ISSN: 2520-3304

African Journal of Intellectual Property

Volume 3 Number 2 June 2019

IP ARIPO
African Regional Intellectual Property Organization

AFRICA UNIVERSITY
A United Methodist-Related Institution

Vision

To be Africa's leading intellectual property hub

Mission

To foster creativity and innovation for
economic growth and development in Africa

Core Values

Client-focus
Engagement
Innovation
Integrity
Accountability

www.aripo.org

PATENTS | TRADEMARKS | UTILITY MODELS | INDUSTRIAL DESIGNS | TRADITIONAL KNOWLEDGE | PLANT VARIETIES | COPYRIGHT | GEOGRAPHICAL INDICATIONS

African Journal of Intellectual Property

Volume 3 Number 2 June 2019

The *African Journal of Intellectual Property* is jointly published by Africa University and the African Regional Intellectual Property Organisation (ARIPO).

© Africa University and ARIPO, 2019

Africa University (AU)
Fairview Rd, Off Nyanga Rd
P O Box 1320
Mutare
Zimbabwe
Telephone (263-20) 66788, 60075

African Regional Intellectual Property Organisation (ARIPO)
11 Natal Rd
Belgravia
P. O. Box 4228
Harare, Zimbabwe
Telephone (263-4) 794 054, 794 065, 794 068
Cell: (263) (0) 731 559 987, 731 020 609
Fax: (263) (4) 794 072/3

ISSN 2520-3304

African Journal of Intellectual Property

Managing Editor Munani Mtetwa

EDITORIAL COMMITTEE

Mr Emmanuel Sackey, African Regional Intellectual Property Organisation, Zimbabwe
Dr Byson Sabola, African Regional Intellectual Property Organisation, Zimbabwe
Mr Charles Satumba, African Regional Intellectual Property Organisation, Zimbabwe
Mr Outule Rapuleng, African Regional Intellectual Property Organisation, Zimbabwe
Professor Caroline Ncube, University of Cape Town, South Africa
Mr Christopher Munguma, Africa University, Zimbabwe
Mr Gabriel Muzah, Africa University, Zimbabwe
Mr George Mandewo, Africa University, Zimbabwe
Mr Munani Mtetwa, Africa University, Zimbabwe
Dr Marisella Ouma, High Court of Kenya

CONTRIBUTING AUTHORS FOR THIS ISSUE

Mhlambululi Mafu *(Botswana International University of Science and Technology)*
Christopher Munguma *(Africa University, Zimbabwe)*
Misheck Banda *(Mzuzu University, Malawi)*
Frieda Omagano Shifotoka *(University of Pretoria Student Law Review)*
Tapiwa Musasa *(Catholic University in Zimbabwe)*

CONTRIBUTING REVIEWERS FOR THIS ISSUE

Professor Hankie Uluko
Mr Moses Nkomo
Dr Byson Sabola
Dr Perkins Muredzi
Mr Outule Rapuleng
Mr Christopher Munguma
Ms Sarah Moyo
Mr Charles Pundo
Professor Caroline Ncube
Mr Emmanuel Sackey

ANNUAL SUBCRIPTION RATES

	Individuals USD	Institutions and Corporates USD
Africa	**20**	**30**
Rest of the World	**30**	**50**
Electronic version	**10**	

Subscriptions payable to:

Account Name	Africa University, Mutare
Bank Name & Address	Stanbic Bank Zimbabwe Limited 67 Herbert Chitepo Street/C Avenue, Box 447, Mutare, Zimbabwe
Telephone & Fax Number	(263-020) 63313/63393 – 66907
Branch Name	Mutare
Branch Code	3504
Currency	USD denominated
Account Number	**9140000882444**
Swift Code	SBICZWHXXX

TABLE OF CONTENTS

ONE SIZE MAY NOT FIT ALL AFTERALL: A CLOSER LOOK INTO LDC'S CONTINUED REQUESTS FOR EXTENSION OF DEADLINES FOR COMPLIANCE TO THE TRIPS AGREEMENT
Misheck Banda 85

THE PROTECTION OF GEOGRAPHICAL INDICATIONS: THE EXAMPLE OF NAMIBIAN PRODUCTS
Frieda Omagano Shifotoka 97

CRIMINAL LAW ENFORCEMENT OF INTELLECTUAL PROPERTY RIGHTS IN ZIMBABWE
Christopher Munguma 112

PUBLIC HEALTH AND INTELLECTUAL PROPERTY: PHARMACEUTICAL PATENTS AND TEST DATA PROTECTION
Mhlambululi Mafu 133

INDIGENOUS KNOWLEDGE SYSTEMS IN NEMBUDZIYA: RESILIENCE OR DEMISE?
Tapiwa Musasa 163

African Journal of Intellectual Property

GUIDELINES FOR AUTHORS

Manuscript preparation

Articles should be original contributions, not previously published and should not be under consideration to publish elsewhere. Articles should be between 4 000 and 5 000 words, set at 12 point font, in Book Antiqua, with 1½ lines spacing. An abstract of 150–200 words must be included.

Spelling

UK English spelling is preferred; and should conform to the most recent edition of the Concise Oxford English Dictionary.

Footnotes

Footnotes should be avoided and their content must be incorporated into the text. If notes are unavoidable, they must be brief and to the point. Convert them to endnotes.

Referencing style

Please follow the American Psychological Association (APA) referencing style in which:
-in–text citations should state author, date and sometimes page number; and
-reference list, entered alphabetically, must include all the works cited in your article.

Quotations

Short quotes of less than three lines (under 40 words) should run on as part of your sentence with "double quotation marks" to signal where the quote starts and finishes. The page where the quote comes from must be included.
Long quotes known as block quotes or indented quotes (more than 40 words) should:

- start on a new line
- be set at 10 point font
- be indented about 5 spaces from the left hand margin
- be single spaced
- not have quotation marks.

Manuscript submission

Articles submitted to the African Journal of Intellectual Property will be reviewed using the double-blind peer review system. Note that plagiarism checks will be carried out on all articles submitted. To protect the author's identity, do not include the author's name in the main text or as running heads and footers.

Correspondence to: Munani Mtetwa, Managing Editor on *ajipjournal@africau.edu*

ONE SIZE MAY NOT FIT ALL AFTERALL: A CLOSER LOOK INTO LDC'S CONTINUED REQUESTS FOR EXTENSION OF DEADLINES FOR COMPLIANCE TO THE TRIPS AGREEMENT

*Misheck Banda**

Abstract

The Trade Related Aspects of Intellectual Property (TRIPS) Agreement is a brainchild of the World Trade Organisation (WTO). The WTO was established in 1995 as an outcome of the Uruguay Round of trade negotiations which took place from 1986 to 1994, within the framework of the General Agreement on Tariffs and Trade (GATT). While a lot of studies have been done on the socio-economic benefits of the TRIPS Agreement for developing countries such as the studies sanctioned by the Organisation for Economic Cooperation and Development OECD, World Intellectual Property Organisation (WIPO) and European Union Intellectual Property Office, not much empirical evidence exists as to why most LDCs keep making requests for extension of deadlines for compliance to the TRIPS Agreement. This article highlights a number of areas that seem to suggest that the TRIPs Agreement may be a limiting factor for LDCs to become fully compliant to the TRIPS. This has been done through a literature review and analysis of a number of expert views on the same. By doing so this article intends to stir more debate and focus in this not so adequately researched area. The article ends with suggestions for more focused studies aimed at soliciting empirical evidence on the plight of specific LDCs. This may in turn provide a basis for possible further (re)negotiations regarding TRIPS and the plight of LDCs.

Keywords

TRIPS, agreement, compliance, flexibilities

* Misheck is a PhD student in the College of Law at the University of South Africa. He obtained a Master's Degree in Intellectual Property from Africa University. Misheck is a lecturer in intellectual property Mzuzu University in Malawi where he also coordinates the University's Technology and Innovation Support Centre (TISC). His research interests revolve around the areas of intellectual property policies, international intellectual property agreements/treaties and their impact on developing countries, intellectual property management and enforcement issues. Email: misheckbanda@gmail.com

Introduction

Evidently, most analysts seem to agree on the observation that the effects of the Trade Related Aspects of Intellectual Property (TRIPS) Agreement vary from country to country, depending on their level of development. A commonly cited example is with regard to the very implementation of the TRIPS Agreement which requires some considerable budgetary costs, to update legislation to make it TRIPS compliant, and the accompanying recurrent costs as it applies to ensuring the observance of the legislation. A study sanctioned by the United Nations Conference on Trade and Development (UNCTAD) on the institutional costs of the implementation of the TRIPS Agreement showed that a country like Egypt would require USD 800,000 once-off cost and an additional annual training cost amounting to USD 1 million (National Board of Trade Report, 2004). Such amounts as these might be unthinkable for most LDCs to spend on IP enforcement alone as they usually have other priority areas such as health, food availability, high poverty levels and unemployment. Regrettably for such LDCs, unlike the other conventions on IP that existed prior to the TRIPS Agreement, the TRIPS Agreement provides for enforcement, and is linked to the WTO obligations, meaning that violation of the provisions of the TRIPS may as well lead to such punitive measures as trade sanctions (Lumina, 2010). Thus, just as Finger and Schuler (2000) observe, it was clear from the very inception that the WTO-TRIPs regulations are in a way a reflection of little awareness of development problems and the incapacities of LDCs, because the sad reality is that the money to be spent by LDCs in implementing these 'WTO rules' would be money unproductively invested.

The resistance given by the developing countries at the Uruguay Round was but an indicator of the further confusion and ambiguities that were to follow with the implementation of the agreement. Observably, developing countries responded to the implementation of the TRIPS differently; while some ended up implementing even higher standards than was required, some focused on utilising the flexibilities that the agreement accorded. Notably also, most of the developing countries and especially LDCs have kept on missing set deadlines of bringing their respective national legislations in conformity with the agreement (Deere, 2009).

It had also been queried even before its coming into effect whether the TRIPS Agreement should be housed under the WTO roof since the agreement is more of a proponent of protectionist environment for major corporations than an advocator for free and fair trading practices for all (Rikowski, 2003). Surprisingly though in the 1970s, and just before the Uruguay Round, international organisations such as World Bank, General Agreement on Tarrifs and Trade (GATT) and OECD had been warning

against the negative effects of increasing protectionism on the economy of the world in general (Menes & Kol, 2005). Thus, where LDCs become fully compliant to TRIPS Agreement, then WTO will have succeeded, as Adibe 2013 puts it, in betraying the LDCs, by bringing to them an unbalanced trade system that only rubberstamps abject poverty to the LDCs and take away their right to introduce policies that could lead to economic development. It is not surprising therefore that the discomfort continues to be expressed by way of their never ending requests for extension of transition period.

While it is argued that strong IP protection stimulates innovation, a general observation regarding patents is that most (if not all) the patent holders are from the developed world which means patent protection translates to financial flows to the developed world at the expense of the net losses to many developing countries, during the entire period of protection, not to mention of LDCs. However, as much as the aforementioned observation may be based on empirical evidence, the present article mindful in its analysis that not all failure to develop may be attributable to the TRIPS Agreement. Also worth considering is the fact that the TRIPS Agreement, from the very onset, provided some flexibilities for LDCs certain exceptions from IP protection to meet national needs. Nevertheless, the fact that many LDCs have to date not been able to use the TRIPS Agreement flexibilities begs the question of the relevance of signing the whole agreement in the first place. Arguably also, while the TRIPS Agreement appears to consider the plight of developing countries and LDCs in selected industries such as the pharmaceutical sector (UNCTAD Report, 2011), the extent to which it serves the interests of other equally important industries for LDCs remains subject for debate (Mario, 2014).

The relevance of the TRIPS Agreement fundamental principles of National Treatment and Most Favoured Nation (MFN) Treatment for LDCs has also attracted a lot of debate. The National Treatment provision requires member states to accord equal treatment to all foreigners participating in the agreement (Article 3), whereas MFN treatment provides that any advantage, favour, privilege or immunity granted by a member state to the nationals of any other country shall be accorded immediately and unconditionally to the nationals of all other members (Article 4). Worth noting is the fact LDCs are required to comply with these provisions, notwithstanding the prevailing transition periods. Thus, from the perspective of LDCs, these two compulsory provisions put them at risk of locking themselves up, limiting themselves from the freedom of priotising their own challenges to development, as the ideal scenario would have been where LDCs were allowed to focus on conducting trade practices with only those countries that they find useful at a particular point (Kennedy, 2006).

Additionally, the TRIPS Agreement further calls for criminal law sanctions to deter infringement of intellectual property rights covered by the agreement, and calls for the introduction of border control measures to prevent the dissemination of illegal products. For LDCs with no capacity to export products elsewhere, once they become fully compliant, this would imply dedicating their usually limited financial resources to protecting the foreign owned intellectual property instead of focusing on building local capacity in the same. Evidence exist of some countries in the world that have moved from one stage of development to the next merely by not being too strict on IP protection and instead focusing on building local capacity, including making copies from foreign owned technologies and reverse engineering, an opportunity that LDCs are deprived of today.

A report by OECD revealed that it was mostly the emerging countries that were found to be the biggest culprits of counterfeiting, with China, Singapore and Turkey topping the list, and US brands and patents being the most affected (OECD, 2017). While not condoning the practice of copying others' technologies or counterfeiting, one would wonder as to why LDCs ought to be any nearer to complying with the TRIPS Agreement provisions given their limited infrastructural capacity to copy technologies and financial incapacity to effect enforcement measures, no wonder therefore that they continue to request for further extensions each time the deadline is reached.

Observably, it has been the continued discomfort by developing countries and LDCs that has seen some amendments to the TRIPS Agreement. The eventual entry into force of such amendments could as well be an important indication of an unbalanced agreement requiring reconsideration, notably the adding of Article 31*bis*, as well as an Annex and an Appendix to the text of the Agreement, following the 2005 Decision 53 to amend the Agreement in order to address public health needs at the request of some developing and LDC member states (OECD, 2017).

The effect of the TRIPS Agreement on developing countries and LDCs

The question as to whether the TRIPS Agreement is able to balance the interests of the developed as well as developing countries, and more so LDCs would be best dealt with by first appreciating the driving hand behind the TRIPS Agreement. Notably, the agreement came into being as a result of dissatisfaction on the part of the developed countries on the high levels of counterfeiting and piracy that was evident in the developing countries. In particular, the US appears to have been the most determined complainant and went ahead to push for a 'more effective' effective protection of Intellectual Property rights at the international stage (NBT Report, 2004).

The fact that the developed countries, and especially the US were in the forefront pushing for such an agreement required that developing countries look at the driving force even more critically before engaging themselves in any form of agreement. It is truth that historically, developed countries would introduce stronger IP protection only when and where such protection suited their conditions both economically and institutionally. This suggests that the need for strong intellectual property protection may not be uniform for all countries at a particular point in time, more so if the LDCs are to register the same economic success as is the case with those countries that are now referred to as developed.

Evidence exists that from the very inception of the TRIPS Agreement, developing countries showed some form of resistance. For instance, it is on record that Argentina, Brazil, Chile, Columbia, Cuba, Egypt, Nigeria and Tanzania strongly opposed the integration of IPRs into a trade policy when the idea was first brought to the table (Scholtz & Mamabolo, 2006). Thus, the Agreement overlooked the development dimension at its inception and that this has led to imbalances between the developed and the developing world (NBT Report, 2004). The scope and content of the TRIPS Agreement t has also been criticised as being biased towards protecting the interests of certain countries in the developed world for instance, where one ponders as to why of all products, wines and spirits could be granted special and reinforced protection as is stipulated in Article 23 of the agreement. It was clear from the outset that developed countries did not need the same agreements as did the LDCs or the developing countries.

One other area that has brought about debate on the TRIPS Agreement relevance is the protection of Traditional Knowledge (TK) in the context of the TRIPS Agreement Agreement. Andrzejewski (2010) observes that owing to the fact that the TRIPS Agreement does not provide a definition for 'novelty' as a patentability requirement, developed countries like the US have consistently taken advantage of this by registering patents that are based on TK from developing countries and LDCs, thereby rendering the LDCs even more vulnerable.

In the same vein, other quarters have looked at the whole 'western' IP regime as a major piece of confusion, criticising it for disrespecting rights of indigenous people. The evident rivalry between WIPO and the United Nations' Convention on Biodiversity (CBD) is especially cited to have brought more curses than blessings with regard to the rights of indigenous peoples to own and access their resources, get prior informed consent, protect their traditional knowledge and issues of access and benefit sharing (Adewumi, 2013)

Issues surrounding institutional capacity of LDCs

While some analysts consider the flexibilities contained in the TRIPS Agreement as a window of opportunity for developing countries, some LDCs are unable to utilise such, partly because in addition to the TRIPS Agreement, they are also involved in some other bilateral and regional arrangements or are part of organisations with higher forms of protection. A notable example to this effect is the case of the French speaking African countries, who through their regional body *Organisation Africaine de la Propriété Intellectuelle* (OAPI) and with 'ill' advice from the International Union for the Protection of New Varieties of Plants (UPOV) decided to introduce a higher level of plant breeders protection, than that stipulated in the TRIPS Agreement, despite the fact that 11 of the 16 OAPI member states were LDCs who under the TRIPS Agreement, did not need to introduce any form of protection in respect of plant species (NBT Report, 2004). Most LDCs in Africa are party to either OAPI or the African Regional Intellectual Property Organization (ARIPO), organisations that are oftentimes described as being mere repositories of western based intellectual property systems (Banda, 2017). Thus, owing to the limited institutional capacity to formulate proper legislation, most LDCs are in no position to resist demands, including those that may not be in their favour, and the TRIPS Agreement provisions are not an exception.

TRIPS Agreement provisions

While Article 66 of the TRIPS Agreement provides for developing countries to assist LDCs and other developing countries both financially and technically to facilitate the implementation of the TRIPS Agreement, there has been a general outcry from the LDCs that in practice this requirement is not being fulfilled (Jayashree & Caminero, 2017). Besides, even in cases where such assistance has been provided, say by organisations such as WIPO and WTO, the very observation that most LDCs lack institutional capacity to formulate meaningful legislation poses the risk of the LDCs merely copying models of legislation from the developed world that may not be reflective of their developmental needs in the name of 'technical assistance'. A much critical view is raised by Shugurov (2015) who contends that the TRIPS Agreement only has great potential in the preamble, arguing that empirical generalisations of technology transfer to LDCs show that technologies protected by patents are not reaching them.

Evidence exists of countries that only involved themselves in stricter intellectual property protection after getting to a certain acceptable level of development way above the LDC status. China for instance is one such country which only modernised its IP legislation recently, having reached a level where its citizenry was technologically advanced and were able to

file for patent applications. India is another example whereby it was only in 2001 that the country's Science and Technology Policy emphasised for the first time that IP was an important tool for the country's development (NBT Report, 2004). However though, the effectiveness of enforcement of IP legislation in these countries remains a debatable matter to date.

Conclusively, it is evident that what was discussed at the Uruguay Round was not just policy commitments, rather they were strict investment decisions the implementation of which would be too costly for LDCs (Syed, 2018). What would have worked if the TRIPS Agreement strong IPR protection drive was aimed at striking an equilibrium would have been a model whereby high income (H-I) developed countries would compensate those low income (L-I) and middle income (M-I) countries without capacity for knowledge and technology transfer. Otherwise the current scenario is that of L-I and H-I countries simply taking a ride in the vehicle of H-I countries in a direction unknown to the former (Chou & Passerini, 2009).

LDCs' never ending requests for extension of transition period

Today, about two decades into the TRIPS Agreement era, LDCs continue to request for further extensions of the transition period. The 'never-ending' extension requests speak volumes as to whether it is the right time for LDCs to be strict with IP protection or not, and to further reflect on whether the requirement to accede to such agreements as TRIPS Agreement is fair at this point. An interactive and collaborative approach among the developing countries and LDCs in seeking extensions appears to be at the moment the only sure way for surviving from the impending harm compliance to TRIPS Agreement would bring to them (Chaudhury & Gurbani, 2002). This observation is however not taking away the meritorious advantages of the TRIPS Agreement such as limiting the existence of ineffective and often dangerous products on the world market such as fake pharmaceutical and electrical products that may otherwise pose as health risks. That said, the thinking of the present study remains that LDCs generally have few resources for research and development and few inventions to protect and so there is little to gain from strong patent protection as is suggested in the spirit of the TRIPS Agreement, for instance, until their domestic situation will have improved.

TRIPS Agreement effect on Foreign Direct Investment (FDI) in LDCs

A general conclusion from a number of scholars suggests that reinforced protection of IP rights has positive effects in developing countries in the form of FDI (Wade, 2003; Correa, 2005; Hassan et al., 2010; Levin 2011). This conclusion has also been extended to include LDCs even though there is a general lack of empirical evidence. Thus, while acknowledging that FDI may be linked to strong IP protection, such sweeping conclusions are fallacious in that they overlook the fact that the possibility of attracting FDI with strong IP protection could vary between countries depending on their level of development, and that the picture with specific LDCs could be very different.

There is a general observation for instance, that mechanical equipment and transport industries are less dependent on strong IP protection to attract FDI, as compared to the chemical industry, particularly the pharmaceutical industry as the latter is easier to imitate. Thus strengthening of IP protection through such agreements as the TRIPS Agreement as a means to attracting FDI should primarily be the concern of only those countries with known capacity to imitate as is currently the case with China, and not LDCs that have no potential to imitate at all.

A Glimpse into the Plight of Some African Countries

The continent of Africa is home to 54 countries, 34 of which are classified by WIPO as least developed. South Africa, a developing country is widely considered as being the 'most developed' African nation. However, 'most developed' as it is considered, the unemployment rate for South Africa has for the recent past been at 40 percent, and 54 percent of the adult population had not completed a general level of education (Nicholson, 2006). Given these statistics about the economic stronghold of Africa, one wonders the kind of challenges the rest of the African countries are going through and indeed, whether intellectual property protection should be a priority at the moment.

In the case of Malawi, up to 90 percent of the population live in rural areas without access to portable water and electricity, engaging in small scale farming activities, basically subsistence, and relying on rain-fed agriculture. The country is landlocked and has one of the largest population densities in sub-Saharan Africa (World Bank Report, 2007). Currently at 18 million, the population of Malawi is expected to double in two decades' time (IMF Report, 2017). It would surely be laughable that in

such a country, where no single patent has been granted to a local innovator, priority should be laid on aligning their laws to be TRIPS Agreement compliant.

The Rwanda case is not any different; the country's economy is also mainly based on rain-fed agriculture. The sector, despite basically comprising of smallholder farmers living in rural areas, employs 87.3 percent of the working population and contributes 36 prcent to the country's GDP, yet since the liberalisation of the sector in 1998, production has decreased both in quality and quantity (Ya-Bititi, 2017). With the history of coming from a major genocide in 1994 that would take years to recover from, one would also notice that Rwanda's immediate worry should not be about spending its financial resources to make their laws comply with the TRIPS Agreement.

Issues surrounding Intellectual Property as a stimulator for and Economic Development in LDCs

Strong IPR protection has for the past decades has always been thought to be the power tool for economic development (Idris, 2002). Majumdar (2010) notes that economics is understood in broad terms as the finest use of scarce resources to achieve social welfare. The thinking then was that having a strong IP system, similar to that of the developed countries was a guarantee to economic development. Of late however, this view is being challenged by scholars, calling for a closer interrogation of the claimed positive role that IP plays in fostering economic development, and realising that there is no single defined route that all countries can take (Meier & Stiglitz, 2000). The assertion on the link between strong IP protection and economic development is further challenged by lack of empirical evidence on whether economic development comes before, or as a result of strong IP protection (Basant, 2011).

In Africa, this call might be wholly or partly informed by the realisation that most LDCs have had IP legislation wholly inherited from their respective colonisers for over five decades now but the status quo has remained the same for most countries. This observation is what has led to bring to further debate the notion of economic development, with experts in such fields as economics, law, engineering, politics and sociology holding different views about the nature of poverty in LDCs, its causes and possible remedies. While the age-old question posed by the renowned economic historian David Landes, "why are we so rich and they so poor" has continued to preoccupy economists for centuries. Questions have also

been raised on the extent to which strong IP protection could be a tool for bailing out poor countries from poverty to prosperity (Acemoglu, 2018).

That considered, one of the main indicators of the socio-economic conditions for LDCs is low per capita real income. In 1991, four years before the signing of the TRIPS Agreement, per capita real income statistics suggest that an average Indian earned about 1.5 percent of what an average American would get. In the year 2000, Gross Domestic Product (GDP) per capita for the US was over US$ 33,000, whereas for Nigeria, another of Africa's economic strongholds was at only US$ 700 (Acemoglu, 2018). The situation is much worse for LDCs like Malawi which recorded a GDP per capita of just US$320 as recent as the year 2016 (IMF Report, 2017). Usually LDCs display such alarming levels of low income per capita thanks to low levels of national income against an ever-increasing population. In the case of Malawi for instance, while the country's annual budget generally relies on foreign aid, the population of the country has doubled within a period of 20 years (World Population Review, 2018). This speaks volumes as regards the expected per capita real income of the country, and of course whether focus of the country should be to have a strong IP legal framework.

Conclusion

The study gets its motivation from the observation that while the TRIPS Agreement has been generally touted as an important benchmark for IP promotion and protection with all its meritorious advantages, LDCs to date keep on requesting extension of transition period provided for in the TRIPS Agreement for LDCs. Unlike most other agreements and conventions on Intellectual Property, the TRIPS Agreement is unique in the sense that all countries member to the WTO, regardless of their respective levels of development or priorities, are obliged to be party to it. Pushed mostly by the developed world, the TRIPS Agreement has laid more focus on providing minimum standards of protection of intellectual property, while paying little to no attention to how IP would best be utilised by the developing countries, and more so the Least Developed Countries, to trigger development. Apart from illiteracy and unemployment, most African countries have a huge task to battle with such challenges as famine, conflict, huge debts, diseases, lack of essential survival infrastructure and rapidly increasing population against dwindling resources. It is therefore the recommendation of this article that more studies be done with a primary focus on specific LDCs with the aim of providing empirical evidence on their plight in the context of the TRIPS Agreement. It is the belief of this article that such studies would rekindle the energies for further (re)negotiating the provisions of the TRIPS Agreement.

References

Acemoglu, D. (2018). *Introduction to modern economic growth.* Retrieved from www.jpkcfudan.edu.cn.

Adewumi, A. (2013). Special rights for the development of indigenous peoples in Africa: Any need in a democratic society and functional human rights document? 2 *NAUJILJ,* 19-30.

Adibe, E. (2013). World Trade Organisation (WTO): Trade Rules/Agreements in developing countries. *NAUJILJ,* 121-135.

Andrzejewski, A. (2010) Traditional Knowledge and patent Protection: Conflicting views on international patent standards 2010 *PER/Potchefstroom Electronic Law Journal,* 94-125.

Banda, M. (2017). Challenges for the merging of Africa's intellectual property system. *Africa Journal of Intellectual Property,* 1(2), 99-105.

Basant, R. (2011). Intellectual property protection, regulation and innovation in developing economies: The case of the Indian pharmaceutical industry. *Innovation and Development,* 115-133.

Chaudhury, R. & Gurbani, N. (2002). The TRIPS Agreement: Implications for access to drugs in developing countries. *Journal of Health Management, 12-18.*

Chou, P. & Passerini, K. (2009). Intellectual property rights and knowledge sharing across countries. *Journal of Knowledge Management*, 331-34.

Deere, C. (2009). *The TRIPS Agreement and the global politics of intellectual property reform in developing countries.* Oxford: Oxford University Press.

Finger, J. & Schuler, P. (2000). Implementation of Uruguay Round commitments: The development challenge. *World Economy*, 511–525. Retrieved from www.doi:10.1111/1467-9701.00287.

Hassan, E., Yaqub, O. & Diepeveen, S. (2010) Intellectual property and developing countries: A review of literature. Retrieved from https://www.rand.org.

Idris, K. (2002). *Intellectual property a power tool for economic growth.* Geneva: WIPO Publication.

Jayashree, W. & Caminero, L. (2017). Least-developed countries, transfer of technology and the TRIPS Agreement. *WTO Staff Working Paper No. ERSD-2018-01.* Retrieved from https://econstor.eu

Kennedy, K. (2005). The TRIPS extension for the least developed countries: A failure of the single undertaking approach? *The International Lawyer 2006 (40)3.* Retrieved from https://www.jstor.org/stable/40707819.

Lumina, C. (2010). Free trade or just trade? The World Trade Organisation, human rights and development (Part 2). *Law Democracy and Development*, 2-26.

Majumdar, M. (2010). *Fundamental economics.* Cornell: Cornell University.

Mario, C. (2014). *The role of intellectual property in developing countries: Some conclusions*. Retrieved from https://www8.gsb.columbia.edu/faculty/jstiglitz/sites .

Meier, M. & Stiglitz, J. (Eds.) (2000). *Frontiers of development economics: The future in perspective* . Washington, D.C: Oxford University Press.

National Board of Trade. (2004). *Consequences of WTO agreements for* developing countries. Retrieved from https://pdfs.semanticscholar.org.

Nicholson, D. (2006). Intellectual property: Benefit or burden for Africa. *IFLA Journal,* 310-324.

OECD. (2017). *Reports on G20 Trade and Investment measures*. Retrieved from http://www.oecd.org.

Rikowski, R. (2003). Tripping over TRIPS? An assessment of the World Trade Organisation agreement on trade related aspects of intellectual property rights focusing in particular on trade, moral and information issues. *2003 Business Information Review Sage Journals, 149-153.*

Scholtz, M. & Mamabolo, J. (2006). A developing country perspective on recent developments in animal breeders and intellectual property rights. *South African Journal of Animal Scienc,* 22-25.

Shugurov, M. (2015). TRIPS Agreement, international technology transfer and least developed countries. *Journal of Advocacy, Research and Education.* 74-85. Retrieved from http://kadint.net/journals_n/1430116707.pdf.

Syed, S. (2018, February). TRIPS flexibilities on intellectual property (ip) remedies with special reference to injunctions. *Management of Intellectual Property Rights and Strategy, 86-85.*

United Nations Conference on Trade and Development. (2011). *Using intellectual property to stimulate pharmaceutical production in developing countries.* Geneva: United Nations Press.

World Population Review. (2018). *Malawi Population.* Retrieved from http://worldpopulationreview.com/countries/malawi-population.

Ya-Bititi, G. (2013). Socio-economic impact of rural farming structure in Rwanda: Case of KOPAKAMA coffee growing cooperative and Coffee Washing Station, Rutsiro district, Western Province. *Rwanda Journal Series H: Economics and Management, 32-51.*

THE PROTECTION OF GEOGRAPHICAL INDICATIONS: THE EXAMPLE OF NAMIBIAN PRODUCTS

*Frieda Omagano Shifotoka**

Abstract

Geographical indications (GIs) like other intellectual properties are important in that they promote the importance of traditional production methods, contribute to tourism and assist amongst other things, small scale farmers to gain access to markets and increase their market shares. Hence, the need to protect GIs. When registered, GIs obtain protection for agricultural products, beverages, fish products and handicrafts amongst other things. GIs are protected by various international agreements such as those governed and administered by the World Trade Organization (WTO) and the World Intellectual Property Organization (WIPO). Despite the protection offered under international law, in compliance with the commitment they made under such agreements, member states have an obligation to enact national legislation and regulation that protects GIs. The objective of the study is to determine the protection of GIs under Namibian domestic laws and identify products that can potentially be registered as GIs. The result shows that there is no specific legislation that offers protection of GIs in Namibia as per the country' commitments under international agreements to enact domestic legislations to that effect. However, producers have an option to register GIs as collective marks and rely on international agreements and domestic competition law for the protection of GIs. The EU system on the protection of GIs was used as an example for the protection. There is a need to improve the legal system for protection of GIs by amending the current statute that governs and protects other Intellectual Properties to have a specific provision that extends registration and protection to GIs. This can help even small-scale producers of geographical indication products when they have access to foreign markets, to give

---

* Frieda Omagano Shifotoka is currently enrolled for a Doctor of Law in Intellectual Property at the University of Pretoria, South Africa. Her thesis analyses the compliance of Namibia's intellectual property laws with the World Trade Organisation (WTO) Trade Related Aspects of Intellectual Property Rights (TRIPS), with the focus on trademarks, patents, copyrights and related rights. She holds a Master of Laws (International Trade Law) from the University of Stellenbosch, a Bachelor of Laws (Honours) degree from the University of Namibia and a Bacalaureus Juris degree from the University of Namibia. She has contributed to an article titled the "Foreign direct investment protection for improved energy security in Southern Africa: The examples of SADC and Namibia".
Email: shifotokaf@gmail.com

them the protection they need and an added advantage in the markets because of the uniqueness in the goods they produce that originate from a specific region or geographical area.

Keywords

intellectual properties, geographical indications, collective marks, consumers, origin

Introduction

Consumers often buy goods after taking into consideration different things such as, where they are from, how they are manufactured or produced, their quality and reputation. It is thus important that the correct information is reflected on the goods in order for consumers to make informed decisions when choosing to buy goods. Geographical indications (GIs) serve to promote the sale of a product because of its uniqueness, quality and origin. Examples of products that constitute GIs are the Swiss chocolate from Switzerland, Mazoe Orange Juice from Zimbabwe, Argon oil from Morocco, the Shea butter from Ghana and Marula oil from Namibia. To ensure that GIs value does not diminish or get lost, there is a need to protect them (WIPO, 2017, p.23). According to Sackey (2013, p.13) the protection of GIs in Africa can enhance tourism, benefit farmers and small-scale producers as GIs are collective in nature, give African countries a competitive advantage for agricultural products and increase the market share of African countries. GIs are one of the trade related aspects of intellectual properties offered protection under the World Trade Organization's (WTO) Trade Related Aspects of Intellectual Property Rights (TRIPS) agreement. The importance of GIs and the need to protect them stems back to the 19th century with its inclusion in the provisions of the 1891 Madrid Agreement for the Repression of False or Deceptive Indications of Source on Goods (Madrid Agreement). The definition of geographical indicators as provided for in article 22 (1) of the TRIPS agreement is as follows:

> indications which identify a good as originating in the territory of a Member, or a region or locality in that territory, where a given quality, reputation or other characteristic of the good is essentially attributable to its geographical origin.

This means that a geographical indication can be a name or sign placed on goods and gives information that is useful in the identification, origin, reputation and quality of a product (Mcdave, 2013). Hence, there should be

a link between the product and its place of origin and the quality or reputation of the product should be due to its place of origin. The link can be because of the temperature, soil structure, and the characteristics of the landscape in the place of origin. GIs can be used for agricultural products because of geographical factors such as climate change and handicrafts that are made from natural resources found in a specific place of origin and are handmade using traditional methods and materials found in a local community (WIPO, 2017, p11).

Benefits of GIs include that they help the local economy, help maintain jobs as the production of goods takes place in the local communities hence one cannot relocate the GI production because it is linked to a geographical area. Consumers are also protected and reassured about the origin and quality of products, there is value added to the products and prices are cheaper, heritage and diversity is protected, and this makes it an added advantage to consumers especially local ones.

Legal Basis

In the international context GIs are protected under various conventions and this shows the importance for their protection. In terms of the WTO's TRIPS agreement, the protection of GIs is contained in article 22. The protection under article 22 is applicable to geographical indications which although true to the territory, region or locality in which the goods originate, they falsely represent to the public that the goods originate in another territory. For one to acquire the right over a GI, they have to obtain a right over a sign that constitutes an indication. This gives those with the rights to indications, the right to prevent third parties whose products do not originate from a specific area or region to claim it is from there. It is important to note that the right of GIs has to do with preventing third parties from claiming that their products are from a specific geographical area while in fact they are not from there and does not prevent third parties from producing similar goods. For instance, having a right over a GI will prevent a red dry wine producer in Portugal from claiming that their wine is from Stellenbosch vineyards because of a certain quality in the grapes and vineyards from Stellenbosch, however it does not prevent the producer in Portugal from making red dry wine.

Article 22 (2) (a) of the agreement places an obligation on member states to provide measures for interested parties to prevent the use in the design or presentation of a good that suggests that it originates from a geographical area other than its true origin. The provision further sets as a requirement that the designation or presentation should mislead the public as to the geographical origin of the good. Hence, it has to do with giving the wrong impression to the consumer, which leads them to purchase goods under

the impression that they are of a specific quality and origin while they are not. The provision further places an obligation on member states to prevent any use of goods which constitute unfair competition in terms of article 10bis (3) (iii) of the Paris Convention for the Protection of Industrial Properties (1883). Article 22 relates to indications in which in the course of its use or trade misleads he public on its nature, manufacturing process, characteristics or quality of the goods. Article 22 (3) further allows members to enact legislation that can refuse or invalidate trademark registration which consists of geographical indications relating to goods not originating from the territory indicated. The TRIPS agreement provides a further and special protection for GIs relating to wines and spirits in article 23. Article 23 allows a member to prevent the use of a geographical indication for a wine which does not come from the geographical area indicated irrespective of whether such use misleads the public or constitutes unfair competition.

The World Intellectual Property Organization (WIPO), also offers protection for GIs through its agreements. One of these agreements is the Paris Convention (1883) in article 10. Article 10 (1) of the Paris Convention, is applicable in cases of direct or indirect use of false indications of the source of goods or identity of the producer, manufacturer or merchant. Article 10 (2) makes any such natural or legal person be it a producer, manufacturer or merchant involved in the trade of goods either from a region or country where the false indication is used or where the false indication is located an aggrieved or interested party. In addition, the Paris Convention offers protection to GIs by requiring members to prevent unfair competition in article 10bis. One such protection for GIs in terms of article 10bis sub-article 3 (3) is the prohibition of competitors using indications or allegation which mislead the public as to the nature, manufacturing process, characteristic or quality of the goods. Misleading the public can have negative consequences to the producer, because based on the information provided, consumers may choose to purchase certain goods which they could have not chosen if correct information was provided. For instance, if the public prefers locally produced Springbok Biltong from Okahandja, Namibia and a foreign competitor indicates that their Biltong is domestically produced in Okahandja while it's not from there, it will constitute unfair competition to the local producer.

In addition, the Madrid agreement (1891) as amended with the additional Act of Stockholm of 1967, is also one of the WIPO administered treaties that offers protection for goods in respect of false or deceptive indications. Article 1 (1) of the agreement provides a remedy to member countries to seize on importation goods bearing a false or deceptive indication or place of origin. The remedy to seize false indication is available to both goods in the country where the false or deceptive indication has been applied, or the

country into which the goods have been imported. Article 1 (3) of the same agreement goes further to provide for remedies of prohibiting imports of deceptive goods when the laws of the country does not allow seizure. This means that the national country needs to ensure that their customs officials are equipped with the necessary skills to identify false or deceptive indications in order to act accordingly when there are violations to GIs. If both seizure and importation is not provided for by the laws within the country, then the member country is permitted to take such remedies and actions available under its national laws as remedies. Article 2 places an obligation on customs authorities to effect seizure of goods with false or deceptive indications. The customs authorities then notify the affected party in order for the appropriate seizure process to take place. Public prosecutors and other competent authorities can also demand seizure on behalf of the aggrieved party in terms of Article 2. There is however an exemption in terms of article 2 (2) that where the customs officials or competent authorities are not bound to seize the goods when relating to goods in transit.

Additionally, the Lisbon Agreement for the Protection of Appellations of Origin and their International Registration as amended in 1979 (the Lisbon Agreement), also administers by WIPO protects GIs and provides for their international registration. In terms of article 2 of the agreement, the protection is extended to the geographical denomination of a country, region or location which distinguishes the quality or characteristics of a product originating from there. The international registration of GIs is done through the Lisbon Agreement and the Geneva Act of the Lisbon Agreement on Appellations of Origin and Geographical Indications 2015 (Geneva Act). In terms of article 10 of the Lisbon agreement, registration is done by the International Bureau. The registration process involves a request for registration from a competent authority or body of the contracting state. The International Bureau then notifies other contracting States of the registration and publish the registration in the official bulletin. Registration with the International Bureau however, does not mean that there will be an automatic international protection. This is because other contracting states may make a declaration in terms of article 5 (3) within a year of the notice of registration, to the effect that they refuse to offer protection of the registered appellation of origin in its territory and give grounds for their refusal.

In terms of the Geneva Act, registration is also done through the international Bureau under article 6 and the date of international registration is deemed to be the date that the international application was received by the International Bureau. In terms of article 8 of the act, the international registration is for an indefinite period unless the GI is no longer protected by the Contracting Party of Origin, then the international

registration lapses. In terms of article 9 and 10 of the agreement, each Contracting Party has the option to choose the type of legislation under which protection for GIs is established provided that the proposed legislation meets the requirements in the Act. The following are the requirements a Contracting Party needs to take into consideration when establishing legislation for the protection of IGs in terms of article 11 of the Act:

> (1) [Content of Protection] Subject to the provisions of this Act, in respect of a registered appellation of origin or a registered geographical indication, each Contracting Party shall provide the legal means to prevent:
> (a) use of the appellation of origin or the geographical indication
> (i) in respect of goods of the same kind as those to which the appellation of origin or the geographical indication applies, not originating in the geographical area of origin or not complying with any other applicable requirements for using the appellation of origin or the geographical indication;
> (ii) in respect of goods that are not of the same kind as those to which the appellation of origin or geographical indication applies or services, if such use would indicate or suggest a connection between those goods or services and the beneficiaries of the appellation of origin or the geographical indication, and would be likely to damage their interests, or, where applicable, because of the reputation of the appellation of origin or geographical indication in the Contracting Party concerned, such use would be likely to impair or dilute in an unfair manner, or take unfair advantage of, that reputation; (b) any other practice liable to mislead consumers as to the true origin, provenance or nature of the goods.

Looking at the provisions of article 11, just like the TRIPS agreement, the Geneva Act seeks to prevent producers from misleading consumers as to the true origin, reputation or nature of the goods. The provision however goes further to both goods of the same kind and those not of the same kind.

The African Regional Intellectual Property Organization (ARIPO) was established in 1976 by the Lusaka agreement on the Creation of the Organization (Lusaka Agreement). The objectives of ARIPO in terms of article 3 of the Lusaka Agreement are inter alia, "to foster the establishment of a close relationship between its members in matters relating to industrial property, to promote the exchange of ideas and experience, research and studies relating to industrial property matters, organize conferences, seminars and other meetings on industrial property matters, to promote the harmonization and development of IP laws, and related matter, appropriate to the needs of its members and of the region as a whole".

ARIPO has been involved in the discussions of GIs and because of the importance of GIs for agriculture, rural and economic development, in November 2012, ARIPO signed a memorandum of understanding (MOU) with the Directorate General for Agriculture and Rural Development of the European commission with the objective of cooperating in matters relating to GIs. ARIPO and the EU under section 3.1 of the MOU identified specific areas of development to focus on including the development of GIs legal systems, co-operation activities with GI stakeholders and the role of GIs as marketing tools for value addition, branding, labelling and related matters (EUROPA, 2012 p.2). ARIPO also has an observer status to participate in the Working Group on the development of Lisbon system being conducted under the Lisbon agreement. The WTO Council for TRIPS in 2010 also granted ARIPO an ad-hoc observer status on its meeting. And in October 2017, ARIPO was granted a permanent observer status on the said WTO Council for TRIPS (ARIPO, 2018, p.19). This is an opportunity ARIPO can use to develop areas of IP such as GIs in the region that are under-developed in terms of having legal protection. There is however, to date no specific agreement on geographical indications under ARIPO.

The Protection of Geographical Indications under the European Union (EU)

The EU has developed specific *sui generis* systems to register and protect Geographical Indications for agricultural products and foodstuffs, wine, spirits and aromatised wines. In terms of classification of GIs, there are many products that are registered as GIs in the EU. There are quality schemes namely, the protected designated of origin (PDO), protected geographical indications (PGO) and geographical indications of spirit drinks and aromatised wines (GI). To qualify as a PDO the product must have qualities and characteristics which are essentially due to its region of production and it must also be produced, processed and prepared exclusively within that region (EUIPO 2017;6). While the PDO relates more to to the geographical area where they are produced, processed or prepared. On 21 November 2012 the European Parliament and Council of the European Union passed Regulation (EU) No 1151/2012 on quality schemes for agricultural products and foodstuffs on the protection of Geographical Indications and Designations of Origin for agricultural products and foodstuffs. Below is the objective of the regulations in terms of article 1:

> 1.This Regulation aims to help producers of agricultural products and foodstuffs to communicate the product characteristics and farming attributes of those products and foodstuffs to buyers and consumers, thereby ensuring:

(a) fair competition for farmers and producers of agricultural products and foodstuffs having value-adding characteristics and attributes;
(b) the availability to consumers of reliable information pertaining to such products;
(c) respect for intellectual property rights; and
(d) the integrity of the internal market.

The regulation is the legal instrument that protects agricultural products and foodstuffs GIs in the European Union, in addition to other regulations. The regulation is specific to GIs, sets out the requirements for what constitutes a GI product, has provisions specific to animal breeds, plant varieties and product specifications. In terms of article 13 of the regulation, registered GIs shall be protected against any direct or indirect commercial use of a registered name in respect of products not covered by the registration where those products are comparable to the products registered under that name or where using the name exploits the reputation of the protected name, including when those products are used as an ingredient. Secondly protection against any misuse, imitation or evocation. Thirdly against any other false or misleading indication as to the provenance, origin, nature or essential qualities of the product that is used on the inner or outer packaging, advertising material or documents relating to the product concerned, and the packing of the product in a container liable to convey a false impression as to its origin. And lastly protection against any other practice liable to mislead the consumer as to the true origin of the product.

Annex 1 of the regulation include a list of products that constitute GIs including *inter alia,* beer, chocolate, pasta, essential oils, cork, biscuits, bread, cake and pastry. In addition, the European Union also has a database with a list of products in respect of which application as GIs have been submitted or where the products have been registered as GIs. This makes it easy for producers including competitors to have access and know which goods are registered as GIs.

The Protection of Geographical Indications under South African Law

South Africa and Namibia have many things in common, hence the comparison of their intellectual property laws on Gis.

There is no specific legislation that deals with the GIs, however, GIs are registered and protected in terms of the Trademark Act 194 of 1993. Section 10 deals with unregistered trademarks and section 10 (2) (b) expressly

prevents the registration of geographical indications as trademark if it consists exclusively of a sign or an indication which may serve, in trade, to designate the kind, quality, quantity, intended purpose, value, geographical origin or other characteristics of the goods or services, or the mode or time of production of the goods or of rendering of the services. Section 43 (2) stipulates that geographical names or geographical indication of geographical origin may be registered as collective trademarks. As a result, all provisions relating to trademarks are also applicable to collective trademarks, and in this case to geographical indications. The duration for registration and protection in terms of section 37 (1) of the Ac is 10 years from the date of lodgement of the application with the trademark office. There is an option in terms of section 37 (2) for the renewal of registration for an additional 10 years period after the expiration of the last original registration or last renewal. This then increases the period of registration with additional 10 years with every renewal.

Products that constitutes GIs include wine, rooibos, honey bush tea, Camdeboo Mohair and Karoo lamb.

Geographical Indications under Namibia Law

Property law is recognised in terms of article 16 of the Namibian Constitution, and in terms of article 1 (6), the Constitution is the supreme law in Namibia. This means that all other sources of law including legislation, common law and customary law must be in compliance with the Constitution. The provision of article 16 is wide enough to include intellectual properties as it confers upon all persons in Namibia, the right to acquire, own and dispose of "all" forms of immovable and movable property". Hence, the right to the protection of IP is accorded under the Constitution. The Business Intellectual Property Authority (BIPA) came into force in January 2017 and is the one responsible for the protection and registration of intellectual properties in Namibia. Established in terms of section 3 of the Business and Intellectual Property Authority Act (BIPA) 8 of 2016, the objectives of BIPA are amongst other things, to enhance the efficient protection of intellectual property, to promote the use of intellectual property and to simplify and harmonise intellectual property procedures, registrations and fillings.

Despite Namibia being a member to the WTO, WIPO and ARIPO that are all directly involved in the protection of IP related matters, there is however no national legislation in Namibia that specifically offers protection for goods as GIs. Because of the lack of legislation for the registration and protection of GIs, Namibian producers that are directly or indirectly involved in the trade of goods that relates to geographical

indications can be disadvantaged. The three remedies that producers with GIs related goods have is to register them as certification or collective marks, secondly under the regional and international agreements that Namibia is a party and lastly under the national competition laws. Regarding registration as collective marks, this can be done in terms of section 187 (2) of the Industrial Property Act 1 of 2012 that allows for GIs to be registered as certification or collective trademarks. The provisions relating to trademarks are also applicable to certification or collective marks in terms of section 187 (1) of the Industrial Property Act and any reference to trademarks in such provisions should be interpreted as reference to certification or collective trademarks.

An application for the registration of a certification or collective trademark should contain a statement from the applicant with prescribed information and a copy of the rules that will govern the use of the certification mark. The prescribed information in terms of article 140 (1) is a request for registration, representation of the mark, specification of goods or services for which the registration is required and an indication of the applicable class of international classification of goods and services. And the rules being referred to are those made by the person under whose control the certification or collective trademark will be used. This then means that the period of protection of GIs when registered as collective or certification marks as provided for in section 157 is 10 years from the date of application for registration, with an option to renew registration. Regulation 110 (1) of the Regulations under the Act explains that the period of protection begins on the day of the registration of the mark and expires at midnight on the date that is 10 years after the date of application of the mark. The renewal of registration is for consecutive period of 10 years subject to the right owner paying the renewal fees.

The Act in section 200 and regulation 124 makes provision for the international registration of marks in terms of the Madrid Protocol, with provisions of the Act and regulations relating to the requirements and procedure for registration being applicable to international registration.

Despite the provision of allowing GIs to be registered as collective marks, the Namibian Act just like the South African Trademark Act is silent on the definition of GIs and does not set out what constitute GIs, does not have product specifications on GIs, does not have specific provision on the use of GIs and the period of registration is subject to renewal over a period of 10 years after the payment of renewal fees.

Article 144 of the Namibian constitution provides recognises rules of Public International law and international agreements as a source of law. In terms of the provision international law is automatically applied

without the need for transformation. This means that by the mere ratification, a treaty can be applied in Namibia. Hence registering and protecting GIs in terms of international agreements can be done in Namibia. It is however a costly process, and everyone affected especially small-scale producers and the local communities may not be able to afford to register their GIs. Namibia is neither a party to the Lisbon agreement or Geneva act, however, Namibia is a party to the Madrid and TRIPS Agreements, and since international law automatically applies by mere ratification, protection can be accorded under both agreements.

With regards to competition regulations, the Competition Act 2 of 2003 was enacted to safeguard and promote competition in the Namibian market. In terms of section 2 of the Act, its purpose includes among other things to:

a) promote the efficiency, adaptability and development of the Namibian economy;

(b)provide consumers with competitive prices and product choices;

(c)promote employment and advance the social and economic welfare of Namibians;

(d)expand opportunities for Namibian participation in world markets while recognising the role of foreign competition in Namibia;

(e)ensure that small undertakings have an equitable opportunity to participate in the Namibian economy; and

(f)promote a greater spread of ownership, in particular to increase ownership stakes of historically
disadvantaged persons.

The above provision in terms of the Act can be interpreted to include the protection of GI goods as it offers protection to consumers by ensuring them that there is a system that allows them to have competitive prices and different products, which consumers can purchase based on different things including the quality, origin and reputation. In addition, the provision in section 2 (d) above also assist Namibian producers expand their products into the world markets.

Namibia like other African countries, exports agricultural products such as grapes, livestock, karakul sheep pelts and beef. In addition, Namibia also exports fish, crustacean and other products that qualify as GIs. Having to export these goods means that the goods are being exposed to possible violations in the international markets. The possibility of violations is even increased with the conclusion of regional agreements, customs unions, free trade areas and other international cooperation's which gives GIs access to these markets.

tenderness, Namibia successfully exports its meat and livestock to the European Union and South Africa.

In addition, there are other benefits to the registration and protection of GIs, one such benefit is the perseverance of traditional knowledge and cultural expressions. This is because many products identified by GIs are often due to traditional known processes and knowledge practised by local communities in specific regions over a long period of time (WIPO, 2017, p18). An example, products made from Marula trees mostly found in the northern regions of Namibia, namely Omusati, Oshana, Ohangwena and Oshikoto regions (Du Plessis, Lombard & den Adel, 2002, p.3). The Marula tree can be used for many products including juice known as *Oshinwa,* an alcoholic drink known as *Omagongo*, Marula oil for food dressing and flavour known as *Ondjove,* Marula oil for massage and traditional treatment of other conditions such as low hearing. Although found in other parts of the Southern Africa region, the Marula trees in Namibia apart from the geographical location, the processes used in making most products from Marula are traditional processes unique to the local communities. There is a need for the recognition, registration and protection of such GIs to avoid any violations. In addition, just like in the EU, Namibia with other members of the Southern African Development Community (SADC) can also register collectively products from the region that constitutes GIs.

Although, if registered as collective marks, GIs can also be offered protection, there is a need for Namibia to effectively protect its exports that have elements of GIs and the best way to do this is to amend the Industrial Property Act to make provisions specifically relating to the what constitutes GIs, the registration and protection of GIs. Having specific and clear provisions set out clear procedures on the registration and protection of GIs, because this harmonises the laws and make them more predictable. There are many advantages to registering a product as a GI as opposed to the current available option of registering as a collective mark or trademark. GIs once registered are protected for an indefinite period of time while trademarks need to be renewed every 10 year which also means there will be additional costs in paying renewal fees. In addition, unlike when registered as GIs, trademarks can be assigned or transferred, sold or licenced to someone else and section 174 (a) of the Industrial Property Act even stipulate that such transfer can be made with or without the goodwill of the business concerned. This can be a disadvantage in that the new owner or licence holder can delocalise the trademark and take the production of goods and services with related trademarks elsewhere and by doing that the goods will lose their geographical origin. This means that the local communities that are employed in the production may also lose their jobs.

There is a need to protect these goods and producers in order to prevent producers from countries other than Namibia from making products from its own territories as if they symbolise the goods originally from Namibia. GIs convey information about the origin, characteristic and quality of goods because based on the information provided, consumers are able to distinguish products with origin-based characteristics from those without such characteristics (WIPO, 2017, p.15). Hence, GIs can be used as a marketing strategy as brand recognition plays an important role in marketing. Products from other countries have an advantage in terms of protection of their GIs since they are registered under their national legislations and other international agreements. There are many products that can potentially be registered as GIs. The Hoodia is an example of such product. The Hoodia a spiny stem succulent plant that is unique to the north-western, western and southern parts of Namibia (Rügheimer, Klaassen & Kwembeya, 2010, p.2). It has been used as traditional knowledge of the San people to suppress hunger when the men go hunting and has been used in natural weight loss products. This is a product that has a potential of national registration and protection as a GI because of its origin and the quality is attributed to the type of soil (usually sandy) and climate of the area it grows.

Fish is one of the country's top export revenue creator apart from minerals (Namibia Statistics Agency, 2017, p.16). According to a report by the Food and Agricultural Organization of the United Nations (FAO, 2007), Namibia has about 20 different species of fish comprising of small pelagic and large pelagic species. The small pelagic species comprises of pilchard, anchovy, horse mackerel and mackerel, and lobster and the large pelagic species comprises of adult mackerel, demersal hake, monkfish, sole and crab. Namibia exports its fish to countries such as Portugal, Italy, Spain, Democratic Republic of Congo, Zambia and South Africa and with many of these countries having harbours of their own, there is a need to register and protect these species of fish as GIs.

Namibia's red meat namely beef, mutton, goat and game are from animals that feed on natural vegetation, without any addition of growth stimulants, antibiotics or animal by-products (Namibia Trade Directory, 2018, p52). This makes the meat of high quality. Beef originates from top quality animals, with the most popular breeds are the *Brahman*, *Simmentaler* and *Bonsmara* varieties as well as the indigenous *Sanga (Namibia Trade Directory, 2018,* p.52*)*. Crosses of these breeds are well adapted to Namibia's environmental conditions. They are bred according to market requirements, i.e. taste and tenderness. The main breeds of sheep are Dorper and the indigenous Damara, which are also well adapted to Namibia's sensitive grazing conditions. Because of its health, taste and

Unlike GIs that are associated with the geographical origin of a product, trademarks are associated with the commercial origin of a product regardless of the geographical origin of the products with the mark or sign. In addition, when submitting the application for the registration of GIs, there is a requirement for product specification to be provided and this then allows all producers from the specific geographical area to use the GIs with such specification free of charge. However, with trademarks product specifications are not required and the trademark owner has the right to determine how and who can use their trademarks, hence all other local producers who may not have access to registration will not benefit from the trademark unless there is joint ownership. More producers will be able to benefit to the registration of products as GIs rather than as collective marks.

Conclusion

The importance of GIs and its contribution to the economic development of countries through producers cannot be overemphasised. This is seen in various international instruments that aims to register, recognise and protect GIs all over the world such as the Lisbon agreement and Geneva Act. Despite developing countries trading in products relating to agricultural products, there are no adequate laws that protect GIs, hence, there is a need to strengthen the registration and protection of GIs under national legislation. Namibia is an example of the countries that despite having relied in exports in agriculture, does not have a national legislation that specifically provides for the what constitutes GIs and other product specific provisions relating to GIs. There are many products such as fish, meat and other plants that can be registered as GIs and Namibia can use the EU legal system for the protection of GIs as an example to improve its existing laws and hopefully have more products registered and protected as GIs. Although there are remedies that can be used to protect GIs such as registering them as collective marks, using international agreements and applying competition laws, there is a need to amend the existing Industrial Property Act to add a section on the protection of GIs.

References

ARIPO. (2018). *ARIPO Annual Report 2017*. Retrieved from http://www.aripo.org/publications/annual-reports/item/265-aripo-annual-report-2017 (accessed 09 November 2018)

Du Plessis, P., Lombard C. & den Adel, S. (2002). *Marula in Namibia: Commercial Chain Analysis*. Retrieved from http://www.nbri.org.na/marula-namibia-commercial-chain-analysis (Accessed 10 November 2018)

EUIPO. (2017). *Protection and control of geographical indications for agricultural products in the EU member states* Retrieved from https://euipo.europa.eu/tunnel-web/secure/webdav/guest/document_library/observatory/documents/reports/Enforcement_of_GIs/EUIPO_Geographical_Indications_full_report_en.pdf (Accessed 24 March 2019).

EUROPA. (2012). *Administrative Memorandum of Understanding on co-operation between the African Regional Intellectual Property Organization and the Directorate General for Agriculture and Rural Development of the European Commission* Retrieved from https://ec.europa.eu/agriculture/sites/agriculture/files/develo ping-countries/partners/gi/stonetown-memorandum_en.pdf (accessed 09 November 2018).

FAO. (2007). *Namibia Country Profile*. Retrieved from http://www.fao.org/fi/oldsite/fcp/en/nam/profile.htm. (Accessed 21 March 2019).

Mcdave, K. (2013). ARIPO's *Policy on GIs-The State of Play*. Retrieved from https:ec.europa.eu/agriculture/sites/agriculture/files/events/2011/gi-africa-2011/appiah_en.pdf (accessed 28 September 2018).

Namibia Statistics Agency. (2017). *Annual Trade Statistics Bulletin 2017*. Windhoek: NSA Retrieved from https://cms.my.na/assets/documents/ Annual_Trade_Statistics_Bulletin _20171.pdf (accessed 30 September 2018).

Namibia Trade Director. (2018). *Meat Board of Namibia: Namibia's read meat – Africa's Choice Meat at Naturally Produced, Tasty and Tender, Volume 27.* Retrieved from http://namibiatradedirectory.com/read-online/ (accessed 21 March 2019).

Rügheimer S., Klaassen E. S., & Kwembeya E. G. (2010). *Hoodia in Namibia*. Retrieved from www.nbri.org.na/sites/default/files/Hoodia_booklet.pdf (accessed 10 November 2018).

Sackey, E. (2013). *Geographical Indications (GIs) in the implementation of public policies: Best practices and the socio-economic dimension of GIs*. In the Proceedings of the 2nd WIPO Inter- meeting on South-South Cooperation on Patents, Trademarks, Geographical Indications, Industrial Designs and Enforcement. Cairo, Egypt, May 6-8, 2013.

WIPO. (2017). *Geographical Indications: An Introduction*. Geneva: WIPO Publication Retrieved fromhttp://www.wipo.int/edocs/pubdocs/en/geographical/ 952/ wipo_pub_952.pdf (accessed 28 September 2018).

CRIMINAL LAW ENFORCEMENT OF INTELLECTUAL PROPERTY RIGHTS IN ZIMBABWE

*Christopher Munguma**

Abstract

In line with the provisions of international treaties such as TRIPS, there have been some calls for the robust use of criminal law in the enforcement of intellectual property (IP) infringement cases. There is a realisation that certain conduct done by infringers go beyond the ordinary infringement of rights hence public law has to intervene in such cases. This is because acts such as counterfeiting have a public law dimension in that they may cause a threat to public health and the wellbeing of the public generally if left unchecked by criminal law. In Zimbabwe, a number of statutes governing various branches of IP provide criminal penalties for certain conduct done wilfully. The general view is that these criminal provisions do not go far enough as to be deterrent to would be IP infringers. More deterrent penalties are necessary so as to make infringing activities unrewarding and dangerous to the perpetrators. A call is made to strengthen the criminal penalties provided for counterfeiting and acts of copyright piracy.

Keywords

intellectual property, criminal law, infringement, counterfeit, enforcement

Introduction

A number of Zimbabwean statutes regulate intellectual property rights (IPR) issues. In addition, a number of IPR infringements are punishable by criminal sanctions. As an example, the Trademark Act (Chap 26:04) criminalises the manufacturing or distribution of goods bearing false trademarks or logos. The World Intellectual Property Organisation (WIPO) Treaty in article 2 (viii) defines IP as including rights relating to; literary, artistic and scientific works, performances of performing artists, phonograms and broadcasts, inventions in all fields of human endeavour,

* Christopher is a lecturer in Law and Intellectual Property at Africa University where he has been teaching for the past 8 years. Christopher has a Bachelor of Laws Honours Degree from the University of Zimbabwe and a Masters in Intellectual Property from Africa University. Christopher has an interest in patents, trademarks, geographical indications and enforcement of intellectual property.

scientific discoveries, industrial designs, trademarks, service marks and commercial names and designations, protection against unfair competition and all other rights resulting from intellectual activity in the industrial, scientific, literary or artistic fields. This is a very wide definition that captures all aspects that constitute IP. In simple terms IP can be defined as creations of the human mind. The law accords these creations protection as a way of incentivising those who are creative and to benefit the public at large. The fields of IP can be broadly separated into industrial property and copyright.

Zimbabwe is a member of the WIPO Treaty, the Paris Convention for the Protection of Industrial Property, the Berne Convection for the Protection of Literary Works and the World Trade Organisation Agreement on Trade Related Aspects of Intellectual Property (TRIPS) among other IP international instruments. These international instruments outside TRIPS do not provide a detailed mechanism for enforcement of IPRs. TRIPS, to its credit, has detailed provisions dealing with all forms of enforcement of IP rights ranging from administrative, civil, border measures all the way to criminal enforcement of rights. Article 61 of TRIPS allows member states to use the criminal process in cases of willful trademark counterfeiting or copyright piracy on a commercial scale. Zimbabwe's membership to these instruments is reflected in the national law where a number of IP laws were enacted by Zimbabwe.

Criminal Enforcement of IPRs in the Zimbabwean Context

A number of IP fields are protected in Zimbabwe through positive laws. IP helps generate employment, support the economy and help nations develop. For example in Kenya copyright based industries contributed 5.32 percent of Kenya's GDP, employing 3.26 percent of the total national workforce. In Tanzania, between 2007 and 2010 the copyright industries made a contribution of 3-4.6 percent of the gross domestic product (GDP) and employed 28,202 and 44,331 people, or 4.5 and 5.7 percent of the total national workforce. (World Intellectual Property Organisation, 2012). The European Union (EU) noted that IPR are one of the principal means through which companies, creators and inventors generate returns on their investment in knowledge, innovation and creativity. (European Union, 2015). At the same time, cases of IPR infringement are on the increase globally and in Zimbabwe. The EU report supra noted that:

> IPR infringements have indeed reached unprecedented levels, facilitated in particular by digital technology that allows low-cost, high quality reproduction in bulk. International trade in counterfeit

and pirated goods has been estimated to be worth as much as USD 650 billion. (EU Report, p.2)

This state of affairs creates a huge challenge. In the Zimbabwean context there has been an increase in the number of cases of infringement of IP particularly for copyright and trademarks, see for example the case of *S v Moyo & Anor* HB-21-09, a review hearing of a criminal trial. This has led to some very loud calls for more resort to the criminal law to curb IP infringement in all fields of human endeavour in the Zimbabwean market. This demand raises both philosophical and practical questions for IP practitioners, scholars and right holders. Questions have been asked as to whether the government can afford the additional use of criminal law, and whether the push towards that dispensation is supported by the law. The international legal framework is in support of using the criminal law to combat serious forms of counterfeiting and copyright piracy.

Oyewumni et al. (2018) state that in many countries including African countries, certain acts of infringement of IPRs give rise to criminal action. They justify this approach on the grounds that certain infringing acts are considered public concerns due to their far reaching adverse consequences. The consequences can be economic, cultural or have an adverse effect on the general wellbeing of a society. There is a further public interest consideration justifying state involvement in enforcement matters. The possibility of involvement of organised crime groups in large scale infringement activities as a way of funding terrorism, drug trafficking and human trafficking is another push towards public involvement of the state in the enforcement of IP.

Justification for Using Criminal Sanctions

It has been argued by Blakeney (2005), among others, that it is best that intellectual property rights be left to the right holders for civil enforcement as opposed to the state, particularly in the developing world where resources are limited. This is because IPRs are private rights owned by individuals. Halt et al. (2014) asserts that after a company invests in developing IP rights, it is the company's responsibility to police the market to ensure that no competitors are improperly benefiting from such IP investments. The argument being made is that generally enforcement of IPRs is the province of the owner of the right who must do it using the civil process. There are instances where matters should not be left to the proprietor of a right alone to enforce his or her right.

While it is not in dispute that IPRs are private in nature and that the best person to enforce those rights is the owner, there is a limit to what a private individual can do. There are situations where if the owner is left alone to

enforce and prevent wilful infringement of his or her rights there will be chaos in the market. Just like with tangible property, there are situations where the state has to enforce the rights of right owners as a way of bringing sanity in the market and to stop possible damage to public interests. Oyewumni supra succinctly puts it when she says:

> … beyond being private injuries actionable by owners of affected works, these infringing acts are considered public concerns, due to their far reaching, adverse consequences for economic, cultural, and general societal wellbeing (2018, p.534).

A number of reports such as the EU Report (2015) have shown that the items that counterfeiters produce and distribute are often substandard and can even be dangerous, posing health and safety risks that range from mild to life-threatening. The World Health Organisation (2006) estimated that about a hundred thousand deaths yearly take place in Africa because of the use of counterfeit and fake medicines. Harms (2012) makes the salient observation that "criminal law, in general, protects private rights against infringement if there is a public policy element involved. A typical example is theft". In the case of theft, the citizen who has lost his property gets protection from the state's intervention. There is therefore nothing unusual or new if the state enforces private rights through the criminal law.

It is also worth noting that, counterfeiting and piracy undermine innovation, which is important for economic growth. As a consequence, the magnitude and effects of counterfeiting and piracy demands that action be taken by the public at large as opposed to leaving it to the right holder alone. In that regard, criminal enforcement of IP rights becomes key in combating wilful or large scale infringement of IP rights.

In any case, there is already justification at the international level for the use of criminal sanctions for certain serious IP infringements which are done deliberately and at a commercial scale. Article 61 of TRIPS allows the use of criminal proceedings in cases of willful trademark counterfeiting and copyright piracy on a commercial scale. This means that the international framework permits the use of criminal penalties in these two areas of IP law. Where a trader knowingly manufactures, distributes or sells trademarked goods bearing false trademarks, he or she would be committing an act proscribed by the international framework of IP law. The same article (Art 61 of TRIPS) also says that criminal enforcement could possibly be available in cases where infringement:

- Is used as a business,
- Is committed wilfully or with gross negligence,

- Is done for profit making purposes,
- Is done on a large scale, and
- For repeat offenders.

Beyond the minimum standard provided by TRIPS, member countries have the discretion as to whether or not to extend the application of criminal procedures to infringement of other IPRs, especially where they are committed willfully and on a commercial scale. Infringement of patents and designs rights, where carried out knowingly and in the course of trade or commerce, may warrant criminal penalties. Harms (2012, p. 468) observes that the TRIPS Agreement does not require criminal sanctions for patent infringement but provides optionally for them to be criminalised in the case of willful infringement on a commercial scale. Harms gives examples of countries such as Brazil, Japan and Thailand that have criminalised patent infringement.

Infringement cases can be reported to the authorities by a number of people including right owners, members of the public, associations, producers' groups and by state officials like custom officers. Right owners may report cases that they find or law enforcement agencies may detect and prosecute such actions on their own. Ports of entry are another arm of government that can detect such activities and inform right holders for possible prosecution. TRIPS provides for penalties such as imprisonment, fines and seizure and destruction of infringing goods and manufacturing implements. The destruction of manufacturing implements is a good criminal law remedy as it has a wider impact on the criminal groups unlike just destruction of an infringing article or goods.

Benefits of Criminal Sanctions

Criminal sanctions are inherently deterrent in nature with the objective of stopping any prospective infringers from committing crimes in the future. This is like carrying out a public execution or public flogging of an offender. This is one of the major advantages that is cited for the use of criminal law penalties for any offence. To be that effective it follows that trials should be held publicly and the penalties meted out by the courts should be widely published in the same communities where the crime was committed. This would require that IP offenders be tried within the same geographical areas where they committed their crimes. Situations where the court is located in the capital city but trying cases from the provinces for example may not help in achieving the objective of deterrence for would be offenders. In Zimbabwe the press report court cases but they are more interested in the sensational cases like those to do with sexual offences, robberies, murders and family matters of prominent individuals in society.

Very few IP cases have been reported in the newspapers. Of the few reported cases, the tendency has been to report the commencement of the trial and not the outcome of the trial. This then means that the aspect of deterrence has not been achieved since the public is denied the chance of getting to know the punishment imposed on the offender.

Custodial sentences for IP infringement put the infringers out of illegal business as they serve sentences in prisons and thereby crippling infringing syndicates and bringing to an end the infringing act. This will be especially so if all parties to the infringement network are held to account. If some of the members escape or are not caught the syndicate may not be totally dismantled. For single offenders once they are arrested and convicted it means they will be out of their illegal business for the duration of their prison term. In addition to that, if the correctional services are successful in their objective of reforming inmates, it would also mean that by the time offenders are released from prison, they would have moved away from criminal inclinations. This is a worthwhile advantage for criminal enforcement of IPRs.

As alluded to in passing in the previous paragraph, criminal sanctions through the penalty of imprisonment provide infringers a chance to reform while they are away from the public. Indeed correctional services across the world have evolved from being agencies intended to mete punishment to units that are responsible for the rehabilitation and reform of the offender. As a result in Zimbabwe the unit is now known as the Prisons and Correctional Services Department. Through the teaching provided by correctional services department and through self-introspection, IP offenders have a chance to change the course of their life and decide to move away from crime. This is also coupled with the fact that losing one's freedom is one of the most difficult punishments that one can endure. This realisation and reality can force people to reform their lives while serving a prison term or undergoing any other punishment imposed by the courts.

From a cost point of view, criminal proceedings offer the complainant a quicker remedy at less expense as compared to civil proceedings. This is the main reason why right holders clamour for robust use of criminal sanctions in IP enforcement. Criminal proceedings are initiated by the state using the state's resources to investigate and to bring the offender to book. Once the offender is apprehended it is the state which pursues the matter in court until a verdict is granted. This virtually means that the responsibility of the right holder if any is to lodge a complaint of infringement of rights to the police or other agency of the state. In the event that the criminal trial is contested by the accused, the complainant may be required to testify in court in support of the prosecution case. This means

for the right holder, criminal enforcement offers less hassles to the owner and more particularly the right holder does not meet any costs of the litigation. This is a huge saving especially in large scale infringement of copyright and trademarks. Pursuing a large group or many groups of infringers can be financially ruinous in the civil context hence criminal law offers a very good window of relief for right owners.

In the context of the cost to the right holder as alluded to above criminal penalties are initiated by the state to satisfy the public good. Criminal action entails the state assuming the obligations of investigation and prosecution of offenders. The advantage of this arrangement is that "the exorbitant costs of enforcement are borne by the state, rather than the right owner who may have been rendered impecunious as a result of the leaks in business income resulting from largescale infringement" (Oyewumni, p.535). The justification for this arrangement lies in the benefits that governments and society at large derive and obtain from well protect IPRs. The public obtain jobs, goods and services from IPRs such as patents and trademarks. Likewise, governments collect taxes, charges and duty from companies and individuals that have IPRs. One can imagine the contribution to the fiscus of such brands as Tanganda Tea, Mazoe Orange, Colgate, Meikles Hotel and Hullets Sugar to mention just a few. The argument is that if the state does not intervene through enforcement of such rights the public and the government lose out to the detriment of the market. At the same time, by operation of a number of national statutes, the moment infringement is done at a large scale, the criminal law is triggered. The involvement of the state in criminal enforcement helps the right holder to concentrate on producing new products and improving those already on the market, ultimately benefiting all. If criminal sanctions are used where they should, society, right holders and the state will benefit.

Another benefit to the state is that convicted offenders are sometimes ordered to pay fines by the courts. These fines when paid become state resources that are used for public needs. This means that the offender atones for his wrong conduct by paying a monetary penalty to the state. The challenge with this is that the right owner does not normally get financial recompense. In addition, in most cases in Zimbabwe the penalties are on the lower side as shall be discussed below.

Disadvantages of Criminal Enforcement

The standard of proof required for criminal conviction is high, the required level of proof in Zimbabwe is that of beyond reasonable doubt. Both the physical and mental elements of a given offence have to be satisfied beyond reasonable doubt. In every criminal case the state is obliged to prove its case beyond reasonable doubt in order to sustain a conviction

against an accused person. It was stated in *S v Isolano* 1985 (1) ZLR 62 that proof beyond reasonable doubt requires more than proof on the balance of probabilities. The court must have absolute degree of certainty to convict. It was further stressed that if a reasonable person would entertain some doubt in his mind as to whether or not the accused is guilty, such an accused person must be acquitted. This increases the likelihood of losing an infringement claim against an infringer. The burden of proof on the state is high in a criminal case.

The prosecution has the difficult task in a criminal trial to prove that the accused had the necessary intention to commit the crime charged. This might include proving that that the accused was aware that the articles in his possession were illegal articles or that he was keeping them for sale contrary to a given statute. The Nigerian case of *Nigerian Copyright Commission v Edolo* [2008-2011] IPLR 1 illustrates this point very well. The accused, an engineer, was charged with offences bordering on the rebroadcasting of the signals of the broadcaster Multichoice, without consent. The major issue before the court was whether or not the prosecution had proved its case beyond reasonable doubt. Although ten smart cards which had been cloned were admitted as evidence, the court held that it was the duty of the prosecution to show that the items were indeed contrivances within the meaning of Section 18 (1) (a) and (c) of the Copyright Act. Further, insufficient evidence was adduced to show that these items could not be used for any purpose other than for cloning smart cards. This deflated the case of the prosecution because the items mentioned in the charge were capable of being used for several purposes. The prosecution also failed to prove that the accused violated Section 18 (1) (a) of the Copyright Act, which provides for criminal liability in cases where any person makes or causes to be made for sale, hire or for the purpose of trade or business any infringing copy of a work in which copyright subsists. In view of the failure of the prosecution to prove that the accused caused the smart card to be made for sale, hire or for the purpose of trade and business, other than for private use as alleged by him, the court held that none of the ingredients were proved and thus dismissed the case.

In countries with weak justice systems, criminal sanctions may not work effectively. This is especially so where nations are grappling with resource constraints to support government operations in key social service ministries such as health, education and environment. To expect such governments to be spending huge budgets on their justice may seem as poor prioritisation.

It must also be remembered that the burden lies on the state to provide life necessities for infringers who are convicted in criminal trials. The more

criminals we have in our prisons and correctional facilities the more the government expenditure for that line item in national budgets. On a balance though, the cost of maintaining correctional facilities housing offenders is justifiable than the cost of those offenders harming innovation, creativity and the rights of others while they are free outside prison. Allowing such offenders to criminally infringe IPRs is a worse evil than feeding them while they are inside prisons. When considered in light of the other benefits imprisonment can still achieve better results for right holders, society and governments.

It is sometimes argued that the more resort governments give to criminal enforcement the more congestion in prisons and other facilities that house convicts once the IP infringer is imprisoned. While the sentiment is true to an extent, on closer scrutiny it does not stand. The same argument could be raised for convicts of such crimes as murder, theft, assault or terrorism. In fact, prisons anywhere in the world have more offenders for such crimes than for commercial crimes such as IP infringement. The sentiment seems to originate from a view that commercial crimes are not crimes but should be dealt with as mere civil wrongs. If this is the grounding for the view, then it is wrong. All crimes are wrongful and should be punished in the same way. In any case, of late countries have come up with innovative ways of punishing crimes outside the penalty of imprisonment. For example in Zimbabwe, the courts are also using community service as a way of punishing offenders of less serious crimes.

Community service is a penalty where on conviction, the convict is not imprisoned but performs a service at a designated public institution for a given period. The service is rendered from home and follows in general the normal working hours for ordinary employees up until the hours of the punishment are exhausted. Special orders of community service have been made by the courts where for example, a student or a gainfully employed person may be allowed to carry out their community service on weekends only as a way of not disrupting their studies or work. Such approaches to sentencing cannot cause congestion in the prisons. Likewise, other counties including Zimbabwe have come up with an open prison system, where inmates have wider freedom while serving their punishments.

Other commentators are of the view that resorting more to the criminal law will not help because the courts and other players in the criminal enforcement ecosystem are not psyched to see IP infringement as a hard crime. As a result, most of the punishments given to IP infringers in most jurisdictions, are on the lower side. This is based on the perception that commercial crimes are not "true" crimes. This view holds true for Zimbabwe as the case of *S v Chiadzwa* HH-28-04 will show. The accused was convicted for by a magistrate for copyright infringement and

sentenced to a fine of $400 and in default of payment to 10 days imprisonment. A further 10 days imprisonment was suspended for five years on conditions. It was alleged that the appellant bought certain sculptures from one Taurai Chimba between January 2000 and March 2002. Those sculptures were said to be copies of sculptures created and produced by the complainant, a well-known sculptor, Dominic Benhura. The appellant was alleged to have exhibited, by way of trade, the infringing copies at his art galleries. The alleged infringing copies were sixteen in number and seven of them were inscribed "D.E. Benhura" or "Dominic". It was alleged that the appellant knew that the complainant was the creator of the sculptures and that he had no right to infringe the complainant's copyright. He was convicted and sentenced. On appeal the Appeal Court noted some errors made by the trial court.

Justice Chinhengo on appeal set aside the conviction on the basis that copyright in the works had not been proved. In addition the magistrate had not appreciated the legal issues correctly. The court aquo had relied on the fact that the appellant had copied the idea in the works from the complainant. The court made the following observation:

> The evidence adduced at the trial is not at all clear. This may be so because of the obscurity of the subject of copyright. It is not often that our courts are called upon to decide copyright cases. (p. 5 of the judgement).

The facts as presented before the Magistrates Court seemed to have suggested that a delict of passing off as opposed to a crime had been committed. The inscription of the name of the complainant on the sculptures not made by him was clearly an act of passing off that could be actionable at the complainant's instance.

To cure the challenge highlighted in the previous paragraph leads to another disadvantage. To make the whole court enforcement system functional to the level where IP infringement is punished at the appropriate levels requires training of the courts, prosecutors, inspectors and police officers. Training requires resources and budgets to support it. It can be said that this cost is not necessary where there are many other competing interests. The advantage of training is that it is normally carried out once or on a few occasions for one group of individuals. Once a group is trained they grasp the issues and can even proceed to train others in the future. With passage of time such groups would just require refresher courses which are not as time consuming as initial ones.

Criminal Penalties Created by the Zimbabwe IP Legislation

A number of Zimbabwean statutes both in the IP sphere and copyright have penal provisions. The challenge observed is that outside copyright and trademarks the law does not have substantive penalties for protection of IP other than those made in connection with prosecution of IP applications. This is unsatisfactory. These statutes will be individually analysed in this section and recommendations made on whether the law goes far enough in making infringement difficult and expensive.

Industrial property

Most industrial property law outside trademark legislation does not create criminal offences for infringement of rights as shall be seen below.

Industrial designs

The Industrial Designs Act (Chap 26:02) provides for criminal punishment for a number of acts. While sections 48, 49 and 50 create offences these offences are not relevant to the present discussion as they deal with offences during the prosecution of rights at the IP office.

The last criminal provision is s51 which punishes falsely representing that a design is registered when it is not, either as result of the expiry of the protection term or because the design was never registered at all. The penalty for that offence is a fine of $200 or imprisonment for a period not exceeding six months or both. This conduct is not seriously viewed by the lawmaker since this penalty is on the lower side. This offence is normally committed by someone who wishes to derive economic benefit from the misrepresentations he or she makes, hence it deserved a more serious penalty. There is an element of fraud in the offence which makes it a serious infraction of the law. Just as in the Patents Act, the Industrial Designs Act does not punish infringement of design rights per se. It would have been more satisfactory if certain infringing acts which are done wilfully at a commercial scale were criminalised by the law. This position leaves the defence of most Industrial property outside trademarks in the sole hands of the right owner. This can pose a challenge in the event of serious infringement on a large scale where the right owner may be overwhelmed in mounting civil actions.

Patent Act (Chap 26:03)

Sections 84 to 86 of the Patent Act (Chap 26:03) have some procedural penalty provisions relating to certain conduct at the Patent Office or making false representations that goods are patented. These are not directly relevant to the protection of IPRs. Section 87 is intended to protect

the public by prohibiting the trafficking in patents by officers employed in the Patent Office. Section 88(1) provides for criminal punishment for unauthorised claim by any person that goods are patented. A penalty of imprisonment for two years and imposition of a fine of $400 is provided for that breach of the law. Criminal sanctions are not imposed by the Act for any person who knowingly infringes a patent. It is apparent that the existing offences provided by the law do not relate to improper use of patents or infringement of patents. This position is defendable as being in line with the international framework which reserves criminal penalties for trademark counterfeiting and copyright piracy only. It is only a few countries that punish such conduct by the criminal law.

The position in Zimbabwe contrasts sharply with the position in Honduras where criminal penalties for patent infringement are provided (Title VI Chapter 1 of Decree No 12/99 of Industrial Property law). The approach in Zimbabwe is in accord with a number of jurisdictions such as in South Africa, Zambia and Kenya. In the United States of America the same position reigns. The Supreme Court of America noted in *Dowling v. United States*, 473 U.S. 207, 227 (1985). "[d]espite its undoubted power to do so . . . Congress has not provided criminal penalties for distribution of goods infringing valid patents". Patent infringement is not generally enforced through criminal provisions in many countries. The question is whether this is still justifiable with rising cases of infringement.

Plant breeders rights

Part V of the Plants Breeders Act (Chap 18:16) provides for criminal offences for a number of acts. The statutory framework of criminal punishment is the same as is found in the Patents Act and the Industrial Designs Act. The Act punishes certain conduct of applicants as they file for rights. Section 30 creates offences committed by officers such as acquiring and selling plant breeder's rights outside the course of duty. An officer who commits this offence is liable to a fine not exceeding the sum of $300 or to imprisonment for a period not exceeding one year or to both such fine and such imprisonment.

Trademarks

Forgery of registered trade mark is proscribed by section 83 of the Trademarks Act (Chap 26:04). Forging a mark or using one without the consent of the proprietor of the registered trade mark is assumed where it is shown that the accused made a trade mark or a mark so nearly resembling the registered trade mark so as to likely deceive or cause confusion or falsifies a registered trade mark (section 83).

Section 84 prohibits the forgery of registered trademarks and other related acts such as:

- falsely applying to goods or in relation to services a registered trade mark; or
- making a die, block, machine or other instrument for the purpose of forging, or of being used for forging, a registered trade mark; or
- disposing of, or has in his possession, a die, block, machine or other instrument for the purpose of forging, or of being used for forging, a registered trade mark; (section 84(b) to (d).

Paragraph (e) of section 84 makes the importation of devices used for the application of a trademark and offence. Likewise paragraph (h) criminalises the making, importation or possession of devices for the application on any goods the registered trademark. Contravention of section 84 attracts a penalty of a fine of $400 or to imprisonment for a period not exceeding two years or to both such fine and such imprisonment. (S 84 (f) (iii).

A person who sells or imports any goods or performs any services to which a forged registered trade mark is applied; or a registered trade mark is falsely applied commits an offence. The penalty for this offence is similar to the one provided by s 84 (f) (iii). These penalties are relatively serious but the only drawback seems to be that the section does not make reference to the number of offending articles involved in a given case. The law would have been deterrent enough if it made a similar reference to the number of infringing articles or materials in coming up with the penalty. An accused person facing the charge has some defences available to him in terms of the Act. Some of the available defences include that reasonable precautions were taken and that the accused had no reason to suspect the genuineness of the trade mark.

The availability of these possible defences accords with normal criminal principles where no person can be found to be criminally responsible without liability. Therefore, a person who acted innocently or took all reasonable precautions to prevent committing the offence cannot be liable for criminal conduct.

Section 86 restricts the importation of counterfeit trademarked goods into the country. Counterfeit trademarked goods are defined as goods which bear without authorisation a trade mark which is either identical to a registered trade mark or which cannot be distinguished in its essential aspects from a registered trade mark (section 86(1) of the Act). The section allows the owner of rights or a user to apply to the Boarder Authorities to ask for the suspected counterfeit goods to be dealt with as prohibited goods in terms of the law, for a period of ten days. The Board Authorities have little discretion in the matter once faced with such an application. This is because the law provides that "the Director shall forthwith comply with

the request and ensure that no such goods are imported into or exported from Zimbabwe, and that any such goods that have been imported but not yet entered are not released to the importer" (Section 86(2) of the Act). This means that the Director has little discretion on the matter. All the Director can do is to request the proprietor to furnish him with security in such form and for such amount as the Director may require to secure the fulfilment of any liability and the payment of any expense which he may incur as a result of the detention of any goods to which the request relates or as a result of anything done by him in relation to goods so detained (Ibid). The proprietor must then file an application with the Intellectual Property Division of the High Court within 10 days for an appropriate order pertaining to the goods. If the application if filed within that period the goods shall remain in detention (section 86 (3) and 86(4) of the Act).

A few points need to be highlighted with respect to section 86. Firstly, the section was introduced by the Trademark Amendment of 2001. Before that the section did not address counterfeit goods it only referred to infringing goods. The previous position was therefore weak and unacceptable. Secondly, the amendment introduced the definition of a counterfeit product. While the first part of the definition is not very sound, the second part of the definition is in point where it states that these are goods which "cannot be distinguished in its essential aspects from a registered trade mark" (s86 (1) of the Act). In simple terms a counterfeit product is a good or product which imitates the original product in every detail. It is a 100 percent copy of the original good as no variation of any form is done by the counterfeiter on the goods. It is therefore noteworthy that the amendment was in point and came at the right time when counterfeiting is a major challenge for nations across the globe. The border measures provided are also within the international framework of dealing with suspected counterfeit products.

One major weakness of the provisions of section 86 is that it does not provide a criminal penalty for contravening the section. The section provides that:

> (9) Notwithstanding anything in the Customs and Excise Act [Chapter 23:02], a person shall not be liable to any penalty under that Act, other than forfeiture of the goods, as a result of their importation or exportation being prohibited by virtue of this section". (s86 (9) of the Act.)

This declaration for non-criminal liability pours cold water on the otherwise progressive provision. It is not clear why no penalty was imposed for importing or exporting counterfeit products where the international framework (under the Trips Agreement for example) urges

member states to punish wilful counterfeiting by the criminal law. Article 61 of TRIPS is very clear on that. This is a major drawback for Zimbabwe and the country may be seen to be not complying with its TRIPS obligations. It is urged that the lawmakers must have a relook at the provision with a view to amend it and provide a criminal penalty in addition to the existing civil remedy available to a trademark owner. As it is in its current form, the section may seem to be an obstruction to improving the business climate in Zimbabwe. Trademarks are one of the major IPRs that investors rely on in the market.

Section 89 of the Act provides a limitation period for prosecution in terms of the Act. It states that:

> No prosecution for an offence under this Part shall be commenced after the expiration
> of a period of—
> (a) three years from the date on which the offence is alleged to have been committed; or
> (b) one year after the first discovery thereof by a police officer or customs officer; whichever is the earlier.

The rationale for this limitation is not clear in the Act, ostensibly the idea is to ensure quick prosecution of cases. While the three year period is understandable the one year period after discovery by a police officer or a customs officer does not seem to have adequate justification. IP infringement affects mostly the owner of the trademark or a licensee. It is therefore curious that the proprietor of right would lose out on the opportunity for a criminal prosecution just after 12 months based on the knowledge that a state official had. Why is the running of prescription not based on the knowledge of the owner? The section does not even require that the police/custom officer must have communicated with the proprietor of the right before prescription can kick in. It would have been fair and justifiable if there was a requirement that the State official must have notified the owner of the rights before prescription starts to operate. In any case, the shorter prescriptive period of one year is not justified for criminal offences. A minimum of three years would have been fair and reasonable. This part requires a relook by the lawmakers in order to improve the criminal penalties of the Act.

Geographical indications

Section 9 of the Geographical Indications Act prohibits the application of a misleading geographical indication to any product. This is a good provision. Section 11 proceeds to provide a number of civil remedies to an affected person from the courts. The section provides innovative remedies such as additional damages. In order to award such punitive damages, the

court is guided by among other things the flagrancy of the contravention and any benefit shown to have accrued to the defendant or respondent as a result of the contravention. This approach is good as it makes infringement expensive for the infringer. The unfortunate situation is that there is no criminal penalty for contravening section 9. This is a major drawback.

There are only a few general criminal remedies in the Act. Sections 35 to 37 creates general offences common in other IP statutes as discussed above. The Act does not therefore set out clear criminal penalties that can help proprietors of IP rights to enforce their rights. This is a contrast with the position found in Uganda for example, where the Geographical Indications Act of 2013, section 4 and 22 provides criminal sanctions where a GI mark is deceptively used on goods which do not originate from a given geographical area. Punishment for the offence is imprisonment not exceeding two years or a fine or both. This is a better approach as it assists right holders and the public at large through criminal law enforcement. Taking into account the numerous advantages of criminal penalties discussed in the earlier sections of this paper, Zimbabwe is lagging behind in its approach.

Copyright and Neighbouring Rights

The Copyright and Neighbouring Rights Act (Chap 26:05) in section 59(5) creates a number offences and provides for punishment of 2 years imprisonment or a fine of $700 for infringing copyright. Section 59 (1) provides as follows:

> (1) A person shall be guilty of an offence if, at a time when copyright subsists in a work, he does any of the following things in Zimbabwe without the authority of the owner of the copyright in the work:
>
> (a) in relation to an article which is an infringing copy and which the person knows or has reason to believe is an infringing copy—
>
> (i) he makes it; or
>
> (ii) otherwise than for his personal and private use, he imports it into Zimbabwe or exports it from Zimbabwe; or
>
> (iii) in the course of business, he possesses it or exhibits it in public or distributes it; or
>
> (iv) he sells it or lets it for hire or offers or exposes it for sale or hire; or
>
> (v) otherwise than in the course of business, he distributes it to such an extent that the owner of the copyright is prejudicially affected;

This part covers a variety of activities in relation to works in which copyright subsists. This would cover the unlawful production of books, compact disks and any other material protected by copyright. In addition sub section 'b' deals with making copies of copyright protected materials. Section 59 (2) deals with the offence of performance in public of musical works without authority, while subsection 3 deals with re-broadcasting of broadcasts "knowing that copyright subsists in the broadcast and that the re-broadcast or transmission constitutes an infringement of the copyright" (section 59 (3). Any person who causes a programme-carrying signal to be distributed without the authority of the owner of the copyright in the signal, knowing that copyright subsists in the signal and that the re-broadcast constitutes an infringement of the copyright, commits an offence in terms of s59(4) of the Act.

To prove the essential elements of any of the above offences requires proof of copying or reproduction. Dealing with this requirement in the *Chiadzwa* case supra the Appeal Court commented as follows:

> Returning now to s. 27(1)(e) of the Act, (now s59) it must be clear that for an offence to be committed the applicant's work of art should have been reproduced not that his idea should have been adopted. There must be a reproduction of an article in which copyright subsists. The evidence in this case did not establish that any such article was copied or reproduced. S. 27(1) (e) also requires that the accused person should have knowledge that the article which he exhibits is an infringing copy of the complainant's work. As to the requirements for establishing such knowledge see *Paramount Pictures Corp v Video Parktown North* 1983(2) SA 261(T) at 261 F - 262 A, where in reference to *Gramaphone Co Ltd v Music Machine (Pty) Ltd & Ors* 1993(3) SA 188 (W) it was said that "knowledge" meant:
>
> "Notice of facts such as would suggest to a reasonable man that a breach of copyright law was being committed". (P7-8).

The Chiadzwa case illustrates that care should be taken on the evidence presented before a court to secure a conviction. The case also helps to show the dearth of IP knowledge on the part of the magistrate and public prosecutor who had dealt with the trial case.

A person guilty of any of the section 59 infringements is liable to a fine not exceeding $700 or to imprisonment for a period not exceeding two years or to both such fine and such imprisonment "in respect of each article to which the offence relates" (s59 (5) of the Act). Properly applied, this means that the section imposes a penalty of $700 or two years imprisonment for

every infringing article. This could mean that a person who is caught with five infringing books should be punished by five $700 fines or send to prison for ten years.

The above assertion is made in the light of the fact that our courts have said that where a statute provides a penalty of a fine or imprisonment or both the court is obliged generally to consider the fine before imposing imprisonment. This has been said in cases such as *S v Lameck Tshuma* HB-302-16 and *S v Zuva* 2014 (1) ZLR 15 (H) 18 A –C. The case law provides that where a statute provides for a sentence of a fine and imprisonment, the court must first and foremost give effect to the sentence of a fine and reserve imprisonment for the most serious aberrations and/or repeat offenders. However, the reference to infringing articles is not affected by this principle of sentencing. The rationale behind the section is to deny the accused of any benefit that he or she would have obtained from the offence.

This approach to sentencing means that the more benefit that the person was likely to derive from the infringing activity the more serious the penalty he or she should face. This is a desirable practice in theory as it would render crime unrewarding for the offender as he or she is stripped of any of the possible benefits of the offence. This approach is in accord with Article 61 of TRIPS and other national laws in the region. For example the Zambian Copyright Act in section 28(1) (g) allows for graduated penalties for repeat offenders. Likewise, the South African Act in section 27(6) empowers the courts to consider the number of infringing articles in imposing an appropriate penalty. The other positive aspect of the Act is that it is one of the few local statutes that provides a penal penalty for infringement of intellectual property rights. Not only does it provide a penalty but gives a deterrent one for that matter.

In Uganda, for example, criminal offences and penalties for copyright infringement are provided in section 47 of the Copyright & Neighbouring Rights Act. A deterrent penalty of four years imprisonment or hundred currency points for each offending article is provided. This is a deterrent penalty which other African nations including Zimbabwe can consider following. The Copyright Act of Kenya of 2001 provides one of the highest penalties in terms of imprisonment for a first conviction. Section 38 of the Act provides a penalty of a fine or imprisonment for up to six years for a first offence and in any other case a penalty of up to 10 years. These few comparisons show the extent to which other countries are treating cases of infringement of IP rights. Possession of goods for private or domestic use does not fall within criminal conduct.

Recommendations

Zimbabwe can improve its system of IP criminal enforcement in a number of ways. Some countries in Africa have adopted the use of specialised bodies or agencies in investigating and prosecuting IP inringments. In Ghana, the law provides for a Copyright Monitoring Team, made up of police officers seconded from the Police Service, representatives of copyright owners and officers of the Copyright Office. (Section 50 of the Copyright Act). The team is charged with the duty of monitoring copyright works, investigation of cases, undertaking of anti-piracy activity, and performance of other functions that are necessary to protect authors. Similar provisions are also provided in the Nigerian Copyright Act, which uses the nomenclature "copyright inspectors". The Nigerian Act specifically provides, beyond investigation, that a copyright inspector may prosecute, conduct or defend before a court any charge, information, complaint or other proceedings arising under the Copyright Act. (s38(3) of the Copyright Act, Nigeria). In addition to these specific powers, a Copyright Inspector is broadly vested with authority to exercise the powers, rights and privileges of a police officer as defined under the Police Act and under any other relevant enactment pertaining to the investigation, prosecution or defence of a civil or criminal matter under the Act.

The establishment of a special IP enforcement unit is evidence of the prioritisation of IPR criminal prosecution, attributable to the growing awareness of the negative effect of piracy and counterfeiting. These specialised bodies vested with wide police powers, translate to more focus and better competence, while also sending out a message of low tolerance for violation of IPRs. (Oyewumni, 536). Indeed these developments are good for Africa and it is urged that Zimbabwe adopts similar arrangements to deal with piracy and counterfeiting.

Closely related to this is the need to create a sepecialised police force unit in Zimbabwe to deal with IP crime. Many countries have adopted this approach with very good results. In Zambia a specialised Intellectual Property Unit was created in 2006. It has specialised IP experts who investigates IP crimes. The Unit is a specialised branch of the Zambian police force whose main objective is to protect all forms of intellectual property rights, prosecute infringers of IPR, encourage innovation and creativity; eradicate counterfeit and substandard products from the market. (See for example Part iv of the Copyright and Performance Right Act No. 44 of 1994) At its inception in 2006 it was known as the Anti - Piracy Crack Squad with the aim of addressing the increasing levels of music piracy. In the first three years after its formation, the crack squad carried out several raids on individuals and organizations involved in music

piracy. In 2009, the Anti Piracy Crack Squad was renamed Intellectual Property Unit. This was to broaden its mandate and enable it to deal effectively with all other forms of Intellectual Property infringement such as trademark infringement. This specialised police unit uses the Copyright and Performance Right Act No. 44 of 1994 in its daily operations. In Zimbabwe at the judicial level, a special IP Court Division of the High Court has been created. A police unit for Intellectual Property is therefore long overdue.

In Zambia, by operation of Part IV of the Act, the police are given an extended mandate to enforce copyright. Sections 34 to 38 of the Act details the role of the police in carrying out investigations, gathering evidence and prosecuting crimes under the Act. This is missing in the Zimbabwean Copyright and Neighbouring Act.

With the exception of the Copyright and Neighbouring Act, the criminal penalties provided in the statutes should be raised from their current levels so that they become deterrent enough. Another point to note that is that th standard scale of fines was gazetted in 2017 and was denominated in United States dollars. A new scale denominated in the RTGS currency must be gazetted which matches the economic developments in the country.

Conclusion

A number of Zimbabwean IP legsislation creates criminal offences for a number of infringing acts. The main challenge observed with regards to the law is that, with the exception of copyright and trademark laws, most of the statutes do not create offences for infringing IP rights. The offences found in most of the industrial property legislation such as patents, GIs, industrial designs and plant breeders' rights are just procedural in nature. The statutes do not create offences for infringing IPRs as some nations in Africa and beyond have done. While on the face of it, this approach seems to be in compliance with the requirements of TRIPS, on closer look it does not. TRIPS does not compell member states to have penal provisions outside counterfeiting and piracy but does not close the door to taking that route. Article 61 of TRIPS gives members a discretion to expand the ambit of criminal provisions where certain conduct is done on a commercial scale, is committed wilfully or with gross negligence. Zimbabwe appears not to have used this window to add instances where criminal penalties are justified for IPR infringement. It is submitted that widespread infringement of rights is outside the private law domain where the proprietor is expected to fight it out alone. Once infringment becomes widespread and on a large scale criminal law remedies should be triggered

at law. To that extent Zimbabwe can expand the areas where criminal law could be used to deter infringement of IPRS.

References

Blakeney, M. (2005). *A guidebook on enforcement of intellectual property*. London: Queen Mary Intellectual Property Institute.

Blakeney, M. (2009). *International proposals for the criminal enforcement of intellectual property rights: International concern with counterfeiting and piracy*. London: Queen Mary School of Law Legal Studies Research Paper No. 29/2009.

Copyright Act, Ghana.

Copyright Act of Kenya of 2001.

Copyright Act, Nigeria.

Copyright and Neighbouring Rights Act, Uganda.

Copyright Act and Neighbouring Rights Act, Zambia.

Copyright and Neighbouring Rights Act (Chap 26:05), Zimbabwe.

Decree No 12/99 of Industrial Property law, Honduras.

European Union, (2015). *Commission staff working document: Report on the protection and enforcement of intellectual property rights in third countries.* Brussels: European Union.

Harms, LTC. (2012). *The enforcement of intellectual property rights: A case book*, (3rd ed.), World Intellectual Property Organisation.

Halt, Jr., G. B., Donch, J. C., Stiles, A.R. and Robert, F. (2014). *Intellectual property in consumer electronics, software and technology startups*, Springer Science and Business media New York.

Geographical Indications Act of 2013, Uganda.

Geographical Indications Act (Chap 26:06), Zimbabwe.

Industrial Designs Act (Chap 26:02), Zimbabwe.

Oyewumni, A., Sackey, E., Chikowore, M. & Mandewo, G. (2018). *Intellectual property law, practice and management: Perspectives from Africa*, Harare: Africa University, African Regional Intellectual Property Organization and Japan Patent Office.

Plants Breeders Act (Chap 18:16), Zimbabwe.

Trademark Act (Chap 26:04), Zimbabwe.

World Health Organisation 2006 report.

World Intellectual Property Organsisation (2009). *The economic contribution of copyright-based industries in Kenya,* Geneva: World Intellectual Property Organsisation.

World Intellectual Property Organsisation (2012). *The Economic Contribution of Copyright-Based Industries in Tanzania,* Geneva: World Intellectual Property Organsisation.

World Trade Organisation Agreement on Trade Related Aspects of Intellectual Property (2018). https://euipo.europa.eu/ohimportal/documents/11370/0/Report+on+the+protection+and+enforcement+of+intellectual+property+rights+in+third+countries. Accessed on 4 October 2018.

PUBLIC HEALTH AND INTELLECTUAL PROPERTY: PHARMACEUTICAL PATENTS AND TEST DATA PROTECTION

*Mhlambululi Mafu**

Abstract

Notwithstanding that access to essential medicines is now part of the right to health for any person, however, equitable access to affordable and quality-assured essential medicine remains insufficient in most developing countries. This is due to pricey, underperforming health systems and the effects of intellectual property rights on access to medical technologies. Consequently, this requires creating a balance between public health and intellectual property rights hence the Trade-Related Aspects of Intellectual Property Rights (TRIPS) Agreement. Therefore, this article provides a review on whether Member States, especially developing countries have successfully used flexibilities in the TRIPS Agreement to develop policies that protect public health and stimulate increased drug access. Notably, the interface between public health and intellectual property, current issues on pharmaceutical patents, innovation and access to essential medicines and test data protection is discussed. Further, the impact of flexibilities in addressing matters relating to public health and access to essential medicines is investigated. During the development of a new drug, test data is produced and is associated with a huge commercial value as it is critical to innovation and technology. Thus, it is imperative to examine the rationale and limits under which test data is protected from unfair commercial use. Finally, the article provides regulatory recommendations on these raised issues.

Keywords

intellectual property; TRIPS Agreement; public health; pharmaceutical patents; test data protection

* Mhlambululi Mafu holds a Doctor of Philosophy Degree in Physics and a Master of Science degree in Physics from University of KwaZulu-Natal, South Africa. He also holds a Masters degree in Intellectual Property from Africa University, Zimbabwe; and a Bachelor of Science (Hons) degree in Applied Physics from National University of Science and Technology, Zimbabwe. He has also completed a string of Intellectual Property courses offered by WIPO Academy and is currently finalising the South Africa Patent Examination Board. Mhlambululi's research interests include intellectual property and public health, patents, technology transfer, commercialisation and university-industry collaborations. Further, he researches on theoretical quantum information science. In this field, he is responsible for developing novel communications technologies that will provide secure future cryptographic systems based on quantum information principles as well as investigating computations at quantum scale. Email: mhlambululi.mafu@gmail.com

Introduction

Over the recent years through industrial revolution, the world has witnessed a shift in the economy from traditional industry to embrace groundbreaking inventions and birth economies that are based on information technology.[1] In fact, information technology has created a digital industry and is responsible for the knowledge-based economy or digital economy. The digital industry is evolving exponentially and has led to numerous breakthroughs, for instance medical instrumentations, user devices and methods of interactions with humans and development. In that regard, information now forms the heartbeat of a knowledge-based economy.[2] Therefore, data has now become the currency of our digital lives. The control of data especially exclusive data allows one to translate it into meaningful information, which can be used to build a product that is of its own kind thus resulting in commercialisation and economic growth. This means that data or information is one of the nation's indispensable economic resources or assets, for service and manufacturing industries as well as national security. Considering that data is an important resource, in the past it was protected through secrecy, or by using physical devices. However technologies have become more advanced and those forms of protection have become susceptible to competitors. On the side, due to advance in legal systems especially in recent years when the patent system has become more established;[3] data is now being protected by using misappropriation and unfair competition laws, contracts, technological protection measures and trade secrets. Surely, the levels of such data-protection tools depict the importance of data especially in this information age.

In the light of the above and amongst other fields, numerous concerns have been raised over protection of data or data exclusivity in public health especially with regards to pharmaceutical data.[4] In particular, in some jurisdictions a party that originated the pharmaceutical data is afforded an exclusive right to first use the data to develop a new product. This means other parties are prohibited from relying on or using data submitted by the first party to develop a similar product for the purposes of commercialisation. This is done to allow the first party to recoup the huge costs incurred during producing data before a third party is allowed to rely on that data for the approval of the generic alternative.[5] In general, companies that deal with producing chemical and or pharmaceutical data are of the view that producing test data involves vast amounts of effort.[6] This is because generating a single set of data usually involves outsourcing some of the research and development work, purchasing of patented technologies, commissioning research and forming collaborations with research institutes such as universities in order to gain more scientific knowledge.[7] Therefore, it is necessary to guard their data and any party

interested in the data will have to access it at a cost. This simply demonstrates a relationship between the intellectual property (IP) system, innovation and access.

The protection of test data especially against free or unfair commercial use is important given that a considerable effort is made to generate it and enables manufacturers to bring new medicines to the market.[8] However, abuse of data protection may act as a way of ever-greening pharmaceutical patent protection.[9] Ever-greening is a term popularly used to describe patenting strategies when, in the absence of any apparent additional therapeutic benefits, patent holders use various strategies to extend the length of their exclusivity beyond the 20-year patent term.[10] Therefore, evergreening may further prohibit the government's capacity to derive benefits from granting compulsory licences on medical patents. This is mainly because there still exists a monopoly on data which prevents the entry of generic products although licences on patents would have already been issued by the government. On the other hand, certain forms of test data protection such as copyright law could be used to protect data even long after the initial period of data exclusivity has elapsed, thus potentially delaying the entry of generic medicines.

The representatives of the originators of the pharmaceutical industry are of the view that countries must adopt regimes of data exclusivity.[11] The adoption of data exclusivity regimes or protection of data has met resistance as some developing countries argue that certain forms of data protection inhibit immediate public dispersal of knowledge and delays the production of generic medicines.[12] In fact, this will not raise the drug prices but would preclude prices from sinking because of generic competition. As a result, this makes it expensive for poor communities to access important drugs such as anti-malaria and anti-HIV drugs.[13] Fortunately, Art. 39(3) of the Trade-Related Aspects of Intellectual Property Rights (TRIPS) Agreement does not impose that developing countries must adopt data exclusivity but solely requires the protection of undisclosed data against "unfair commercial use".[14] In that regard, a number of developed countries with active innovative pharmaceutical industries have sought data exclusivity provisions in Free Trade Agreements (FTAs).[15] These developed countries argue that data exclusivity is an essential tool to promote innovation, and is a legitimate means to protect industry's property rights in clinical test data, and that 'free riding' by the generic industry must be circumvented at all costs.[16]

The TRIPS Agreement is the first international agreement to set certain minimum standards for the protection of test data submitted to national drug regulatory authorities in order to obtain marketing approval for

pharmaceuticals.[17] While the TRIPS Agreement requires protection of test data, unfortunately, it does not specify the exact form it should take. Therefore national authorities in Member States have taken diverse approaches. The TRIPS Agreement came into effect on 1 January 1995 and forms the most comprehensive multilateral agreement on IP. Further, the TRIPS Agreement sets out the minimum standards for the protection of IP rights that World Trade Organisation (WTO) countries need to comply with. Particularly as it relates to this work, it provides for the patent protection for pharmaceutical and undisclosed information and this includes trade secrets and test data. In addition, the TRIPS Agreement contains a number of flexibilities to preserve the rights of nations and protect public interest. Therefore, the TRIPS Agreement provides a key tool for balancing the need for ensuring fair access to medicines, while also supporting necessary innovations.

In 1920, Charles-Edward Amory Winslow defined public health as "the science and art of preventing disease, prolonging life, and promoting health through the organised efforts and informed choices of society, Organisations, public and private communities, and individuals."[18] Health is defined by the Constitution of the World Health Organisation (WHO) as a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.[19] According to WHO, the objective of public health is to provide maximum health benefits to the largest number of people,[20] while the U.S. Institute of Medicine provides that public health aims to fulfil the society's interest in assuring conditions in which people can be healthy.[21] The three core functions of public health are basically to provide assessment, that is, systematically collect, analyse, and make available information on healthy communities; policy development, that is, promote the use of a scientific knowledge base in policy and decision making and assurance, that is, ensure provision of services to those in need. In a nutshell, public health aims to provide groups of people with the right to be healthy and live in conditions that support good health.

In this article, we first provide a section on rationale and conditions or scenarios under which data protection is granted as well as its effects. Secondly, we review the need of a *sui generis* system and the TRIPS Agreement on test data protection and also make a comparison. Further, an assessment of the relationship between the TRIPS Agreement and public health especially in relation to medical technologies, test data protection and innovation and access is discussed. This is followed by a section where we examine the extent of use of TRIPS flexibilities with regard to compulsory licensing in Africa. Moreover, we examine the current state of data protection in Africa. Lastly, we provide a conclusion

as well as propose some recommendations on the issues that were raised in the article.

Rationale for Test Data Protection and its Effects

Art. 39(3) of the TRIPS Agreement provides for test data protection of pharmaceutical, or agricultural chemical products. Test data protection or data exclusivity refers to protection of clinical trial data required to be submitted to a regulatory agency to prove safety and efficacy of a new medicine.[22] Through test data protection or data exclusivity, drug regulatory authorities are prohibited from accepting applications for registration of generic medicines during the period of data exclusivity, unless applicants provide their own test data.[23] Therefore, applicants who want to register their generic medicines are prevented from relying on, or referring to the originator documentation on file with the regulatory authorities. The rationale of test data protection or exclusivity is inherently based on the considerable investment of time, expertise and high financial costs of producing the data.[24] Subsequently, these costs have serious implications on public health because they inhibit drug developers to voluntarily share clinical data trials. The cost associated with development and bringing to the market a new drug requires the drug developer to spend towards development costs related to conducting extensive chemical, pharmacological, taxological and clinical research, investigator grants, contract research organisation costs and testing.[25] Besides these costs, drug developers also incur costs associated with continuous safety monitoring.[26] Moreover, these tests usually take a very long time to complete and depending on the complexity of the test or clinical trials, the development of new drugs may take up to 10 years to complete.[27] In that regard, because of costs that are involved it is sensible to adopt data exclusivity laws for pharmaceutical manufactures to create further a market entry barrier to protect their investment from competitors and infringers who would like to free ride on the drug developer's efforts in putting together clinical data. In the absence of data exclusivity, parties that produce data would suffer from an unfair commercial disadvantage when compared to their generic competitors who do not need to meet these expensive costs and requirements set by regulatory authorities that approve drugs. The overall and obvious implications of these high costs are that in the long run they limit patients to access novel treatment.[28]

The imposed limits on test data protection come with a number of challenges especially to African countries.[29] This is mainly due to the fact that most of these countries do not provide for restrictive use of pharmaceutical data. In fact, they do not have specific provisions that deal with data protection in their laws. Moreover, even if one builds a strong argument for data exclusivity laws in developed countries, the same

arguments are bound to fail in less developed countries. This is mainly because intensifying data exclusivity protection in less developed countries is unlikely to result in improved research and development or even foreign direct investment.[30] Moreover, less developed countries contribute a small portion of the global pharmaceutical market and their policy choices have negligible impact upon research and development investment decisions of multinational pharmaceutical companies. This basically translates to the argument that less developed countries need to resist the introduction of such restrictions on protection of test data that is of public interest. Notably, this is due to the fact that where generic production lowers prices and increases availability of, and access to, essential medicines it is in the public interest to limit the extent of test data protection.

Furthermore, the delay in the entry of competitive drugs coupled with the reduced-price competition may prolong massive health crises in less developed countries. Most importantly, it may prove to be undesirable to require duplicative testing in less developed countries because they possess very limited financial resources. In fact, it is against public order and morality to conduct unnecessary or repetitive animal testing and clinical trials on humans using drugs that have already been considered to have similar biological properties to those already approved for the market.[31] It is considered that repetitive toxicological and clinical investigation especially in the case of animal testing is wasteful and ethically questionable.[32] This means that concerned parties must depend on registration data that was submitted for a similar product (having the same physical and chemical characteristics) or even on the existence of a preceding registration in another place.

The *Sui Generis* System and TRIPS Agreement on Test Data Protection

Art. 39 of the TRIPS Agreement provides the minimum standards on "protection of undisclosed information" as well as enforcement procedures, and remedies.[33] The undisclosed information relates mainly to protection of trade secrets.[34] Further, the article imposes two obligations on governments, that is, to protect data on new chemical entities collected with considerable effort, against unfair commercial use, and to protect such data against disclosure, except where necessary to protect the public, or unless steps are taken to ensure that the data is protected against unfair commercial use.[35] The general understanding is that this provision recognises the considerable efforts (both in time and money) involved in producing data, especially with increasingly stricter regulatory requirements. Therefore, Art. 39(3) connects the protection of data to the

amount of effort expended in producing data and not the product produced from the data.[36] These provisions are stated in Article 39 of the TRIPS Agreement as follows:

1. In the course of ensuring effective protection against unfair competition as provided in Article 10bis of the Paris Convention (1967), Members shall protect undisclosed information in accordance with paragraph 2 and data submitted to governments or governmental agencies in accordance with paragraph 3.
2. Natural and legal persons shall have the possibility of preventing information lawfully within their control from being disclosed to, acquired by, or used by others without their consent in a manner contrary to honest commercial practices so long as such information:
    a. is secret in the sense that it is not, as a body or in the precise configuration and assembly of its components, generally known among or readily accessible to persons within the circles that normally deal with the kind of information in question;
    b. has commercial value because it is secret; and
    c. has been subject to reasonable steps under the circumstances, by the person lawfully in control of the information, to keep it secret.
3. Members, when requiring, as a condition of approving the marketing of pharmaceutical or of agricultural chemical products which utilise new chemical entities, the submission of undisclosed test or other data, the origination of which involves a considerable effort, shall protect such data against unfair commercial use. In addition, Members shall protect such data against disclosure, except where necessary to protect the public, or unless steps are taken to ensure that the data are protected.

Prior to the enactment of the TRIPS Agreement, in several jurisdictions the registration of pharmaceutical products was subject to a *sui generis* system of protection. This was done to grant the applicant a temporary right to exclusive use of their pharmaceutical data.[37] This means generics manufacturers or competitors could not be allowed to depend on submitted data with the aim to register a similar drug for commercial purposes. The main reason for such a rationale is for the manufacturer to obtain data as they would have invested heavily in carrying out tests. Therefore, in order for research and development to continue there is need for the drug manufacturer to recoup the costs expended in obtaining test data for developing the drug. If this data were forthwith available to third parties, there would be no incentive in the first instance for the first party to produce this data, unless a form of protection was available.[38] In that sense,

data exclusivity is a necessary barrier to infringers and competitors who are rapidly producing and registering an exact copy of the drug and was stated explicitly as;[39]

> Equity demands that protection be provided for data, which can cost the original submitter several million dollars to produce. Disclosing this data to the public or allowing its use by another applicant unfairly denies the compiler of the data the value of its efforts and grants an economic advantage to later applicants for marketing approval, enabling them to avoid the cost of developing test data for their own products. Countries that allow such unfair advantages to later applicants discourage developers of new pharmaceuticals and agricultural chemicals from seeking to introduce their state-of-the-art products in the country´s market. So, not only is such protection required by the TRIPS Agreement, it is both equitable and wise from a public and health policy standpoint.

According to Art. 27 of the TRIPS Agreement, a patent shall be granted for any inventions, in all fields of technology, that falls within the patentable subject matter provided that they are novel (does not exist anywhere in the world), involve inventive step (non-obvious) and are susceptible of industrial application (utility). The basic premise of these requirements is that novelty safeguards the public interest against re-monopolising products that exist in the public domain; inventive steps must ensure that patents are only registered in respect of truly non-obvious achievements and finally industrial applicability determines the need for a patented technology to be of practical value. A patent grants the right holder to exclude others from making, using, selling offering for sale, or importing the patented product the invention for a limited term of 20 years from the date of application in most jurisdictions.[40] In many cases, a patent will cover the pharmaceutical product at issue. Nevertheless, more and more compounds that cannot be patent protected (as they do not meet the patentability requirements) are being developed and thus data exclusivity in some instances is the only available IP right protection. The difference between the forms of protection for patents and data exclusivity is that in contrast to the rights granted by a patent, the form of protection that countries should provide for proprietary test data does not, *per se*, exclude the copier from performing their own independent test (pre-clinical and clinical trials) and submitting their results to the regulatory bodies.

Furthermore, the protection of one right is neither dependent on the other nor connected to the other in any inherent manner and in fact any linkage between the two rights contravenes the provisions of the Agreement. Another difference between the two forms of protection is that patents protect the invention itself regardless of the effort and investment

expended, while test data protection protects a different subject matter, that is, information submitted for regulatory approval. This simply means that a patent can be held by one party and the regulatory approval by another party. Furthermore, in terms of patent protection, the government's responsibility is only to provide the legal environment in which the patent holder may enforce his right against an infringer while in protection of registration data it is the government through its regulatory agencies (and not the data originator) which has responsibility for preventing copiers or infringers from taking advantage of proprietary data during the period of data exclusivity.[41] However, protection by means of data exclusivity has been criticised for a number of reasons. Data exclusivity is considered as a form of conferring patent-like protection on test data through the creation of financial disincentives against generic manufacturers who would like to enter the market by compelling them either to wait for the data exclusivity to expire or to invest significantly in the production of a new set of test data.[42] Further, data protection extends patent protection, which would have provided adequate compensation for the originator brand company.[43] In that respect, data exclusivity forms an additional factor that may impose some serious results for public health and access to affordable medicines especially in developing countries.

In many countries, data protection rules are provided by a *sui generis* system and actually provide a good candidate or substitute for patent protection and this is relevant for less developed countries.[44] Unfortunately, just like a modern patent system, a *sui generis* system comes with its own lacks. For instance, it may influence information products to become more expensive by creating an anti-competitive environment that would make it difficult for valued-added products and services to enter the market. Moreover, protection through this system may result in essential data required to perform basic scientific research and future endeavors being locked up. Finally, the additional protection was considered unnecessary because test data producers already enjoyed significant protection under state contract, misappropriation, and unfair competition laws as well as through the use of technological protection measures. Moreover, non-disclosure of health data negates the right of the public to be abreast concerning the efficacy and safety of approved pharmaceuticals. In fact, making unknown of data based on clinical, pharmacological and toxicological experiments impedes the advance of knowledge and exposes consumers to risks of a certain drug.[45] While other schools of thought support confidentiality, it however prevents the scientific community from examining the scientific basis of a licensing decision. This makes it a challenge or even impossible in some instances to determine whether there is commercial bias in the information, or whether the drug meets the necessary standards in the case where there is

concealment of pharmaceutical data. Based on these arguments, one can conclude that there exist conflicting views on test data protection. In that regard, below we investigate the degree to which the provisions of the TRIPS Agreement provides exclusivity and whether member countries can rely on the data from a preceding registration or on registration made in a foreign country.

Owing to the fact that there was no universal standard for the protection of test data, the TRIPS Agreement introduced the first "international" norm on test data protection. However, this Agreement does not yet provide a uniform law but only presents minimum international standards for the protection of marketing approval data. This means that Members States to the WTO are required to determine what is actually needed to fulfil their obligations under this Agreement and can broaden the parameters in their national rules. These minimum standards are specifically provided in Art. 39(3) of the TRIPS Agreement and stated as follows:[46]

> Members, when requiring, as a condition of approving the marketing of pharmaceutical or of agricultural chemical products which utilise new chemical entities, the submission of undisclosed test or other data, the origination of which involves a considerable effort, shall protect such data against unfair commercial use. In addition, Members shall protect such data against disclosure, except where necessary to protect the public, or unless steps are taken to ensure that the data are protected against unfair commercial use.

The above provision of the TRIPS Agreement presents a number of restrictions on the protection of test data. The protection of data will only qualify to be protected if and only if;

- the data is undisclosed,
- submission of the test data is required by the Member State,
- the products for which marketing approval sought use new chemical entities, and
- the generation of data involves considerable efforts.

Furthermore, the Agreement requires Member States to protect data against disclosure and unfair commercial use. With regards to disclosure, the requirement is that data submitted for regulatory approval must not be disclosed. However, in the case where there is need to protect the public or where steps are taken to ensure that there is no unfair commercial use of data concerned; the regulatory agencies may also disclose the data. Unfortunately, on unfair commercial use, the Agreement does not give a definition of what this term means. Further, the Agreement does not specify the duration and manner for such protection.[47] Therefore, this

means the onus rests on the Member States to enact policies in place of practices deemed to be of unfair commercial use and to determine a reasonable period during which the test data will be protected.

Further, the TRIPS Agreement does not present broad protection over test data but only requires Member States to protect against unfair commercial use of the undisclosed information submitted for the marketing approval of products that utilise new chemical entities. New chemical entity is a regulatory concept and must not be considered to be equal to the novelty requirement of a patent. In some jurisdictions such as Europe, a new chemical entity is defined as a new compound with no prior approval as a drug, that has undergone full development and testing, and is proven to be safe and effective. Another lack provided by this Agreement is that the period of data exclusivity is not fixed by this Agreement. The term of protection should just be sufficient to protect the data generator's investment. The protected information includes clinical trial data that regulatory agencies may collect as part of the effort to evaluate the efficacy, quality, physical and chemical characteristics, and safety of new pharmaceutical and agrochemical products. However, this provision does not create exclusive rights in the collected data but only offers protection against unfair competition. Moreover, the granted protection only relates to products that make use of new chemical substances instead of existing chemical substances that have been reformulated or sold for a new indication.

Once again, Osewe Nkrumah and Emmanuel Sackey state that interpreting the provisions of Art. 39(3) in the sense that Member States demand data exclusivity instead of data protection against unfair competition presents a potential to block the access to generic versions of new medicines.[48] This essentially means that drug regulatory authorities cannot use data submitted by the innovator as a basis to assess the generic version of the drug during the validity of the exclusive period. This kind of interpretation possesses a potential of suppressing the production of generic versions of medicines and this can result in increased prices for the innovator's product due to monopoly. In the event that a generic producer wishes to conduct trials on the same medical compounds, this will push up the price of the drugs and unfortunately these extra costs will be transferred to the consumer.

TRIPS Agreement and Public Health

The TRIPS Agreement specifies that IP rights protection and enforcement are to contribute to the promotion of innovation, transfer and dissemination of technology, and use of technological knowledge in a manner conducive to social and economic welfare and should balance

rights and obligations.[49] The TRIPS Agreement contains a number of provisions that could be used by Member States to promote public health, and, more specifically access to medicines. These provisions may be referred to as "the public health-related TRIPS flexibilities" and have been detailed by Carlos Correa[50] as summarised in Table 1.

Table 1: Public health-related TRIPS flexibilities and other intellectual property related tools

Provision in the TRIPS Agreement	Flexibility	Description
27	Patentability criteria	World Trade Organisation Members may develop their own criteria for novelty, inventive step, and industrial application.
8 31(k) 40	Competition-related	Members may adopt appropriate measures to prevent or remedy anti-competitive practices relating to IP. These include compulsory licences issued on the basis of anti-competitive conduct and control of anti-competitive licensing.
31	Government use	A government authority may decide to use a patent without the consent of the patent holder for public, non-commercial purposes, subject to the payment of adequate remuneration in the circumstances of each case.
31	Compulsory licensing	A non-voluntary licence may be granted by a duly authorised administrative, quasi-judicial, or judicial body to a third party to use a patented invention without the consent of the patent holder, subject to the payment of adequate remuneration dependent on the circumstances of each case.
31bis	Compulsory licensing for export purposes	Additional protocol for World Trade Organisation Members that do not have pharmaceutical manufacturing capabilities

6	Parallel imports	Goods legitimately placed on another market may be imported without permission of the rights holder, as long as the patent holder's rights have expired.
30	General exceptions (including research exception or 'Bolar clause')	World Trade Organisation members may provide limited exceptions to the exclusive rights conferred by a patent, provided that such exceptions do not unreasonably conflict with a normal exploitation of the patent and do not unreasonably prejudice the legitimate interests of the patent holder. The Regulatory Review Exception also permits the use of a patented invention before the patent expires for the purpose of obtaining marketing approval of a generic product for commercialisation once the patent expires.

One of the most important contributions made by the IP system in public health is to bring a balance between innovation and equitable access to drugs, and medical technologies. To balance these two goals is not very immediate, since a patent system offers a private right and the access to drugs and medical technologies is a public right. This is where a dilemma stands as private property rights are envisioned to serve as an engine to champion public welfare. Then, there is indeed an interlock between the two rights because the private rights are established in the public interest and the converse also holds. In fact, the public sector holds IP rights on pharmaceuticals technologies and conversely these private IP rights are employed in non-commercial methods for instance to influence downstream applications and commercialization of technologies to provide for assurances of access such as in developing countries.

According to Reports and Articles of the World Intellectual property Organisation (WIPO),[51] in principle the overarching public policy role of the patent system is twofold: first to promote innovation through garnering and directing resources towards beneficial research and

development. Thus, this is a genuine and practically useful addition to technological knowledge. Secondly, the goal is to provide a transparent mechanism for the dissemination and accessible publication of innovation, and the practical, equitable availability of the fruits of innovation. Other issues that are worth noting regarding the relationship between IP and public health is the issue of ethics.[52] In most areas especially in developing countries, IP law is greatly affected by ethical considerations because national laws provide for the exclusion to grant patent rights for inventions and innovations that are deemed to be against public order and morality. For instance, one of the key issues regards the ethics of stem cell research especially with procurement of such cells, in vivo use of stem cells, intellectual property, and conflicts of interest.[53]Further, ethical issues relate to the granting of patent rights or patent licensing on key pharmaceutical technologies[54] and morality issues involved when a patent office awards a patent on a higher life form.[55]

The Fourth WTO Ministerial Conference, Doha, Qatar, adopted the Declaration on the TRIPS Agreement and Public health on 14 November 2001. The main goal of the declaration was for WTO Members to assist frame the health policy framework of the IP system.[56] In particular, the Doha Agreement asserts that IP rules must not prevent countries from protecting public health.[57] The declaration stressed the need for the TRIPS Agreement to be part of a wider national and international action to address public health problems afflicting developing countries and least-developed countries. Further, it identified specific options open for governments to address public health needs, also known as flexibilities. Essentially, these flexibilities comprise of the right to grant compulsory licences, parallel imports, Bolar provision/regular exception and exemptions for least developed countries.

Compulsory licensing, which is also referred to as non-voluntary licensing, is when a government or judicial body allows someone else to "use" (for instance sell, import, or manufacture) a product under patent protection without the consent of the patent owner. However, this is subject to granting the patent owner some monetary remuneration. Compulsory licences historically were issued for purposes such as: to deal with a situation in which a patent owner is unwilling to work his invention[;] to satisfy an unmet demand from the public for a patented product[;] to introduce a price-reducing competition for important but expensive products, for example, drugs[;] to deal with a situation in which refusal to license a patent, or the imposition of unreasonable terms, is preventing the exploitation of another invention which is of technical or economic importance; to prevent abuses of patent rights . . . [; and] to prevent the creation of potential competition- inhibiting monopolies [36a].

A parallel import (also known as a grey product) is a product made legally, that is, not pirated from abroad and is imported without the permission of the intellectual property right-holder (for example, the trademark or patent owner). While some countries allow this, others do not.[58] The Bolar provision permits the use of a patented invention without authorisation from the patent owner in order to obtain marketing approval of a generic product before the patent expires. This allows a generic product to enter the market more quickly after patent expiry, which in turn facilitates access to cheaper medicines.

While the idea of introducing TRIPS flexibilities appeared noble, however these flexibilities have not yielded positive results for example, compulsory licences have not been significantly used hence Art. 31bis and the TRIPS Amendment.[59] The TRIPS rules originally restricted compulsory licences to serve mainly the domestic market, unless they were issued to deal with anti-competitive behavior. The Doha Declaration recognised that this restriction on compulsory licensing could hamper its effective use by countries with insufficient or no manufacturing capacities in the pharmaceutical sector. For instance, Olasupo Owoye highlights that a potential problem that may arise is where a compulsory licence is issued; the generic manufacturer is required to obtain an approval from the patent holder to make use of test data in order to obtain the marketing approval.In a situation where a compulsory licence is issued in respect of a drug, data exclusivity still presents a significant hurdle by making marketing authorisation for the drug more difficult because Art. 39(3) establish a quasi-proprietary, quasi-patent system that confers rights that are separate and distinct from a patent right.[60] In that regard, the amendment of the TRIPS Agreement aims at removing this difficulty by creating an additional form of compulsory licence that had not existed before a compulsory licence especially tailored for the export of medicines to countries in need, in effect, a 'trade related' compulsory licence. This mechanism was sometimes termed the 'paragraph 6 system', from its origins in the Doha Declaration.

Art. 31bis of the TRIPS Agreement gives a full legal effect to this system and allows low cost generic medicines to be produced and exported under a compulsory licence exclusively for the purpose of serving the needs of countries that cannot manufacture those products themselves. This provision is meant to allow pharmaceutical products made under compulsory licences granted under the terms of the amendment to be exported to countries lacking production capacity. Thus, this will allow countries that lack sufficient domestic manufacturing capacity within their own country to obtain cheaper generic drugs. For the minority of WTO members yet to accept the amendment, an interim waiver will continue to apply. While Art. 31bis promises to provide an improved access to

essential medicines and pharmaceutical products, however the long list and complex procedural requirements that need to be followed has rendered it unsuccessful.[61] Owing to these numerous requirements, only a small number of WTO Member States have ratified the amendment. In the meantime, 100 countries have ratified this amendment. Among these countries, only 26 are from Africa, namely; Benin, Burkina Faso, the Central African Republic, Congo, Côte d'Ivoire, Gabon, Guinea, Egypt, Kenya, Lesotho, Mali, Madagascar, Malawi, Mauritius, Morocco, Nigeria, Rwanda, Senegal, Seychelles, Sierra Leone, South Africa, Tanzania, Togo, Uganda and Zambia.[62] Notably Botswana, in Sections 31 and 32 of its Industrial Property Act, 2010 provides a legal basis for this regime. In this view, it implies that Art.31bis may not become effective soon especially without necessary ancillary legislation in each individual country.

Furthermore, pressure from developed countries and pharmaceutical industry to refrain from using compulsory licences weigh heavily on a developing country's decision to ratify Art.31bis. For instance, in 2001 the US sought sanctions against Brazil for turning to a compulsory licence on a US patented drug. This response by the US indicated to the world that it was willing to take extreme measures in order to protect its pharmaceutical companies. As a result, this generated fear among other countries that they could be subjected to reprisal in the form of sanctions, litigation, and trade restrictions if they invoke compulsory licences. Although, the US finally withdrew its complaint against Brazil from the WTO panel, the remaining effects scared attempts by developing countries to resort to compulsory licensing.

Art. 31bis requires a country that is exporting a medical drug to bear adequate remuneration under a compulsory licence. The challenge is that the meaning of 'adequate remuneration' still remains unknown. Developed countries are of the idea that adequate remuneration means full compensation for the product because intellectual property rights must be respected and valued, and the high cost of developing drugs warrants such high compensation. However, this argument is not fully justifiable as it creates a windfall because it allows patent owners to collect profits in a market that was never available.[63] While the argument by developed countries is justifiable, developing countries insist that there should be minimal or no remuneration for the use of a patent. From a humanitarian outlook, this appears justifiable, but a lack of remuneration will fail to balance the patent owner's rights with the developing country's need to protect public health. Lack of a clear definition of 'adequate remuneration' may lead exporting countries to pay prices that are too high, thereby negating the potential gains they receive as a result of producing low cost medicine or too low, in which case the patent holder would not receive

adequate compensation for use of his patent. Thus, countries may be wary of ratifying Article 31bis because there is no clear standard for determining adequate remuneration.[64]

In addition, individual Member States must enact domestic legislation in order to comply with TRIPS Agreement and Art. 31bis. But, the adoption of such legislation is politically difficult to achieve as well as financially expensive for Member States who export generic drugs. Notably, in most developing countries there is lack of legal and technical expertise to draft appropriate legislation that can comply with the TRIPS Agreement. The biggest challenge for developing countries is that no guidelines for legislative frameworks that could be adopted exist at present and coming up with such legislation from scratch is an onerous process, as it requires both financial and legal resources.[65] In that regard, many developing countries except Botswana have crafted into its Industrial Property Act the required legislation that complies with the Art. 31bis amendment.

Moreover, Art. 31bis sets aside a requirement that compulsory licences be central for the supply of domestic markets of the country granting the licence.[66]Through the amendment, members of a regional trade agreement who import generic drugs under a compulsory licence are permitted to also export them to other states provided those states suffer from the same medical problems. While the proposed amendment states "[i]t is understood that this will not prejudice the territorial nature of the patent rights in question," the amendment fails to outline detailed requirements for countries privy to a regional trade before becoming eligible to receive imports under the compulsory licence. If these requirements are left to the discretion of each country, this will further expand the scope of Art. 31 and lessen the capacity for the patent owner to profit in foreign markets, ultimately leading to a decrease in foreign investment.[67] Without detailed provisions on the circumstances in which a compulsory licence can be issued, there is a risk that countries participating in regional trade agreements will be able to siphon off generic pharmaceuticals without demonstrating a true need.

Art. 31 of the TRIPS Agreement, which deals with 'use without authorisation', provides conditions under which a compulsory licence of patented products can be issued.[68] Moreover, the Doha Declaration on the TRIPS Agreement and Public Health (Doha Declaration) confirms that countries are free to determine the grounds for granting compulsory licences. It also includes the freedom to determine the grounds upon which licences are granted, the right to determine what constitutes a national emergency and circumstances of extreme urgency, and the freedom to establish the regime of exhaustion of intellectual property rights, owing to

the fact that a number of developing countries are not able to produce either active ingredients or formulations, due to lack of technology, equipment, human resources or economic viability of domestic production.[69] While these countries may issue compulsory licences to import generic versions of patent-protected medicines, TRIPS rules impose constraints on the ability of countries to authorise exports of such products.

In response to the challenge of access to drugs by developing countries, the WTO Members enacted the Doha Paragraph 6 (now known as Paragraph 6 Public Health Solution) that promised a solution to the export problem caused by these constraints. In fact, Paragraph 6 of the Doha Declaration instructs the WTO Council for TRIPS to find an expeditious solution to the problem faced by countries with insufficient or no adequate pharmaceutical production capacity in making effective use of the compulsory licensing provisions of the TRIPS Agreement.[70] This mechanism is generally present in most patent laws, is recognised as a permissible option or flexibility under the TRIPS Agreement, and has been used by a number of WTO members in the pharmaceutical field thus resulting in reduced prices of drugs.

Use of TRIPS Flexibilities: Compulsory Licensing in Africa

In this section, we investigate the use of compulsory licensing to access medicines by African countries, in particular, the extent to which African countries have benefited from compulsory licensing.

Kenya and South Africa

In Kenya and South Africa, licences have been granted to local manufacturers by patent holding companies for the production of antiretroviral drugs (ARVs). In the case of South Africa, the licences were granted through a settlement in a competition claim, thus making these licences technically compulsory licences. However, in Kenya, the voluntary licences followed concerted pressure from the government, civil society organisations and local manufacturers. Although technically voluntary licences, in that they were negotiated between the patent holding companies and the licencee company, the political and legal context in this case should be noted. It can be argued that in both South Africa and Kenya, the patent holding companies were compelled to enter into voluntary licensing arrangements with local producers, given that national legislation in both countries incorporated a number of the TRIPS flexibilities and there seemed to be sufficient political impetus for their use. In light of the above, treatment activists in South Africa were successful in

using competition law (which works in tandem with IP policy) to increase the number of antiretroviral drugs suppliers.[71] This resulted in an increase in competition and lowering of medicine prices. In a similar manner, during 2001 activists in Kenya played an important role by campaigning for the incorporation of public health safeguards in their law at the same time the WTO members were engaged in a debate over the use of TRIPS flexibilities to ensure access to medicines at the TRIPS Council.[72]

Rwanda

In 2006, the Rwandese government promulgated a law that required generic medicines to be used for all treatment programmes whenever they are available. Later in 2007, it announced its aim to use the WTO 30 August 2003 decision in order to import a generic fixed-dose from a Canadian generic manufacturing company under a compulsory licence. After some strong negotiations that failed with the holders of the patents to obtain a contractual licence, a pharmaceutical company known as Apotex was authorised by the Canadian government to produce a generic version of a drug to treat AIDS. However, the process was very bureaucratic and cumbersome, and the supply of the medication took more than a year to arrive in Rwanda.

Mozambique

The Ministry of Industry and Commerce in April 2004 granted a compulsory licence to allow the local manufacture by a company known as Pharco Mozambique Lda of a fixed-dose ARV triple combination. The grant of the compulsory licence was made according to Art. 70 No. 1(b) of the Industrial Property Code of Mozambique. In particular, this article allows the use of an invention without the consent of the patent holder by the government or by third parties:

> …in a case of emergency or in any other circumstances of extreme urgency, either of an economic or a social nature, or for the development of other sectors that are vital to the national economy, when the circumstances so require.

The compulsory licence was valid until the conditions of national emergency and extreme urgency created by the HIV/AIDS pandemic came to an end and the Ministry of Industry and Commerce was to inform the concerned parties about the expiration of the licence. This licence stipulated the payment of royalties not exceeding two percent of total turnover of products to patent holders on condition that the triple combination of medicines is not to be marketed in Mozambique by patent owners, and it was in the national interest to keep prices as low as possible.

Zambia

In 2004, the Ministry of Commerce, Trade and Industry of Zambia granted a compulsory licence to a locally incorporated company known as Pharco Ltd to manufacture ARV drugs locally. This licence was granted according to the provisions of Sections 40 and 41 of the Patents Act of Zambia. In particular, Section 40 permits "any Government Department or any person authorised in writing by the Minister may make, use or exercise any invention", and Section 41 provides a non-exclusive list of the purposes for which an invention may be used during the period of emergency. Furthermore, the compulsory licence specified the time frame for its validity, prohibited the export of medicines produced under the licence as well as stipulated the payment of royalties not exceeding 2.5 percent of total turnover of products to the patent holders.

Zimbabwe

The government of Zimbabwe issued a declaration of a health emergency in 2002,[73] through Section 34 of the Patents Act in Zimbabwe which empowers the Minister of Justice, Legal and Parliamentary Affairs to authorise any government department or third party to use any patented invention for the service of State. In particular, the emergency declaration allows the State or a person authorised in writing by the Minister to make or use any patented drug, including any antiretroviral drugs, used in the treatment of persons suffering from HIV/AIDS or HIV/AIDS related conditions; and/or to make import any generic drug used in the treatment of persons suffering from HIV/AIDS or HIV/AIDS related conditions. The government issued compulsory licences to three local companies to either import or produce antiretroviral drugs after the adoption of the Doha Declaration.[74] In that respect, in 2003 a local producer known as Varichem Pharmaceuticals (Pvt) Ltd was authorised to "make, use or exercise any invention disclosed in any specification lodged at the patent Office for the purpose of achieving the objectives of the Statutory Instrument 32 of 2003". Varichem agreed to produce antiretroviral or HIV/AIDS related drugs and supply three quarters to State owned health institutions at the price that was fixed subject to price control mechanisms determined by the Minister. Moreover, Verichem agreed to provide proof of the price differentials between the patentee's drugs and its own manufactured drug.[75] However, under this declaration two other companies namely Datlabs and Omah were also authorised to supply generic ARVs. In particular, Datlabs was authorised to import ARVs from Ranbaxy in India, while Omah which was an agent for the Indian manufacturer known as Cipla, was authorised to import Cipla products. While the use of compulsory licensing brought public health benefits, it is difficult to access its success because of the political and economic challenges which affected the availability of foreign currency required to import the active ingredients and the final price of the drugs.

Current State of Data Protection in Africa

A number of African countries fail to provide guidance on data exclusivity along the lines required by Art. 39(3) of the TRIPS Agreement. This trend is also the same in other developing countries.[76] In fact, with the exception of a few African countries mentioned below, there is no specific provision that gives guidance regarding test data protection in the national laws of these countries. What exists is general provisions related to protection of confidential information or other undisclosed information found in other laws. Amongst these countries listed below, only Ghana and Egypt has clear guidelines regarding the protection for proprietary registration data.[77]

Ghana

The provisions that relate to protection of test data protection are found in Section 5(4) of the Ghana Unfair Competition Act, 2000 (Act 589) and is stated as follows:

> 5(4). Any act or practice, in the course of industrial or commercial activities, shall be considered an act of unfair competition if it consists or results in
>
> a) an unfair commercial use of secret test or other data, the origin of which involves considerable effort, and which have been sub mitted to a competent authority for the purposes of obtaining approval of the marketing of pharmaceutical or agricultural chemical products which utilise new chemical entities; or
>
> b) the disclosure of such data) except where
>
> (i) it is necessary for the protection of the public; and
>
> (ii) steps are taken to ensure that the data are protected against unfair commercial use.

Egypt

Art. 56 of the Patent Law of Egypt provides for the protection of test data from disclosure and unfair commercial use. This is stated as follows:[78]

> Protection conferred by the provisions of this Law shall extend to undisclosed information that involved a considerable effort, submitted on request to the competent authorities for marketing of pharmaceutical or agrochemical products which utilise new chemical components necessary for the tests undertaken to allow such marketing.
>
> The competent authorities who receive such information shall protect it against disclosure and unfair commercial use from the date of its submission to the competent authorities until it is no longer confidential, or for a period not exceeding five years, whichever comes first.

Disclosure of information, by the competent authorities, where necessary to protect the public shall not be deemed to constitute an infringement of the information owner's rights.

South Africa

There are no statutory provisions in South African patent law or medicines regulatory laws dealing specifically with data exclusivity protection periods for medicinal products.[79] Further, there are no non-patent barriers to competition to protect medicinal products. Moreover, there are no provisions in South African patent law or in the medical regulatory laws that specifically deal with the issue of data package exclusivity. But, there are provisions relating to the protection of confidential information in general which may be used in this respect.[80]

Tunisia and Morocco

In both countries, there are no data and marketing exclusivity protection periods for medicinal products. Again, there are no statutory provisions dealing specifically with data exclusivity as it relates to biologics; however, they apply the same rules and regulations on data exclusivity as required under the TRIPS regulations. Specifically, the General Civil Service Act of Morocco has general provisions related to the protection of confidential information.[81]

Recommendations

The advent of globalisation and scaling up in technologies has propelled the world to celebrate development of novel and improved medical inventions. These have facilitated less effort in data acquisition, processing, diagnosis and subsequent treatment of patients for ailments that were previously known to be complex. These inventions have led to prevention of severe diseases, thus prolonging lives and promoting public health. Owing to the advances in technology and innovation, Africa stands to benefit a lot from developing strong manufacturing capacity in the pharmaceutical sector. At present, it is only South Africa among Sub-Saharan countries that is capable of manufacturing active pharmaceutical ingredients. For instance, building strong manufacturing industries in Africa will not aid the production of generic drugs in the continent but will make the effective use of compulsory licences much easier and attractive. Producing pharmaceutical products locally will facilitate the formation of an African free trade area, which will allow efficient movement of drugs within the continent, without trade barriers or excise duties.[82] Thus, this will inevitably lead to access of cheaper drugs throughout Africa and lead to a robust economic collaboration towards development of a strong manufacturing capacity. Moreover, this will lead to human capital development and a better technological base of the continent. However,

this can only happen if Africa develops a local manufacturing capacity and thus substantially reduce the current barriers to free trade on the continent and the effective use of compulsory licences. In addition, this will allow Africa to obtain compulsory licences from patent pools and meet its public health needs of its population.

Considering that only a few African countries provide grounds for compulsory licensing in their national patent laws, it is high time that they incorporate these provisions and also enumerate as many grounds as possible for the issuing of compulsory licences in order to circumvent ambiguity or uncertainty. This is because in most circumstances, impediments to effective utilisation of compulsory licences is the lack of simple, straightforward legislative and administrative procedures that establish clear decision-making processes and responsibilities that are in favor of granting compulsory licences. For instance, as required in Art. 31(h) of the TRIPS Agreement the meaning of "adequate remuneration or compensation" is not immediately known.[83] This can be a good starting point for developing countries to specify what is meant by adequate remuneration or compensation. For example, this can be ratification of royalty guidelines, which are predictable and not difficult to administer thus reducing uncertainty and expedite decision-making.

Further, the prices of pharmaceutical products tend to significantly differ across countries.[84] In order to enable developing countries to have access to affordable medicines, provisions permitting parallel importation must be enacted. Parallel importation will provide wider opportunities to acquire better priced pharmaceutical products. In that view, developing countries must provide for a comprehensive scope in terms of parallel imports and include clear provisions to set down an international exhaustion regime in their national patent laws. However, noting that this flexibility on parallel importation is permitted in the TRIPS Agreement and confirmed by the Doha Declaration, it does not necessarily translate into the national regimes. Therefore, it is necessary that specific legal provisions are provided into national laws of developing countries.

Paragraph 4 of the Doha Declaration provides that the TRIPS Agreement be interpreted and implemented in a manner supportive of WTO members' right to protect public health and, in particular to promote access to medicines for all. Thus, this offers developing countries an opportunity to allow drug regulatory authorities to approve equivalent generic substitutes on the rationale of reliance on the originator data from the time of its submission.[85] Further, developing countries must implement data protection legislation that is consistent with public health objectives in order to expedite the entry of generic competitors. Meaningful efforts are

required by both the pharmaceutical industry and governments to invest in new medicines, provide full transparency on costs, prices, and who pays what beforehand, and respect the legal space for governments to protect public health. If these efforts are not successful, then it is a challenge to guarantee people's access to innovative and affordable medicines.

While affordable prices are not sufficient to enable secure access to new medicines, nevertheless affordability of essential medicines forms a crucial prerequisite for expanding treatment and care. Other components include adequate demand, financing for procurement, and a regulatory environment that is sensitive to health needs. Some of the measures that can be undertaken to ensure affordability of patented medicines embrace making use of the flexibilities under the TRIPS Agreement, encouraging the production of low-cost quality generic versions, negotiating with manufacturers for better prices and licensing of patents. The governments and national health systems of developing countries must provide adequate financing to guarantee inclusion of essential medicines as part of package benefits provided by the public sector and health insurance schemes. They must implement policies that reduce the amount of out-of-pocket spending on medicines and be paid for by national health insurance schemes or private insurance schemes.

In addition, another precondition that can facilitate access to medicines is a reliable, adequately functioning health system that is able to supply patients with essential medical technologies of appropriate quality in a timely manner. These systems include the ability to forecast needs, as well as to procure, store, transport and inventory medicines and medical devices and distribute them appropriately. In some developing countries, supply systems remain weak and fragmented.[86]

Conclusion

The right to access essential medicines and medical instrumentation is now legally recognised by many national constitutions and international human rights treaties. Thus, access to medicines forms part of a right to public health. In this work, we studied the relationship between the TRIPS Agreement and public health and more importantly the effect of the TRIPS flexibilities and IP rights on access to medicines. Regarding TRIPS flexibilities, we investigated the extent in which developing African countries have benefited from them. Unfortunately, only a few African Member States have incorporated these flexibilities into their national patent laws. Thus, this calls for the developing countries to take advantage of some of the provisions that remain unclearly defined in the TRIPS flexibilities, for instance Art. 39 (3) in order to improve access to medicines,

medical equipment and treatment. Furthermore, incorporating competition safeguards may also help improve the flow of trade of affordable medicines thus promoting sustainable access.

We also examined the impact of patent and test data protection on public health especially on access to drugs and pharmaceutical technologies. In particular, we studied the intersection between test data protection and patents as means of providing protection and rewards to the originator of test data and the innovative product, respectively. More importantly, the justification and limits under which test data is protected from unfair commercial use by third parties was also discussed. In addition, the effect of test data and patent protection on access to essential medicines was examined. Finally, recommendations were made on how developing countries can benefit from the provision of the TRIPS Agreement and especially the TRIPS flexibilities and test data protection.

Acknowledgements

I would like to acknowledge with thanks the funding from Botswana International University of Science and Technology Research Initiation Grant; lecturers and colleagues of the Master in Intellectual Property degree programme (10th Cohort) for insightful discussions, as well as the anonymous peer reviewers for their comments on how the article could be improved.

Notes

[1] Humbert, M. (2007). *Technology and workforce: Comparison between the information revolution and the industrial revolution*;

[2] Davenport, T. H., & Short, J. E. (1990). *The new industrial engineering: information technology and business process redesign.*

[3] Gomme, A. A. (1946). *Patents of invention: origin and growth of the patent system in Britain*. British council.

[4] Abbott, F. M. (2005). The WTO medicines decision: World pharmaceutical trade and the protection of public health. *American Journal of International Law*, *99*(2), 317-358; Abernathy, W. J., & Utterback, J. M. (1978). Patterns of industrial innovation. *Technology Review*, *80*(7), 40-47.

[5] Spina Alì, G. (2018). The 13th Round: Article 39 (3) TRIPS and the struggle over "Unfair Commercial Use". *The Journal of World Intellectual Property*, *21*(3-4), 201-242.

[6] Odagiri, H. (2003). Transaction costs and capabilities as determinants of the R&D boundaries of the firm: A case study of the ten largest pharmaceutical firms in Japan. *Managerial and Decision Economics*, *24*(2-3), 187-211; Abernathy, W. J., & Utterback, J. M. (1978). Patterns of industrial innovation. *Technology Review*, *80*(7), 40-47.

[7] Jones, O. (2000). Innovation management as a post-modern phenomenon: the outsourcing of pharmaceutical R&D. *British Journal of Management*, *11*(4), 341-356.
[8] Spina Alì, G. (2018). The 13th Round: Article 39 (3) TRIPS and the struggle over "Unfair Commercial Use". *The Journal of World Intellectual Property*, *21*(3-4), 201-242.
[9] Hemphill, C. S., & Sampat, B. N. (2012). Evergreening, patent challenges, and effective market life in pharmaceuticals. *Journal of health economics*, *31*(2), 327-339; Kesselheim, A. S. (2007). Intellectual property policy in the pharmaceutical sciences: the effect of inappropriate patents and market exclusivity extensions on the health care system. *The AAPS journal*, *9*(3), E306-E311.
[10] United States Federal Trade Commission (USFTC). *Generic Drug Entry Prior to Patent Expiration: An FTC Study*. Federal Trade Commission, Washington, D.C, 2002, www.ftc.gov/os/2002/07/genericdrugstudy.pdf.
[11] Bale Jr, H. E. (1998). The conflicts between parallel trade and product access and innovation: the case of pharmaceuticals. *Journal of International Economic Law*, *1*(4), 637-653; Correa, C. M. (2002).
[12] Diependaele, L., Cockbain, J., & Sterckx, S. (2017). Raising the barriers to access to medicines in the developing world–the relentless push for data exclusivity. *Developing world bioethics*, *17*(1), 11-21; Correa, C. M. (2000). *Intellectual property rights, the WTO and developing countries: the TRIPS agreement and policy options*. Zed books.
[13] Heywood, M. (2002). Drug access, patents and global health: 'chaffed and waxed sufficient'. *Third World Quarterly*, *23*(2), 217-231
[14] *Marrakesh Agreement Establishing the World Trade Organization*, opened for signature 15 April 1994, 1867 UNTS 3 (entered into force 1 January 1995) annex 1C, *The Agreement on Trade Related Aspects of Intellectual Property Rights* ('TRIPS Agreement').
[15] Roffe, P., & Spennemann, C. (2006). The impact of FTAs on public health policies and TRIPS flexibilities. *International Journal of Intellectual Property Management*, *1*(1-2), 75-93.
[16] Soyeju, O., & Wabwire, J. (2018). The WTO–TRIPS Flexibilities on Public Health: A Critical Appraisal of the East African Community Regional Framework. *World Trade Review*, *17*(1), 145-168.; Skillington and Solovy, *supra* note 110, at 10.
[17] Agreement on Trade-Related Aspects of Intellectual Property Rights [Internet] https://www.wto.org/english/docs_e/legal_e/27-trips.pdf [Accessed on 8 April 2019]
[18] Winslow, C. E. (1920). The untilled fields of public health. Science, 23-33.
[19] World Health Organization. (1995). Constitution of the world health organization.
[20] Breslow, L. (1987). Setting objectives for public health. Annual review of public health, 8(1), 289-307.
[21] Institute of Medicine (US). Committee on Assuring the Health of the Public in the 21st Century. (2003). The Future of the Public's Health in the 21st Century. National Academy Press.
[22] Owoeye, O. A. (2014). Data exclusivity and public health under the TRIPS agreement. JL Inf. & Sci., 23, 106.
[23] Correa, C. M. (2012). Protecting test data for pharmaceutical and agrochemical products under free trade agreements. In Negotiating health (pp. 95-110). Routledge; Spina Alì, G. (2018). The 13th Round: Article 39 (3) TRIPS and the

struggle over "Unfair Commercial Use". The Journal of World Intellectual Property, 21(3-4), 201-242.

[24] Correa, C. M. (2002). Protection of data submitted for the registration of pharmaceuticals: implementing the standards of the TRIPS agreement. Geneva: South Centre; Reichman, J. H., & Samuelson, P. (1997). Intellectual property rights in data. Vand. L. Rev., 50, 49; Barton, J. H., & Emanuel, E. J. (2005). The patents-based pharmaceutical development process: rationale, problems, and potential reforms. JAMA, 294(16), 2075-2082.

[25] Martin, L., Hutchens, M., Hawkins, C., & Radnov, A. (2017). How much do clinical trials cost? Nature Reviews. Drug discovery, 16(6), 381; Correa, C. M. (2006). Protecting test data for pharmaceutical and agrochemical products under free trade agreements. Negotiating Health: Intellectual Property and Access to Medicines, 81-96.

[26] Herper, M. (2013). The cost of creating a new drug now $5 billion, pushing big pharma to change. Forbes, 8(11).

[27] Pugatch, M. P. (2012). Intellectual property, data exclusivity, innovation and market access. In Negotiating Health (pp. 111-146). Routledge.

[28] Sertkaya, A., Wong, H. H., Jessup, A., & Beleche, T. (2016). Key cost drivers of pharmaceutical clinical trials in the United States. Clinical Trials, 13(2), 117-126.

[29] Osewe, P. L., Nkrumah, Y. K., & Sackey, E. K. (2008). Improving Access to HIV/AIDS Medicines in Africa: Trade-Related Aspects of Intellectual Property Rights (TRIPS) Flexibilities Utilization. World Bank Publications.

[30] Yu, P. K. (2009). The political economy of data protection. Chi.-Kent L. Rev., 84, 777.

[31] PhRMA, Clinical Trials: The Phases of Drug Testing and Approval (2006) <http://www.phrma.org/innovation/clinical-trials>.

[32] Dukes, M. N. (1996). Drug regulation and the tradition of secrecy. International Journal of Risk & Safety in Medicine, 9(3), 143-149.

[33] TRIPS, Article 39.3. For more see Correa C. Protection of Data Submitted for the Registration of Pharmaceuticals: Implementing the Standards of the TRIPS Agreement. Geneva, South Centre, 2002.

[34]De Carvalho, N. P., & de Carvalho, N. P. (2005). The TRIPS regime of patent rights (Vol. 2). Frederick: Kluwer law international.

[35] Owoeye, O. A. (2014). Data exclusivity and public health under the TRIPS agreement. JL Inf. & Sci., 23, 106.

[36] Skillington, G. L., & Solovy, E. M. (2003). The protection of test and other data required by article 39.3 of the TRIPS agreement. Nw. J. Int'l L. & Bus., 24, 1.

[37] Correa, C. M. (2002). Unfair Competition Under the TRIPS Agreement: Protection of Data Submitted for the Registration of Pharmaceuticals. Chi. J. Int'l L., 3, 69.

[38] Bale, H. (2000). Encouragement of new clinical drug development: the role of data exclusivity. Int Fed Pharm Manuf Assoc, 245-246.

[39] Priapantja, P. (2000). Trade secret: how does this apply to drug registration data. In ASEAN Workshop on the TRIPS Agreement and its Impact on Pharmaceuticals. Department of Health and World Health Organization.

[40] Bently, L., & Sherman, B. (2014). Intellectual property law. Oxford University Press, USA.

[41] Gorlin, J. (2000). Encouragement of new clinical drug development: the role of data exclusivity. IFPMA, Geneva.
[42] Owoeye, O. A. (2014). Data exclusivity and public health under the TRIPS agreement. JL Inf. & Sci., 23, 106.
[43] Hoen, E. (2002). TRIPS, pharmaceutical patents, and access to essential medicines: a long way from Seattle to Doha. Chi. J. Int'l L., 3, 27; Spina Alì, G. (2018). The 13th Round: Article 39 (3) TRIPS and the struggle over "Unfair Commercial Use". The Journal of World Intellectual Property, 21(3-4), 201-242.
[44] Correa, C. M. (2012). Protecting test data for pharmaceutical and agrochemical products under free trade agreements. In Negotiating health (pp. 95-110). Routledge.
[45] Ollila, E., & Hemminki, E. (1996). Secrecy in drug regulation. International Journal of Risk & Safety in Medicine, 9(3), 161-172.
[46] Agreement on Trade-Related Aspects of Intellectual Property Rights art 39(3), Apr. 15, 1994, Marrakesh Agreement Establishing the World Trade Organisation, Annex IC, Legal Instruments-Results of the Uruguay Round, 33 I.L.M. 1197 (1994)[hereinafter TRIPs Agreement]
[47] May, C. (2015). The global political economy of intellectual property rights: The new enclosures. Routledge.
[48] Osewe, P. L., Nkrumah, Y. K., & Sackey, E. K. (2008). Improving Access to HIV/AIDS Medicines in Africa: Trade-Related Aspects of Intellectual Property Rights (TRIPS) Flexibilities Utilization. World Bank Publications.
[49] The TRIPS Agreement: Preamble and Articles 7 and 8.
[50] Correa, C., (2000) Integrating Public Health Concerns into Patent Legislation in Developing Countries, South Centre, Geneva.
[51] Human health and the IP system - WIPO
[52] Graham Dutfield, Delivering Drugs to the Poor: Will the TRIPS Amendment Help?, 34 AM. J.L. & MED. 107, 110–11 (2008); Gostin, L. O. (Ed.). (2010). Public health law and ethics: a reader (Vol. 4). Univ of California Press.
[53] Sugarman, J. (2008). Human stem cell ethics: beyond the embryo. Cell Stem Cell, 2(6), 529-533; O'Connor, S. M. (2004). Intellectual property rights and stem cell research: who owns the medical breakthroughs. New Eng. L. Rev., 39, 665; Winickoff, D. E., Saha, K., & Graff, G. D. (2009). Opening stem cell research and development: a policy proposal for the management of data, intellectual property, and ethics. Yale J. Health Pol'y L. & Ethics, 9, 52.
[54] Attaran, A. (2004). How do patents and economic policies affect access to essential medicines in developing countries? Health Affairs, 23(3), 155-166; Reichman, J. H. (2009). Comment: compulsory licensing of patented pharmaceutical inventions: evaluating the options. The Journal of Law, Medicine & Ethics, 37(2), 247-263.
[55] Merges, R. P. (1987). Intellectual property in higher life forms: the patent system and controversial technologies. Md. L. Rev., 47, 1051; Drahos, P. (1999). Biotechnology patents, markets and morality. European Intellectual Property Review, 21(9), 441-449; Lane, M. J. (1991). Patenting Life: Responses of Patent Offices in the US and Abroad. Jurimetrics, 32(1), 89-100.
[56] https://www.wto.org/english/tratop_e/trips_e/pharmpatent_e.htm
[57] Malpani, R., & Kamal-Yanni, M. (2006). Patents versus patients: Five years after the Doha Declaration. Oxfam International.
[58] https://www.wto.org/english/thewto_e/glossary_e/glossary_e.htm

[59] Haakonsson, S. J., & Richey, L. A. (2007). TRIPs and public health: the Doha Declaration and Africa. Development policy review, 25(1), 71-90.
[60] Owoeye, O. A. (2014). Data exclusivity and public health under the TRIPS agreement. JL Inf. & Sci., 23, 106.
[61] Mark C. Lang, Note, What a Long, Strange "TRIPS" It's Been: Compulsory Licensing from the Adoption of TRIPS to the Agreement on Implementation of the Doha Declaration, 3 J. MARSHALL REV. INTELL. PROP. L. 331, 343 (2004).
[62] Amendment of the TRIPS Agreement [Internet] https://www.wto.org/english/tratop_e/trips_e/amendment_e.htm. Accessed 08 April 2018.
[63] Antony Taubman, Rethinking TRIPS: "Adequate Remuneration" for Non-Voluntary Patent Licensing, 11 J. INT'L ECON. L. 927 (2008).
[64] Bryan C. Mercurio, TRIPS, Patents, and Access to Life-Saving Drugs in the Developing World, 8 MARQ. INTELL. PROP. L. REV. 211, 222–223, 242– 44 (2004).
[65] Michael Westerhaus & Arachu Castro, How Do Intellectual Property Law and International Trade Agreements Affect Access to Antiretroviral Therapy?; Nicol D, Owoeye O. Using TRIPS flexibilities to facilitate access to medicines. Bull World Health Organ 2013;91:533–9. doi: http://dx.doi.org/10.2471/BLT.12.115865 PMID:23825881.
[66] Doha Declaration, supra note 40.
[67] Correa, Investment Protection, supra note 5.
[68] Art 31 of the Agreement on Trade-Related Aspects of Intellectual Property Rights.
[69] Correa, C. M., & World Health Organization. (2004). Implementation of the WTO General Council Decision on paragraph 6 of the Doha Declaration on the TRIPS Agreement and Public Health.
[70] Correa, C. M., & World Health Organization. (2002). Implications of the Doha Declaration on the TRIPS Agreement and public health.
[71] Avafia, T., Berger, J., & Hartzenberg, T. (2006). The ability of select sub-Saharan African countries to utilize TRIPS flexibilities and competition law to ensure a sustainable supply of essential medicines: A study of producing and importing countries. ICTSD, UNCTAD, TRALAC.
[72] Musungu, S. F., Oh, C., & World Health Organization. (2006). The use of flexibilities in TRIPS by developing countries: can they promote access to medicines?
[73] Declaration of Period of Emergency (HIV/AIDS) Notice 2002, General Notice 240 of 2002.
[74] Martin, G., Sorenson, C., & Faunce, T. (2007). Balancing intellectual monopoly privileges and the need for essential medicines.
[75] Letter of authorization signed by the Minister of Justice, Legal and Parliamentary Affairs, Patrick Anthony Chinamasa, dated 8th April 2003.
[76] Patent protection and data and marketing exclusivity by Practical Law
[77] Ghana: Protection against Unfair Competition Act, 2000 (Act 589) - WIPO
[78] Art 56 of Egypt: Law No. 82 of 2002 on the Protection of Intellectual Property Rights
[79] www.practicallaw.com/lifesciences-guide
[80] Pharmaceutical IP and competition law in South Africa: overview by Danie Dohmen, Jenny Pienaar and Alexis Apostolidis, Adams & Adams
[81] Morocco: General Civil Service Regulation Act (promulgated by Dahir No. 1-58-008 of 4 Shaban 1377 (February 24, 1958))

[82] Gray A.L., Vawda Y.A. (2013) TRIPS, Access to Medicines and Local Production in South Africa. In: Löfgren H., Williams O.D. (eds) The New Political Economy of Pharmaceuticals. International Political Economy Series. Palgrave Macmillan, London; Kaplan, W., & Laing, R. (2005). Local production of pharmaceuticals: Industrial policy and access to medicines, An overview of key concepts, Issues and opportunities for future research.

[83] Taubman, A. (2008). Rethinking TRIPS:'adequate remuneration'for non-voluntary patent licensing. Journal of International Economic Law, 11(4), 927-970.

[84] Wagner, J. L., & McCarthy, E. (2004). International differences in drug prices. Annu. Rev. Public Health, 25, 475-495.

[85] Spina Alì, G. (2018). The 13th Round: Article 39 (3) TRIPS and the struggle over "Unfair Commercial Use". The Journal of World Intellectual Property, 21(3-4), 201-242.

[86] McIntyre, D., Garshong, B., Mtei, G., Meheus, F., Thiede, M., Akazili, J., ... & Goudge, J. (2008). Beyond fragmentation and towards universal coverage: insights from Ghana, South Africa and the United Republic of Tanzania. Bulletin of the World health Organization, 86, 871-876; Kimaro, H. C., & Nhampossa, J. L. (2005). Analyzing the problem of unsustainable health information systems in less-developed economies: case studies from Tanzania and Mozambique. Information Technology for Development, 11(3), 273-298.

INDIGENOUS KNOWLEDGE SYSTEMS IN NEMBUDZIYA: RESILIENCE OR DEMISE?

*Tapiwa Musasa**

Abstract

Indigenous Knowledge Systems (IKS) have been considered backward and primitive in most sectors particularly those to do with modern development. The knowledge remains disputed and contested. While some scholars acknowledge its existence and usefulness, some have contested it as minor, raw, not easy to generalise, private and not applicable for large scale development interventions. As a result, this body of knowledge is threatened by extinction since only a few local people in rural areas remain its custodians. Its inclusion in the school curriculum has been on a low level in Zimbabwe and Africa. However, some institutions of higher learning have recognised its significance and efforts and milestones are being made in research. This article is asserting and confirming the validity of African IKS as an essential body of knowledge which still needs promotion, development and recognition as traditional knowledge which has helped in the conservation of forests, prevented soil degradation and promoted development and resilience of ecosystems. Some of the possible threats and challenges which may lead to the demise of this critical body of knowledge have also been explored.

Keywords

Indigenous Knowledge Systems, sustainable development, resilience, demise

Introduction and Background

Indigenous Knowledge Systems (IKS), Traditional Knowledge (TK), Local Knowledge (LK) or Indigenous Ways of Knowing (IWK) are some of the different terms used by different writers to refer to the same body of knowledge. This body of knowledge can also be called Indigenous

*Tapiwa Musasa holds a Masters in Development Studies from Women University in Africa. She also holds a Bsc Social Sciences degree from Masvingo State University (Now Great Zimbabwe University) specialising in Rural Development and Sociology. She is currently a lecturer with the Catholic University in Zimbabwe in the Humanities Faculty specialising in Development Studies. She is also a PHD student at the same institution and her studies are focusing on Women and Rural Development in Africa and Zimbabwe in particular. Other areas of interest in research are human rights for vulnerable groups, Indigenous Knowledge Systems and food security in rural communities.

Technical Knowledge (ITK), ethno-science, people's science or rural knowledge (Altieri 1995).

Indigenous Knowledge Systems is a way of survival for a particular group of people in a certain cultural setting. This article describes it as tacit knowledge which is inherent to the local people, thus it cannot be separated from people's culture. By virtue of being a way of life, it cannot be alienated from essential survival techniques in security, food production and food security, flora and fauna classification and conservation strategies, water management, environmental conservation strategies, climate predictions and many more. In its broadest sense, IKS was found by sustainable development researchers to encompass techniques related to pastoralism, agriculture, agroforestry, the gathering of wild food, soil classifications systems, conflict resolution strategies and many more essential survival strategies (Dombrowski, 2014; Ngara & Mangizvo, 2013; Mapara, 2009). This knowledge has been swept aside and denigrated by colonialists as superstitious, denying it a chance to be full-fledged through practice and public recognition (Mapara, 2009; Leach & Means, 1994; Nyati, 2001).

Ngara and Mangizvo (2013) opine that the meaningful recognition, uptake and improvement of IKS has been retarded by the general negativity in perception of the body of knowledge, which if continued, may lead to its possible demise, thus the world will continue to lose a valuable contribution to economic growth and sustainable development. The practitioners, educators and custodians of IKS remain the elderly people in the rural communities. The death of one key elder, particularly women, presents a serious threat, which may result in the extinction of their collective wisdom, thus posing a constraint for the long term survival of the community's indigenous knowledge system which is needed for the next generation. Lalonde (1991) posits that women are key stakeholders in IKS since their day to day active roles as food providers for the family, child minders, healthcare, cleaning and energy providers among others, require direct contact with the environment. It is possible that if IKS and its custodians are involved and included in policy making and implementation of development programs like land allocation, soil conservation and food production; such efforts can yield better, sustainable results.

Nembudziya is found in Gokwe North district in the Midlands Province of Zimbabwe. Nembudziya growth point, which attained growth point status in 2001, is 121 kilometers and 215 kilometres from Kadoma and Harare, respectively. The average population is around 41 632 (www.getamap.net/nembudziya). Traditionally, the area comprising of nine

wards, is under the Headmanship of Nembudziya under Chief Chireya, while Gokwe North Rural District Council is the government organ administering the area. The area, which is largely rural, comprises of people of mixed origin and ethnicity due to the forced migrations caused by the colonial regime as well as other voluntary migrations caused by pull factors like the successful cotton growing period from the 1970s to the 1990s. Gokwe district had suffered marginalisation during the colonial era like all other rural districts in Zimbabwe, but the situation in this particular district was worsened by the fact that it was a tsetse fly manifested area, thus malaria and sleeping sickness were rife, and for a very long time very few people settled there until the forced migrations in 1958 and the introduction of attractive cash crops (Nyambara, 2001; Maravanyika, 2012; James, 2002a).The findings and opinions proffered in this article will help to confirm and add to knowledge on a micro scale, elaborating the temporal and spatial differences in appreciating IKS.

Objectives

The study was conducted to:
1. Explore the Indigenous Knowledge Systems practised in Nembudziya.
2. Assess the contribution of IKS in food security and environmental management in Nembudziya.
3. Identify the challenges encountered in ensuring resilience of the body of knowledge, and
4. Identify ways of curbing any potential demise of this vital body of knowledge**.**

Hypothesis

This inquiry was based on the premise that Indigenous Knowledge Systems are threatened by extinction and they are on the verge of complete disappearance. The assumption here is that due to westernization and globalisation, IKS may not have any chances of survival as communities prefer modern survival strategies. This article therefore set out to investigate the validity of this claim on the potential demise of traditional knowledge.

The main research questions were:
1. Which Indigenous Knowledge Systems are functional in the Nembudziya area?
2. How does IKS contribute to environmental management and food security in Nembudziya?
3. What challenges are being encountered in continued use of traditional ways of life?

What suggestions can be made to overcome the challenges?
4. What recommendations can be made for further resilience of IKS?

Literature Review

IKS has been defined by Behera and Nath (2005) as a set of knowledge systems that embrace cultural, social, traditional, scientific, legal, philosophical and governance systems of a particular community. The system includes skills and knowledge used to guide their way of life (Odora-Hoppers, 2002; Behera and Nath, 2005; Maluleka et al., 2006). Additionally, Odora-Hoppers (2002) proffers that IKS are inclusive of climatic knowledge, management techniques, technology in agriculture, forestry, fishing and other resource exploitation skills.

More scholars give different definitions of this body of knowledge and the general consensus is that it is a way of life for a particular community. Risiro et al. (2013) and Warren (1991) concur with other scholars when they aver that indigenous knowledge is the local knowledge that is unique to a given culture or society, which becomes the local basis for decision making in health, agriculture, food production, education and environmental management. It refers to what indigenous people know and do, as well as what they have done and known for generations, practices that have evolved through trial and error and proved flexible enough to cope with change (Kalawonde, 2001; Stone, 2007).

From the definitions given, Indigenous Knowledge Systems seem to have some common special characteristics. Ngara and Mangizvo (2013) maintain that IKS has a characteristic of belonging to the indigenous people, who they defined as culturally distinct ethnic groups who are the oldest inhabitants of an area or a region, who have lived in that cultural set up for generations. They add that indigenous people are a contested group just as indigenous knowledge. In the opinion of Dondolo (2005), the knowledge is shared by people of the same ethnic group and of the same language, and therefore becomes exclusive to specific localities. Some of the knowledge can be unique to specific individuals of the community such as traditional leaders, herbalists and expert food gatherers.

Other characteristics of IKS include the fact that it is holistic and inclusive because it embraces complex relationships that exist between the physical, human and spiritual worlds. People are viewed as equal to nature. This body of knowledge which is created through years of careful observation and experience between humans and nature has been seen to be dynamic in the same way cultural, economic and ecological environments are, thus it is not stagnant (Mackenzie, 2014; Reid et al., 2006; Snevely and

Corsigilia, 2000; Gadzirai et al., 2006; Du Toit, 2005; Kolawole, 2004). Due to globalisation, borders have become porous and no system can remain intact. Indigenous Knowledge Systems have altered over the years as they are continually produced and reproduced by internal creativity and through contact with external systems, thus they are contemporary. They have evolved with the times. Du Toit (2005) and Kalawole (2004) argue that despite the alterations and transformations undergone over the years, IKS remain stable systems of knowledge and their original worth and meaning are maintained to the new paradigm. The values, the know-how and the technologies are resilient and persistent, being carried over for generations.

A number of authors emphasise the relevance and significance of IKS in food security and environmental management today. Sithole (2014) singles out the *nhimbe* practice (a work beer party), in which community members invite others to join hands in working together in development initiatives, particularly agricultural activities like weeding, planting or harvesting. This concept, the author argues, draws from social capital, underpinned by community cultural values like inter-households bonds, reciprocity, trust, solidarity, respect and peace. In addition, Stathers et al. (2000), Mararike (2001), Maphosa (2014) and Siamanga (2017) concur on the importance of the traditional *Zunde Ramambo/Isipahla Senkosi* (Chief's granary) concept in which the chief mobilises resources and labour from his subjects which are pooled towards one communal piece of land. Community members take turns to work in the field from planting to harvesting and the produce is stored communally at the chief's residence. The food acts as a social safety net for the benefit of the community in times of drought. Vulnerable families like the sick, the orphans and elderly also benefit from the same food storage. Community activities like rainmaking ceremonies, chief's courts and visitors also draw food from the *Zunde Ramambo* granary. In these cases, Indigenous Knowledge Systems promote and sustain food security.

Some scholars like (Eyong et al., 2004; Largil, 1999; Tatira, 2000; Chemhuru & Masaka, 2010; Duri and Mapara, 2007; Ngara and Mangizvo, 2013; Eyong, 2007) have also delved into the critical role played by IKS in environmental management practices. Flora and fauna have been conserved through community values, beliefs and taboos. In revered areas like local shrines and burial grounds, it is taboo to cut down trees or kill animals. Most of the traditional beliefs respected by the people made them own and become custodians of their own environment. The people would conserve their environment since no one would want to go against what they are taught at the traditional courts through storytelling, drama, song and dance. Going against the taboos would anger the spirits, bringing bad

luck on the whole community like failing rain, sickness, blindness or wandering in the forests. As a result a lot of fruit trees such as *muzhanje*, *mushumha* and many more have survived. Other endangered and rare species like the pangolin and the python have also survived extinction through these traditional beliefs and taboos, giving a wide range of biodiversity, a good hydrological cycle, food security and other benefits associated with a healthy environment.

According to Khan et al. (2008), studies have shown the usefulness of IKS worldwide. In central and eastern India, several plants and animals have been conserved in the sacred groves. Nomads for example, have practised nomadic herding to allow regeneration of vegetation, in the same way shifting cultivation is being practised in the Amazon basin and by the Karen of Thailand in South East Asia (Burger 1990). The World Bank Report (1998-99) elaborates that Indigenous Knowledge Systems have been used to solve environmental problems such as treatment of cattle ticks by the Fulani tribe and production of a better bean variety in Columbia and Rwanda. Mwaura (2008) elaborates by noting that IKS empowers local communities to take front roles in activities aimed at disaster risk reduction such as mixed cropping which sustains soils and leads to yield of various crops, ensuring availability of alternative crops in case one fails due to moisture stress or pests attacks.

Due to its relevance and significance, IKS has been receiving a lot of attention since the 1990s and there has been calls for increased utilisation of the knowledge of the local people in any development intervention programs, since its tried and tested as well as used in the context of survival and everyday existence (IIoka 2016, Kallard 2000 and Davies 1994). In Zimbabwe, communities still practise IKS although a lot needs to be done. Areas under Chief Samambwa, Chief Makoni, Chief Chivero, Matobo district, Zaka district, Bikita district and Chikomba district are some examples where the Zunde Ramambo/Isipahla Senkosi programme is being implemented (Mararike, 2001; Maphosa, 2012; Stathers et al., 2000; Mawanza, 2014). The Zimbabwean Government has also taken some initiates to combine traditional knowledge and modern methods of environmental conservation by ratifying international and regional conventions on environmental management. The Convention of International Trade in Endangered Species (CITES) was implemented through the establishment of Communal Areas Management Programme for Indigenous Resources (CAMPFIRE). In 1995, Zimbabwe adopted the Convention on Biological Diversity and in 1998, ratified the convention to combat desertification. The Montreal Protocol on pollution and climate change as well as Agenda 21 has been adopted in order to conserve the environment. A lot of institutions of higher learning like Midlands State

University, University of Zimbabwe and Great Zimbabwe University have been partnered to teach on indigenous knowledge systems and modern methods of environmental conservation. A lot of institutions like Environmental Management Agency (EMA), national parks and botanical gardens all aim to conserve the environment in partnership with the indigenous people (World Development Report 1998-99; UNEP, Global Environment Outlook, 2000; Chenje et al., 1998). It is a well-known fact that all these programmes will never succeed without consulting the indigenous people to contribute and participate at the planning and implementation stages, thus more needs to be done to give IKS its role and place as a significant body of knowledge in food security and environmental management.

However, different scholars concur on the existence of challenges facing IKS in the past and present. Eyong et al. (2004) argue that IKS has suffered for decades from strategies of disinformation from western colonial education and religion. Nyati (2001) elaborates that indigenous people ended up believing that their ways of knowing was inferior, pagan and evil, primitive and superstitious as believed by the new religions. Mawanza (2014) avers that hindrances in the successful implementation and resilience of Indigenous Knowledge Systems include different religious beliefs, lack of integration among community members, greediness of traditional leaders, negligence, poverty, poor documentation and negative perception. Kalawole (2004) elaborates by noting that IKS is stored and transmitted in traditional and cultural practices, beliefs, taboos, myths and legends, folklore, cultural dances and traditional equipment. These modes of transmission have been criticized as insufficient and unreliable, thus vulnerable to loss when custodians die or due to external pressures.

In addition, IIoka (2016), Dei (2000), and Kgomotso (2012) assert that the young people are not willing to learn, perceiving IKS as knowledge of the poor. This poses challenges of resilience and intergenerational continuity of the valuable body of knowledge. Sithole (2007)) notes lack of funds, technological problems and lack of specific frameworks from Government aimed at harnessing this body of knowledge as some of the major hurdles in averting the demise of IKS. Maphosa (2014) alluded to the politicisation of the Isipahla Senkosi (Chief's granary) programme, climate change, shortage of inputs and draught power as the main barriers to the positive output of the programme, leading to food insecurity. Another challenge as proffered by IIoka (2016) is globalisation, causing the breakdown of traditional communication channels, socio-economic imbalances, lifestyle changes and too much exposure for the young people, which reduces contact with the elder people, thus the elders eventually die without passing on the knowledge to the young generation.

Methodology

Interviews, participant observation and focus group discussions were utilised during the data collection period in this study. Stratified sampling was used to select the respondents, based on age-sex characteristics of the population, in a bid to explore the existence of any gaps in knowledge that may exist across age groups and genders. Respondents were selected from six villages. Ten (10) young people (age group 20-40 years) from each village were interviewed and ten (10) elders (age group 50 years +) including village heads were also interviewed on the study topic, making a total of one hundred and twenty (120) interviewees. An average equal representation on sex was maintained across all age groups and villages. The interviews provided the researcher an opportunity to cover a wide range of issues concerning the inquiry and to get information from some elderly respondents who could neither read nor write, as well as making interpretations from some nonverbal cues.

A visit was made to Headman Nembudziya's homestead on a Thursday when community courts are held. At the end of the day's proceedings, the researcher was provided with an opportunity to talk to the people in focus group discussions. Two groups (one group comprising ages 20-40, and the other comprising ages 50 +) with an average of 12-15 people in each group were used. The majority of the participants were male since they are the main attendants to the chief's dare (traditional court), which is normally the norm except in cases of rape, divorce and domestic violence. The young people were more open to discussion than the senior community members, but both discussions yielded very good results on the use and contribution of indigenous knowledge systems in Nembudziya to food security and environmental conservation.

Observation was chosen for this inquiry so that the reliability of responses from the informants through interviews can be tested and consolidated. As emphasised by Kawulich (2005), observation assists the researcher in watching behaviors and interactions, reservations and attitudes, details which cannot be captured by questionnaires or through telephone interviews. During the data gathering period in this inquiry, the researcher joined four (4) villages in April and May 2017 and participated in harvesting maize in the Zunde Ramambo/Isipahla Senkosi field, which is controlled and run by Chief Nembudziya and the leaders in the area. There were sixty (60) people altogether working in the field on that particular occasion, making it easy to ask questions regarding that particular activity and other Indigenous Knowledge Systems from both young and elderly members of the Nembudziya community.

Findings and Discussion

Indigenous Knowledge Systems (IKS) still exist in Nembudziya, and continue to be used because of its relevance to the survival and coping strategies of the people in the area. Alongside modern methods of food production and environmental conservation strategies, IKS resisted extinction and managed to survive to date, which is a sign of resilience.

1. Zunde Ramambo/Isipahla Senkosi

On one of the visits to Headman Nembudziya's homestead, the researcher met many people, who immediately received instructions from the Headman's secretary to go straight to the fields and do the work as planned and agreed.

The Headman then explained to the researcher that the people were going to harvest maize from the Zunde Ramambo/Isipahla Senkosi fields. He confirmed the existence of one big communal field (15 hectares). The Headman and his team of leaders in the traditional structures controlled the activities. Each village sent representatives in turns to do the work ranging from planting, weeding, cultivating to harvesting. The villagers take turns to work in the field and normally fifty to sixty (50-60) people are called in at a time to minimise congestion. Maize, as the staple food in the area, is the main crop grown, not any other cash crop. The community expected to harvest twenty tons of maize, which could have been more had it not been the challenge of fertilizers and late planting caused by unavailability of seed (concurs with Maphosa, 2014). The Headman had this to say:

> Zunde raMambo works well for us because that's the food we give our people in times of famine. Even in years of bumper harvest, we have child headed households due to the effects of HIV/AIDS. Even the widows, disabled and the elderly also benefit from the scheme.

Although some village heads would come to the Headman to excuse themselves from work because of a funeral or some other excuses, most of the people coming to work in the Headman's field were not complaining. They responsibly performed their duties of the day.

Asked to comment on why they think it is important to be part of this community activity one participant said "what brings us here is the fact that life is not predictable. One day it may be your own children orphaned and in need of food assistance from the Zunde raMambo scheme". This draws from ubuntuism and bound by community cultural values (Sithole 2014), in which one thinks of the future and problems of their own

children, as well as empathizing with children from the whole community. A household problem becomes a community problem and it is shared and solved communally. Such bonds of solidarity in rural communities, as opposed to individualism in urban areas, makes Indigenous Knowledge Systems unique, thus it should always be promoted for peace and community development.

Young people, ranging from twenty to forty years (20-40 age groups) also participated(although their numbers remained low) in this essential community activity and the Headman explained that it was a way of ensuring continuity and passing on the Zunde Ramambo/Isipahla Senkosi concept to the next generations. However, youngsters of school going age are rarely found because they always cite challenges of being engaged in school activities like reading and homework, thus the numbers of the youths involved in these traditional activities remain low. This concurs with the concerns raised by, Dei 2000, Iloka 2016 and Kgomotso 2012, that the young people generally have a negative perception about IKS and are not willing to learn. The Headman consults the village heads on information on the status of each household, which is then used to draw lists of needy people who can get a share of the same maize on a distributive plan. The way Headman Nembudziya operates is quite in line with section 9 and 12 of the Traditional Leaders Act (Chapter 29:17) concerning the complimentary roles of the Headman and village heads. The village heads have more information concerning the status of households since they are responsible for overseeing families and households. This multi-stakeholder approach increases transparency, efficiency and effectiveness of the distributive plan. Even in years of good harvests, there still remain vulnerable people like the elderly, the widows, the child-headed homes, the sick, the mentally challenged and the disabled who will always need food assistance from the community leaders, thus the traditional Zunde Ramambo/Isipahla Senkosi system remain the traditional social safety net for the needy, complementing the conventional Social Welfare Department's efforts, as aired by (Mackenzie, 2014; Mararike, 2001; Siamanga, 2017).

2. Outstanding Tree Species

It is taboo to cut down some special types of trees in Nembudziya. Muuyu, Mukamba and Mubvumira are special trees which should never be cut down. When the current holder of Nembudziya chieftainship[1] was consulted on why these trees should not be cut down, he indicated that the trees are sacred and the people's Spirit mediums dwell and rest in them. One of the village heads[2] confirmed the same belief when he said the headman has extended the practice of conservation and all big trees no matter what type cannot be cut down. One of the village heads reported

that people are no longer allowed to cut down any big trees, especially the fruit trees. Only dead trees and some branches can be pruned and used for firewood. If anyone cuts down those trees, they have to pay a heavy fine to the headman.

All the elders interviewed were aware of the importance of these tree species. However, about half of the youths interviewed could not even identify or name the tree species which are critical in the area. This was more common in the young people of school going age, particularly those who reside within the growth point who no longer participate in activities like cattle herding and fruit harvesting on a day to day basis. One of the young male respondents had this to say, "Naming indigenous trees does not give me money. We want income generating activities. It is the elderly residing in the villages who know that. We {the young people} are moving with the times". One of the young female respondents interviewed indicated that the boys knew better about tree species because they go for cattle herding. In addition, he said that nowadays electricity is widely used instead of firewood, for cooking so there is no need for girls to know the tree types. However, some female Advanced Level students studying Geography at Nyamuroro High school aired different views as they emphasised the need for everyone to know the names and uses of all indigenous trees in order to pass the information to the next generation.

The people of Nembudziya expressed their own understanding of the importance of environmental conservation. When all the big trees and the fruit trees believed to be taboo are spared, they are being prevented from extinction, helping in reducing soil degradation, thus promoting a healthy environment for an uninterrupted hydrological cycle, which promotes food security. Myths and taboos associated with using fruit trees are very important. For example if you use any fruit tree for firewood, the smoke is believed to cause blindness. As a result fruit trees like *mutsubvu, mushumha, muhute* and many more have survived in the Nembudziya community for a long time, promoting nutritional value and food security as aired by Duri and Mapara (2007) and Ngara and Mangizvo (2013). However, the reluctance of the young generation to learn Indigenous Knowledge System continues to recur in Nembudziya. Since the youth are the future of the community let alone the whole nation in terms of sustainable development, this signifies the dire need for an integrated approach in finding solutions to try and curb the demise of IKS.

3. Sacred Forests and Shrines

There are special forests and shrines which should not be visited by anyone whose duties are not required there. In these forests, no tree should be cut down; no heavy perfumes should be worn, even for those who have been

granted permission. Headman Nembudziya had this to say about the sacred place "In our community, our chiefs and headmen are buried at Matarara/Madzimbabwe". This is a revered place and many people do not know about that place). Currently, there are graves of about seven (7) chiefs in the area who could not be named specifically. No one goes into these forests. There are a variety of tree species and they grow without much human interference. There are no guards. The forests are self-protected because of the beliefs and importance attached to them. One of the elders in the area had this to say about the same place "If anyone goes there without permission or for no good reason, they will get lost and spend countless nights wandering in the forests and failing to locate their way home".

This finding has to do with taboos and sacredness, which is part and parcel of, and cannot be separated, from Indigenous Knowledge Systems and development (Largil, 1999; Tatira, 2000; Duri and Mapara, 2007). The people in Nembudziya still respect their traditional beliefs and it is working very well in forest and biological diversity conservation. There are special tree species essential for medicinal purposes which need long periods of uninterrupted growth to mature, thus such shrines like Matarara/Madzimbahwe in Nembudziya become the ideal places for such species. It is therefore essential to note at this point that alienating any community from their language, taboos, beliefs, norms and values is like destroying that community, thus development interventions should always encompass indigenous people and everything that makes them up. However, the challenge is that only a few special people like the chiefs, the elders and some herbalists (who visit the revered place with permission from the chief) know the place. The knowledge of the essential herbs for medicinal purposes is not readily available to everyone, thus posing challenges of intergenerational continuity in cases where elders die before passing on the knowledge, confirming the worries of Iloka (2016) and Largil (1999) .There is need therefore to find ways to ensure availability of knowledge to many people across ages.

4. Sacred animals

The lion, python, pangolin, monkey and baboon are not supposed to be killed. The Headman as the key informant emphasised that besides it being cruelty to kill an animal which one cannot even eat, it will anger the spirits, leading to drought. The Headman said, "Killing these sacred animals leads to drought. No rainfall will be received in the area. In addition to that, it is cruelty to kill an animal which you do not eat. We do not tolerate cruelty in this region". One of the village heads said also added: the python, the lion and the pangolin are the chief's animals. No one should kill them".

Committing such a crime will be like bringing bad luck upon one's self and on the whole community. Such offenders therefore always face harsh penalties from Headman Nembudziya. As expressed by Chemhuru and Masoka (2010), these taboos and penalties have positive effects in faunal conservation and they have helped to protect animals from extinction. This is also in line with some of the objectives of the Convention of International Trade in Endangered Species (CITES), thus it remains a noble idea to encourage Nembudziya people and other communities to continue upholding their traditional beliefs and taboos for the benefit of such national programmes like CITES and CAMPFIRE (Chenje, Sola & Paleczny 1998, Global Environmental Outlook 2000).

5. The Environment as Early Warning Signs

The environment is closely monitored for any abnormalities or indicators of bad years ahead in terms of rainfall occurrence. When Mugan'acha tree does not bear fruit in spring, it is a bad sign and it shows that there will be little or no rain in the forthcoming planting season. In addition, when the position of the moon changes and its slightly away from the central position, it is also an indication of a bad rain season ahead. This will help the family and community leaders to plan in advance for purposes of food security. One of the village heads in the area had this to say during the interviews: "We closely monitor our environment, especially animal behavior and fruit trees. If certain trees do not give fruit when expected, we plan for a bad year by sourcing maize from other communities or sparingly using our harvest from the previous season".

These views were also expressed by Mwaura (2008) who emphasised the critical role played by IKS in season's prediction and establishment of coping mechanisms for survival. Such essential information is communicated to every member of the community through the traditional meetings at the Headman's court. This is where alternatives or ways of sourcing maize from other districts are discussed well in advance before their families face starvation. This is a very good way of disaster preparedness at local community levels. Resources are pooled together and common transport is arranged for such tasks, showing unity and solidarity in traditional communities as opposed to individualism found in urban areas. (Gaillard and Mercer, 2012; UNISDR, 2005). Other practical activities for Disaster Risk Reduction in Nembudziya include drying of vegetables, green mealies, groundnuts and biltong by women during the period of abundance so that they can be used during periods of scarcity, ensuring adequate nutritional sources for their families.

6. Rain-making Spirit

The Nembudziya community believes in the existence of a special rainmaking spirit called Nevana. Each year, special people are selected to travel to Goredema (a place in Gokwe District) to consult the spirit medium on the availability of rain during the on-coming planting season. The key informant in this research, Headman Nembudziya had this say: " In this community we respect the rainmaking spirit called Nevana. The trip is usually undertaken in the month of August, before the onset of the rainy season to ask for rains". These consultations help the traditional leaders to plan, thus they will inform their constituency on the situation. When the spirit medium is not happy about the way the people conducted themselves, some fines have to be paid so that the season ahead is clear. The offences which may anger the spirits range from (having sexual intercourse with a relative), working in the field on days set aside as resting days , killing of special animal, or cutting down sacred trees and so on. The penalties for such offences include payment of a goat, a cow and so on depending on the gravity of the matter. When all things are set right, it is believed that the messengers to the Nevana shrine will "bring the rain". Headman Nembudziya said, "If all is correctly done, it will start raining before the messengers leave the shrine but they never get wet. We believe it is to cover their footprints and a sign that the offering has been accepted".

The relevance of the spirit medium here shows the interconnectedness of the people and their environment as uttered by DuToit (2005), Gadzirayi, utandwa, Chihiya and Chikosha (2006), Snivelly and Cotsigilia (2000) and Reid Berkes, Wilbanks and Capistrano (2006). The people are viewed as being equal to nature. The traditional people clearly exhibit their own understanding of importance of a healthy and peaceful environment. Prior to colonisation, the people have been grounded in their culture, taboos, totems and respect for the ancestral spirits, the same beliefs which were later labeled as evil, pagan, primitive and superstitious by the colonialists (Delvin and Zettel, 1999); Nyati, 2001). For any development intervention strategy to succeed there is need to give people a chance to marry their cultural values with modern methods of survival. If IKS is ignored, then the people from the concerned communities will find it difficult to learn or accept the new developments.

Ignoring the norms and values of a people is the same as ignoring the people themselves. When a group of people have been considered as important to the fact that some growth intervention has been planned for them, then their traditional ways of knowing should always come in. This can be done through consultations and involvement from the planning stage of any development project. This is in line with sustainable development objectives. The development interventions will not remain

foreign, since the people will own the projects, leading to successful monitoring and evaluation through community based management. It therefore becomes inevitable for development researchers to engage into a quest for the taboos, myths, beliefs and values which make the people. One cannot discuss development or food security without appreciating the environment in which these activities have to be undertaken. More so, one cannot mention the importance of the environment without appreciating the people living in that particular setup, and the people come up with their languages, beliefs and customs. As revealed by the intricate relationship between the people of Nembudziya and their environment, the relevance of their myths and taboos in ensuring a healthy environment and food security.

7. Conflict Resolution

Indigenous Communities have well-structured systems to maintain peace and tranquility in their areas. Nembudziya Headman and his team of advisors resolve differences of the members. It is encouraged that each case be treated with the special attention it deserves. The idea is to try and resolve differences at family level, village level and lastly, at community level through the Headman.

Headman Nembudziya said: "A community without peace cannot develop so parties are brought to the traditional court for conflict resolution. The conflict resolution process usually starts at the village head's court, and cases may be escalated when a resolution has not been reached".

One of the elderly male members of the community had this to say "Traditionally conflict resolution starts within the family unit. The roles of the uncles, aunties and other senior members of the family is to resolve disputes but nowadays women just rush to the police without even giving the family members a chance to discuss".

One middle aged respondent said, "In most cases the woman is always to blame even when she is not the offender as the patriarchal leaders always support each other within the family so sometimes it is better to go straight to the Police". This view was almost a consensus amongst the young and middle aged women who were interviewed.

When cases are being resolved at the Headman's court (Kudare kwamambo), some offenders may be cautioned and dismissed after having been counseled, some offenders have to pay fines which range from goats, cash or replacing someone's property in cases of minor thefts. Headman Nembudziya said:

> ...traditionally an offender has to pay to avoid intergenerational misfortunes within the clan. Conflicts take away people's production time leading to food shortages in families, so our aim is to promote peace so that food security and sustainable development can be achieved.

This is a way of recognizing the relevance of all the traditional structures in the area and also increasing the people available to promote peace in the community as averred by Ndhlovu and Svodziwa (2017) on the role of the Traditional Leaders Act (Chapter 15 subsection 282:128) in the new constitution of Zimbabwe. The cases within their jurisdiction range from adultery, land demarcation disputes, Gender Based Violence, cases of witchcraft, divorce cases and other minor cases.

As posited by Tafese (2016), IKS conflict resolution draws from social capital, exhibiting the capability of social norms and customs to hold a group together. Conflict resolution has a healing function, as well as minimizing the destructive features of conflicts in society. Through the wisdom and experience of the elders, IKS has managed to promote a peaceful environment conducive to economic growth and sustainable development, clearly showing the relevance of African IKS.

Conclusions

This article safely concludes that African Indigenous Knowledge Systems are actively being practised in Nembudziya. IKS is a vital body of knowledge which can be used to promote economic growth in a country. Given a chance, African IKS has a great potential to promote participation from communities in any development project, leading to improved economic growth in developing countries.

In the case of Nembudziya area, great strides have been made to maintain the IKS despite changes and challenges of westernisation. The *Zunde Ramambo/Isipahla Senkosi* (chief's granary) concept shows that some African traditional ways of survival still exist with the same objectives in African history-a safety net, brotherhood, sisterhood and family hood. No one has ever starved when the neighbor has extra food, a social safety net more effective and pragmatic than the modern Social Welfare or donor assistance which is erratic, unreliable and unsustainable. The traditional communities are always together through good and bad times-through thick and thin. This Concurs with Chirimuuta and Mapolisa (2011) who emphasise that given a chance, Indigenous Knowledge Systems can solve all food security challenges in Africa. They believe Africa's food insecurity has been caused by the fact that the people have not been given a chance to

grow food on a large scale using their own ways of knowing in combination with the new improved ways.

However, this article also reveals some challenges threatening the survival of the vital body of knowledge. Colonialism has denigrated the knowledge for decades through education and religion. Urbanisation, westernisation, globalisation, climate change, migration and population increases have all threatened the survival of iIKS, and research is needed on the best method to harness the traditional knowledge and practise it in harmony with modern methods and technologies. Some of the young people consulted by the researcher clearly indicated that IKS is a domain of the elders and they only ask for that information when it is necessary, that is when it's a question of life and death. Some of the young people agree to the availability of such knowledge and practices thus confirming that it is their life, their culture and it gives them some identity. It also makes them who they are today since they were raised through it and by it, but they preferred to know more about it when they are older. The elders remain the key informants and custodians of Indigenous Knowledge Systems and the young people are comfortable with that.

The elders appreciate that culture is dynamic and the young people have other preferences and priorities of their own generation but it is essential that traditional knowledge is practised, maintained and passed on to the next generation as a way of giving the Shona people an identity, and ensuring that the knowledge passed on to them by their ancestors is not driven into extinction. The young are therefore the hope for ensuring continued survival of the knowledge bodies and efforts should be made by the current elders to transmit the knowledge to the young generation at all costs. Although there are challenges which may lead to the demise of IKS, there is still hope that if multi-stakeholder approaches and community based management is practised, the vital body of knowledge may be improved for the benefit of future generations.

Recommendations

1. Modern musicians and film directors can be encouraged to encompass IIKS in their themes and messages since the young prefer to listen to the modern songs, thus increasing the number of young people assimilating the concepts and importance of indigenous knowledge Systems in life. This can be done through creating a fund for the young musicians and Film Directors to enable them to research and record music on the traditional knowledge.
2. The school curriculum can include indigenous knowledge Systems at all levels so that all young people, be they of rural or urban backgrounds will be exposed to the relevance of the traditional

knowledge bodies. If some traditional stories are just included in books at primary level, then it is likely to be discarded at a later stage in life as primary school stuff, but if courses are structured at University level, they will be taken seriously by the current generations.

3. Researchers using Nembudziya as a case study can create copies in English and Shona and make them available to the chiefs, Headman and village heads so that they can make use of the recommendations and findings of researches since it is not every rural person who can access articles online.
4. Headman Nembudziya can arrange for television and radio interviews as a way of spreading the usefulness and relevance of traditional knowledge. Radios and television shows may help increase the interest of people if they are presented in a way which is improved and motivating, with messages on traditional knowledge systems relevant for all ages.
5. The Government can assist The Zunde Ramambo/Isipahla Senkosi scheme in Nembudziya by providing inputs like seed and fertilizers. Since the objectives of the programme are targeting the rural disadvantaged, it is vital to offer this assistance and ensure success and continuity of the good programme.

References

Altieri, M. A. (1995). *The Significance of Diversity in the Maintenance of the Sustainability of Traditional Agro ecosystems:* Intermediate Technology Publications.

Behera, D. K. & Nath, N. (2005). A Cross–Pollination and Critique: Resource Conservation and Utilization through Indigenous Knowledge in a Tribal Community of Orissa-India. *Indilinga: African Journal of Indigenous Knowledge,* Vol. 4 (1) 210-227.

Burger, J. (1990). *The Gaia Atlas of First Peoples: A Future for the Indigenous World*. Penguin Books, pp. 40 -44.

Chenje, M., Sola, L. & Paleczny, D. (1998). The State of Zimbabwe's Environment. Harare: Ministry of Mines, Environment and Tourism.

Chirimuuta, C. & Mapolisa, T. (2011). *Centering the Peripherised Systems: Zimbabwean Indigenous Knowledge Systems for Food Security*.Harare: University of Zimbabwe.

Davis, S. (1994). *Information Knowledge and Power.* IDS Bulletin 25 pp.1 -13.

Devilin, J. F. & Zettel, T. (1999). *Eco agriculture Initiatives in Eastern and Southern Africa*.

Dombrowski, E. (2014). *Indigenous Knowledge: Definition, Complications and Controversy*. London: Cambridge University Press.

Dondolo, L. (2005). *A Cross Pollination Critique, Intangible Heritage: The Production of Indigenous in Various Aspects of Social Life. Indilinga; African Journal of Indigenous Knowledge*. Vol. 4(1)110-126.

Duri, F. & Mapara, J. (2007). Environmental Awareness and Management in Pre-Colonial Zimbabwe. *Journal of Geographical Research*, 1[2], 98-111.

Du Toit, C. (2001): A Cross Pollination Critique, The Environmental Integrity of African Indigenous Knowledge: Probing the Roots of African Rationality. *Indilinga; African Journal of Indigenous Knowledge*; vol 4(1).

Eyong, C. T., Mufuaya, M. & Foy, I. (2004). *Literature and Culture –The Sustainability Connection from an African Perspective. In Regional Sustainable Development Review: Africa*, Oxford: Eolss Publishers.

Gadzirayi, C. T., Mutandwa, E., Chihiya, J. & Chikosha, M. (2006). Indigenous knowledge systems in sustainable utilization of wetlands in communal areas of Zimbabwe: A case of Hwedza District. *African Journal of Agricultural Research, Vol. 1* (4) 131-137.

IIoka, N. G. (2016). Indigenous Knowledge for disaster Risk Reduction. An African Perspective. *Jamaba Journal of Disaster Risk Studies*. Vol 8(1). AOSIS.

Kalawole, O. P. (2001). Local Knowledge Utilization and Sustainable Rural Development in the 21st Century. *Indigenous Knowledge Monitor 9*[3] November, 2001.

Kallard, A. (2000). Indigenous Knowledge: Prospects and Limitations, in Ellen, R., Parkes, P. and Bicker, A. (Eds). *Indigenous Environmental Knowledge and its Transformations*. Amsterdam: Harwood Academic Publishers, pp. 1 -33.

Khan, M. L., Khumbongmayum, A. D. & Triphathi, R. S. (2008)]. The Sacred Grooves and their Significance in Conserving Biodiversity: An Overview. *International Journal of Ecology and Environmental Sciences*, 34(3), 277 -291.

Langil, S. (1999). *Introduction to Indigenous Knowledge.* Jadpur: Student edition.

Lalonde, A. (1991). *African Indigenous Knowledge and its Relevance to Environment and Development Activities.* Indiana University, Indiana.

Maluleka, K., Wilkinson, A. & Gumbo, M. (2006). The relevance of indigenous technology in curriculum 2005/RNCS with specific reference to the technology learning area. *South African Journal of Education, Volume 26* (4).

Maphosa, N. (2014). *The Role of Isipahla Senkosi/Zunde Ramambo Programme as a Rural Food Security Measure In Zimbabwe: Acase Of Tshongwane Village, Ward 14 Matobo District.*

Mapara, J. (2009). *Indigenous Knowledge Systems in Zimbabwe: Juxtaposing Post-Colonial Theory.* Masvingo: Great Zimbabwe University.

Mararike, C. G. (2001). *Revival of Indigenous Food Security Strategies at the*

Village Level: The Human Factor Implications. Harare: University of Zimbabwe Publications.

Maravanyika, S. (2012). Local responses to Colonial Evictions, Conservation and Commodity Policies Among Shangwe Communities in Gokwe. North West of Zimbabwe, 1963-1980. African Nebula, Issue 5.Harare: University of Zimbabwe.

Ngara, R. & Mangizvo, R. V. (2013). Indigenous Knowledge Systems and the Conservation of Natural Resources in the Shangwe Community in Gokwe District, Zimbabwe. *International Journal of Asian Social Sciences,* pp. 20-28.

Nyambara, P. S. (2003). *Rural Landlords, Rural Tenants and the Sharecropping complex in Gokwe Northwestern of Zimbabwe,* 1980s-2002. Harare: University of Zimbabwe.

Nyambara, P. S. (2002). Madheruka and Shangwe Ethnic Identities and the Culture of Modernity in Gokwe, Zimbabwe. Harare: University of Zimbabwe.

Nyati, P. (2001). *Traditional Ceremonies of AmaNdebele.* Gweru: Mambo Press.

Odora-Hoppers, C. (Ed.). (2002). *Indigenous Knowledge and the Integration of Knowledge Systems; Towards a Philosophy of Articulation*. South Africa: New Africa Books (Pvt) Ltd.

Reid, W. V., Berkes, F., Wilbanks, T. & Capistrano, D. (Eds.). (2006). *Bridging Scales and Knowledge Systems, Concepts and Applications in Ecosystem Assessment*. U.S.A.: Island Press.

Risiro, J. Tshuma, D. & Basikiti, A. (2013). Indigenous Knowledge Systems and Environmental Management: A case of Zaka District, Masvingo Province, Zimbabwe. *International Journal of Academic Research in Progressive Education and Development. Vol. 2 No. 1.*

Snively, G. & Corsigilia, J., 2000: Discovering Indigenous Science, Implications for Science Education. *Journal of Science Education: Volume 85 (5)* 6-34. London: John Wiley and Sons, Inc.

Stathers, T. Sinabda, T. & Chigariro, J. (2000). *The Zunde Scheme: Chikomba District, Zimbabwe*. DFID.

Tafese, T. (2016). *Conflict Management through Indigenous Institutions: A Study of the Anyuaa Community*. World Journal of social science.vol3 (1), Schedu press. Adis Ababa.

Warren, D. M. [1991]. *Using Indigenous in Agricultural Development*. World Bank Discussion Paper. Number 127. Washington, D. C.

We are committed contributing towards the Higher Education sector in Africa through the provision of high quality education, impactful research and nurturing transformational leaders ready to take on some of the continent's biggest challenges.

AFRICA UNIVERSITY
A United Methodist-Related Institution

UNIVERSITY OF THE YEAR
ZIMBABWE LEADERSHIP AWARDS 2018

For your applications to study with Africa University, get in touch with us at:
Tel: +2632020 60075|60026|61618| Cell: 0772 137 009-019 |Website: www.africau.edu
Email: studentrecruitment@africau.edu; applications@africau.edu

Let's Connect.

ARIPO
African Regional Intellectual Property Organization

Website: www.aripo.org

AFRICA UNIVERSITY®
A United Methodist-Related Institution

Website: www.africau.edu