PATENT PROTECTION AND FOREIGN DIRECT INVESTMENT IN UGANDA'S MINING SECTOR: A LEGAL ANALYSIS OF INTELLECTUAL PROPERTY AS AN INVESTMENT INCENTIVE

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DECLARATION

I do hereby declare that I have read and understood the regulations governing submission of Master of Laws dissertation, including those relating to length and plagiarism, as contained in the rules of this university, and that this dissertation conforms to those regulations.

Signed by the Candidate **20 October 2024**

Signature: Blair Michael Ntambi **Date**

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ABSTRACT

A conducive legal environment is a major attraction of foreign investment into a country. When potential investors are making investment decisions, they meticulously examine the laws and policies tailored by the host country to protect and manage their business assets, among others. Examples of such laws include intellectual property laws that are categorised based on the specific intellectual rights associated with the technological innovations that the investor intends to employ in the host state.

This thesis delves into Uganda's patent law ecosystem, specifically exploring how it can be strategically leveraged, by way of packaging it as an investment incentive, to attract greater foreign direct investment (FDI) in the country's mining sector. The country's mining sector is characterised by its intensive requirement for both capital and technological expertise. In so doing, the thesis makes the case that whereas tax incentives are often welcomed by foreign investors, those in technology-intensive sectors, such as mining, seek more comprehensive legal safeguards. Robust legal regimes, particularly patent regimes, are highly attractive as they shield investors' technological assets from misappropriation and infringement.

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LIST OF ACRONYMS/ABBREVIATIONS

FDI	Foreign Direct Investment
TRIPS	Trade-Related Aspects of Intellectual Property Rights Agreement
WTO	World Trade Organization
IP	Intellectual Property
EAC	East African Community
WIPO	World Intellectual Property Organization
SDGs	Sustainable Development Goals
URSB	Uganda Registration Services Bureau
ARIPO	African Regional Intellectual Property Organization
MNC	Multinational Corporation
R&D	Research and Development
PGMs	Platinum Group Metals
LDCs	Least Developed Countries
CETA	Cross-Environmental Technology Audit
OECD	Organization for Economic Cooperation and Development
NDP III	National Development Plan III
URA	Uganda Revenue Authority
VAT	Value Added Tax
AAC	Anglo American Corporation
PCT	Patent Cooperation Treaty
COMESA	Common Market for Eastern and Southern Africa
AfCFTA	African Continental Free Trade Area

CHAPTER ONE: INTRODUCTION

1.1. Background

Uganda boasts a strategic geographic location within the African continental crust, which has a geology dominated by Precambrian rocks. The rocks host various of the country's minerals, including a recent discovery of over thirty-one million tons of gold ore deposits across the country.[1].

Copper and cobalt, which have been named as some of the world's most critical minerals, have been discovered at several localities in Uganda, with a significant discovery at Kilembe in Kasese District, located in the western part of the country, where copper-cobalt sulphide mineralisation occurs.[2] More minerals, such as columbite, tantalite, beryl, gold, iron ore, galena, amblygonite, cassiterite, titanium, silver, and zinc, and non-metallic minerals such as talc, mica, graphite, kyanite, aggregate, and crushed and dimension stone, among many others, are present across them.[3]

Uganda is also uniquely positioned at the intersection of diverse regional markets such as the East African Community (EAC), the Common Market for Eastern and Southern Africa (COMESA), and the African Continental Free Trade Area (AfCFTA) and its membership in the World Trade Organisation (WTO), among others.[4] Uganda's mineral wealth and strategic positioning offer immense potential for the country's economic growth.

To unlock its mineral potential, Uganda must prioritise the adoption of advanced mining technologies and attract substantial investment to its mining sector.

The country's present circumstances, however, indicate a considerable absence of big investors in Uganda's mining sector, and this was reported to contribute to a decline in the country's GDP from mining from 1130.25 billion Uganda shillings in the fourth quarter of 2021 to 953.20 billion Uganda shillings in the first quarter of 2022.[5] The mining industry has also been reported to be dominated by.[6] The small-scale and artisanal miners also mostly employ rudimentary means of mining, are less incentivised to beneficiate the minerals, and

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[1] Betty Nagudi 'Status of geological resources in Uganda For the Embassy of the Republic of Korea in Uganda (2011) available at https://www.korcham.net/new_doc/Biz_Down/%EC%9A%B0%EA%B0%84%EB%8B%A4%EA%B4%91%EB%AC%BC%EC%9E%90%EC%9B%90%ED%98%84%ED%99%A9%EB%B3%B4%EA%B3%A0%EC%84%9C.pdf accessed on 16 May 2025 at 3.

[2] Ibid at 7.

[3] Ibid

[4] World Bank, 'Uganda's Access to Global and Regional Markets' (2006) at 6, available at https://mpra.ub.uni-muenchen.de/23575/1/MPRA_paper_23575.pdf, accessed 20 August 2023.

[5] UBOS Explore Statistics 'Uganda Bureau of Statistics' (2022) 95 Energy available at https://www.ubos.org/?pagename=explore-publications&p_id=65, Accessed on 20 August 2023.

[6] ML Barreto, Patrick Schein, Jennifer Hinton & Felix Hruschka 'Economic contributions of artisanal and small-scale mining in Uganda: Gold and Clay' (2018) Pact & ARM at 24.

are also less incentivised to innovate modern mining techniques, which has kept mining unsafe and unsustainable for most small-scale and artisanal industry players.[7]

Through technological innovation, value addition, and major investment in Uganda's mining sector, the country would harness the existence of the wide variety of the world's most sought-after minerals to spiral itself into the middle-income status that it envisions by 2040.[8]

Technological innovation, for example, is one way through which mining entities can try to keep operational costs down and make mining exploration, extraction, mineral processing, and marketing of products more efficient.[9]

During the exploration stage, entities could leverage technological advancements such as data-driven modelling, geospatial analysis, and remote sensing[10] in minimising environmental impacts arising out of mining.

During extraction, mining entities could leverage machine learning technologies to provide advanced drilling services so as to enhance precision and avoid ecological disruption,[11] hence aligning the mining activity with global sustainability goals.

In Chile, for example, a mining entity named 'Teck Resources' uses smart sensors at a mine to generate data on the impacts of the company's mining operations on the mining community.[12] The technological innovation monitors, in real time, the foreseeable quality of water and air after a mine explosion, and this data is accessible to the mining community on their mobile devices to alert them on safety precautions to take.[13] Through this technological advancement, the mining company holds itself to a high level of environmental performance through being transparent in its operations, and this has accounted for their strong social license to operate in Chile.[14]

To optimise mineral extraction, bolster mineral marketing & trading,[15] and minimise tailings,[16] mining entities could employ advanced technologies and innovative techniques.[17] For example, mining entities could leverage blockchain technology to ensure mineral traceability and transparency of supply chains, boosting consumer and investor confidence.[18]

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[7] Ibid at 55.
[8] Betty Nagudi op cit note 1 at 7.
[9] Peter Bryant 'The case for innovation in the mining industry' *Clareo* (3 March 2015) at 4 available at https://clareo.com/the-case-for-innovation-in-the-mining-industry/ accessed on 16 May 2025.
[10] Ibid at 9.
[11] Ibid at 11.
[12] Teck, 'Improving the future through innovation and technology', available at https://www.teck.com/media/Tecks-Approach-to-Innovation-and-Technology.pdf at 15 accessed 21 August 2023.
[13] Ibid.
[14] Ibid at 18.
[15] Ibid at 18.
[16] Ibid at 12.
[17] Ibid at 18.
[18] Moein Choobineh, Ali Arab, Amin Khodaei & Aleksi Paaso 'Energy Innovations Through Blockchain: Challenges, Opportunities, And The Road Ahead' (2022) 35 *The Electricity Journal* 1-7.

However, to fully realise the potential of these technological advancements, robust intellectual property protection is essential to incentivise research and development, attract investment, and safeguard the proprietary knowledge and innovations that drive the mining sector forward.

As a prerequisite to major foreign direct investment decisions, many multinational companies (MNCs) conduct a comprehensive investment climate examination, which includes but is not limited to studying the technological and legal environment of the host state.[19]

Some of the guiding questions while assessing the technological and legal environment include:

1. "Do any statutes exist that require the sharing of technology with the host state? Which interest groups are proposing such statutes?

2. Is the host country a signatory of any international patent conventions? Are there inimical regulatory practices regarding intellectual property? How long has the society practised intellectual property protection?

3. Has the host country's society built the institutional infrastructure to develop its own technology? What is the university system like? Are there significant government laboratories? Private laboratories? Do the host country's researchers and institutions generate a significant number of domestic and/or international patents?

4. What is the history of previous investors that have moved proprietary technology into the host country? Have they suffered intellectual property theft? What was the host country government's response? Were they successful in enforcing intellectual property protection if the effort was made?

5. Do foreign, technologically active companies have a greater, equal, or lesser propensity to file patents as similar companies in the host country?[20]

The significance of the above guiding questions is to demonstrate that in addition to tax incentives, labour-friendly policies, a good political climate, and other investment incentives, attracting foreign direct investment (FDI) in Uganda's mining sector necessitates leveraging the country's intellectual property regime to influence significant capital and technology investment decisions.

Despite Uganda's adherence to numerous intellectual property laws and treaties, as will be explored in the next chapters, the practical application of intellectual property rights,

[19] George T Haley 'Intellectual property rights and foreign direct investment in emerging markets' (2000) 18(5) *Marketing Intelligence & Planning* 273-280.
[20] Ibid at 278.

particularly patent protection, in stimulating capital and technology investment in the mining sector remains underexplored. This dissertation seeks to illuminate the potential impact of IP law in this context.

The study will draw lessons from other jurisdictions with more developed intellectual property regimes, such as South Africa, in a bid to understand the country's strategic approaches to harnessing the country's intellectual property legal regime to attract major investments in its mining sector.

While Uganda is posited to have attracted significant foreign direct investment as opposed to its East African counterparts,[21] there remains a notable gap in the existing literature pertaining to the role of intellectual property, particularly the country's patent regime, in driving this investment. The thesis aims to bridge this gap by examining how a robust IP regime can bolster investor confidence and encourage technology transfer.

By focusing on a context-specific analysis of Uganda's mining sector, this thesis contributes to the field. It highlights the potential of a robust IP regime in stimulating innovation and sustainable growth in the country. Ultimately, the research seeks to provide policymakers and industry stakeholders with actionable insights to strengthen Uganda's position as a mining investment destination.

1.2. Justification of the Study

The global mining sector stands as a basic component of economic growth owing to its contribution to government revenues and raw materials for technology and machinery in other industries.[22]. The demand for critical minerals has also surged and is projected to further increase for the next 30 years.[23] The global annual demand for technological innovations such as clean energy technologies has equally grown and is projected to exceed USD 400 billion by 2050.[24]

In this evolutionary landscape, intellectual property is gaining acknowledgement for its potential to spur technological innovations as a building block to responsible and sustainable mineral resource extraction and use.[25]

Uganda's mining sector, with its vast mineral resources, presents a significant opportunity for economic growth and development. However, attracting substantial foreign direct investment

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[21] Dorothy Nakaweesi 'Uganda attracts largest share of foreign direct investment in East Africa', *Daily Monitor Uganda* 28 October 2024 available at https://www.monitor.co.ug/uganda/business/markets/uganda-attracts-largest-share-of-foreign-direct-investment-in-east-africa--4803886# accessed 28 October 2024.
[22] Peter op cit note 9.
[23] Teck op cit note 12 at 6.
[24] Philippe Poizot & Franck Dolhem, 'Clean energy new deal for a sustainable world: from non-CO_2 generating energy sources to greener electrochemical storage devices' (2011) 4 *Energy & Environmental Science*.
[25] Teck op cit note 12.

requires a conducive investment climate, including robust intellectual property development. While the country has made strides in IP law development, there remains a gap in understanding the specific impact of IP on FDI in the mining sector.

This study addresses this gap by examining how a robust IP regime, tailored to the unique challenges and opportunities of Uganda's mining industry, can attract and retain FDI. By exploring the nuances of IP protection in the Ugandan context, this research aims to contribute to the formulation of evidence-based policies that can enhance the country's competitiveness and sustainable development.

The study is also justified in the larger perspective of making a case for fostering technological innovation through emphasising the central role of intellectual property safeguards in encouraging knowledge transfer and technological innovation. Therefore, the study aims to inform future policy decisions and industry practices, ultimately contributing to the sustainable growth and development of Uganda's mining sector in the global economic landscape.

1.3. Statement of the Problem

As noted in the background to this study, Uganda boasts of vast mineral wealth with major discoveries of assets such as copper, iron ore, gold, silver, cobalt, and many others. This mineral wealth, however, does not translate into the existence of major investors to exploit the valuable assets. Anne Mette Kjær,[26] argues that such an abundance of resources versus a deficiency of investment in the mining sector poses concerns about the potential onset of a resource curse, a phenomenon where a resource-rich economy paradoxically experiences economic challenges that would rather have been prevented by proper resource management. Addressing the cause of this imbalance in mineral investment is crucial to mitigate the risk of falling into the resource curse trap.

When entities are making investment decisions, one key consideration they make is the legal environment in which they would operate.[27] In instances where the legal environment is enabling for the entities to set up and conduct their businesses, there is a high possibility that the entities will invest in that economy.[28] A country's legal environment would also include its laws and policies on protection and management of business assets, among others.[29] Such laws include intellectual property laws that are clustered according to the type of intellectual property rights held within the technological innovation.

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[26] Anne Mette Kjær 'Foreign Investments In Uganda's Oil Sector: Linkages and Issues for the Local Economy.' (2013) 2013 (24) *Danish Institute for International Studies. DIIS Working Paper* at 8.
[27] Kalu Ojah, Tendai Gwatidzo & Sheshangai Kaniki 'Legal Environment, Finance Channels And Investment: The East African Example' (2010) 46 (4) *The Journal of Development Studies 724 - 744.*
[28] Ibid.
[29] Ibid.

Simon Munungo et al.[30] argue that countries like Uganda tend to prioritise tax incentives over non-tax incentives when attracting FDI,,, and by way of structuring, the country's tax incentives tend to conform to the characteristics of the "race to the bottom" / tax competition phenomenon where the economy competes with other economies in the global south for the same major investors by offering them unnecessarily favourable terms in a bid to attract their investment, yet many times, these terms harm the host's economy in the long term.
They further argue that whereas tax incentives might influence major FDI decisions, they are more effective when they are combined with nuanced and industry-specific "non-tax" incentives, which would include guarantees of a comprehensive legal framework that would protect the intellectual property assets of the investors' technological innovations.

The intellectual property framework of Uganda is comprised of a set of laws which include the Industrial Property Act Cap. 224 which provides for a regime of protection of intellectual property rights in patents for inventions, utility models, industrial designs among other creations of the mind; the Trademarks Act Cap. 225 which provides for a regime that governs the protection of trademarks, certification marks, service marks and collective marks; the Copyright and Neighbouring Rights Act Cap. 222 which provides for a legal regime that protects copyright, and related rights in literary, artistic, musical, audio visual, performers' rights as well as broadcasters' rights; the Geographical Indications Act Cap. 223 which provides for a regime to protect rights in products that originate from a region and as a result known for their quality and characteristics; and other legal instruments to govern the protection of plant varieties, traditional knowledge and cultural expressions.[31]

This study focuses on the structural components of Uganda's intellectual property legal framework that provide protection and assurance to investors, rather than the enforcement mechanisms or the effectiveness of legal dispute resolutions. The emphasis is on how the existing legal provisions create a conducive environment by establishing clear and predictable intellectual property rights, which are critical for attracting FDI. The practical enforcement of these protections, while important, falls outside the scope of this research and may be addressed in subsequent studies.

1.4. Research Questions

The main research question is, "How can the Industrial Property Act Cap. 224 be strategically leveraged within the framework of the Mining and Minerals Act Cap. 159 and the Investment Code Act Cap. 74 together with their associated regulations to enhance incentives for FDI in Uganda's mining sector?"

The main question will be answered through examining the following subquestions:

[30] Simon Munongo, Olusegun Ayo Akanbi & Zurika Robinson 'Do Tax Incentives Matter For Investment? A Literature Review' (2017) 13(2) *Business and Economic Horizons*.
[31] Betty op cit note 1 at 2.

1. Is there a linkage between intellectual property protection assurances and attraction of FDI in a country?
2. How is Uganda's Industrial Property Act Cap. 224 relevant in the attraction of technological investment in Uganda's mining sector?
3. By analysing the successes of South Africa's intellectual property and investment regime in the mining sector, what key lessons can be learned and applied to strategically leverage the Industrial Property Act Cap. 224 to enhance foreign direct investment incentives in Uganda's mining sector?

From the above questions, the thesis shall seek to make recommendations to stakeholders, urging them to advocate for the consolidation of intellectual property protection assurances within the country's mining policy as a crucial component of incentive packages offered to investors.

1.5. Methodology

Desk research will be used for this study. The research will derive information from studies about the actual or potential role of intellectual property laws in other industries and attempt to make a case based on scholarly projections for the mining sector. The dissertation will also derive information that is necessary through examining the literature on Uganda's intellectual property laws that is available through scholarly journals, books, online articles, and official government websites.

South Africa will provide an important reference point for the study. The choice of South Africa as a reference point is because its intellectual property regime, especially its patent regime, is ranked highly in TRIPS compliance among developing and industrialising countries.[32]

South Africa also has an established mining and oil and gas industry, which has heavily benefitted from FDI in the development of the sector's technological base,[33] which development has been partly attributed to the existence of robust IP strategies.[34]

Given the nascent state of Uganda's patent regime and the lack of major patent disputes adjudicated domestically, as will be demonstrated in Chapter 4, this study proceeds under the assumption that South Africa's more developed patent legal framework—despite its own criticisms—serves as a more effective and practical benchmark for Uganda. South Africa's legal regime offers a more functioning system for patent protection, which can inspire Uganda's approach in crafting its legal and institutional settings. This assumption

[32] David Kaplan, 'Intellectual property rights and innovation in South Africa: A framework' (2009) *The economics of intellectual property in South Africa* at 1.
[33] Paul Sorensen, 'Mining in South Africa: A Mature Industry?' (2011) 68 *International Journal of Environmental Studies.*
[34] David op cit note 32.

acknowledges that South Africa's regime, while not without flaws, provides a starting point for Uganda to develop its.

The thesis will also examine literature that establishes a direct IP/mining link; for example, studies on mining companies that are relying on technology to expand internationally due to their optimisation of IP.

Analysis of the potential impact of intellectual property on FDI decisions in industries that heavily rely on technology, such as mining, will provide a basis upon which answers to the research questions will be sought from the dissertation chapters.

An empirical study of Uganda's mining sector would likely determine the actual effect(s) of the laws on the sector. However, given the initial growth stage of the sector,[35] information about the impact of IP laws on the sector's growth in Uganda is currently not available.

The thesis will therefore seek to establish the potential influence of intellectual property in encouraging significant capital and technology investment decisions in the economy and, by that, establish a linkage to the mining sector, which forms a significant part of Uganda's 'industrial and economic' growth statistics.

1.6. Structure of the Dissertation

This chapter introduces the topic of the dissertation and establishes a basis upon which answers to the main question and sub-questions will be sought by the chapters in the dissertation.

Chapter Two will establish the general theoretical framework of the thesis. It will do so by examining the linkage between intellectual property protection assurances and foreign direct investment enhancement. It will then establish why that linkage would be relevant to mineral development.

Chapter Three will make a case for Uganda linking the theories from Chapter 2 to existing provisions of the Industrial Property Act Cap. 224, the Investment Code Act, the Mining and Minerals Act and its supporting legal framework, and how these laws could be harmonised to offer intellectual property protection assurances to investors within the context of the mining sector. In so doing, the chapter will answer sub-question two.

Chapter Four will examine the successes and challenges of South Africa's intellectual property and investment regime and what key lessons Uganda can learn and apply to strategically leverage its Industrial Property Act Cap. 224 to enhance FDI incentives in the country's mining sector.

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[35] World Bank *Uganda Economic Update, December 2017: Accelerating Uganda's Development, Ending Child Marriage, Educating Girls* available at http://hdl.handle.net/10986/29031 accessed on 20 May 2025.

Chapter Five will contain conclusions reached from the findings in previous chapters and will recommend specific ways that the Industrial Property Act Cap. 224 can be integrated into the legal framework governing mining to create a synergistic approach that strategically structures incentives for attracting foreign direct investment in the mining sector.

Like earlier stated, this thesis seeks to contribute to the existing body of literature on Uganda's mining sector and its endeavour to attract significant foreign direct investment (FDI) from major investors while underscoring the importance of a context-based approach to encouraging investor confidence through ensuring intellectual property protection assurances for their proprietary technology in Uganda.

CHAPTER TWO: IP PROTECTION ASSURANCES AND FOREIGN DIRECT INVESTMENT: A THEORETICAL FRAMEWORK

2.1. Introduction

This chapter will establish the general theoretical framework upon which the role of intellectual property protection assurances can be identified as a facilitator of foreign direct investment in countries that structure such assurances as incentives. The chapter will initially explore the general role of incentives in attracting FDI with a specific focus on the intricacies of the mining industry, including its technological and other associated needs. Subsequently, the chapter will examine the potential role and indicators of a successful correlation between IP protection assurances and FDI.

To achieve the above goal, the chapter will highlight the historical development of intellectual property and locate the development of the Trade-Related Aspects of Intellectual Property (TRIPS Agreement), its relevance to international trade, and its impact on FDI, especially in developing countries. The study will then highlight scholarly studies positing a linkage between IP protection assurances and FDI. In an effort to anchor the study in practical contexts, the chapter will conclude by examining the aspects of the mining sector that rely on IP integration.

2.2. General role of incentives in inducing FDI

Incentives are measures that governments use to attract foreign direct investment (FDI) to their countries.[36] The primary role of incentives is to create a business-enabling environment for the investors for them to comfortably operate their businesses in a foreign economy.[37] These incentives can take various forms, such as subsidies, tax holidays and exemptions, and a streamlined legal framework, among other benefits that make it more attractive for foreign investors to invest in that particular country.[38]

The most common form of incentives is tax incentives, such as tax holidays, tax exemptions, and tax credits to allow businesses to reduce their tax liability by a certain amount for specific activities such as research and development, job creation, or investment in renewable energy; investment allowances; accelerated depreciation to allow businesses to write off the cost of assets more quickly than under depreciation standards in order to encourage investment in new equipment and infrastructure; and special economic zones with special fiscal regimes from the rest of the host state, among others.[39]

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[36] Ha-Joon Chang, 'Intellectual Property Rights And Economic Development: Historical Lessons And Emerging Issues' (2001) 2 (2) *Journal of Human Development* 287-309.
[37] Ibid.
[38] Ibid.
[39] Simon Munongo, Olusegun Ayo Akanbi & Zurika Robinson 'Do Tax Incentives Matter For Investment? A Literature Review' (2017) 13 (2) *Business and Economic Horizons* 152-168.

Some theoretical evidence shows that tax incentives attract FDI through two theories, i.e. the neoclassical investment theory introduced by Jorgenson (1963)[40] and the OLI theory, also known as the eclectic theory, developed by Dunning (1988).[41]

The neoclassical investment theory argues that there is a direct positive relationship between lowered tax rates and increased investment.[42] This is because, in general circumstances, lowered tax rates reduce the cost of capital, hence making it more attractive to invest in additional capital stock as long as the cost of doing so is less than the benefits.

The OLI theory, also known as the eclectic paradigm theory, on the other hand, explains how firms choose foreign markets for investment, and it highlights three considerations, i.e., ownership "O," location "L," and internalisation "I."[43] The theory further explains that tax incentives can be classified under the locational advantages of a host nation in attracting FDI. Dunning (1988) argues that tax incentives increase the country's attractiveness to investment if they are lower tax rates than the investor's home country rates or if they are lower tax rates than those of other competing destinations.[44]

The aforementioned theories also make a case for why developing countries such as Kenya implement tax incentives like tax holidays, asserting that their ease of implementation is a compelling factor for attracting and retaining FDI.[45] That notwithstanding, scholars like Simon Mununga et al. (2017)[46] caution that this approach can lead to a "race to the bottom" scenario, where counties compete with each other by offering increasingly generous tax incentives, which may not always benefit the host economy in the long run.

Additionally, it has been argued that as locations have become increasingly similar due to regional integration, which has necessitated harmonisation and coordination of economic policies in regional groupings such as the African Union, the OLI theory/eclectic paradigm theory is of limited significance at the individual country level since what would be competing destinations for FDI are increasingly standardising their tax incentive offers.[47]

Conversely, an alternative stance maintains that whereas tax incentives might influence major FDI decisions, they are more effective when they are combined with nuanced and industry-specific "non-tax" incentives, which would include guarantees of a comprehensive legal

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[40] Dale W. Jorgenson 'Capital Theory And Investment Behaviour' (1963) 53 (2) *The American Economic Review* 247-259.
[41] John H. Dunning 'The Eclectic Paradigm Of International Production: A Restatement And Some Possible Extensions' (1988) 19 *Journal of International Business Studies* 1-31.
[42] Dominic Murage Njeru *Tax Incentives, International Competitiveness, Investment Climate And Foreign Direct Investment In East Africa Community Partner States* (unpublished PhD Thesis, University of Nairobi, 2019) at 27.
[43] Ibid at 28.
[44] Ibid at 29.
[45] Gladys Wanjiku Thuita, 'An investigation of the effect of tax incentives on the FDIs: A case of EPZs in Athi River Kenya' (2017) 3 *Journal of Accounting, Finance and Auditing Studies* 17-36 at 30.
[46] Simon *et al* op cit note 39 at 153.
[47] Ibid at 161.

framework that would protect the intellectual property assets of the investors' technological innovations.[48]

2.3. The need for FDI in the mining sector

For a country like Uganda, just like many other resource-rich developing countries, there is a considerable absence of major FDI in the mining sector despite the vastness of the country's mineral wealth.[49] Uganda, in its NDP III, aspires to fast-track oil, gas, and mineral-based industrialisation by 2030, and one of the strategies to achieve this is through attracting major FDI in the mining and oil & gas sectors.[50]

If well managed, Uganda's mineral wealth has the potential to propel economic growth through the generation of revenue from mining activities, the creation of jobs for the citizens, infrastructural development, and general improvement of household incomes, laying the foundation for a prosperous economy.[51]

Exploitation of the country's mineral resources is, however, capital intensive and requires specialist expertise and advanced technology, which requirements are often lacking in resource-rich developing countries such as Uganda.[52] FDI therefore emerges as a potential solution, but how it could be incentivised remains the underlying question.

One of the primary needs for FDI in the mining sector is for upfront capital injection into mineral exploration, mineral development, and development of mineral processing infrastructure.[53] This is because, unlike local financial institutions, foreign suppliers of capital can accommodate the high economic risk that is involved in a mining project[54]. Local financial institutions are hesitant to finance mining projects because they are considered high risk since they rely on future (post-production) cash flows as the form of loan repayment as well as allocating risks to all project participants, who would include the lending financial institution.[55] FDI bridges this funding gap by providing this capital injection and allowing mineral-rich developing countries to exploit their mineral resources.

Beyond capital, FDI is a major source of technological expertise, which is crucial for mining operations because it facilitates efficiency in mineral resource exploration, extraction,

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[48] Ibid at 165.
[49] Ibid. note 8.
[50] Uganda National Planning Authority 'Third National Development Plan (NDP III) 2020/21 – 2024/25' July 2020 available at https://www.npa.go.ug/national-development-plan/ accessed on 20 May 2025 at 82.
[51] Abbas M Sharaky 'Mineral resources and exploration in Africa' (2014) available at https://www.academia.edu/download/36757403/Mineral_Resources_and_Exploration_in_Africa_2011.pdf accessed on 20 May 2025 at 12.
[52] Anthony Black & Reviva Hasson 'Capital Intensive Industrialisation And Comparative Advantage: Can South Africa Do Better In Labour Demanding Manufacturing?' (2012) *Strategies to Overcome Poverty and Inequality Towards Carnegie III* at 6.
[53] Ibid at 9.
[54] Benning I. 'Bankers' Perspective of Mining Project Finance' (2000) 100(3) *Journal of the Southern African Institute of Mining and Metallurgy* at 146.
[55] Ibid at 151.

processing, and management.[56] Advancement in mining has led to the development of technologies such as robotics and automated mining processes. Such developments are making mining safer for the miners as well as more environmentally sustainable.[57] Unfortunately, developing countries often lack domestic technological expertise due to limited research and development (R&D), which is partly due to weak intellectual property rights protection, hence discouraging domestic innovation.[58] When multinational companies invest in a mineral-rich developing country, they often introduce state-of-the-art technologies and innovative processes and undertake knowledge transfer to the locals.[59] This transfer of knowledge and technology can stimulate skills development and innovation in the mining host country.

While the role of FDI in the mining sector is undeniable, host countries should prioritise the establishment of strong governance frameworks as well as leverage regional cooperation in order to attract FDI.

2.4. Historical Development of IP

Intellectual property is an asset that is uniquely created by a human mind and may include creations such as artistic works, musical works, industrial inventions, literary works, and commercially used symbols or names.[60] To safeguard these inventions, legal protections, for example, patents, trademarks, and copyrights, are granted to the creators of intellectual property to facilitate the commercialisation of these assets as well as gain recognition for their creativity.

Over the past centuries, the concept of intellectual property has undergone various transformations in order to best protect the creations of a human mind. One of the earliest traces of the concept of intellectual property was in the 15th-century Venetian Republic. The Venetian Senate established a formal patent system in 1474, granting investors exclusive rights to their inventions for a specific period. This early system aimed to encourage innovation and reward inventors for their contributions to society.[61]

In 1624, the English patent system originated with the enactment of the Statute of Monopolies, which laid the foundation for the element of novelty and registration of patents in imported technology.[62] Later in 1710, the Statute of Anne[63] was also passed by the English Parliament to provide for regulation of copyright by the state, rather than private parties.

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[56] Nahom Ghebrihiwet 'FDI Technology Spillovers in the Mining Industry: Lessons From South Africa's Mining Sector' (2019) 62 *Resources Policy* at 7.
[57] Ibid.
[58] Ibid at 8.
[59] Ibid at 2.
[60] Justin Hughes 'The Philosophy of Intellectual Property' (1988) 77 (287) *Georgetown Law Journal* at 290.
[61] Frank D. Prager 'A History of Intellectual Property From 1545 To 1787' (1944) 26 (11) *Journal of the Patent Office Society* at 712.
[62] Tyler T Ochoa & Mark Rose 'The Anti-Monopoly Origins of the Patent And Copyright Clause' (2002) 84 J. Pat. & Trademark Off. Soc'y at 675.
[63] Ibid.

These early English laws influenced the development of patent and copyright laws in many countries around the world, shaping the global intellectual property landscape.

Due to globalisation and the need for international cooperation in intellectual property protection, the Paris Convention[64] was developed in 1883 and the Berne Convention in 1886.[65] These two conventions are still in force[66] and created a coordinated framework for international protection of patents, trademarks, industrial designs, and copyrights, respectively, through national treatment clauses.

2.4.1. Historical Development of the TRIPS Agreement

Recognising the limitations of the Paris, Berne, and other intellectual property conventions and agreements developed before 1995, the World Trade Organisation (WTO) sought to establish a comprehensive multilateral intellectual property agreement that would bridge the gap in international trade; hence the development of the Trade-Related Aspects of Intellectual Property Agreement (TRIPS Agreement) in 1995.[67] The TRIPS Agreement sought, among other things, to set minimum standards of intellectual property protection among WTO member countries. To this date, the TRIPS Agreement remains the most important multilateral instrument for the globalisation of intellectual property.[68]

The TRIPS Agreement was negotiated as part of the Uruguay Round of multilateral trade negotiations, which took place from 1986 to 1994,[69] following a push by the United States and supported by the European Union, Japan, and other developed countries. The United States lobbied for the inclusion of the TRIPS Agreement in the broader negotiations in a bid to harmonise IP laws and practices across countries and to establish a framework for the protection and enforcement of intellectual property rights in the context of international trade.[70] The negotiations were conducted under the auspices of the General Agreement on Tariffs and Trade (GATT), which was the predecessor to the World Trade Organisation (WTO). The negotiations were also influenced by the growing importance of intellectual property in the global economy, particularly in tech-intensive industries. For example, when pharmaceuticals like Pfizer advocated for the prioritisation of stronger intellectual property protections within the United States trade policy in the early 1980s. Uganda ratified the TRIPS Agreement on January 10, 1995.[71]

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[64] Ituku Elangi Botoy 'From the Paris Convention to the Trips Agreement: A One-Hundred-and-Twelve-Year Transitional Period for the Industrialised Countries' (2004) 7 *The Journal of World Intellectual Property* 115-130 at 117.
[65] Peter Burger 'The Berne Convention: Its History and its Key Role in the Future' (1988) 3 *Journal of Law and Technology* at 7.
[66] Ibid at 2.
[67] Antony Taubman, Hannu Wager & Jayashree Watal *A Handbook on the WTO TRIPS Agreement* (2020) at 4.
[68] Ibid at 1.
[69] Ibid at 74.
[70] Ibid.
[71] Ibid.

The agreement is revolutionary in both an intellectual property regime and a trade regime because it provides a framework for the protection and enforcement of intellectual property rights in the context of international investments and trade. It requires WTO members to provide a minimum level of protection for intellectual property rights such as patents for patentable subject matter, layout designs of integrated circuits, trade secrets, industrial designs, geographical indications, trademarks including service marks, copyright, and related marks, which can facilitate the growth of international trade[72]. It also requires signatory states to implement the enforcement procedures through the WTO dispute settlement mechanisms without unnecessary/unwarranted delays, as well as require them to administer criminal procedures and monetary fines adequate to deter intellectual property infringement. Cynthia (2015) contends that the TRIPS Agreement creates an unprecedented degree of control by a supranational regime over domestic legal frameworks, which constitutes a massive intrusion into sovereign domestic civil systems.[73]

The Agreement defines patentable subject matter under Article 27.

> *"Article 27*
>
> ***Patentable Subject Matter***
>
> 1. *Subject to the provisions of paragraphs 2 and 3, patents shall be available for any inventions, whether products or processes, in all fields of technology, provided that they are new, involve an inventive step, and are capable of industrial application. Subject to paragraph 4 of Article 65, paragraph 8 of Article 70, and paragraph 3 of this Article, patents shall be available and patent rights enjoyable without discrimination as to the place of invention, the field of technology, and whether products are imported or locally produced.*
> 2. *Members may exclude from patentability inventions, the prevention within their territory of the commercial exploitation of which is necessary to protect public order or morality, including to protect human, animal, or plant life or health or to avoid serious prejudice to the environment, provided that such exclusion is not made merely because the exploitation is prohibited by their law."*

The agreement has been subject to critique for having been signed by many countries, especially developing countries, without comprehensively understanding its full implications. Musungu and Dutfield (2008) posit that the reasons behind such extensive adherence to the TRIPS Agreement include that it was part of the broader package of agreements that were negotiated under the Uruguay Round.[74] Additionally, Musungu and Dutfield (2008) suggest

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[72] Ibid.
[73] Cynthia M. Ho 'Sovereignty Under Siege: Corporate Challenges to Domestic Intellectual Property Decisions' (2015) 30 *Berkeley Tech. LJ* at 1.
[74] Sisule F. Musungu & Graham Dutfield 'Multilateral agreements and a TRIPS-plus world: The World Intellectual Property' (2008) available at https://www.quno.org/sites/default/files/resources/Multilateral-Agreements-in-TRIPS-plus-English.pdf accessed on 20 May 2025 at 10.

that the inclusion of a package of flexibilities mitigated robust scrutiny of the full implications of the agreement by developing countries.[75]

Negotiations on the issue of technology transfer within the TRIPS Agreement demonstrated a major contention between developed and least developed countries (LDCs). The agreement addresses technology transfer in Article 66 and, by extension, Article 67.

> *"**Article 66***
>
> ***Least-Developed Country Members***
>
> 1. *In view of the special needs and requirements of least-developed country members, their economic, financial and administrative constraints, and their need for flexibility to create a viable technological base, such members shall not be required to apply the provisions of this agreement, other than Articles 3, 4 and 5, for a period of 10 years from the date of application as defined under paragraph 1 of Article 65. The Council for TRIPS shall, upon duly motivated request by*
> 2. *least-developed country member,*
> 3. *accord extensions of this period.*
> 4. *Developed country members shall provide incentives to enterprises and institutions in their territories for the purpose of promoting and encouraging technology transfer to least-developed country members in order to enable them to create a sound and viable technological base.*
>
> ***Article 67***
>
> ***Technical Cooperation***
>
> *In order to facilitate the implementation of this agreement, developed country members shall provide, on request and on mutually agreed terms and conditions, technical and financial cooperation in favour of developing and least-developed country members. Such cooperation shall include assistance in the preparation of laws and regulations on the protection and enforcement of intellectual property rights as well as on the prevention of their abuse and shall include support regarding the establishment or reinforcement of domestic offices and agencies relevant to these matters, including the training of personnel."*

During negotiations, LDCs had hoped that technology transfer would be mandatory under the agreement, but the final agreement mentioned technology transfer as something to be encouraged.[76] However, the final agreement mandated the provision of financial cooperation

[75] Ibid at 11.
[76] Mark V Shugurov, 'TRIPS Agreement, International Technology Transfer And Least Developed Countries' (2015) 2 *Journal of Advocacy, Research and Education* at 77.

as a form of technical cooperation towards LDCs to facilitate the implementation of the provisions relating to the protection and enforcement of intellectual property.[77]

2.4.2. TRIPS Agreement and its impact on FDI

Within the context of attracting FDI in the mining sectors of least developed countries like Uganda, technology transfer is very crucial in facilitating sustainable development of technical expertise and capacity to engage in efficient mining practices.[78] Whereas the TRIPS Agreement only encourages technology transfer as per Article 66(2) but does not mandate it of developed countries, it would leave the responsibility to the countries that desire FDI in technological innovations to design incentives for technology transfer as well as commitments to protect the intellectual property rights of their investors.[79] This emphasises the net relevance of the TRIPS Agreement.

The TRIPS Agreement fosters a predictable investment climate by harmonising patent protection across signatory states, hence serving as a key driver of FDI in technology-intensive sectors such as mining.[80] Proponents of the link between a robust intellectual property framework and FDI inflow have argued for the role of intellectual property in promoting innovation because it encourages holders of intellectual property rights to invest in the host country without the fear that their technologies would be leaked to competitors.[81] The secondary effect of such confidence in a country's intellectual property regime is that technology transfer flows to the host state.[82]

While TRIPS establishes minimum standards for intellectual property protection, it allows countries to implement these standards in a manner consistent with their national laws and policies. This flexibility enables countries to tailor their IP regimes to their specific economic and social needs.

As Article 27 of TRIPS outlines, countries have the discretion to determine the extent of protection granted to inventions. This flexibility can attract foreign direct investment (FDI) by creating a predictable legal environment for investors to acquire, use, and license their intellectual property assets. By implementing strong IP protection measures, countries can signal their commitment to innovation and economic growth.

2.5. Indicators of a successful IP/FDI link in a country

The intricate relationship between intellectual property and foreign direct investment has been a subject of scholarly attention. Research on the relationship has navigated the potential

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[77] Ibid.
[78] Ibid at 82.
[79] Ibid at 79.
[80] Sisule op cit note 74.
[81] Samuel Adams 'Intellectual Property Rights, Investment Climate and FDI in Developing Countries' (2010) 3 *International Business Research* at 202.
[82] Ibid.

implications of incorporating intellectual property protections within the trade and investment agreement between the MNC and the investment host state.[83]

Foreign direct investment (FDI) has also been posited to be an integral component of sustaining economic development, particularly within a country's capital-intensive sectors like mining.[84]

The role of the TRIPS Agreement in the protection of intangible property rights of foreign investors has been linked, rather contrastingly, to the facilitation of foreign direct investment (FDI). For example, Hu and Jefferson (2009) have posited that the surge in IP filings in China has a linkage with FDI in China's industrial sectors.[85] This surge has also influenced the amendment of several of China's IP laws.[86]

Braga and Fink (1998)[87] espouse that while analysing the linkage between intellectual property and foreign direct investment (FDI), it is important to consider that firms are more inclined to invest under a system of robust intellectual property protection.[88]

Lai (1998),[89] however, argues that the linkage between intellectual property and foreign direct investment (FDI) is not direct but rather depends on other factors such as technology transfer. He posits that investors are more inclined to consider the robustness of a country's intellectual property regime only after examining such a country's technology level. With increased technology levels comes a more feasible vessel of technology transfer, and this, in Lai's assessment, is what then facilitates the consideration of the robustness of a country's intellectual property regime.[90]

Some literature, however, suggests that the consideration of intellectual property protection robustness in a country before foreign direct investment (FDI) decisions are made is harmful to developing countries despite the benefits of technological innovations. For example, Deardoff (2011),[91] argues that strong intellectual property regimes benefit multinational companies (MNCs) from developed economies at the expense of developing countries because of low technology levels and their major reliance on technology transfer. He argues

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[83] Bernd Justin Jütte *When Two Worlds Collide: A Comprehensive Approach to the Intellectual Property and Investment Law Interface* (2020) Oxford University Press, at 932.
[84] Nahom op cit note 56.
[85] Albert Guangzhou Hu & Gary H Jefferson 'A Great Wall Of Patents: What Is Behind China's Recent Patent Explosion?' (2009) 90 *Journal of Development Economics*.
[86] Saïd Hammami 'Foreign Direct Investment Inflows, Intellectual Property Rights and Economic Freedom: Empirical Evidence From Middle- And Low-Income Countries' (2019) 11 *African Journal of Science, Technology, Innovation and Development* at 861.
[87] Carlos A Primo Braga & Carsten Fink, 'The Relationship Between Intellectual Property Rights and Foreign Direct Investment' (1998) 9 *Duke J. Comp. & Int'l L.*
[88] Saïd op cit note 86 at 863.
[89] Edwin L-C Lai 'International Intellectual Property Rights Protection and the Rate of Product Innovation' (1998) 55 *Journal of Development Economics*.
[90] Saïd op cit note 86 at 863.
[91] Alan V Deardorff 'Welfare effects of global patent protection' Robert M Stern (ed.) in *Comparative Advantage, Growth, and the Gains from Trade And Globalisation: A Festschrift In Honour Of Alan V Deardorff* (2011) 329.

that this reliance on technology transfer limits innovation in the developing countries since the intellectual property regimes are structured to protect MNCs against such local innovations, hence stagnating developmental initiatives in developing countries.[92]

Nevertheless, what is undeniable is that assurances of a robust intellectual property protection regime could influence technological spillover through foreign direct investment through technology transfer and skills enhancement.

Haley (2000),[93] posits that for a successful IP/FDI link to be established, three key steps have to be undertaken, and these are explained below:

1. Conduct an environmental scan: This is an examination to consider the cultural, economic, and historic differences between the investor and the host state to establish the potential intellectual property theft risks. Through this examination, the host state can structure data-backed intellectual property protection incentives to investors, guaranteeing that it solves their potential investment pain point.[94]
2. Implement a Cross-Environmental Technology Audit (CETA): This step is beneficial to both the MNC and the host state because it allows either party to negotiate the investment terms, knowing each other's technological levels and commitments to technology transfer on the part of the host state and the potential technological intellectual property theft risks.[95]
3. Investment decisions ought to be based on research and understanding: This is particularly important because it allows the host state to quantify and develop correlations between potential intellectual property theft risks and societal correlations ahead of negotiating or structuring FDI incentives.[96]

The above 3-step approach helps both MNCs and the investment host state to create a solid foundation through fostering trust, mitigating risks, and ultimately leading to mutually beneficial outcomes for a successful IP/FDI link.

2.6. IP in the Mining Sector

The global mining sector is increasingly becoming technology-intensive as it embraces technological innovations across the mining value chain.[97] To safeguard such innovations and processes, the sector is increasingly embracing intellectual property across a range of rights, such as patents to protect novel drilling technologies and environmentally friendly extraction and processing processes, trademarks to protect their mineral brand identities, and copyrights to recognise and protect the authorship of software for management of the mine, among other

[92] Saïd op cit note 86 at 864.
[93] George T Haley op cit note 19 at 274.
[94] Ibid.
[95] Ibid at 280.
[96] Ibid at 280.
[97] Roman Emilian Dychkovskyi, Oleksandr Borys Vladyko, Dmytro Maltsev & Edgar Cáceres Cabana, 'Some Aspects of the Compatibility of Mineral Mining Technologies' (2018) 33 *Rudarsko-geološko-naftni zbornik* at 73.

data.[98] These technological advancements have accounted for the enhanced efficiency, productivity, and sustainability of mining activities.[99]

The mining industry is undergoing a digital revolution, with technological advancements driving increased efficiency, sustainability, and innovation. Mining companies and their suppliers are increasingly collaborating to implement digital solutions across the mining value chain, from exploration to production and marketing.[100]

Data-driven technologies, such as geospatial analysis and remote sensing, are crucial tools for minimizing the environmental impact of mining operations during the exploration phase. These technologies, often protected by copyright, can help identify potential risks and optimize extraction strategies.[101]

During the extraction phase, machine learning and artificial intelligence can enhance drilling precision and reduce ecological disruption. Patents protect these innovative technologies, incentivizing further development and adoption.[102]

A prime example of this is Teck Resources in Chile, which has developed a patented smart sensor system to monitor the environmental impact of its mining operations. By collecting real-time data on air and water quality, the company can proactively address potential issues and maintain a strong social license to operate. The protection of these innovations through intellectual property rights encourages further investment in sustainable mining technologies.[103]

During processing, mining entities could leverage technological innovations and techniques to maximise the winning of minerals while reducing tailings, which innovations can be protected under the patent regime.[104] Technological innovations could also extend to marketing and trading in mineral products, leveraging mineral branding, which is protected under the trademarks regime[105]. Mining entities could leverage blockchain technology to ensure traceability and transparency of supply chains and build the confidence of consumers and investors, and such innovations would be protected under the copyright regime.[106]

The success of the above technological innovations, however, has to be rooted in robust intellectual property protection by the investment host state.[107] As a prerequisite to major

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[98] Alica Daly, Giulia Valacchi & Julio D Raffo, 'Mining Patent Data: Measuring Innovation In The Mining Industry With Patents' (2019) *World Intellectual Property Organisation (WIPO) Economic Research Working Paper Series* at 9.
[99] Roman *et al* op cit note 97 at 74.
[100] Nahom op cit note 56 at 469.
[101] Peter op cit note 9 at 4.
[102] Ibid at 9.
[103] Teck op cit note 12.
[104] Peter op cit note 9 at 12.
[105] Ibid at 18.
[106] Moein et al op cit note 18.
[107] Peter Bryant op cit note 9 at 10.

capital foreign direct investment decisions, many multinational companies (MNCs) conduct a comprehensive investment climate examination, which includes but is not limited to studying the technological and intellectual property protection legal environment of the host state.[108]

Ridwan and Sunil (2022), for example, posit that patent rights protection in a state has a strong positive effect in technology-intensive sectors such as mining on trade and transfer of technologies by an investor into the host state as well as incentivising market expansion and facilitating knowledge transfer to developing countries.[109] Therefore, intellectual property protection plays a critical role in mining as a technology-intensive sector because:

a) It incentivises innovation because it accords the investor a degree of confidence that their innovations will not be leaked to competitors, hence facilitating the ease of commercialising such innovations. By granting exclusive rights to creatives such as "Teck Resources"[110], a country ensures that such creatives reap the rewards of their innovations by protecting their innovations against any forms of infringement, thus encouraging further technological advancements to make mining more efficient and sustainable.

b) It fosters knowledge transfer because, as a technology-intensive sector, mining entities benefit from a robust IP protection regime because it boosts the confidence of foreign investors to share knowledge through licensing agreements, joint ventures & collaboration, leading to increased innovation and productivity.[111] This confidence stems from the assurance that their intellectual property will be adequately protected. This resultantly attracts foreign direct investment (FDI) because, as enunciated by Ridwan and Sunil (2022),[112] countries with a robust intellectual property protection regime have been found to be more attractive to foreign mining investors because of their assurance of intellectual property protection ahead of the knowledge and skills transfer by the investor.

2.7. The economic value of patents along the mining value chain

A study,[113] conducted by the Organisation for Economic Cooperation and Development (OECD), discusses some indicators that can be used to assess the economic value of patents and their resultant contribution to national economic growth. It is such indicators that this section of the dissertation seeks to study and conclude that patent

[108] George T Haley op cit note 19.
[109] Ridwan Ah Sheikh & Sunil Kanwar, 'Does Host Country Intellectual Property Protection Matter for Technology-Intensive Import Flows?' (2022) *Working Paper 329 Centre for Development Economics, Delhi School of Economics* at 1
[110] Teck op cit note 12.
[111] Justin op cit note 60.
[112] Ibid at 2.
[113] Squicciarini, M., H. Dernis and C. Criscuolo (2013), "Measuring Patent Quality: Indicators of Technological and Economic Value", *OECD Science, Technology and Industry Working Papers*, No. 2013/03, OECD Publishing, Paris accessed at https://doi.org/10.1787/5k4522wkw1r8-en accessed on on 25 May 2025.

registration for Ugandan-invented technologies can yield economic gain for the country through their usage and licensing.

In the OECD study, it suggested indicators that can be used to assess the economic patent value, which indicators were tested against the social and private value of the patented inventions that were under study. These indicators include patent citations, claims, patent renewals, and patent family size.[114] The indicators, which were called the "patent value index", were based on four to six factors that underlie the value of patents, namely, "forward citations, the number of claims lodged, the size of the patent family, the generality index of the patent, backward citations, and grant lag."[115] These indicators can be employed by a country to determine whether the patents registered are attracting economic value.

The OECD research further indicates in its study that among patent applications filed with the European Patent Office in the period between 1990 and 2009, patented micro- and nanotechnologies by South Africa and the United Kingdom yielded the highest average economic value.[116] It should be noted that these are the countries under comparative study in chapter four of this dissertation.

According to the above study by the OECD, it can be argued that ownership of patents for mining technologies can yield measurable economic gains. This then would serve as an assurance to the government to invest in innovations and encourage innovators and inventors to register their inventions that can make mining safer and greener in expectation of economic benefits that can be traceable by means of the OECD's "patent value index".

2.8. Conclusion

This chapter sought to establish a general theoretical framework upon which the linkage between intellectual property assurances and foreign direct investment was to be explored. This has been achieved through the study of concepts ranging from how incentives induce foreign direct investment (FDI) to why intellectual property incentives are relevant in the mining sector to the indicators of a successful IP/FDI link in a country. In Chapter Three, the thesis will make a case for Uganda and whether the mining sector has any lessons to learn for foreign direct investment (FDI) attraction.

[114] Ibid.
[115] Ibid.
[116] Ibid.

CHAPTER THREE: THE IMPACT OF UGANDA'S PATENT REGIME ON MINING INVESTMENT

3.1. Introduction

Uganda's vast mineral wealth offers untapped potential for driving economic growth and development. However, realising this potential hinges on attracting major investment in the mining sector for sustainable, efficient, and environmentally conscious mining practices. This chapter explores the crucial role of the country's patent protection regime in facilitating technological innovations and technological investment in the mining sector.

To examine the intricate interplay between patent protection assurances and foreign direct investment (FDI) in Uganda's mining sector, the chapter begins by analysing Uganda's reception of the TRIPS Agreement and then regional influences on the country's patent regime. The chapter then examines the national intellectual property policy and the Industrial Property Act Cap 224, the country's principal patent law on the protection of technological innovations.

Upon that foundation, the chapter highlights the objectives and strategies stipulated in Uganda's National Development Plan III that pertain to investment in the mining sector. In so doing, the chapter examines the existing legal framework that governs investment in Uganda, highlighting the need for policy, administrative, and legal harmonisation across various legal frameworks, especially in a bid to better the investment climate to attract FDI and technological investment in the country's mining sector.

3.2. Uganda and the TRIPS Agreement

The TRIPS Agreement is a fundamental international legal instrument that transformed intellectual property law protection among WTO member states by setting minimum IP protection standards to be domesticated by the members.[117] Uganda, by virtue of being a WTO member since 1995, ahead of the enactment of the TRIPS Agreement, subjected itself to the membership requirements of the WTO, which included ratification of the TRIPS Agreement.[118]

Pre-TRIPS, Uganda's patent system was rudimentary and largely ineffective. The country had a low level of patent filings and grants, reflecting a lack of awareness and understanding of intellectual property rights. Uganda's decision to sign the TRIPS Agreement was driven by its desire to integrate into the global economy and attract foreign direct investment. By aligning its IP laws with international standards, Uganda aimed to create a more attractive investment climate and stimulate innovation.

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[117] Antony op cit note 67.

[118] Herman Tuhairwe & Maureen Kemigabo 'To What Extent Does Uganda's Copyright And Neighbouring Rights Act 2006 Incorporate The TRIPS Agreement's Standards?' (2019) 14 *Journal of Intellectual Property Law & Practice* at 454.

To implement TRIPS, Uganda embarked on a series of legislative reforms. The most significant amendments to the Patent Act in 2002 and 2005 introduced several key changes, including enhanced patent application procedures, international patent filing, and protection for plant varieties. These reforms aimed to strengthen the country's IP infrastructure and promote technological advancement.[119]

The Patent Act was, however, repealed and replaced[120] by the Industrial Property Act, 2014, to promote, facilitate, and regulate innovation as well as align the administration of Uganda's patent regime with the requirements of the TRIPS Agreement.[121] The long title of the Act provides as follows:

> "*An Act to provide for the promotion of inventive and innovative activities, to facilitate the acquisition of technology through the grant and regulation of patents, utility models, industrial designs, and technovations and to provide for the designation of a registrar, to provide for the functions of the registrar, and the establishment of a register of industrial property rights and for related matters."*

While the country's efforts to align the Industrial Property Act Cap. 224 with the TRIPS Agreement are commendable, the impact of the law on the promotion of technological innovations and facilitation of technology acquisition and transfer remains a subject of debate. Ncube (2015) argues that to maximise the benefits of the alignment, a multi-pronged approach is needed, and this includes strengthening domestic intellectual property administration and enforcement capacity, establishing policies and funding structures to support local research and development to promote local innovation, and above all, collaboration with other African countries to leverage combined resources and expertise for technological development.[122]

Collaboration on intellectual property is entrenched in the Protocol on the Establishment of the East African Community Common Market, which provides for the promotion and protection of innovation for economic, social, technological, and cultural development in the EAC regional economic bloc, of which Uganda is a member, as well as enhanced protection of intellectual property rights in the region.[123] This positions Uganda strategically to harmonise its intellectual property laws and policies to encourage and promote technological investment and transfer of technology.

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[119] Arineitwe Janet 'The Effectiveness And Relevance Of Patent Systems In Relation To Intellectual Property Law In Uganda' (2019) at 29.
[120] Ibid at 26.
[121] ULII. (n.d.). *Industrial Property Act, 2014 (Act No. 3 of 2014).* [Uganda]. Retrieved April 26, 2024, from https://ulii.org/akn/ug/act/2014/3.
[122] Caroline B Ncube *Intellectual Property Policy, Law And Administration In Africa: Exploring Continental And Sub-Regional Co-Operation*. (2015) at 98.
123 East African Community (EAC) Protocol on the Establishment of the East African Community Common Market (EAC Treaty) (2009) Retrieved [April 27, 2024], available at https://www.eac.int/documents/category/protocols.

3.3. National Development Plan III on Attracting Investment in Uganda's Mining Sector

The National Development Plan (NDP III) is the third in a series of six NDPs that are to guide Uganda and deliver the aspirations of the people of Uganda, as articulated in Uganda Vision 2040, which aims to transform Ugandan society from a peasant society to a modern and prosperous society.[124]

The NDP III is a vital document in shaping how foreign companies can invest in Uganda's mining sector. It emphasises a strategic economic development approach titled "resource-led industrialisation", which aims to achieve two key goals, namely:

I. To bolster a shift in the mining sector's workforce. Ideally, the plan intends to move people from low-paying artisanal mining jobs (where the extraction of minerals is majorly by hand) to higher-paying industrial jobs. This transition is forecasted to lead to increased incomes and a better quality of life for Ugandans working in the mining sector.[125]
II. To allow Uganda to add value to its mineral resources through innovation by creating new products or industries based on the country's minerals, rather than simply exporting them as raw materials. The plan forecasts leveraging this to strategically create more jobs and lead to economic growth.[126]

According to Alavi & Azmi (2013), innovation is a key driver for successful resource-led industrialisation. Innovation is the implementation of a new or significantly improved product or process, a new marketing method, or a new organisational method in business practices, workplace organisation or external relations.[127] Their study on Malaysia's public research institutions highlights how advancements in primary resource sectors, like rubber, can bolster resource-led industrialisation.

By focusing on open science practices, which involve sharing research findings more openly, these institutions can foster collaboration and accelerate innovation in resource-based industries. This innovation was studied to be the key driver to developing new technologies and products, allowing the country to move beyond simply exporting raw materials and creating a more sustainable and industrial base.[128]

In the global mining sector, there have been registrable instances of innovation, for example, the improved use of bioleaching in mining operations and remote, real-time control of mining

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[124] Uganda National Planning Authority op cit note 50.
[125] Ibid at 83.
[126] Ibid at 12.
[127] Rokiah Alavi & Ida Madieha Abdul Ghani Azmi 'Public Research, Open Science And Innovation: Creating The Path For Sustainable Resource-Led Industrialisation In Malaysia' (2013) 4 *International Journal of Trade, Economics and Finance* at 147.
[128] James Thuo Gathii 'Strength In Intellectual Property Protection And Foreign Direct Investment Flows in Least Developed Countries' (2015) 44 *Georgia Journal of International and Comparative Law* at 533.

operations in the United Kingdom.[129] Additionally, improvements in the generation of data produced during a mining project have exponentially increased the gains from mining. Such improvements, for example, the anticipated use of electromagnetic technology in accurate airborne geographical surveys of minerals in Uganda[130] will improve decision-making on whether to proceed with exploration of a specific mineral or not. This will improve efficiency in mining.

The NDP III encourages investment in innovation by fostering a supportive ecosystem that guides innovative ideas from conception to commercialisation. This includes initiatives like a dedicated Ministry of Science, Technology, and Innovation under the Office of the President, alongside recognising the crucial role of research and development institutions in driving industrial advancements.[131] These institutions are envisioned as innovation hubs, spawning industries such as the mining industry on their research breakthroughs.[132]

For mineral development and value addition, the plan prioritises the following approaches:[133]

- "Conducting airborne geographical surveys across the country to identify mineral targets and streamline the regulatory framework for mineral development.
- Reviewing the mining and minerals policy of Uganda in 2018 and enacting the International Conference on the Great Lakes Region Act, 2017, to facilitate e-governance of mineral resources.
- Focusing on developing known minerals and conducting more exploration to ascertain quantities of other minerals, with a goal to build on existing investments along the way. The value chains and address the challenges limiting the realisation of full potential.
- Increasing exploration and quantification of priority minerals and geothermal resources across the country, as well as adopting appropriate and affordable technology along the value chain."

For innovation to be a successful driver towards resource-led industrialisation as per Uganda's aspirations, it has to be rooted in robust IP protection,[134] especially as Uganda pursues FDI in its mining sector.

Haley (2000) argues that MNCs ask critical questions to gauge the robustness of a country's IP system. These questions range from the existence of laws requiring technology transfer to the country's history of IP enforcement.[135]

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129 Lawrence Murr *Metallurgical Applications Of Bacterial Leaching And Related Microbiological Phenomena.* (2012) Elsevier at 170.
130 The East African 'Uganda Launches Its First Satellite Into Space' 8 November 2022 available at https://www.theeastafrican.co.ke/tea/news/east-africa/uganda-launches-first-satellite-into-space-4012454#google_vignette, accessed on17 April 2024.
131 Uganda National Planning Authority op cit note 50.
132 Ibid at 78.
133 Ibid.
134 George T Haley op cit note 19 at 64.

Additionally, they investigate the capabilities of the host country's research institutions and universities, as well as the number of patents generated domestically and internationally.[136]

Examining the experiences of past foreign investors who brought proprietary technologies into the country is also crucial. Did they face theft? How did the government respond?[137]

These enquiries highlight the importance of a strong IP regime beyond just attracting investment. They foster trust and encourage MNCs to confidently transfer cutting-edge technologies, ultimately propelling the country's technological advancement.

The NDP III acknowledges the multifaceted role of IP in attaining and retaining FDI. It recognises that a robust IP regime goes beyond simply offering legal protections by outlining a multi-pronged approach, aiming to:[138]

- "Strengthen the legal framework for IP protection to provide investors with confidence that their innovations, technology, and creations will be safeguarded against unauthorised use or infringement.
- Enhance enforcement mechanisms and capacity building in intellectual property rights protection to ensure that investors' IP is adequately protected and that legal recourse is available in case of violations.
- Promote awareness and education on the value of IP rights among investors, innovators, and stakeholders to encourage the creation, protection, and utilisation of IP assets in industrial activities.
- Collaborate with relevant stakeholders, including government agencies, industry associations, and legal institutions, to establish a conducive environment of IP protection and enforcement, thereby signalling to investors the commitment to safeguarding their intellectual property interests."

While tax holidays, favourable employment laws, and political stability are all crucial for attracting FDI, a strong IP regime often goes unnoticed yet is as vital. Studies like the one of Haley (2000),[139] show that multinational companies (MNCs) meticulously assess a potential host country's legal and technological environment before investing. This "potential investment host country scan" includes a deep dive into the country's IP protection mechanisms.

Summarily, the National Development Plan III (NDP III) takes a holistic approach that leverages foreign direct investment to achieve Uganda's resource-led industrialisation goals. The comprehensive role of a supportive investment ecosystem in this pursuit is further examined below.

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[135] Ibid at 68.
[136] Ibid.
[137] Ibid.
[138] Uganda National Planning Authority op cit note 50 at 182.
[139] George T Haley op cit note 19 at 98.

3.4. National Intellectual Property Policy on Protection of Technological Innovations

The National IP Policy 2019 strategically outlines the Ugandan government's approach to creating a conducive environment for the generation, protection, commercialisation and enforcement of IP rights across various sectors of the economy and, in so doing shape IP legislation in Uganda.[140]

The policy was developed in partnership with the World Intellectual Property Organisation (WIPO) to align the country's Vision 2040 and NDP III with the evolving needs and challenges in the field of intellectual property.[141] The policy development process was informed by the United Nations Sustainable Development Goals (SDGs) up to the year 2030, highlighting the critical role of intellectual property in achieving SDGs.[142]

The policy addresses foreign direct investment (FDI) and technology transfer by emphasising that local intellectual property rights protection can enhance the confidence of technology suppliers, which incentivises them to bring and exploit their innovations in Uganda through means such as joint ventures and licensing.[143]

The policy also identifies inadequate utilisation of the intellectual property system as a key issue that needs to be addressed by legislation that complements the IP system. By improving the utilisation of the IP system, including through effective protection of IP rights, the policy aims to facilitate technology transfer and encourage innovation and creativity across production sectors like mining.[144]

3.5. The Industrial Property Act Cap 224 on patent protection of technological innovations

In 2022, Uganda received a total of sixteen (16) patent applications from both resident and foreign applicants, which was a decline from the twenty (20) applications received in 2021.[145] These patent rates indicate a sharp variance from those of South Africa, which recorded 2,619 patent applications from both resident and foreign applicants in 2022, and[146] or even its neighbour Kenya, which recorded 396 patent applications from both resident and foreign

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[140] Uganda Ministry of Justice and Constitutional Affairs 'The National IP Policy 2019' (2019) available at https://ursb.go.ug/storage/publications/downloads/national-ip-policy-2019-uganda-1644498620.pdf , accessed on 17 April 2024.
[141] Ibid at 9.
[142] Ibid at 8.
[143] Ibid at 20
[144] Michael Blakeney & Getachew Mengistie 'Intellectual property policy formulation in LDCs in Sub-Saharan Africa' (2011) 19 *African Journal of International and Comparative Law* at 8.
[145] World Intellectual Property Organisation (WIPO) 'Intellectual Property Statistical Country Profile 2023: Uganda' available at https://www.wipo.int/edocs/statistics-country-profile/en/ug.pdf. accessed on 17 April 2024.
[146] World Intellectual Property Organisation (WIPO) Intellectual Property Statistical Country Profile: South Africa 2022' available at https://www.wipo.int/edocs/statistics-country-profile/en/za.pdf, accessed on 17 April 2024.

applicants in 2022. The low patent rates in Uganda have, among others, been attributed to limited intellectual property awareness.[147]

Uganda's principal patent legislation is the Industrial Property Act[148] which establishes a legal landscape upon which innovations and inventions can be promoted and protected. The Act domesticates the minimum standards of patent protection as spelt out in the TRIPS Agreement as well as incorporates Uganda's undertakings under Article 44 of the EAC Common Market Protocol.

The Act defines a patent to mean the certificate of title granted to protect an invention under the Act.[149] The law further provides that an invention includes "new and useful art, whether producing a physical effect or not, process, machine, manufacture, or composition of matter which is not obvious, or a new and useful improvement of it which is not obvious, capable of being used or applied in trade or industry; and includes alleged invention".[150]

In line with the TRIPS Agreement, the law equally establishes the scope of patentability wherein it provides that to qualify for protection, the invention ought to be a solution to a specific problem in the field of technology and may relate to a product or process.[151]

Local jurisprudence has not created a definition for the term "invention"; however, local courts borrow the definition of the word from decisions of English courts, considering that Uganda enforces common law doctrines, as English decisions are persuasive on the courts[152].

For example, in the case of *Advocates for People & Anor vs. National Drug Authority & Jena Herbals (U) Ltd., M.A. No. 209 of 2021*, the Ugandan court makes reference to an English court decision in which Morritt LJ, in his explanation of the difference between the concepts of 'discovery' and 'invention' in *Chiron Corporation v. Organon Teknika Ltd.[153] relied on the words of* Nicholls LJ in *Re Gale's Application,* who stated that when considering the two concepts, it is helpful to have in mind the principles of patent law that an idea or discovery as such is not patentable.

It is the practical application of an idea or discovery that leads to patentability.[154] It leads to patentability even if, as frequently happens, the practical application of the discovery is inherent in the discovery itself or is obvious once the discovery has been made and stated. Morritt LJ, in his explanation, further stated that regarding an invention, what matters is the presence of 'technical character'; that is to say, there must be a physical entity or concrete product, man-made for a utilitarian purpose.[155] Thus, the use of pen and paper to write would

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[147] Lyada Emmanuel & EhigiatorIyoborEgho-Promise 'Utilisation Of Intellectual Property Systems As A Tool To Promote Innovation In Uganda's Public Academic Institutions: A Case Study Of Makerere And Kyambogo Universities' (2024) 6 (4) *International Journal of Innovation Scientific Research and Review* at 18.
[148] Industrial Property Act Cap. 224
[149] Ibid at Section 1.
[150] Ibid.
[151] Ibid at Section 8.
[152] *Eastern and Southern African Trade & Anor V Hassan Basajjabalaba & Anor*- HCT-00-CC-CS-0512-2006 [2007] UGCommC 30 (13 April 2007)
[153] *Chiron Corporation v. Organon Teknika Ltd (No 12)* [1996] FSR 153.
[154] Supra note 148 at Section 8.
[155] Supra note 153.

qualify as 'an invention', but that does not mean that such a device would meet the requirements of novelty and inventive step.[156]

Further in line with the TRIPS Agreement, the Industrial Property Cap. 224 provides for the requirements to be met before an invention can be patentable.[157] These requirements include that the invention must be new or "novel", it must involve an inventive step, and it must be industrially applicable.

Novelty: This means that the invention was not anticipated by prior art or where a person who is highly skilled in the relevant area could not derive the invention from a combination of prior disclosed art[158]. In this case, prior art consists of all matter made available to the public before the date of filing the application for a patent or the priority date of the invention, whether by written or oral description or in any other way, and further still, the act or series of acts that make the invention available to the public does not have to be on a particularly wide scale. Using an invention in public in one locality only will suffice to anticipate a patent[159].

Inventive step: Inventiveness is a question of fact that must be decided objectively and without hindsight. In the case of *Biogen Inc. v. Medeva Plc*[160], Lord Hoffmann stated that "Sometimes, it is the idea of using established techniques to do something that no one had previously thought of doing. In that case, the inventive step will be doing the new thing. Sometimes, it is finding a way of doing something that people had wanted to do but could not think how. The inventive idea would be the way of achieving the goal. In some cases, one may have a general idea of how they might achieve a goal but not know how to solve a particular problem that stands in their way. If someone devises a way of solving the problem, his inventive step will be that solution but not the goal itself or the general method of achieving it." The patent applicant would therefore be granted a patent for only that invention that is either the means to a known goal or the ultimate goal itself.[161]

In another case, *Windsurfing International Inc. v. Tabur Marine (Great Britain) Ltd.*, Oliver LJ held that an invention must not be obvious and postulated a test for obviousness, which is that the granting officer must:[162]

- "Identify the inventive concept embodied in the patent.
- Assume the mantle of the normally skilled but unimaginative addressee in the art at the priority date, imputing to him what was, at that date, common general knowledge in the art in question.
- Identify what, if any, differences exist between the matter cited as being 'known and used' and the alleged invention.
- Ask whether those differences constitute steps that would have been obvious to the skilled man or whether they require any degree of invention."

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[156] Ibid.
[157] Supra note 148 at Part lll.
[158] Supra note 148 at Section 9(1).
[159] Supra note 148 at Section 9(2). I
[160] Id. note 153.
[161] Ibid. at 34
[162] *Windsurfing International Inc. v. Tabur Marine (Great Britain) Ltd* [1985] RPC 59 at 73.

Industrial Application: An invention is considered industrially applicable if, according to its nature, it can be made or used in any kind of industry, including agriculture, medicine, fishery, and other services, as per Section 12 of the Industrial Properties Act.[163] English case law has also held that the concept of 'industry' must be construed broadly; for example, in Eli Lilly & Co. v. Human Genome Sciences Inc. (unreported), Kichen J. stated that "industry includes all manufacturing, extracting, and processing activities of enterprises that are carried out continuously, independently, and for commercial gain. However, it need not necessarily be conducted for profit, and a product that is shown to be useful to cure a rare or orphan disease may be considered capable of industrial application even if it is not intended for use in any trade at all. Conversely, the requirement will not be satisfied if what is described is merely an interesting research result that might yield a yet-to-be-identified industrial application."

The procedure of obtaining a patent in Uganda is as follows:[164]

"Step One: The applicant must conduct a preliminary search at the IP registry at the Uganda Registration Services Bureau (URSB) to confirm that there is no prior art or a similar invention to what the applicant intends to patent.

Step Two: The applicant must fill out a patent application form and pay prescribed fees to the Uganda Registration Services Bureau (URSB), where the national patent office is situated. The patent application form includes a title, abstract, description, patent claims, and drawings or diagrams to visualise the invention, including its purpose, operation, and method.

Step Three: The patent application is then examined by the patent office and further forwarded to the African Regional Intellectual Property Organisation (ARIPO) for further examination. During this stage, the examiner examines the application to ensure that the claim achieves all the requirements of patentability and outlines the boundaries of the patent, detailing what it does and does not cover.

Step Four: Once both the patent offices at URSB and ARIPO find that the application has patentable subject matter, the applicant is advised to pay the prescribed fees for a certificate of grant, and a copy of the granted patent is issued by either intellectual property office at URSB or ARIPO or an international office, depending on the mode of application by the patent applicant.

Step Five: The applicant must then publish the granted patent in the national gazette, the Uganda Gazette."

Once a patent certificate is granted to the applicant, they acquire rights provided for under the Industrial Property Act Cap 224,[165] similar to the scope of rights under the TRIPS Agreement.[166]

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[163] Id. op cit note 148 at Section 12.
[164] Abinyo Susan 'Enforcing Intellectual Property Rights in Uganda' available at https://www.wipo.int/edocs/mdocs/sme/en/wipo_smes_kla_14/wipo_smes_kla_14_t2.pdf accessed on 20 April 2024.
[165] Id. op cit note 148 at Section 37.

"37. Rights of the owner

(1) The applicant or the owner of an invention has the right—

(a) on fulfilling the relevant requirements under this Act, to be granted the patent;

(b) to make, use, exercise, and sell the invention exclusively, and may preclude any person from exploiting the patented invention without his or her authorisation by any of the following acts—

(i) where the patent has been granted in respect of a product, making, importing, offering for sale, selling, and using the product, or stocking the product for the purposes of offering for sale, selling, or using the product;

(ii) where the patent has been granted in respect of a process or doing any of the acts referred to in paragraph (a) in respect of a product obtained by means of that process.

(2) After the grant of the patent, and within the terms of this section, the owner of the patent has the right to preclude any person from exploiting the patented invention in the manner referred to in subsection (1).

(3) The owner of a patent may assign or transfer by succession the application for patent or the patent.

(4) The applicant or the owner of a patent may conclude license contracts as provided for in Part X of this Act and be subject to the obligations referred to in section 39."

A notable example of a patented invention in Uganda is the 'Janzi', a stringed musical instrument invented by Ugandan instrumentalist Ssewakiryanga James, also known as Sewa Sewa. Invented in 2015 and subsequently patented in 2019, the Janzi comprises two elongated wooden necks separated by a narrow space, each equipped with eleven strings attached to a sound box.[167] The instrument's unique design and construction necessitated adherence to the registration procedures outlined in Section 9(2) of the Industrial Property Act, Cap. 224.

The above understanding of the existence of a national patent regime and its alignment with the TRIPS Agreement as well as regional intellectual property legal instruments through patent registration procedures and the scope of patent protection is relevant to Uganda's production sectors, such as the mining sector, because such a sector thrives off technologies that actualise mineral processing and refining. This actualisation requires innovative technologies in the upstream and downstream sectors. It is these innovative technologies that have to be tested to be new, have an inventive step, and have industrial application so as to be patentable. Once the inventor of such technologies believes them to meet the patentability criteria, they can proceed and apply for a patent.

3.6. Legal Framework Governing Investment in Uganda's Mining Sector

In addition to its national patent regime, Uganda has enacted various legislative frameworks to stimulate investment in key industrial sectors, including mining. A detailed examination of these laws follows:

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[166] Agreement on Trade-Related Aspects of Intellectual Property Rights, Apr. 15, 1994, *Marrakesh Agreement Establishing the World Trade Organization*, Annex 1C, 1869 U.N.T.S. 299, 33 I.L.M. 1197 (1994) [*hereinafter TRIPS Agreement*] at Article 20

[167] Chimp Reports 'Uganda's Instrumentalist Ssewankiryanga Patents 'Janzi' Musical Instrument' available at https://chimpreports.com/ugandas-instrumentalist-ssewankiryanga-patents-janzi-musical-instrument/ accessed on 17 April 2024.

1. Uganda Investment Code Act, 1991.

The Uganda Investment Code 1991 is the legal foundation for the Uganda Investment Authority (UIA), a government parastatal that oversees the promotion and facilitation of FDI into Uganda. It outlines the functions and powers of the UIA, including the promotion of investment opportunities, provision of investment incentives, facilitation of investment projects, and aftercare services for investors.[168]

However, the code was criticised since its inception in 1991 for the bureaucratic processes involved in obtaining investment approvals and permits. The procedures are time-consuming and cumbersome and hinder the ease of doing business. The lengthy approval processes deter potential investors, especially those seeking quick and efficient procedures. This has, in the long run, led to missed investment opportunities and slower economic growth.[169]

The law has also been criticised for ambiguity in certain regulations under it. Unclear guidelines or inconsistent enforcement of rules create confusion among investors and hinder compliance. This creates uncertainty regarding regulatory compliance, which can lead to legal disputes, delays in project implementation, and reluctance from investors to commit resources to projects in Uganda.[170]

The Code did not emphasise the need for environmental and social considerations in investment approvals, for example, environmental impact assessments and sustainable development practices, which are crucial aspects for sustainable mining. Failure to address environmental and social concerns adequately has led to conflicts with local communities, regulatory non-compliance, reputational risks for investors, and long-term environmental degradation.

2. Investment Code Act Cap. 74

The Investment Code Act Cap. 74 provides the legal framework for investment incentives, guarantees, and protections in Uganda. The Act was amended in 2019 to streamline investment procedures, including minimum capital requirements for both foreign and local investors; provide for the scope of investor rights and obligations, such as provisions on licensing, employment matters, land acquisition, and dispute resolution; promote strategic investments in the country's development plan; and, above all, provide for clear guidelines for obtaining investor incentives, such as tax exemptions, investment allowances, and repatriation of profits.[171]

This particular law has also been subject to criticism, especially for importing the complexities and bureaucracy of the Uganda Investment Authority Act, 1991. Acquisition of licenses and permits has been identified to be a lengthy process that disincentivises

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[168] The Uganda Investment Code Act, 1991 (Cap 92) [Repealed]. Uganda Investment Authority website https://www.ugandainvest.go.ug/wp-content/uploads/2016/02/Investment-Code.pdf accessed on April 17, 2024.
[169] Emmanuel Bazibu 'The Impact Of The Legal Investment Regime In Uganda In Attracting And Facilitating Foreign Direct Investment (FDI)' (2010) at 19.
[170] Ibid at 20.
[171] Investment Code Act, 2019 (Act 6 of 2019). Uganda Law Information Institute (ULII) website. https://ulii.org/akn/ug/act/2019/6/eng@2019-03-29/source.pdf accessed on April 17, 2024.

investment.[172] For a sector like mining where operations are time-sensitive, such lengthy processes lessen the investment appetite.

The Investment Code Act has also been criticised for lacking clarity and predictability in certain areas, such as investment incentives, taxation, land acquisition procedures, and regulatory requirements specific to the mining industry. Additionally, the law does not clearly spell out investor dispute resolution mechanisms such as arbitration and mediation.[173] This disincentivises investment because issues such as access to justice, transparency, and enforcement of judicial decisions, particularly in sectors like mining, are major determinants of investment decisions.

The approach taken by the provisions of this law seems to limit capacity-building opportunities for small-scale investors like artisanal miners, who constitute a major percentage of players in Uganda.[174] Equipping these miners would go a long way in skilling them and preparing them for technological advancement in the mining sector, which resultantly facilitates technology transfer and the transition from artisanal to large-scale mining.

3. Uganda Free Zones Act Cap. 70

The Uganda Free Zones Act Cap. 70 offers a framework that establishes, develops, maintains, controls, and markets designated areas as free zones with special investment benefits in Uganda.[175]

In a free zone, goods introduced are generally regarded as being outside the customs territory concerning import duties, and this grants them a level of tax exemption. The law also establishes the Uganda Free Zones Authority with the responsibility to oversee the free zones.[176]

It defines free zones as designated geographic areas where raw materials and goods may be landed, handled, manufactured, or reconfigured for export without being subject to import duties.[177] The objective of the zones is to provide a conducive environment for export-orientated industries, manufacturing, logistics, and other businesses by offering them tax exemptions, streamlined regulations, and infrastructure support. The law also provides for who can create a free zone, where it provides that a free zone may be established by one or more domestic or foreign developers and that where several developers establish a free zone, they are obligated to sign an agreement for establishing the free zone, which shall be filed with and be subject to the approval of the Authority.[178]

The law, however, has been criticised for creating geographical limitations that may not suit the mining sector, considering that many operations happen in remote regions in the country

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[172] Muhindo Kithula Harriet *A Legal Analysis of Tax Incentives in Encouraging Foreign Direct Investments In The Oil And Gas Sector of Uganda* (Published LLM Thesis at the Institute of Petroleum Studies-Kampala, 2023) at 21.
[173] Ibid at 18.
[174] Ibid.
[175] Uganda Free Zones Act Cap. 70 Uganda Law Information Institute (ULII) website. https://ulii.org/akn/ug/act/2014/5/eng@2014-04-25 accessed April 17, 2024.
[176] Ibid at Section 5.
[177] Ibid.
[178] Ibid.

which may fall outside the ambit of the free zones.[179] This itself could create tax injustice whereby investors in areas outside the free zones may feel unfairly taxed in comparison to those within the free zones.

The regulatory framework under the law has also been mentioned to be complex, and this creates a compliance burden for businesses operating within free zones. This includes requirements related to licensing, permits, reporting, and regulatory oversight.[180] Excessive regulatory burdens have been noted to hinder the ease of doing business within free zones, reduce operational flexibility, and increase administrative costs for investors.

The zones have also been noted to generally lack the infrastructure that meets the needs of high-net-worth investors. Inadequate infrastructure, such as a poor road network, logistics systems, and inadequate telecommunications infrastructure, has been found to disincentivise investment in these zones.[181]

The law has also been criticised for facing challenges related to coordination and integration with other economic development initiatives, industrial zones, trade policies, and investment promotion strategies. This lack of coordination has been found to lead to fragmented efforts, overlapping regulations, and inefficiencies in leveraging synergies between free zones and broader economic development objectives.[182]

4. **Mining and Minerals Act Cap. 159**

The Constitution of the Republic of Uganda, under its eighth national objective and directive principles of state policy, provides that the state undertakes to protect national resources, including minerals and oil, on behalf of the people of Uganda. Article 244 of the same constitution equally provides that the state is in charge of all minerals and assigns Parliament the responsibility to make laws for the proper management of the country's mineral resources.[183]

In 2022, Uganda passed the Mining and Minerals Act[184] which, among its many provisions, establishes a foundation onto which IP awareness could flourish. The law establishes a Uganda National Mining Company to manage the state's commercial interests, especially in strategic minerals. The law also provides for mineral agreements, including production sharing agreements, and regulates value addition and beneficiation of minerals, including processing, smelting and refining. The law introduces exploration of geothermal resources for direct use and provides for traceability of designated minerals and designates the Directorate of Geological Survey and Mines as the competent authority for that purpose.[185]

The enactment of this law illustrates that both the Uganda National Mining Company and the Directorate of Geological Survey and Mines have the capacity to interact with big data and numerous innovations that may require an IP optimisation strategy. The law introduces

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[179] Patrick Tusiime, *Organisational Factors and the Success of Free Zones In Uganda* (Unpublished MBA Dissertation, Uganda Management Institute, 2018) at 57.
[180] Ibid at 61.
[181] Ibid at 200.
[182] Ibid.
[183] Constitution of the Republic of Uganda, 1995.
[184] Uganda Mining and Minerals Act 2022, Cap. 159.
[185] Ibid at Part V.

aspects of mining that require ample collaboration in the areas of research, technology transfer, and hardware innovations.[186] All these would necessitate patent protections among other IPs. In some instances, the two institutions would require IP licensing from MNCs that already own IP of some of the relevant technology.

Mining projects in Uganda are also expected to be compliant with the country's revenue laws, environmental laws, land use laws, and the National Development Plan III.[187]

The Act under Section 127(8) creates a limitation to innovation and invention, and this is criticised in this dissertation. Section 127(8) provides that:

> ***"(8) A person who modifies technology with an intention of accruing benefits to him or her or intentionally stockpiles other accessory minerals without notifying the Minister in writing commits an offence and is liable, on conviction, to a fine not exceeding one hundred thousand currency points or imprisonment not exceeding ten years, or both."***

This provision defeats the purpose of Section 198 in the same Act which provides for technology transfer because the nature of innovation and invention in most cases takes the form of deviating from known ways of doing things and taking radical ideas to create a new product or process (disruptive innovation).[188] For this kind of innovation, even the innovator may not have the assurance of the success of functionality or the scope of functionality of the innovation until it reaches the testing stage.

Therefore, the legal requirement under Section 127(8) that requires a potential innovator to notify the Minister of Energy and Mineral Development indirectly discourages innovation because there's no incentive to communicate that one wishes to modify technology before such a person tests their potential modification.

This dissertation therefore argues that notification of technology modifications would be more beneficial after testing its success by the inventor. This way, the minister can support such inventors with acquiring patents for their modifications.

5. Land Laws and Regulations

Uganda's legal framework governing mining interacts with land management and ownership through the Constitution of Uganda, which provides for the protection of property rights, including land, and the Land Act, Cap 236, which is the principal law governing land transactions, is significant in investment matters as it provides for land tenure, ownership, and land management in Uganda.

One of the challenges in Uganda's land laws is the coexistence of multiple land tenure systems, including customary tenure, which leads to complexities and disputes, especially

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[186] Ibid at Section 280.
[187] Yager, Thomas R., and Harold R. Newman. "The Mineral Industry of Uganda." In 2012 Minerals Yearbook: Area Reports: International Review 2012 Africa and the Middle East 3 (2015): 40.
[188] Lyytinen, Kalle, and Gregory M. Rose 'The Disruptive Nature Of Information Technology Innovations: The Case Of Internet Computing In Systems Development Organisations' (2003) *MIS quarterly* 557-596.

where the mining operations are set to happen under unclear land ownership terrains.[189] Land acquisition for mining often involves compensation and resettlement of the landowners; however, under customary land ownership, investors are susceptible to land wrangles and conflicts.

The Land Act has been particularly criticised for its lack of provisions on ensuring meaningful participation of project-affected persons (PAPs) in mining operations, which in many instances breeds resentment for the projects and resistance to resettlement action plans (RAP) even after legal acquisition of the project land for activities such as mining.[190] Such uncertainties in the tenure and lack of buy-in can erode investor confidence in participating in the country's mining sector.

6. Labour Laws and Regulations.

Uganda's legal framework recognises workers' rights through the country's Constitution under Article 40, which guarantees the right to work and protection against unfair dismissal, and the Employment Act Cap. 226, which is the primary legislation governing employment relationships in Uganda. It covers various aspects such as employment contracts, working hours, wages, leave entitlements, occupational safety, and social security.
However, significant challenges hinder the effective enforcement and compliance with labour standards, especially in sectors like mining where informal and casual labour practices may exist. Despite legal provisions prohibiting child labour and forced labour, implementation and monitoring are still inadequate.[191] This has led to instances of exploitation, particularly in informal mining operations.

Furthermore, despite the existence of laws regulating occupational safety and health, there are gaps in enforcement and implementation, resulting in potential risks to workers' health and safety in mining activities. Challenges also persist in ensuring fair wages and good working conditions for mining workers, including contract workers and subcontractors, especially in informal and small-scale mining operations.[192]

Challenges with the Employment Act Cap. 226 have also been noted in the lack of clarity and enforcement of contractual agreements, especially in cases of subcontracting and outsourcing of labour in the mining sector, which, if not addressed, can result in labour rights violations and disputes.[193]

7. Dispute Resolution Mechanisms

Uganda's legal framework provides a variety of judicial and non-judicial options for settlement of investor–state disputes in the mining sector. These options include litigation as

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[189] Margaret A Rugadya 'Land Tenure As A Cause Of Tensions And Driver Of Conflict Among Mining Communities In Karamoja, Uganda: Is Secure Property Rights A Solution?' (2020) 94 *Land Use Policy* at 42
[190] Ibid.
[191] Stella Muheki & Sara Geenen 'Women In (And Out Of) Artisanal Mining: Opposing Policy And Women's Lived Experiences In Lujinji B And Wakayiba Mines, Mubende, Uganda' (2018) *Discussion paper/University of Antwerp. Institute of Development Policy and Management* at 15.
[192] Ibid at 19
[193] Ibid at 15.

a judicial option as well as alternative dispute resolution (ADR) mechanisms like arbitration, mediation, conciliation, and negotiation.

The court system, with its bottom-up hierarchy including lower courts (magistrate courts), the High Court, the Court of Appeal, and the Supreme Court, has jurisdiction over civil and commercial disputes, including those related to mining investments. Parties can also opt for arbitration or conciliation, which are provided for under the Arbitration and Conciliation Act to regulate dispute resolution outside the court litigious system. Additionally, specialised tribunals, such as the Land Tribunal and the Tax Appeals Tribunal, can handle specific disputes related to land rights, taxation, or other regulatory issues affecting mining investments.

The country's dispute resolution framework has, however, been criticised for judicial delays and case backlogs, which affect the timely resolution of disputes and may deter investor confidence. Limited accessibility and affordability of the judicial system are also noted as challenges for some industry players, particularly smaller investors or local communities affected by mining activities, creating an unequal playing field in the search for justice. Enforcement of decisions and awards, especially in arbitration cases, has also been noted as a major challenge that compromises the dispute resolution process and which potentially could disincentivise investment in a high capital-intensive sector like mining.[194]

8. The Tax Regime/Administration

Uganda's tax regime also plays a crucial role in how the mining sector is governed. Taxes in Uganda are centrally assessed and collected by the Uganda Revenue Authority (URA), and any person who is in business is expected to register with the URA for tax purposes. Whereas no Value Added Tax (VAT) is charged on the purchase of shares in a company holding a mining right, the tax system charges various levies upon entry into the mining sector, such as an 18% VAT levied on all domestic sales of mined products.[195]

Considering the capital intensity of the mining sector, the tax regime includes some incentives to incentivise investment in the sector, such as reclaimable VAT on imported plant, equipment, and supplies during the mine development phase and a VAT deferment mechanism on plant and machinery, which allows for postponement of VAT payment by the investor.[196]

Despite the incentives, the tax policies and regulations in Uganda have been found to be uncertain and inconsistent. Frequent amendments, new tax laws, and discretionary tax assessments by the Uganda Revenue Authority have been criticised for making long-term investment planning and decisions hard for investors in the mining sector.[197] This has been

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[194] Gukiina Patrick Musoke 'Case Backlog in Uganda, it's Impact on Justice and the Possible Solutions Thereto' available at *https://www.researchgate.net/publication/371376409_CASE_BACKLOG_IN_UGANDA_IT'S_IMPACT_ON_JUSTICE_AND_THE_POSSIBLE_SOLUTIONS_THERETO#read* accessed on 20 May 2025 at 11.

[195] Miguel Almunia, François Gerard, Jonas Hjort, Justine Knebelmann, Dorothy Nakyambadde, Claude Raisaro & Lin Tian, 'An Analysis Of Discrepancies In Tax Declarations Submitted Under Value-Added Tax In Uganda' (2017) *International Growth Centre Project Report* at 11.

[196] Anne Mette Kjær 'FDI in Extractives in Uganda: linkages and issues for the local economy' (2014) *Danish Institute for International Studies* at 18.

[197] Ibid.

found to lead to risk aversion among investors, reduce investor confidence, and limit the willingness to undertake new projects or expand existing operations.

Furthermore, there are growing concerns about double taxation, especially for multinational companies operating in Uganda and their home countries. Uganda's tax treaties with other jurisdictions and the effectiveness of mechanisms to avoid double taxation are still lacking.[198] Double taxation can distort investment decisions, increase compliance costs, and create inefficiencies in cross-border transactions.[199] Strengthening tax treaties, implementing mechanisms to avoid double taxation, and promoting international tax cooperation can benefit investors and improve the investment climate.

3.7. Conclusion.

In conclusion, this chapter has examined the critical role that a robust intellectual property framework in Uganda can play in attracting foreign direct investment (FDI) and fostering technological investment in the country's mining sector. By analysing the adherence to the country's Industrial Property Act Cap 224 to regional instruments such as the EAC Common Markets Protocol and international agreements such as the TRIPS Agreement, the chapter made a case for the country's readiness to package patent protection assurances as an investment incentive in its bid to attract FDI from MNCs that worry about protection of their technologies and the country's technology transfer mechanisms. The chapter also critiqued the existing investment legal framework, highlighting areas of improvement.

While the chapter demonstrates that Uganda has made significant strides in IP and investment law reform, there remains a gap in the practical implementation and enforcement of these laws. To further enhance its investment climate, Uganda could learn from South Africa's experience in leveraging IP to attract FDI and promote technology transfer.

It is upon this foundation that Chapter Four will present a comparative analysis of South Africa's investment legal framework with that of Uganda, especially in dealing with aspects of technology transfer and protection of investors' intellectual property, in a bid to draw lessons for Uganda's own framework as an avenue to make Uganda's investment climate in the mining sector more attractive.

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[198] Ibid at 12.

[199] Zako Dorcas *The Impact of Tax Incentives on Foreign Direct Investment in the Oil and Gas Sector of Uganda* (Published LLM Dissertation, Institute of Petroleum Studies-Kampala, 2023) at 35.

CHAPTER FOUR: SOUTH AFRICA'S PATENT STRATEGY AND FDI: LESSONS FOR UGANDA

4.1. Introduction

This chapter delves into the critical role of technology transfer and intellectual property rights in shaping South Africa's mining sector. The chapter examines South Africa's patent regime and its potential impact on foreign direct investment (FDI) attraction. In so doing, it uncovers valuable insights that Uganda can apply to enhance investment in its mining sector.

The choice of South Africa as a compelling reference point for the study is because, as compared to Uganda, as assessed by the Ginarte Park Index, its patent regime is highly ranked in TRIPS compliance and IP commercialisation.[200] Also notably, South Africa's patent history is intertwined with its mining and extractive sector, with prominent companies such as De Beers and SASOL registering the earliest patents.[201]The chapter studies whether and how the patent regime boosts investor confidence to transfer investment and technologies to South Africa.

The chapter also examines case studies that focus on the enforcement of intellectual property rights in the South African mining sector. The objective of these case studies is to uncover practical insights into how South Africa's intellectual property legal frameworks translate into real-world applications in patent protection. Through the case studies, the chapter also makes a case for the undeniable importance of capacity-building initiatives for a country's technology transfer readiness in order to drive innovation and attract foreign direct investment.

Drawing parallels between South Africa's success and Uganda's potential, the chapter explores lessons that Uganda can learn from South Africa's patent regime optimisation to bolster its own attractiveness to foreign investment in the mining sector.

4.2. The South African Mining Sector

South Africa's mining sector has shaped the country's economic, social, and political landscape since the 17th century with the discovery of copper deposits by the Dutch settlers in the country's terrain dominated by Precambrian rocks.[202] In 1867, diamonds were discovered in South Africa near Kimberley, and it's this discovery that sparked the global diamond rush, which introduced South Africa as a major player on the international mining scene and attracted major players like De Beers, which built its affluence around diamond mining.[203]

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[200] Ming Liu & Sumner La Croix, 'A cross-country index of intellectual property rights in pharmaceutical inventions' (2015) 44 *Research Policy at 11.*
[201] William James Morton, 'South African Diamond Fields: And the Journey to the Mines Society (1877)'.
[202] Charles Hilliard Feinstein, *An Economic History of South Africa: Conquest, Discrimination, and Development* (2005) Cambridge University Press at 65.
[203] William James Morton op cit note 201 at 12.

In the 19th century, gold was discovered in the Witwatersrand basin, and this made South Africa an even bigger player on the international mining scene.[204] Domestically, the gold discovery played a pivotal role in shaping today's South Africa by firstly causing the creation of Johannesburg, which is the country's largest city, and establishing the migrant labour system employed in the mines, which to date offers jobs to millions of people living in South Africa.[205]

Coal mining started in the 20th century, and the resource has, over time, stood out as a crucial energy source for South Africa.[206] During the same time, South Africa's mining sector continued to grow and diversify with the emergence of more players like the Anglo-American Corporation (AAC) alongside De Beers. Platinum Group Metals (PGMs) like platinum and palladium also gained prominence.[207]

The South African mining sector has demonstrably undergone technological transformations from its early days. For example, gold and diamond mining started at the artisanal level, with the miners using rudimentary tools in the 18th and 19th centuries, leading to the development of deep-level mining technologies to access the deposits in the deeper mineral sites and to automation of mining in recent decades by the use of digital technologies to improve mining efficiency and miners' safety.[208]

Foreign Direct Investment (FDI) has played a fundamental role in the expansion and growth of the South African mining sector over the centuries. During the period of gold discovery in Witwatersrand in the 19th century and the subsequent gold rush, many multinational companies availed capital and resources to exploit the newly discovered resource.[209] The country's attractiveness to such foreign capital in the mining sector has even improved in recent years.

Several factors account for the expansion, growth, and attractiveness of FDI in South Africa's mining sector, and these include the presence of a diverse range of minerals like gold, diamonds, coal, and the platinum group metals, among many others; a skilled workforce that has been built over the years across the mining value chain; and the presence of a well-defined legal and regulatory framework governing investment in the country's mining sector. These factors assure a degree of certainty and stability to investors.[210] These factors are further examined in this chapter through a comparative lens with Uganda.

Notwithstanding the above, the South African mining sector has faced significant challenges in adopting intellectual property (IP) rights, particularly patents. Innovations within the sector have often been met with scepticism, especially when accompanied by claims of patent

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[204] Elaine N Katz 'Revisiting The Origins of the Industrial Colour Bar in the Witwatersrand Gold Mining Industry, 1891-1899' (1999) 25 *Journal of Southern African Studies* at 74.
[205] Ibid.
[206] Lesley Jeffrey, George Henry & Jeannette McGill 'Introduction to South African coal mining and exploration' in Stoffel Fourie & Michael van Schoor (eds) *A Guide for Applying Geophysics to Coal Mining Problems in South Africa* (2015) at 4.
[207] Ibid at 17.
[208] Ibid at 79.
[209] David E. Kaplan 'The Internationalisation Of South African Capital: South African Direct Foreign Investment In The Contemporary Period' (1983) 82 (329) *African Affairs* at 467.
[210] Ibid at 480.

ownership.[211] This scepticism is rooted in past experiences with new systems that may not have delivered the promised benefits or were merely adaptations of pre-existing technologies.[212]

Despite this scepticism, there is a growing recognition within the South African mining sector that original thought and new technologies should be encouraged, as they can ultimately benefit the industry.[213] This recognition fosters an environment that advocates for an open attitude towards innovation, potentially leading to cost-saving measures and improved techniques.

These factors make South Africa a valuable reference point and a suitable case study for examining the complexities of optimising a patent regime within a country's mining sector, particularly in navigating the challenges and opportunities associated with innovation and IP protection.

4.3. Non-Fiscal FDI Incentives in South Africa's Mining Sector

Whereas South Africa boasts vast mineral resources, the country has had to invest a lot of effort in shaping its attractiveness for FDI in order to become the most mineral-explored African country and, for the purposes of this chapter, more explored than Uganda. As explained in Chapter Two, the most common form of incentives offered by African countries to investors are in the form of tax incentives, which usually include tax credits, tax exemptions, and tax holidays.[214] These fiscal incentives, however, have been studied to only be effective if combined with other non-fiscal incentives that guarantee a conducive investment climate.[215]

The South African government heavily invests in infrastructural projects such as railway construction, power grids, and road construction to improve access to mining areas.[216] This approach has greatly enhanced operational efficiency in the mining sector as well as significantly reduced operational costs for mining companies.[217] Whereas such infrastructural development is a non-fiscal incentive, such initiatives ultimately make South Africa a competitive destination for FDI.[218] Comparatively for Uganda, insufficient infrastructural development has been examined to be a challenge that affects operational efficiency in the mining sector because, in many instances, the government does not prioritise road construction or railway construction in mineral-rich areas but leaves this responsibility to the mining companies.[219]

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[211] L Dison, 'Technical note on patents and the mining industry- Part 1' (1992) 92 *Journal of the Southern African Institute of Mining and Metallurgy at 46.*
[212] Ibid.
[213] Ibid at 48.
[214] Simon *et al* op cit note 39 at 157.
[215] Ibid at 167.
[216] Oludele A Akinboade & Pinky Lalthapersad-Pillay 'South Africa And The New Partnership For Africa's Development: Economic Spin-Offs And Linkages' (2005) 73 *South African Journal of Economics* at 254.
[217] Ibid at 255.
[218] Ibid at 259.
[219] Patrick Junior, 'Engaging Artisanal And Small-Scale Miners of Development Minerals In Public Infrastructure Projects: The Case of Uganda' (Published PhD Thesis, Sustainable Minerals Institute, The University of Queensland, 2022) at 8.

South Africa has also streamlined its mining permitting processes and ensured clarity in most regulatory processes that pertain to the mining sector.[220] As studied earlier, bureaucratic red tape and an incoherent regulatory landscape are major deterrents of FDI. South Africa's ability to align its regulatory landscape and provide for clear regulation of the mining sector through secondary laws to mining, such as tax laws and intellectual property laws, solidifies its position as an attractive investment decision.[221]

To achieve skills development and optimise knowledge and technology transfer, South Africa has established a Skills Development Plan tailored for the mining workforce.[222] The plan's objective is to build human capital that works in the mining sector to achieve global competitive levels.[223] It aims to achieve this by developing relevant skills and providing training opportunities for the South African mining workforce.[224]

4.4. Technology Transfer in South Africa

Technology transfer plays a fundamental role in the growth and expansion of South Africa's mining sector.[225] Technology transfer refers to the process of exchanging or sharing knowledge and expertise by an investor with local companies or the local workforce in the investment destination.[226] Through technology transfer, the stakeholders in the FDI destination get access to the latest technologies and skills to enhance their own operational capacity in the mining sector.[227]

In South Africa, technology transfer provisions are often included in mining agreements, especially those negotiated with multinational corporations (MNCs) with more advanced technologies.[228] The provisions also spell out the specific technologies being transferred and the training and skilling programmes that have to be undertaken by the investor, as well as joint research and development (R&D) initiatives between the investor and the locals.[229]

Government support to bolster technological advancement in the mining sector remains inadequate. The Department of Science and Technology's 10-year plan (DST, 2008) identified various technologies for support, but mining was notably absent, indicating a gap in targeted support for technology transfer in the sector.[230] This oversight could potentially undermine South Africa's competitive advantage in the global mining landscape.

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[220] Michael Otto Dale 'South Africa: development of a new mineral policy' (1997) 23(1-2) *Resources Policy* at 19.
[221] Ibid.
[222] Phia Van der Watt & Lochner Marais 'Implementing Social And Labour Plans In South Africa: Reflections On Collaborative Planning In The Mining Industry' (2021) 71 *Resources Policy* at 3.
[223] Ibid at 5
[224] Ibid.
[225] LI Le Grange & Andre J Buys 'A Review of Technology Transfer Mechanisms' (2002) 13 *South African Journal of Industrial Engineering* at 82.
[226] Ibid.
[227] Ibid.
[228] Xavier Carim 'International Investment Agreements And Africa's Structural Transformation: A Perspective From South Africa' (2015) *Investment Policy Brief* at 140.
[229] Ibid.
[230] David Kaplan 'South African Mining Equipment And Related Services: Growth, Constraints And Policy' (2011) *Making the Most of Commodities Programme (MMCP) (5) at 22.*

Similarly, in Uganda, technology transfer provisions were introduced in the Mining and Minerals Act of 2022, specifically under Section 198(2). However, as of June 2024, the required regulations had not been implemented. This highlights the importance of not only including technology transfer provisions in agreements and laws but also providing robust support for research and development (R&D) and training to optimise technology transfer outcomes.

The Ugandan principle mining law, the Mining and Minerals Act Cap. 159 provides a list of cross referenced laws that includes the "Access to Information Act Cap. 95, Anti - Corruption Act Cap. 116, Atomic Energy Act Cap. 154, Business Names Registration Act Cap. 105, Companies Act 106, Cooperatives Societies Act Cap.107, Criminal Procedure Code Act Cap. 122, East African Community Customs Management Act, Electricity Act Cap. 157, Employment Act Cap. 226, Explosive Act, Income Tax Act, Income Tax (Transfer Pricing) Regulations, 2011, International Conference on the Great Lakes Region (Implementation of the Pact on Security, Stability and Development in the Great Lakes Region) Act, Interpretation Act, Land Act, Land Acquisition Act, Magistrates Courts Act, National Environment Act, Occupation and Safety and Health Act, Partnership Act, Penal Code Act, Public Finance Management Act, Public Private Partnership Act, Trustees Incorporation Act, Water Act, and the Workers' Compensation Act".

Neither of these laws regulates technology transfer. As studied in Chapter Three, in Uganda, technology transfer is encouraged in the National Intellectual Property Policy and the country's intellectual property legal framework.[231] However, the absence of IP laws among the cross-references of the Mining and Minerals Act Cap. 159 poses a potential challenge to the implementation of technology transfer in Uganda.

4.5. How South Africa's Patent Regime Incentivises FDI

A robust intellectual property regime incentivises FDI in two major ways. First, it incentivises companies to invest in research and development (R&D), leading to invention and innovation in the mining sector, hence making the sector more efficient, safe for the environment, and safe for the mine workers.[232] Second, it incentivises technology transfer because MNCs would be confident of protection against theft of their most advanced proprietary technologies.[233]

South Africa boasts a robust patent regime, evident in its legislative framework. The principal patent law in South Africa, the Patents Act, is aligned with the TRIPS Agreement and offers a broad scope of patentable subject matter.[234] Section 25 of the Act provides for the grant of a patent for a novel invention with an inventive step and industrial applicability, demonstrating commitment and alignment with international intellectual property frameworks like the TRIPS Agreement, the Paris Convention for the Protection of Industrial Property and the Patent Cooperation Treaty (PCT), which accord the same scope of patent protection.

[231] Uganda Ministry of Justice and Constitutional Affairs op cite note 140 at 8.
[232] James op cit note 128 at 532.
[233] Ibid.
[234] David op cit note 32.

South Africa also has a significant concentration of patents in mining technologies, indicating a strong innovative capacity.[235] The top five patent holders, namely Sandvik AB, Joy MM Delaware, Inc., Kennametal Inc., Komatsu Ltd., and Caterpillar Inc., together held 163 patents during the period of 2002–2022.[236] The presence of high-quality patents suggests that the country is at or near the global technological frontier in this sector.[237] This is evidenced by the clustering of patents into mining technologies and fuel technologies, which represents a larger share of total patenting in South Africa compared to other countries.[238]

Indicators of a robust patent regime that fosters FDI include the following:

First, the patent system ought to clearly define what constitutes a patentable invention within its jurisdiction, ensuring that investors know which of their devices, proprietary methods of production, or other inventions require patent protection.[239] As examined above, the South African Patents Act clearly identifies its scope of patent protection.

Second, the system ought to be transparent and predictable with well-defined timelines for processing patent applications and a clear application process, including easy access to available information on existing patent applications and grants.[240] Transparency and predictability of the patent regime enable investors to make more informed investment decisions.

Third, the patent system ought to align with international standards stipulated in international patent treaties like the TRIPS Agreement, the Paris Convention for the Protection of Industrial Property, and the Patent Cooperation Treaty (PCT).[241] As studied above, South Africa's and Uganda's patent laws adhere to these international patent treaties, and this fosters investor confidence by aligning expectations with established international norms.

Lastly, a robust patent regime requires an equally robust enforcement mechanism to ensure effective patent protection as well as deter infringement.[242] A robust patent enforcement mechanism includes a clear legislative framework with clear and adequate legal remedies as well as an institutional framework to enforce the rights of patent holders. South Africa's legal system allows patent holders the option to pursue infringement actions in court, as well as the option of alternative dispute resolution such as mediation and arbitration.

A robust intellectual property (IP) regime, particularly a strong patent system, is a critical driver of foreign direct investment (FDI) in the mining sector. By incentivizing R&D, promoting technology transfer, and ensuring the protection of intellectual property rights, a well-functioning patent system can significantly contribute to the growth and development of the mining industry. South Africa's patent regime, aligned with international standards and

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[235] David op cit note 230 at *8.*
[236] Global Data 'South Africa: Top Patents Holders in the Mining Sector (2002 - 2022)' available at https://www.globaldata.com/data-insights/mining/south-africa-top--patents-holders-in-the-mining-sector-2136550/, accessed on 12 November 2024.
[237] Ibid.
[238] Ibid.
[239] Heman Khouilla & Cécile Bastidon 'Does Increased Intellectual Property Rights Protection Foster Innovation In Developing Countries? A Literature Review Of Innovation And Catch-Up' (2024) 36 *Journal of International Development* at 1175.
[240] Ibid.
[241] Ibid.
[242] Ibid.

characterised by a high concentration of patents in mining technologies, positions the country as a promising destination for FDI in the mining sector and a valuable reference point for Uganda. However, continued efforts are necessary to strengthen patent enforcement mechanisms and ensure that the benefits of a robust IP regime are fully realised in the country.

4.5.1. South Africa's Patent Jurisprudence and Investor Confidence in Mining.

This section delves into significant patent cases in the South African mining sector, examining how the courts have interpreted and applied patent law to resolve disputes between mining entities. By analysing these cases, the thesis aims to highlight the importance of a robust and predictable patent system in attracting FDI and promoting innovation in the mining industry.

Case One: ***Speedmark Holdings (Pty) Ltd v Roman Roller CC and Another***[243]

This case involves a patent dispute between Roman Roller CC and Speedmark Holdings concerning the validity of a patent for conveyor rollers used in mining and industrial applications. The patent's inventor, Gyula Laszlo Roman, initially asserted its validity but later sought its revocation, claiming it lacked novelty and an inventive step.

This case sets a significant legal precedent in South African patent law, particularly regarding the assessment of obviousness and clarity in patent specifications. It underscores the complexities inherent in determining patent validity, especially in relation to novelty and inventive steps. The court's decision also emphasises the importance of these criteria in patent law.

The outcome of this case has implications for companies operating in the mining and industrial sectors, as it affects the use of patented technologies and the potential for patent litigation. The court's judgement, which carefully considered expert testimonies, further highlights the crucial role of expert opinions in patent disputes.

Case Two: ***Water Renovation (Pty) Ltd v. Gold Fields of SA Ltd***[244]

This case illustrates South African jurisprudence on the protection of intellectual property arising out of collaborations in the mining sector between mining companies and technology developers. Collaboration, as examined in Chapter Two of the thesis, fosters and accelerates innovation in sectors such as mining.

The case was a patent dispute appeal of Water Renovation (Pty) Ltd. (appellant) and Gold Fields of SA Ltd. (respondent). The appellant developed a method for treating industrial effluent by separating solids from liquids in the mining sector and obtained a patent for this method in South Africa. The respondent, a mining company that used the appellant's method to treat industrial effluent at one of its mines, later developed its own, which it alleged to be

[243] *Speedmark Holdings (Pty) Ltd v Roman Roller CC and Another* [1995] ZASCA 103; 1995 (4) SA 202 (A) (22 August 1995)
[244] *Water Renovation (Pty) Ltd v. Gold Fields of SA Ltd* (481/91) [1993] ZASCA 169; 1994 (2) SA 588 (AD); [1994] 2 All SA 33 (A) (12 November 1993).

an improvement of the appellant's patented method. The appellant then instituted legal action against the respondent for patent infringement.

The court in this matter examined the details of the patent in question, as well as the claims of the respondent regarding an improvement of the appellant's patented method and found that the respondent's method infringed on the appellant's patent.

This case underscored the necessity of clear patent claims and the implications of patent infringement, reinforcing the need for robust enforcement mechanisms.

Case Three: ***Mantella Trading v. Kusile Mining***[245]

This case highlights an example of South Africa's jurisprudence on the enforcement of patent rights. It highlights core ingredients of proving patentability, i.e., novelty and inventive step; the risks of infringement that patents face; the complexities involved in litigating patent disputes; the capacity of South Africa to protect the patent rights of inventors; and what this means for its patent regime.

This case is an appeal from the Commissioner of Patents involving a patent dispute related to mine shaft brattice walling. The appellant in the case, Mantella Trading, developed a patented method for constructing mine shaft barriers using corrugated iron sheets rolled together to create airtight joints. The respondent in the case was initially sourcing corrugated sheets from Mantella for seaming but later started manufacturing and installing its own barriers, hence the dispute.

Mantella Trading alleged that Kusile Mining's barriers at the Khutala Colliery infringed their patent. Kusile denied the infringement claim and counterclaimed, asserting that the appellant's patent in question was invalid for lack of inventive step and should be revoked under Section 61(1)(f)(ii) of the Patents Act 57 of 1978.

In arguing their appeal, the appellant explained that their patent claim involved an inventive step with a unique method of constructing mine shaft brattice walling using corrugated iron sheets rolled together to form an airtight joint, which was different from the method described in the American patent.

The appellant further alleged that their patent was not a combination of inventions but a new and improved method that required inventive ingenuity, contrary to the court's view that it was a simple combination of known features. They presented an expert in underground mining as a witness, Mr Elliot, who provided expert insights into the construction and installation of barriers in mines, explaining the role of flexibility and rigidity of corrugated iron sheets in the context of the patent specification.
The appellant then demonstrated the respondent's barriers at Khutala. Colliery closely resembled the barriers sold and installed by them based on their patented method. This was in a bid to prove patent infringement.

In arguing against the appeal, the respondent denied the appellant's infringement claim, asserting that the appellant's patent in question was invalid for lack of an inventive step. They

[245] *Mantella Trading v. Kusile Mining* -191/2014) [2015] ZASCA 10 (12 March 2015).

contended that an existing American patent disclosed all essential features of the patent in question except for the reference to 'rigid material'. Therefore, the respondent made the case that there was no inventive step from the American patent because it equally achieved the same effect of creating an airtight joint.

The respondent's case against the infringement claim focused on the insufficiency of the patent specification by the appellant rather than disputing the resemblance of their barriers to those sold and installed by the appellant.

The court considered several factors in determining the inventive step of the patent in question:

1. **Comparison with prior art (novelty of the invention):** The court examined the patented method in comparison with prior art, including the American patent, and found that the appellant's claim 31 of the patent met the criteria set out to prove the novelty of the invention.
2. **Inventive Step:** The court evaluated the complexity of the patented method, looking into the innovative elements of using corrugated iron sheets rolled together to form airtight joints and whether, in light of the state of the art, the step taken in the patented method would be obvious to a skilled person in the field, and found that the patented method included an inventive step.

By considering these factors, the Supreme Court of Appeal was able to analyse the patent claims and compare them to the actual products and methods used by both parties and ruled in favour of the appellant, Mantella Trading, finding that Kusile's barriers infringed Mantella's patent.

Case Four: ***Orica Mining Services v. Elbroc Mining Products***[246]

This case demonstrated the ability of South African courts to interpret patent claims in order to effectively adjudicate patent infringement disputes. The patent in question is 'Portable Drilling Apparatus', which was held by Orica Mining Services, the appellant. The patent is a portable self-supporting drilling rig that includes a pair of spaced-apart telescopic props with a carriage between them.

The respondent in the case, Elbroc Mining Products, had a similar patent claim but contended that their claim was different because it lacked one of the essential features of Orica's patent, the location of the drill carriage between a pair of telescopic props in a linear positioning.

The dispute was then settled to be on the definition of the word 'between' in the context of the patent claims. The court, after wholesomely examining the patent claims by both parties, dismissed Elbroc Mining Products' interpretation of the word 'between' to mean the same as 'linearly between, agreeing with Orica, which contended that the word 'between' in the patent claims did not require a linear positioning whereby even if not in the same linear plane, the patent scope would still be binding. With this finding, the court upheld the appeal and interdicted the respondent, Ebroc Mining Products, from infringing Orica's patent.

[246] *Orica Mining Services v. Elbroc Mining Products* (233/2016) [2017] ZASCA 48; [2017] 2 All SA 796 (SCA) (31 March 2017).

4.6. Conclusion

In conclusion, South Africa's patent regime serves as a valuable reference point for Uganda in its quest to attract FDI in the mining sector. By fostering a robust intellectual property environment, South Africa has successfully encouraged innovation and technology transfer, positioning itself as a leader in the mining industry. Uganda can learn from these experiences by strengthening its patent laws, enhancing enforcement mechanisms, and promoting a culture of research and development. Through these efforts, Uganda can improve its attractiveness to foreign investors and drive sustainable growth in its mining sector.

Upon this foundation, Chapter Five will study the various strategies that Uganda can adopt to integrate its intellectual property regime in the country’s mining sector with the goal of making the mining sector more attractive to technological FDI.

CHAPTER FIVE: RECOMMENDATIONS TOWARDS FUTURE-PROOFING UGANDA'S MINING SECTOR

5.1. Introduction

This chapter synthesises the findings of the previous four chapters and proposes recommendations in respect of enhancing Uganda's legal framework governing the country's patent regime in order to shape a more conducive environment to attract foreign direct investment (FDI) and promote sustainable mining practices. In so doing, the chapter examines the arguments presented in the earlier chapters on how the Industrial Property Act, as Uganda's primary patent legislation, can be leveraged to support the country's growing mining sector. The analysis of previous chapters answers the central research question, "How can the Industrial Property Act Cap. 224 be strategically leveraged within the framework of the Mining and Minerals Act Cap. 159 and the Investment Code Act Cap. 74, together with their associated regulations, to enhance incentives for FDI in Uganda's mining sector?" The recommendations proposed by this chapter are aimed at various stakeholders in Uganda's mining sector and intellectual property regime, all towards the ultimate goal of 'futureproofing' Uganda's mining sector.

The four arguments advanced in support of future-proofing Uganda's mining sector, which also are the recommendations of this chapter, are described as follows:

1. Strengthen intellectual property laws.
2. Harmonise legal frameworks.
3. Adopt context-based approaches in granting investor incentives.
4. Collaborate with industry experts and learn from successful models.

These are expounded below:

5.2. Strengthen Uganda's intellectual property laws.[247]

The Industrial Property Act Cap 224 provides a foundational framework for safeguarding the patent regime in Uganda. However, its contribution to fostering innovation and facilitating technology transfer in the country requires strengthening in the aspects of enhancing enforcement mechanisms, expanding intellectual property protection scope, capacity building and awareness, and streamlining registration and licensing procedures.

Regarding enhancing enforcement mechanisms, it should be noted that robust intellectual property enforcement is crucial to deter as well as provide remedies in instances of IP infringement. To achieve this, it is the recommendation of this thesis that specialised intellectual property courts or tribunals with judges trained in intellectual property law be established.

Regarding expanding intellectual property protection scope under the Industrial Property Act, it is the recommendation of this thesis that the Industrial Property Act Cap 224 specifically address issues of technology transfer to encourage innovation in diverse sectors, including the mining sector, as well as boost investor confidence as they import their technologies into Uganda.

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[247] Chapter 2 at 33.

Regarding promoting capacity building and awareness, it should be noted that it is vital to create an IP-conscious society. This is possible through education programmes and workshops or seminars for businesses and investors to enlighten them on the country's patent regime and how they can optimise it.

Regarding streamlining registration and licensing procedures, the recommendation is to simplify patent application processes and shorten processing times as well as facilitate electronic filing and electronic signatures to encourage patent filings.

5.3. Harmonise Uganda's legal frameworks.[248]

To harness Uganda's mineral wealth and fast-track the global shift towards sustainable mining practices, it is essential to harmonise legal frameworks governing technology transfer, intellectual property, mining, and investment.

Presently, regulations governing investment, mining, intellectual property, and technology transfer are fragmented, which undermines the potential for innovation and sustainable investment in the mining sector.

For example, it is the recommendation of this study that Uganda establish a unified framework for technology transfer. This is because the lack of a unified legal framework on technology transfer limits the country's adoption of foreign innovations. A unified legal framework will also offer consistent guidance to all regulations governing the different sectors that require the importation of technology, such as the mining sector.

5.4. Adopt context-based approaches in granting investor incentives.[249]

This thesis has argued for the importance of incentivising investment in Uganda's mining sector in order to spur innovation and sustainable resource exploitation and management. It has further examined the existing incentives for investment, which are predominantly fiscal in nature, such as tax holidays and exemptions. The thesis concluded that these fiscal incentives alone are not enough to attract the nature of investment needed in the mining sector.

It further posited that non-fiscal incentives, such as intellectual protection assurances, could equally play a significant role in attracting investment in Uganda, depending on how they are tailored to meet the investors' specific needs.

By adopting context-based approaches that cater to the specific needs of an investor, Uganda can position itself as a more appealing destination for the latest mining technology investments, hence aligning with the country's development goals. The context-based approach recommended by this thesis focuses on three key non-fiscal incentives: facilitating the ease of patent registration in Uganda, strengthening patent protection, and fostering a supportive environment for technology transfer.

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[248] Chapter 3 at 31
[249] Chapter 1 at 15

5.4.1. Facilitating the ease of patent registration.[250]

As posited by the thesis, intellectual property rights are a cornerstone of innovation and global competitiveness. This therefore means that the ability for an investor to swiftly and securely protect their creations through IP like patents is essential. In Uganda, however, patent registration is cumbersome, tainted with bureaucratic processes and long processing timelines. These challenges deter the importation of cutting-edge mining technologies in Uganda, thus limiting the potential for technological advancements in the sector.

To remedy this, Uganda should adopt reforms that facilitate reduction of the bureaucratic layers involved in patent applications as well as create a sui generis fast-track mechanism for sectors critical to national development, such as mining. By doing this, investors will register their patents more quickly and swiftly, thus mitigating the risks of intellectual property theft or loss of competitive advantage.

5.4.2. Strengthening patent protection[251]

The need for secure protection of investors' intellectual property rights is essential to increase investor confidence, as they will be assured that their technologies are safe from infringement. Uganda should ensure that the judiciary is well trained to adjudicate patent disputes to ensure that their decisions align with international standards on patent protection and decided cases in more advanced TRIPS Agreement member states. A robust patent dispute adjudication regime can also serve as an incentive for foreign multinational firms to introduce their cutting-edge mining technologies in Uganda's mining sector, fostering greater innovation and sustainability in the sector.

5.4.3. Fostering a supportive environment for technology transfer[252]

This thesis examined the essentiality of technology transfer in investment strategies for sectors like mining, where technological advancements drive efficiency and facilitate safety and sustainability. Fostering a supportive environment for technology transfer will be essential for building domestic technological capacity and to ensure that the benefits of foreign investment in mining go beyond financial returns.

Presently in Uganda, the legal frameworks for technology transfer are fragmented, as posited in earlier chapters, and do not adequately support investor needs in mining. This could account for the low levels of partnerships between foreign investors and Ugandan firms. The solution to this challenge is posited to be a context-based approach that supports an environment for technology transfer.

This can be achieved through the development of legal frameworks in Uganda that the negotiation of technology transfer in the country's model mining agreement[253] and all other mining agreements. Technology transfer provisions in these agreements should clearly define the roles, responsibilities and benefits for both parties to the technology transfer so that the

[250] Chapter 3 at 43.
[251] Chapter 4 at 57.
[252] Chapter 4 at 51
[253] Supra note 184.

exchange of technology is done with transparency. Additionally, these agreements should include incentives to investors who engage in technology transfer, for example, reduced regulatory requirements or ease of acquisition and renewal of mining licences.

5.5. Collaboration with industry experts[254]

It is the recommendation of this study that the Ugandan government should invest in capacity-building initiatives to support the absorption and effective utilisation of transferred technologies, as well as create policies that promote and encourage collaboration between mining industry players, technology suppliers, local research institutions and the government.

Such policies could include clear regulations on intellectual property rights over joint research outcomes, preferential licensing agreements for companies that invest in research and development projects and tax credits. By leveraging collaborations within the mining sector, Uganda will be able to increase the rate of home-grown technologies.

5.6. Learning from successful models

In earlier chapters, the thesis studies various successful case studies where the intricate relationship between intellectual property and foreign direct investment has been harnessed to create a conducive environment for investment. This section highlights these case studies to illustrate an example that Uganda can follow to equally benefit from similar approaches.

5.6.1. The South African Model

Chapter Four presented a compelling case for how South Africa has invested in creating a robust intellectual property regime through a comprehensive legal framework that strongly protects intellectual property and encourages technology transfer through various incentives.

The thesis also explored the patent jurisprudence in South Africa and concluded that the ability of South African courts to adequately adjudicate complex patent disputes makes the country an attractive destination for multinational corporations seeking technological investments in the mining sector.

The South African example provides valuable insights into what Uganda's areas of focus should be as the country looks at creating a better investment climate in its mining sector. Key lessons to be picked from the South African model include establishing a robust intellectual property regime that adequately addresses issues of technology transfer, simplifying patent registration processes, capacity building of the judiciary to adequately handle complex patent disputes and promoting intellectual property awareness among stakeholders.

Learning from the South African model underscores the critical role that effective intellectual property protection and technology transfer mechanisms can play in attracting foreign direct investment in Uganda as well as offers a guiding light to Uganda in its quest to add value to its mineral wealth through technological investments.

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[254] Chapter 3 at 31.

5.7. Conclusion

This research examined the role of intellectual property (IP) laws in facilitating foreign direct investment (FDI) within Uganda's mining sector. The thesis analysed Uganda's legal frameworks governing intellectual property, investment and the mining sector and conducted comparative studies with South Africa as a successful model in a bid to explore the interplay between a robust intellectual property regime and technological investments. Several key findings have emerged, and these are as follows:

Firstly, the research highlights the importance of aligning Uganda's intellectual property laws with international standards established by the TRIPS Agreement, and this includes building local capacity for the courts to handle major patent disputes which could arise out of technological investment in the country's mining sector. This alignment and capacity building will strengthen the country's patent regime as well as build investor confidence regarding the protection of their proprietary technologies and inventions, hence facilitating FDI. The thesis examined the South African patent regime to illustrate how the existence of an internationally aligned patent regime and local court capacity to handle complex patent disputes can serve as a catalyst for FDI, especially in technology-reliant sectors like mining.

Secondly, the research examined the salient necessity for a conducive environment for technology transfer in Uganda. The thesis studied the intrinsic linkage between effective intellectual property protection and technology transfer for value addition to actualised, in Uganda's mining sector. The study recommended the promotion of collaboration between local entities and foreign investors but, above all, the creation of robust policies and laws governing technology transfer in the mining sector.

The research also highlighted the role of government policy in shaping the investment landscape. The thesis recommends a need for a context-based approach as Uganda offers targeted incentives for foreign investment. This approach is recommended to include sensitisation of stakeholders in the mining sector about the country's enforcement of intellectual property rights to build investor confidence in the country's respect for their proprietary technologies, hence significantly attracting FDI.

Conclusively, the thesis contributes to the existing body of literature on Uganda's mining sector by providing a nuanced understanding of the interplay between intellectual property laws and foreign direct investment. The findings of this research advocate for the integration of intellectual property protection into the broader investment attraction strategy, thereby positioning Uganda as a competitively attractive destination for technological investments in its mining sector, thus future-proofing the sector.

BIBLIOGRAPHY

Primary Sources

National Legislation

1995 Constitution of the Republic of Uganda (as amended)

Access to Information Act, Cap 95

Anti-Corruption Act, Cap 116

Atomic Energy Act, Cap 154

Business Names Registration Act, Cap 105

Companies Act, Cap 110

Cooperative Societies Act, Cap 112

Criminal Procedure Code Act, Cap 116

Employment Act, Cap 226

Electricity Act, Cap 145

Explosives Act, Cap 298

Free Zones Act, Cap 70

Income Tax Act, Cap 340

Income Tax (Transfer Pricing) Regulations, 2011

International Conference on the Great Lakes Region (Implementation of the Pact on Security, Stability and Development in the Great Lakes Region) Act, 2018

Investment Code Act, Cap 74

Industrial Property Act, Cap 224

Interpretation Act, Cap 3

Land Act, Cap 227

Land Acquisition Act, Cap 235

Mining and Minerals Act, Cap 159

Magistrates Courts Act, Cap 16

National Intellectual Property Policy, 2019

National Environment Act, Cap 153

Occupation and Safety and Health Act, Cap 200

Partnership Act, Cap 114

Penal Code Act, Cap 120

Public Finance Management Act, Cap 171

Public Private Partnership Act, Cap 111

Trustees Incorporation Act, Cap 165

Water Act, Cap 152

Workers' Compensation Act, Cap 225

International Legal Instruments

Berne Convention for the Protection of Literary and Artistic Works, 1886

General Agreement on Tariffs and Trade (GATT), 1994.

Paris Convention for the Protection of Industrial Property, 1883.

Patent Cooperation Treaty, 1970

Trade-Related Aspects of Intellectual Property Rights Agreement (1995)

World Trade Organisation Agreement (1994)

Regional Legal Instruments

East African Community Customs Management Act, 2009

Protocol on the Establishment of the East African Community Common Market, 2009.

List of Case Law

Biogen Inc. v Medeva Plc [1997] RPcC 1.

Chiron Corporation v Organon Teknika Ltd [1994] FSR 331.

Eastern and Southern African Trade & Anor v Hassan Basajjabalaba & Anor HCT-00-CC-CS-0512-2006 [2007] UGCommC 30 (13 April 2007).

Eli Lilly & Co. v. Human Genome Sciences Inc. (Unreported).

Mantella Trading 310 (Pty) Ltd v Kusile Mining (Pty) Ltd [2010] ZASCA 21.

Orica Mining Services v Elbroc Mining Products [2011] ZAGPPHC 109.

Re Gale's Application [1991] RPC 305.

Rotaque (Proprietary) Limited v General Mining and Finance Corporation Limited [1989] ZASCA 24.

Speedmark Holdings (Pty) Ltd v Roman Roller CC and Another [1995] ZASCA 103; 1995 (4) SA 202 (A) (22 August 1995).

Windsurfing International Inc. v Tabur Marine (Great Britain) Ltd [1985] RPC 59.

Water Renovation (Pty) Ltd v Gold Fields of SA Ltd [1994] ZASCA 11.

Secondary Sources

Books

Bryant P, *The Case for Innovation in the Mining Industry* (2015) 14 Clareo Chicago, EUA.

Kaplan D, *Intellectual Property Rights and Innovation in South Africa: A Framework* (2009).

Taubman A, Wager H, & Watal J, *A Handbook on the WTO TRIPS Agreement* (Cambridge University Press 2020).

Nagudi B, *Status of Geological Resources in Uganda* (2011) Embassy of the Republic of Korea in Uganda.

Journal Articles

Akinboade OA & Lalthapersad-Pillay P, 'South Africa and the New Partnership for Africa's Development: Economic Spin-offs and Linkages' (2005) 73 *South African Journal of Economics* 254 https://www.researchgate.net/publication/4787018_South_Africa_and_the_new_partnership_for_Africa's_development_Economic_spin-offs_and_linkages accessed August 2024.

Adams S, 'Globalisation and Income Inequality: Implications for Intellectual Property Rights' (2008) 30 *Journal of Policy Modelling 734.*

Benning, 'Bankers' Perspective of Mining Project Finance' (2000) 100. *Journal of the Southern African Institute of Mining and Metallurgy* 48.

Black A & Hasson R, 'Capital Intensive Industrialisation and Comparative Advantage: Can South Africa Do Better in Labour Demanding Manufacturing?' (2012) *Strategies to Overcome Poverty and Inequality Towards Carnegie III*https://mandelainitiative.org.za/wp-content/uploads/2021/09/29_Black_Capital%20intensive%20industrialisation%20and%20comparative%20advantage%20-%20can%20SA%20do%20better.pdf accessed August 2024.

Botoy IE, 'From the Paris Convention to the TRIPS Agreement: A One-Hundred-and-Twelve-Year Transitional Period for the Industrialised Countries' (2004) 7 *The Journal of World IntellectualProperty* 319 https://www.researchgate.net/publication/247675232_From_the_Paris_Convention_to_the_Trips_Agreement_A_One-Hundred-and-Twelve-Year_Transitional_Period_for_the_Industrialized_Countries accessed August 2024.

Burger P, 'The Berne Convention: Its History and Its Key Role in the Future' (1988) 3 *Journal of Law and Technology* 123.

Choobineh M, Arab A, Khodaei A & Paaso A, 'Energy Innovations through Blockchain: Challenges, Opportunities, and the Road Ahead' (2022) 35 *The Electricity Journal* https://doi.org/10.1016/j.tej.2021.107059 accessed August 2024.

Carim X, 'International Investment Agreements and Africa's Structural Transformation: A Perspective from South Africa' (2015) 140 https://www.southcentre.int/wp-content/uploads/2015/08/IPB4_IIAs-and-Africa%E2%80%99s-Structural-Transformation-Perspective-from-South-Africa_EN.pdf accessed August 2024.

Chang H-J, 'Intellectual Property Rights and Economic Development: Historical Lessons and Emerging Issues' (2001) 2 *Journal of Human Development* 243 https://www.twn.my/title2/IPR/pdf/ipr03.pdf accessed August 2024.

Ho CM 'Sovereignty Under Siege: Corporate Challenges to Domestic Intellectual Property Decisions' (2015) 30 *Berkeley Technology Law Journal* 1389 https://ssrn.com/abstract=2480202 accessed August 2024.

Jorgenson DW 'Capital Theory and Investment Behaviour' (1963) 53 *The American Economic Review* 247 https://www.aeaweb.org/aer/top20/53.2.247-259.pdf accessed August 2023.

Dunning JH 'The Eclectic Paradigm of International Production: A Restatement and Some Possible Extensions' (1988) 19 *Journal of International Business Studies* 1 https://www.jstor.org/stable/154984 accessed August 2023.

Gathii JT 'Strength in Intellectual Property Protection and Foreign Direct Investment Flows in Least Developed Countries' (2015) 44 *Georgia Journal of International and Comparative Law* 532 https://digitalcommons.law.uga.edu/gjicl/vol44/iss3/3 accessed August 2023.

Ghebrihiwet N 'FDI Technology Spillovers in the Mining Industry: Lessons from South Africa's Mining Sector' (2019) 62 *Resources Policy 121.*

Global Data '*South Africa: Top Patents Holders in the Mining Sector (2002 - 2022)*' accessible at https://www.globaldata.com/data-insights/mining/south-africa-top--patents-holders-in-the-mining-sector-2136550/ accessed November 12, 2024.

Haley GT 'Intellectual Property Rights and Foreign Direct Investment in Emerging Markets' (2000) 18 *Marketing Intelligence & Planning 133.*

Hughes J 'The Philosophy of Intellectual Property' (1988) 77 *Georgetown Law Journal* 287 http://justinhughes.net/docs/a-ip01.pdf accessed August 2023

Kjær AM 'Foreign Investments in Uganda's Oil Sector: Linkages and Issues for the Local Economy' (2013) *JSTOR*.

Khouilla H & Bastidon C 'Does Increased Intellectual Property Rights Protection Foster Innovation in Developing Countries? A Literature Review of Innovation and Catch-up' (2024) 36 *Journal of International Development* 1175.

Le Grange LI & Buys AJ 'A Review of Technology Transfer Mechanisms' (2002) 13 *South African Journal of Industrial Engineering* 82.

Ming Liu & Sumner La Croix, 'A cross-country index of intellectual property rights in pharmaceutical inventions' (2015) 44 *Research Policy.*

ML Barreto, Patrick Schein, Jennifer Hinton & Felix Hruschka 'Economic contributions of artisanal and small-scale mining in Uganda: Gold and Clay' (2018) Pact & ARM at 24

Munongo S, Akanbi OA & Robinson Z 'Do Tax Incentives Matter for Investment? A Literature Review' (2017) 13 *Business and Economic Horizons* 148.

Njeru DM 'Tax Incentives, International Competitiveness, Investment Climate, and Foreign Direct Investment in East Africa Community Partner States' (University of Nairobi, 2019).

Ojah K, Gwatidzo T & Kaniki S 'Legal Environment, Finance Channels and Investment: The East African Example' (2010) 46 *The Journal of Development Studies* 124.

Ochoa TT & Rose M 'The Anti-Monopoly Origins of the Patent and Copyright Clause' (2001) 49 *Journal of Copyright Society USA* 149.

Poizot P & Dolhem F 'Clean Energy New Deal for a Sustainable World: From Non-CO2 Generating Energy Sources to Greener Electrochemical Storage Devices' (2011) 4 *Energy & Environmental Science* 248.

Siegel S & Veiga MM 'Artisanal and Small-Scale Mining as an Extralegal Economy: De Soto and the Redefinition of "Formalisation"' (2009) 34 *Resources Policy* 14.

Simmons WC *Geology of Uganda* (1935) 72 Geological Magazine https://web.archive.org/web/20160405090213/http://eisourcebook.org/1269_Uganda.html acc essed 20 August 2023.

Sorensen P 'Mining in South Africa: A Mature Industry?' (2011) 68 *International Journal of Environmental Studies 133*.

Shugurov MV 'TRIPS Agreement, International Technology Transfer and Least Developed Countries' (2015) 2 *Journal of Advocacy, Research and Education* 109.

UBOS Explore Statistics 'Uganda Bureau of Statistics' (2022) 95 *Energy* https://www.ubos.org/?pagename=explore-publications&p_id=65 accessed 20 August 2023.

Van der Watt, P. & Marais, L. 'Implementing Social and Labour Plans in South Africa: Reflections on Collaborative Planning in the Mining Industry' (2021) 71 *Resources Policy* 3.

World Bank *Uganda's Access to Global and Regional Markets* (2006) https://mpra.ub.uni-muenchen.de/23575/1/MPRA_paper_23575.pdf accessed 20 August 2023.

World Bank *Uganda Economic Update, December 2017: Accelerating Uganda's Development, Ending Child Marriage, Educating Girls*.