major Nigerian languages.<sup>67</sup> In addition to capturing oral TKMUP, the agency has embarked on the collection of research efforts by Nigerian scientists on medicinal and aromatic plants published in various international journals since 1972. The results from these projects are now fully digitized as well as published as books.<sup>68</sup> The digitized research works will form part of the envisaged digital virtual library which is not yet operational due to lack of fund.<sup>69</sup> The virtual library when fully operational is intended *inter alia* to be used in prior art searches by the Nigerian Patents Office (Trademarks, Patents and Designs Registry of the Federal Ministry of Industry, Trade and Investment) and international patent offices.<sup>70</sup> Nevertheless, its utility in determining the substantive novelty and non-obviousness of any TK invention will be minimal as the registry practises a formal or depository system, with simple prior art searches. In essence, the registrar is charged with the limited duty of examining patent applications as to formality in order to determine suitability for a patent grant. Once complied with, the patent shall be granted as applied without further examination of the substance of

<sup>63</sup> See A. Adewopo, *According to Intellectual Property: A Pro-Development Vision of the Law and the Nigerian Intellectual Property Law and Policy Reform in the Knowledge Era*, 5th Inaugural Lecture (2012 Nigerian Institute of Advanced Legal Studies, Lagos) 14 & 16-17.

<sup>64</sup> See I. Mgbeoji, *Bio-Cultural Knowledge and the Challenges of Intellectual Property Rights Regimes for African Development*, Convocation Lecture Series, (Nigerian Institute of Advanced Legal Studies, Lagos, 2011) 6. (Hereinafter Mgbeoji IV).

<sup>65</sup> See WIPO Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore, *Policies, Measures and Experiences Regarding Intellectual Property and Genetic Resources: Submission by the Nigeria Natural Medicine Development Agency (NNMDA)*, WIPO/GRTKF/IC/16/INF/7, Annex (19 February 2010) 1. (Hereinafter WIPO NNMDA).

<sup>66</sup> Towards achieving this, the Agency initiated a number of regional projects and programmes across the country. One of the projects, the *identification and documentation* of medicinal plants has so far during the first phase covered two Nigeria World Heritage Sites and six ecological zones of Nigeria. See G.E. Christian, *Digitization, Intellectual Property Rights and Access to Traditional Medicine Knowledge in Developing states— the Nigerian Experience* (International Development Research Centre (IDRC) Ottawa, Canada) 15-8, available at: <https://idl-bnc.idrc.ca/dspace/bitstream/10625/41341/1/129184.pdf>.

<sup>67</sup> *Ibid.*, at 17-18.

<sup>68</sup> *Ibid.*

<sup>69</sup> See ‘NASS seeks release of funds to NNMDA’, *Vanguard*, 15 July 2015, available at: <http://www.vanguardngr.com/2015/07/nass-seeks-release-of-funds-to-nnmda/>.

<sup>70</sup> See WIPO NNMDA *op cit* note 64 at 2.

the application.<sup>71</sup> The non-examination of the substantive novelty and inventiveness in patent applications may lead to a situation where inventions involving or derived from TKMUP are fraudulently patented by private and corporate bodies, and this does not augur well for the protection of TKMUP against misappropriation.

The virtual library can also be utilized by the NNMDA to oppose patent grants in foreign states where the subject matter of the patent application is based or derived from Nigeria's TKMUP. However, the intended use of the library references as prior art may raise an IP challenge with regard to the patentability of particularly the confidential TKMUP stored in the library. This is due to the fact that Nigeria also leans towards the absolute novelty requirement when it comes to determining the novelty of an invention. In essence, any oral or written medicinal knowledge (including TKMUP) once disclosed whether in the country or elsewhere, is regarded to be in the public domain and cannot be patented.<sup>72</sup> Surely, it is not the intention of the NNMDA through the virtual library to place undisclosed TK into the public domain, thereby promoting their unauthorized uses. It is therefore envisaged that Nigeria will adopt the same approach used by the South African National Recordal System (NRS) in safeguarding the confidentiality of the oral TKMUP stored in the system. Presently, for purposes of searches and examinations, the NRS (through the National Indigenous Knowledge Systems Office (NIKSO)), 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.<sup>73</sup> Such restrictive strategy allows the disclosed information about the confidential TK to be regarded as prior art for the purpose of determining the novelty of an invention, without unduly placing detailed information in the public domain.<sup>74</sup> Adopting such approach is necessary in order to prevent unauthorized uses as well as to enhance Nigeria's competitive advantage in the production of herbal drugs and supplements.

The PDA does not provide for the disclosure of origin requirement. Such lacunae when coupled with the simple prior art search and non-substantive examination of patent applications, would surely lead to situations where inventions derived from TKMUP are fraudulently patented by private and corporate bodies in Nigeria. It should be noted that the National Environmental Management (Access and Sharing of Benefits) Regulations,<sup>75</sup> requires the evidence of prior informed consent (PIC) from interested persons, local

<sup>71</sup> See the Patents and Designs Act, Cap P2, LFN 2004, s 4(2). (Hereinafter PDA).

<sup>72</sup> *Ibid.*, at s 1(3).

<sup>73</sup> This includes prior informed consent and non-disclosure agreements. See the Protection, Promotion, Development and Management of Indigenous Knowledge Systems Bill, GG 39910 of 8 April 2016, ss 20-21; T. Suchanandan, 'Explained: South Africa's Recordal System for Indigenous Knowledge' *Afro-IP*, 10 June 2013, available at: <http://afro-ip.blogspot.com/2013/06/explained-south-africas-national.html>; and WIPO Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore, *Responses to Questions Regarding National-Level Databases and an International Portal: Document submitted by the Delegations of Canada, Japan, Norway, the Republic of Korea and the United States of America*, WIPO/GRTKF/IC/27/INF/11, (27 March 2014), at p. 7, para. 43, available at: [http://www.wipo.int/edocs/mdocs/tk/en/wipo\\_grtkf\\_ic\\_27/wipo\\_grtkf\\_ic\\_27\\_inf\\_11.pdf](http://www.wipo.int/edocs/mdocs/tk/en/wipo_grtkf_ic_27/wipo_grtkf_ic_27_inf_11.pdf). (Hereinafter WIPO Responses).

<sup>74</sup> See WIPO Responses *op cit* note 72 at 13, paras. 85 & 91; and WIPO Practical Mechanisms *op cit* note 41 at paras. 10 & 20.

<sup>75</sup> S.I. 30 of 2009. (Hereinafter ABS Regulations).

communities and other stakeholders or relevant agencies before an access permit will be granted to a bioprospector.<sup>76</sup> However, the non-linkage with the PDA has rendered such provision ineffective in preventing fraudulent patenting of inventions derived from TKMUP in Nigeria.

### **(b) Affirmative Measures in Nigeria**

TKMUP or inventions based on or derived from such medicinal knowledge are patentable in Nigeria provided they are new, non-obvious and of industrial application.<sup>77</sup> Such patenting is further enabled by the fact that as a depository patent system, ‘the patent examination through a formal process rather than the more complex substantive process reduces the scrutiny traditional inventors requires to be granted a patent.’<sup>78</sup> However, the depository system while enhancing the speed of the patenting process in Nigeria, results in the absence of any guarantee that the patent will be valid. Indeed, section 4(4) of the Patents and Designs Act expressly states that ‘patents are granted at the risk of the patentee and without guarantee of their validity.’ Hence, the validity of such inventions is open to challenge in court, and if challenged, the primary onus of proving validity rests on the patentee.<sup>79</sup> As pointed out by Date-Bah, ‘Patents issued under a registration [depository] system are, therefore, of lower presumptive validity and usually include a relatively large number of manifestly invalid and “weak” patents.’<sup>80</sup> Particularly where the inventions concern medicinal plants that may have widespread uses in either Nigeria or other African nations,<sup>81</sup> such patent may run the risk of infringing another local innovator’s patent.

Despite the advantages associated with the depository system, there is generally a low level of patenting of inventions, and particularly for inventions that are TK, or based or derived from TK in Nigeria. This cannot be attributed to the above issues raised by the validity of patents granted under the depository system. Rather, the problem may lie in the non-recognition by policymakers that Nigeria’s rich TKMUP, if properly formalised and capitalised through the acquisition of IP right, is one of the intangible assets, which can be used as a driving force for socio-economic growth and comparative advantage in the global economy.<sup>82</sup> Such recognition is evident in the Chinese government policy of encouraging the

<sup>76</sup> Ibid, at regs 5-6. It should be noted evidence of benefit sharing agreement is not explicitly provided as a condition for the issuance of an access permit. However, it can be argued evidence of such agreement will be required as it is doubtful if indigenous community would prior consent to such access unless they would share in the benefits arising from the bioprospecting activities. This is supported by the provisions of regulation 18 requiring that NESREA should ensure that ‘the holder of an access permit facilitates the active involvement of Nigerian citizens and institutions in the execution of the activities under the permit’.

<sup>77</sup> See PDA *op cit* note 70 at s 1(1).

<sup>78</sup> Ayoyemi Lawal-Arowolo ‘Patent Regimes and African Traditional Medicine Practitioners: Towards A Synergy’ (2013) 2 (1) *NIALS Journal of Intellectual Property* 123 at 134.

<sup>79</sup> See PDA *op cit* note 70 at s 9.

<sup>80</sup> Date-Bah, S. K.: ‘Transfer of Technology to Nigeria and the Patents Designs Act of 1970’ (1981) 25(2) *Journal of African Law* 82

<sup>81</sup> The transboundary widespread uses of certain TKMUP have necessitated the call under the Nagoya Protocol for a global multilateral benefit sharing mechanism to address the fair and equitable sharing of benefits derived from such knowledge. See Art 10

<sup>82</sup> See P. Basu, ‘Trading on Traditional Medicines’ (2004) 22/3 *Nature Biotechnology*, pp. 263-65 at 263; Department of Science and Technology, *the Bio-economy Strategy* (Pretoria, 2013) 7 & 19, available at [www.gov.za/documents/download.php?f=207579](http://www.gov.za/documents/download.php?f=207579), (hereinafter *Bio-economy Strategy*); Sunder *op cit* note 17 at 111; and Carvalho *op cit* note 22 at 19 & 27.

patenting of innovative Traditional Chinese Medicine (TCM) products, and which has been credited with incentivizing investment in TCM, increasing TCM knowledge base, and transforming TCM into a major global export asset.<sup>83</sup> Admittedly, the establishment of the NNMDA,<sup>84</sup> and the Nigeria Institute for Pharmaceutical Research and Development (NIPRD),<sup>85</sup> arguably signifies the intention of the Nigerian government to promote the development and commercialization of innovative products resulting from bioprospecting activities.<sup>86</sup> The effort of these agencies in promoting the commercialization of TKMUP should be boosted by the establishment of National Office for Technology Acquisition and Promotion (NOTAP). NOTAP is mandated to assist in the patenting of all inventions and innovations carried out by government funded research institutes and others in the private sector.<sup>87</sup> However, as earlier noted, poor funding is a critical obstacle to the realization of the mandates of these organizations. This is despite the fact that the activities of NIPRD led to the development of NIPRISAN, an anti-sickle cell drug based on traditional recipe that had been known to generations of a Nigerian family as an effective treatment for sickle cell anemia.<sup>88</sup>

Another factor and which is perhaps, the greatest militating factor to the patenting of TKMUP or inventions based on or derived from such medicinal knowledge, is the nature of the administration of the patent system in Nigeria which is characterized by inadequate personnel and generally poor infrastructure.<sup>89</sup> For instance, all applications are processed at the Nigerian Patent head office at Abuja and such practice when coupled with the mostly manual system of registration,<sup>90</sup> leads to a backlog of application. This made patenting to be a time-consuming and expensive process,<sup>91</sup> and ultimately contributes to low patenting culture

<sup>83</sup> See Erstling *op cit* note 22 at 331-33.

<sup>84</sup> It mandated to assist in promoting the development of innovative products from local herbs and medicinal and aromatic plants through appropriate public-private partnership schemes, for further research and commercialization. See WIPO NNMDA *op cit* note 64 at 1-2.

<sup>85</sup> It was established with the primary objective of developing drugs, biological products and pharmaceutical raw materials from indigenous resources as well as the conservation of Nigeria's medicinal and aromatic plants.

<sup>86</sup> For the achievements of these agencies, see the Nigerian Natural Medicine Development Agency (NNMDA), 'NNMDA Collaboration & Linkages', available at <http://www.nnmda.gov.ng/collaborators>; and the Nigeria Institute for Pharmaceutical Research and Development (NIPRD), 'Welcome', available at: <http://www.niprd.net/>

<sup>87</sup> See National Office for Technology Acquisition and Promotion (NOTAP), 'Patenting Inventions through NOTAP', available at: <http://www.notap.gov.ng/content/patenting-inventions-through-notap>; and Senator Ihenyen, 'The National Office for Technology Acquisition and Promotion (NOTAP): Supporting Inventions and Innovations towards Indigenous Technological Advancement in Nigeria (3)', *Nigerian Law Today*, 26 February 2014, available at: <http://www.nigerianlawtoday.com/2014/02/the-national-office-for-technology.html>.

<sup>88</sup> For other achievements of these agencies, see the Nigerian Natural Medicine Development Agency (NNMDA), 'NNMDA Collaboration & Linkages', available at <http://www.nnmda.gov.ng/collaborators>; and the Nigeria Institute for Pharmaceutical Research and Development (NIPRD), 'Welcome', available at: <http://www.niprd.net/>

<sup>89</sup> See Abigail B. Kahuwai 'grant of letter patent in Nigeria: Issues Arising' (2014/2015) 2 *Idah Bar Journal of Contemporary Legal Issues* 78 at 83-84.

<sup>90</sup> *Ibid.* (pointing out that the manual system of registration persists despite the adoption of the Intellectual Property Automated System (IPAS) in January 2014).

<sup>91</sup> *Ibid.*, at 90. See also World Intellectual Property Organization (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) 149 & 155.

amongst Nigerian innovators.<sup>92</sup> It has also to situations where either the innovators prefer to patent their inventions in developed country;<sup>93</sup> or would have to seek external funding to pay for the costs.<sup>94</sup>

#### **IV. Wayforward: Enabling the Patent System for the Protection of Tkmup in Nigeria**

The lack of robust measures for the protection of TKMUP through the patent system in Nigeria has inevitably promoted a situation whereby ‘the knowledge is being exploited by local and international researchers and entrepreneurs without any benefit to the original custodians and communities in particular, and the country in general’.<sup>95</sup> Reversing such state of affairs requires that there should be a legislative appreciation and prioritization of IP by policy makers in order to overcome the various shortcomings in patent law and administration in Nigeria. This implies that policy makers must adopt measures which will enable the patent system to be used effectively in protecting Nigeria’s rich TKMUP against biopiracy and any other act of misappropriation. Such measures should include the defensive measures earlier discussed in this article including the disclosure of origin requirement. In addition, policy makers should embrace other patent mechanisms that would enhance the effectiveness of such measures in combating biopiracy. These include the adoption of substantive search and examination of patent applications which would not only help in strengthening the quality of issued patents, but also in ensuring that Nigerian patent system do not end up inadvertently as an instrument for legitimising the misappropriation of its biological resources and associated TK.<sup>96</sup> This should be supported by the adoption of pre- and post grant proceedings, which experiences from India have shown, represent a cheaper and easily accessible means for aggrieved communities to oppose the patenting of inventions from fraudulently obtained TKMUP.<sup>97</sup>

Presently, various attempts have been made to reform the patent system and the entire IP regime in Nigeria with nothing concrete to show for two decades of such endeavours.<sup>98</sup> The failure of such endeavours was not due to the non-realisation of the importance of patent and other IP rights in national development,<sup>99</sup> but rather a ‘lack of legislative appreciation and prioritisation of IP relative to other matters on the legislative agenda’.<sup>100</sup> Such state of

<sup>92</sup> See Mgbeoji IV *op cit* note 63 at 39.

<sup>93</sup> For instances of such patenting, see E.B. Izevbogie, *Phytochemotherapy for cancer*, US 6713098 B2 (Jackson State University) 30 March 2004, available at: <https://www.google.com/patents/US6713098>; and L.O. Nelson, *Medicament for the treatment of diabetes*, US6531461 B1 (Louis Obyo Nelson), 11 March 2003, available at: <http://www.google.com/patents/US6531461>.

<sup>94</sup> See WIPO Facts Finding Mission *op cit* note 90 at 155.

<sup>95</sup> See WIPO NNMDA *op cit* note 64 at 2.

<sup>96</sup> See Mgbeoji *op cit* note 7 at 419; and Date-Bah *op cit* note 78.

<sup>97</sup> The 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 Patents Act No 39 of 1970, at s 25 (1) & (3).

<sup>98</sup> For the discussion of such attempts, see Adewopo *op cit* note 62 at 46-51.

<sup>99</sup> For instance, the 1989 National Industrial Policy recognized the importance of the patent system in the protection of the results of the activities of firms engaged in Research and Development (R&D) for improvement of their processes and products.

<sup>100</sup> Adewopo *op cit* note 62 at 51.

affairs has led to a situation whereby the patent system and the entire IP system ‘hardly reflect the industrial needs, cultural attributes, and imperatives of Nigeria’.<sup>101</sup>

Measures must go beyond reforming the patent system to adopting measures that would promote the commercialization of TKMUP in Nigeria. Hence, this requires that policymakers must adopt clear and proper funded industrial policy which should ‘give pride of place to their wealth of medicinal bio-cultural knowledge as it is impossible to have a responsible and responsive IPRs regime [for TKMUP] without a credible industrial policy.’<sup>102</sup> This is much evident in China where in order to enhance the patenting of TCM products, the government implemented a clear industrial policy of modernisation of traditional medicines including the ‘scientification’ of TCM along the pattern of its integration with Western medicines.<sup>103</sup> Such incorporation of scientific technique (scientification project), enables TCM inventions to easily comply with not only the substantive conditions of patentability, but also the technical patent specifications (written description of the invention and how to carry it out). The latter which has been described as the heart of the patent system,<sup>104</sup> requires that the technical specifications should incorporate the scientific terminologies that patent examiners or judges are trained to assess or can easily comprehend.<sup>105</sup> Incorporating scientific terminologies invariably involves employing sophisticated techniques to bioengineer the plants ingredients in order to identify the active compounds or substances. Such technologies are usually out of reach for most innovators in the area of traditional medicine.<sup>106</sup> It is therefore not surprising that the establishment of ‘scientification’ organisations such as the Shanghai Innovative Research Center of Traditional Chinese Medicine (SIRC) further encouraged patent protection for TCM.<sup>107</sup>

As earlier noted, the establishment of NNMDA, NIPRD and NOTAP are an indication of the Federal government policy towards the promotion of the development and commercialization of innovative products resulting from bioprospecting activities. What is therefore needed in this respect is their proper funding in order to promote the realisation of their objectives as it concerns the patenting of innovative products based or otherwise derived from Nigeria’s rich biodiversity and associated TK.

## V. Conclusion

It is apparent from the discussion in this article that while Nigeria has been vocal in seeking a review of patent’s conceptual framework in multilateral forums in order to effectively protect its TKMUP and other biodiversity TK, that not much has been done at the national level in reforming its patent system to achieve the same purpose. Understandably, considering the global character of the patent system and the low patenting culture amongst

<sup>101</sup> Mgbeoji IV *op cit* note 63 at 37.

<sup>102</sup> See Mgbeoji *op cit* note 7 at 420.

<sup>103</sup> Towards achieving this, an entire technology park in Houzhou has been devoted to the scientific study of Chinese medicine. See Basu *op cit* note 81.

<sup>104</sup> See Mgbeoji III *op cit* note 23 at 182.

<sup>105</sup> See Erstling *op cit* note 2 at 330.

<sup>106</sup> See Y. Daya & N. Vink, ‘Protecting Traditional Ethno-Botanical knowledge in South Africa through the Intellectual Property Regime’ (2006) 45(3) *Agrekon* 319 at 328.

<sup>107</sup> See Erstling *op cit* note 22 at 332.

innovators in Nigeria, multilateral action would represent a more effective measure towards tackling the issue of biopiracy or any other misappropriation of biodiversity TK through the patent system. However, in view of the reluctance to reform the global patent system, Nigeria needs to join other developing nations that have resorted to the adoption of radically different strategy in their approach to IP. Inaction in this respect would encourage unfettered access to such knowledge and subsequent patenting by domestic researchers as well as multinational corporations as already evident in some patents granted on various inventions derived from Nigeria's biodiversity TK. The measures that should be taken to enable the Nigerian patent system for the effective protection of such knowledge are suggested in the preceding section. What is needed is the mobilisation of the political will for their effective implementation in the country.