

UNIVERSITY OF PRETORIA

FACULTY OF LAW

**ANALYSING THE LEGAL AND REGULATORY FRAMEWORK OF TECHNOLOGY
TRANSFER REGIMES IN DEVELOPING COUNTRIES: THE CASE OF GHANA**

**COURSE : LLM (INTERNATIONAL TRADE AND INVESTMENT LAW IN
AFRICA**

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This thesis is submitted in partial fulfilment of the requirements of the Masters of Laws Degree (LL.M) in International Trade and Investment law in Africa of the Faculty of Law University of Pretoria 2021.

DECLARATION

I, **Emmanuel Osei** do hereby declare that, **Analysing the Legal and Regulatory Framework of Technology Transfer Regimes in Developing Countries: The Case of Ghana** is my work. All references to sources and any quotations cited have been indicated and acknowledged herein.

Signed: **Emmanuel Osei**

October 2021.

CERTIFICATION

I declare that this mini-dissertation which is hereby submitted for the award of Legum Magister (LLM) in International Trade and Investment Law in Africa at International Development Law Unit, Centre for Human Rights, Faculty of Law, University of Pretoria, is my original work and it has not been previously submitted for the award of a degree at this or any other tertiary institution.

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DEDICATION

To my beautiful, loving and caring wife, Flight Lieutenant (Dr) Cynthia Doreen Awusi-Nti, whose endless love, prayers, support and encouragement has made this possible. May the Almighty God continue to bless you in all your earthly endeavors. I love you my queen.

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LIST OF ABBREVIATIONS

AU	African Union
COTVET	Council for Technical and Vocational Training
EC	European Commission
EPZ	Export Processing Zones
FDIs	Foreign Direct Investments
GAEC	Ghana Atomic Energy Commission
GATT	General Agreement of Tariff and Trade
GFZA	Ghana Free Zones Authority
GIPC	Ghana Investment Promotion Centre
GRA	Ghana Revenue Authority
IP	Industrial Property
IPRs	Intellectual Property Rights
IPTTO	Intellectual Property and Technology Transfer Offices
ITT	International Trade Treaties
JV	Joint Venture
LDCs	Least Developed Countries
LI	Legislative Instruments
MESTI	Ministry of Science Technology and Innovation
MHER	Ministry of Higher and Scientific Research
NDPC	National Development Planning Commission

NOIP	National Office of Industrial Property
NOTAP	National Office for Technology Acquisition and Promotion
OEM	Original Equipment Manufacturer
PAIC	Pan African Investment Code
PHC	Personal Home Remittances
TT(s)	Technology Transfer(s)
TTA(s)	Technology Transfer Agreement(s)
TTR	Technology Transfer Regulations
TTMC	Technology Transfer and Marketing Centre
TRIMS	Trade Related Investment Measures
TRIPS	Trade Related Aspects of Intellectual Property Rights
UN	United Nations
UNCTAD	United Nations Conference on Trade and Development
UNCITRAL	United Nations Commission on International Trade Law
WIPO	World Intellectual Property Organisation

ABSTRACT

The importance of technology transfer for economic development can hardly be overstated. Both the acquisition of technology and its diffusion foster productivity growth. However, invention and creation processes remain overwhelmingly with the developed countries. Developing countries rely largely on imported technologies as sources of new productive knowledge and socio-economic growth.

Many businesses and entities in developing countries, however, face significant obstacles in their efforts to enter into technology transfer transactions with the developed countries. These include high cost, restrictive business practices, the imperfections of state institutions, lack of adequate legal framework, institutional capabilities and arrangements to facilitate the acquisition of these technologies.

As a result, many developing countries have long sought to boost technology transfers through national policies and international agreements. National policies cover a wide range of topics, including funding for technological development and acquisition, tax incentives for capital equipment purchases, and Intellectual Property Rights. Many developing nations sought a code of conduct to regulate technology transfers under United Nation auspices in the late 1970s, however till date the Code has not been adopted by member countries.

In view of this many countries in the 1990s enacted legislation, regulations and supported international and multilateral arrangements and dialogues focused at supporting technology transfers in order to create a conducive climate for technology transfers to realise the multiple benefits.

Ghana, also, in 1992 enacted a primary legislation with several other ancillary legislations to regulate technology transfers. In order to determine whether Ghana has in place adequate and suitable legal and institutional framework for the transfer of technology, laws that regulate the sector must be scrutinize. This study discusses the legal and regulatory framework of technology transfers in developing countries with a particular focus on Ghana. Similar regimes in Nigeria and

Egypt which are viewed as having a well-established regime were examined with the aim of recommending best practices from these two countries to the Ghanaian authorities.

The study reveals that the current legal and regulatory framework governing technology transfers are obsolete and there is lack of adequate institutional arrangement to regulate technology transfers.

The conclusion narrates that Ghana needs to revise the Ghana Investment Promotion Centre Act 2013, Act 865 and Technology Transfer Regulations 1992, LI 1547 the primary legislations governing technology transfers in order to enhance the current framework. Also, Ghana can learn best practices from Nigeria and Egypt where there is well-developed regulatory framework for technology transfers.

CHAPTER 1

INTRODUCTION

1.1 Background of the study

Cross border Technology Transfer Agreements (TTAs) have become an integral part of most company's global expansion strategy.¹ These agreements lay the basis for a technology owner (transferor) to transfer certain legal rights to a person (transferee) in another jurisdiction while maintaining ownership or control of the technology.

Developing countries have long sought to boost Technology Transfers (TTs) through national policies and international agreements. National policies cover a wide range of topics, including funding for technological development and acquisition, tax incentives for capital equipment purchases, and Intellectual Property Rights (IPRs). Many developing nations sought a code of conduct to regulate TTs under United Nation (UN) auspices in the late 1970s, which became a prominent example of international efforts to foster TTs.² Different TT mechanisms have been applied by various developing countries, but the economies of East and Southeast Asia have demonstrated momentous pattern of TT acquisition using different channels.³

Policies regulating the acquisition of foreign technology by developing countries arose as a response to an area of economic law in which neither general principles of law, industrial property regulations nor antitrust rules could provide a satisfying answer to less developed economies.⁴ In

¹ United Nations Conference On Trade And Development, Current Studies on Science , Technology and Innovation; Transfer of Technology and Knowledge Sharing for Development Science, technology and innovation issues for Developing Countries (No.8) https://unctad.org/system/files/official-document/dtlstict2013d8_en.pdf (accessed 30 March 2021)

² BM Hoekman, KE Maskus And K Saggi (2004) 'Transfer of Technology to Developing Countries: Unilateral and Multilateral Policy Options' World Bank Policy Research Working Paper 3332 <https://documents.worldbank.org/.../pdf/wps3332.pdf> (accessed 30 March 2021)

³ TD Rotimi 'Technology Transfer In Developing Countries: Issues And Way Forward' (2018) *International Journal of Innovative Research and Advanced Studies (IJIRAS)* at 57 www.ijiras.com/2020/Vol_7-Issue_9/paper_16.pdf (accessed 4 April 2021)

⁴ P Roffe 'Transfer of Technology: UNCTAD's Draft International Code of Conduct' (1985) 2 *The International Lawyer* at 691 <https://www.jstor.org/stable/40705630> (accessed 4 April 2021)

their effort to enter into a Technology Transfer Agreements (TTAs) with transferors in industrialized nations, potential transferees from developing countries frequently encounter significant challenges. These obstacles, *inter alia*, include those that arises from the imperfections of state institutions in developing countries with the lack of adequate legal framework, institutional capabilities and arrangements to facilitate the acquisition of these technologies. Many developing countries have enacted legislation, regulations and supported international and multilateral arrangements and dialogues focused at supporting TTs in order to create a conducive climate for them.⁵

A clear understanding of the scope, content and legal effect of these arrangements, especially in the context of the legal framework in developing countries governing TT transactions, is indispensable not only to the transferee in a developing country, but also to government officials in developing countries who provide advisory services during the course of negotiations and the drafting of the TTAs.⁶

TT in developed economies are generally governed by industrial property (IP) and antitrust laws. IP laws are intended to ensure that inventions and other associated rights are protected. Antitrust rules, on the other hand, are intended to promote and safeguard the functioning of competition in a particular market. Technology Transfer Regulations (TTRs) in developing economies, without contradicting those goals, have primarily been designed to promote the flow of technology while also strengthening the capacity of recipient firms to acquire technology under the best terms and conditions, with the ultimate goal of reinforcing the host country's technological capabilities.⁷

Ghana, a developing country have also enacted laws to regulate TTs. These laws include the Ghana Investment Promotion Centre (GIPC) Act⁸, TTR⁹ as the primary legislation and other secondary and ancillary legislation with TT provisions. The study therefore seeks to critically analyze the

⁵ Rotimi (n3) 58

⁶ World Intellectual Property Organization Licensing Guide for Developing Countries *A Guide on the Legal Aspects of The Negotiation and Preparation of Industrial Property Licenses and Technology Transfer Agreements Appropriate to the needs of Developing Countries* 1977 reprinted in 1992 and 1995 <https://tind.wipo.int/record/40403?ln=en> (accessed 4 April 2021)

⁷ Roffe (n4) 691

⁸ Ghana Investment Promotion Centre Act 865 of 2013

⁹ Technology Transfer Regulations LI 1547 of 1992

legal and regulatory framework of TT regimes in developing countries with a particular focus on Ghana.

1.2 Statement of problem

Imports of technology are critical to the economic performance and development prospects of every country particularly developing and less developed countries.¹⁰ TT is central in propelling economic growth and development with its enormous advantages. These benefits include the entry of cutting-edge technologies into the domestic market, the development of local capabilities, an increase in employment, and foreign direct investments (FDIs). As a result, there has been intense competition among developing and growing economies for enhanced technological capabilities, prompting numerous countries to turn beyond their national borders for TTs.¹¹ Because of the potential benefits of inbound TTs from industrialized nations as outlined above, many developing countries enacted TTRs in the early 1990s.¹²

In 1992, Ghana enacted LI 1547 to regulate inbound TTs. The GIPC Act¹³ mandates the GIPC to review, register and monitor all TTs.

Several other legislations such as the Ghana Free Zones Authority (GFZA) Act,¹⁴ the Petroleum (Local Content and Local Participation) Regulations,¹⁵ among others have provisions on TTs. For example, the Revenue Administration Act,¹⁶ which came into force in 2017, also provides that, the Ghana Revenue Authority (GRA) is a partial administrator of Act 865. Act 915 of 2016 however fails to mention the exact role GRA is supposed to play in administration of Act 865, especially when GIPC is the only institution established by Act 865 and is responsible for implementation of

¹⁰ R McCulloch (1981) 'Technology Transfer to Developing Countries: Implications of International Regulation' <https://doi.org/10.1177/000271628145800109> (accessed 1 June 2021)

¹¹ Rotimi (n3) 58

¹² BM Hoekman, KE Maskus & K Saggi 'Transfer of Technology to Developing Countries: Unilateral And Multilateral Policy Options' World Bank Policy Research Working Paper 3332' June 2004 <https://elibrary.worldbank.org/doi/pdf/10.1596/1813-9450-3332> (accessed 1 June 2021)

¹³ Ghana Investment Promotion Centre Act of 2013

¹⁴ Ghana Free Zones Authority Act 504 of 1995

¹⁵ Local Content and Local Participation Regulations LI 2204, 2013

¹⁶ Ghana Revenue Authority Act 915, 2016

Act 865. Since GRA has not been given a specific instruction with respect to Act 865, it has decided to enforce the registration of TTAs.

The Ghana Atomic Energy Commission (GAEC) established the Technology Transfer and Marketing Centre (TTMC) on July 23, 2014, through the Ministry of Science, Technology and Innovation/The Council for Technical and Vocational Training (MESTI/COTVET) Project Support Unit, as part of the Ghana Skills and Technology Development Project dubbed Making GAEC Responsive to the Demands of the Ghanaian Private Sector. The project's main goal was to facilitate and promote the transfer of commercially valuable innovations to the private sector, which would entail increased operating efficiencies.¹⁷

The GIPC as the main institution clothed with the mandate to register TTs in Ghana has in the years 1994 and 2013 witnessed the enactment of new Acts, Act 478 and Act 865 respectively. LI 1547 the main regulation governing TTAs has not been revised in nearly three decades to satisfy modern international best practices and national criteria, as well as to enhance the possible impact TTs on Ghana's economic development.

It is under this background that this research seeks to analyse the current legal and regulatory framework of TT in Ghana, compare it with the legal and regulatory framework of TTs in Nigeria and Egypt and extract lessons that could be learnt therefrom by the Ghanaian authorities and to recommend the best possible reforms to Ghana.

1.3 Aims and objectives

The principal objective of the study is to analyze the legal and regulatory framework of TT regimes in Ghana. An attempt would be made to identify existing laws regulating TTs in Ghana and underline the regulatory gaps if any; make recommendations from the experiences of Egypt and Nigeria where it is believed that there is a well-developed TT regime and highlight how Ghana can learn from their experiences. This study will contribute towards facilitating a robust system for TTs by recommending a review of LI 1547 which has been in operation for almost thirty years. The findings of this dissertation are expected to help increase the knowledge about legal

¹⁷ Ghana Atomic Energy Commission, Technology Transfer <https://gaecgh.org/technology-transfer/> (accessed 2 June 2021)

framework of TTs. It is expected to identify loopholes in the current legal and regulatory framework on the subject in Ghana and recommend institutional reforms towards providing efficient services to stakeholders.

1.4 The research questions

The following questions shall be answered by this research.

- a. What is the concept of TTs and its importance?
- b. Whether or not domestic legislation of TTs in Ghana meets international minimum standards.
- c. Whether or not there is an institutional capacity for TT administration in Ghana?
- d. What are the enforcement mechanisms of domestic legislation of TTAs in Ghana?
- e. What are the lessons that can be learnt from the legal and regulatory framework of TTs in Egypt and Nigeria?

1.5 The hypothesis

The research is founded on the following assumptions.

- i. Domestic legislation of TTAs in Ghana is outmoded and needs to be revised or amended.
- ii. Domestic legislation of TTRs in Ghana is one sided towards only cross boarder TTs.
- iii. Ghana lacks the institutional capacity required to provide optimal regulations of TTs.
- iv. Domestic legislation on TTs in Ghana do not at as a catalyst to attract FDIs.

1.6 Significant of the study

The importance of TTs for economic development can hardly be overstated.¹⁸ Developing countries plays a central role in aggregating the different actors of technological transfer together, by setting up institutions and providing the legal and regulatory framework to govern and ensure effective TTs.

¹⁸ Hoekman, Maskus and Saggi (n12) same as above

The study reveals the duplicate and overlapping mandates provided by different enactment in the regulation of TTs in Ghana. The study again reveals the need to review the current legal and regulatory framework of TTs in Ghana to align with international best practice to boost the acquisition and diffusion of technology to foster productivity and increase economic growth and development of Ghana. This dissertation is intended to fill a gap in the existing literature on the subject by analyzing the legal and regulatory framework of TTs in developing economies like Ghana.

1.7 Literature review

Developing countries' economic performance and development prospects are highly dependent on their ability to access innovative technology. TTs, or the importation of the fruits of successful foreign research and development activities, are among the key primary means by which developing countries obtain advanced technology.¹⁹ Product embodied, process embodied, or person embodied are all terms used to describe TT. That is, TT can be defined as the transfer of certain items, processes, or people. The last two categories of TT, process embodied and person embodied, have received the most attention in research and practitioner literature. TT appears to be the core of or the heart of international business. There can also be a process of TT within national boarder. However, when it comes to doing business across international borders, TT is critical. Furthermore, the efficacy of the TT incorporated in the transaction typically determines the success of the international business transaction under discussion.²⁰

According to Goel, technology is believed to be one of the major forces underpinning economic growth; accordingly, an efficient TT system would lead to an efficient use of resources.²¹ Similarly, Denison indicates that the importance of technology in supporting and sustaining socio

¹⁹ R McCulloch 'Technology Transfer to Developing Countries: Implications of International Regulation' (1981) *The Annals of the American Academy of Political and Social Science* at 111 <https://www.jstor.org/stable/i243073> (accessed 1 June 2021)

²⁰ T Agmon & MAV Glinow *Technology Transfer in International Business* (1991) 304 <https://jolt.law.harvard.edu/assets/articlePDFs/v06/06HarvJLTech429.pdf> (accessed 1 June 2021)

economic growth and national development has been extensively documented.²² Although the subject has received considerable discussion, there is no consensus among authorities as to what constitutes technology or how technology should be defined.

Authorities are having difficulties in providing a single workable definition for the term *technology transfer*. The American Science Board defines TT as ‘...a wide spectrum of activities, running the gamut from the exchange of ideas between visiting researchers to contractually structured research collaborations involving the joint use of facilities and equipment.’²³ Developing countries therefore have to adopt a single definition of the concept based on their unique needs.

The literature on TT is diverse, with considerable differences in the channels through which technology can flow.²⁴ According to some authors, TT could either take the form of arms' length licensing²⁵ or take the form of FDI. The other modes are joint ventures, franchising, management contracts, technical service contracts and international subcontracting. After the 1980s the popularity of licensing has gone down relative to intra firm transfers. There is variation among industries in the extent to which one mode may be preferred to the other.

Siddiqi (1990) provides that, historically, technology and knowledge have been fairly guided by both government and companies, given that an advantage in either can lead to increase in economic and military power. The encouragement of TT by a country is consequently a relatively new

²² EG Denison (1962), ‘The Sources of Economic Growth in the United States and the alternative before US, Supplementary Paper No. 13, Committee of Economic Development, Washington DC’ *The Journal of economic history* at 352 <https://ideas.repec.org/s/cup/jechis.html> (accessed 1 June 2021)

²³ YS Lee ‘*Technology Transfer and Economic Development: A Framework for Policy Analysis, in Technology Transfer and Public Policy*’ (1997) 5 http://www.untagsmd.ac.id/files/Perpustakaan_Digital_2/PUBLIC%20POLICY%20Technology%20transfer%20and%20public%20policy.pdf (accessed 3 June 2021)

²⁴ United Nations Conference On Trade And Development, *Studies In Technology Transfer Selected Cases From Argentina, China, South Africa And Taiwan Province Of China*, UNCTAD Current Studies on Science, Technology and Innovation, No.7 (UNCTAD/DTL/STICT/2013/7) 16 Dec 2014 <https://unctad.org/webflyer/studies-technology-transfer-selected-cases-argentina-china-south-africa-and-taiwan> (accessed 3 June 2021)

²⁵ S Ray ‘Technology transfer and technology policy in a developing country’ (2012) 46 *The Journal of Developing Areas* at 371. <https://www.jstor.org/stable/2321537>. (accessed 3 June 2021)

practices, seen only since the second half of the 20th Century.²⁶ It should be emphasized that developing countries have long sought to encourage TT through national policies as well as international agreements. As mentioned in Chapter 1, one of the most notable episodes of international efforts to promote TT occurred in the late 1970s, when a Code of Conduct to govern TT under UN auspices was sought by many developing countries.²⁷

However, negotiation of the Code fell through, and currently there is no universal agreement on the definition of the term TT. This has ramifications for how a number of international instruments requiring developed countries to engage in, encourage, or facilitate TTs are interpreted.

According to Roffe and Taffere, TT is a complicated process that includes intellectual rights, know-how, trade and technology policy, investment flows and competition policies. Only once all of these factors have been resolved can one say that effective transfer has occurred and that developing countries' concerns regarding TT have been properly addressed.²⁸

There appears to be a tension between technology transferors and developing economies as to how the benefits of TT should be apportioned.

According to Hoffmann,

*these tensions usually take the form of accusations by the developing countries that the technologies being transferred are inappropriate, that the price they command is too high, or that the transfer agreements are too restrictive. Conversely, the industrialized countries protest that insufficient protection is provided for rights of ownership, that conditions under which profits may be transferred are unfavorable, and that costs generated by government intervention in the host country concerned are too high.*²⁹

²⁶ TA Siddiqi 'Factors Affecting the Transfer of High Technology to the Developing Countries', in M. Chatterjee, ed, *Technology Transfer to Developing Countries* (1990) 23

²⁷ SK Power & Ideas *North-South Politics of Intellectual Property and Antitrust* (1998) 35.

²⁸ R Pedro & T Taffere 'Revisiting the Technology Transfer Debate: Lessons for the New WTO Working Group' <http://www.ictsd.org> (accessed 24 May 2021)

²⁹ L Hoffmann 'The transfer of technology to developing countries: Analytical concepts and economic policy aspects, *Inter-economics*' (1985) Verlag Weltarchiv Hamburg at 73 <http://dx.doi.org/10.1007/BF02928457> (accessed 24 May 2021)

The need therefore arises to research into the subject to determine how to resolve these seemingly tension.

Least Developed Countries (LDCs) have relatively low technological progress. Most of them rank last in various international technology and innovation indices including the Technological Achievement Index and the Innovation Capability Index.³⁰ Many LDCs, on the other hand, have implemented trade liberalization policies throughout time but still face huge challenges in increasing their economies' knowledge and technology intensity in order to compete in national and international markets. In a study on TT and skill acquisition in LDCs, it was discovered that, overall, technological integration has increased in LDCs, despite considerable differences between nations.³¹ Developing countries and LDCs, on the other hand, require human capital to absorb and integrate improved technology access, as well as proper legal framework, economic policies and supporting institutions to encourage the amounts and types of modern technology that can be imported to their jurisdictions.

Within this context, the dissertation aims to analyze the legal and regulatory framework and institutional arrangement for regulating TTs in Ghana.

1.8 Research methodology

This dissertation will be conducted mainly through qualitative sources. A descriptive and comparative analysis will be employed to analyze data from the GIPC. Critical analysis will be done on key legislation such as Act 865, Act 504 among other legislation with TT provisions. Key LIs such as L.I 1547 and L.I 2204 shall be analyzed.

Secondary sources consisting mainly of texts by international jurists, journals, articles (published and unpublished) and literature relevant to the study shall be used. A comparative analysis of the legal and regulatory framework of TT regimes of Egypt and Nigeria would be analyzed. These two countries are believed to have a well-developed TT regulatory regime. Lessons from these

³⁰ UNCTAD 'Least Developing Countries Report (2007) https://unctad.org/en/docs/ldc2007_en.pdf (accessed 24 May 2021)

³¹ J Mayer 'Globalization, technology transfer and skill accumulation in low-income countries' (2000) https://unctad.org/system/files/official-document/dp_150.en.pdf. (accessed 20 April 2021)

two regimes will be factored in the recommendation to assist Ghana. This dissertation will employ descriptive, narrative, comparative, analytical and prescriptive approaches.

1.9 Limitation of the study

This research work focuses mainly on legal and regulatory framework of TTs regimes in Ghana. It is limited to the institutional arrangements and the laws and regulations of TT regimes from transnational or multinational entities to Ghana. It does not delve into TT from public funded research and also TT among entities within Ghana due to the constraint of time for this work.

1.10 The structure of the dissertation

The structure of the dissertation shall include the following.

Chapter One

The first chapter shall consist of the background to the study, the research problem, aims and objectives of the research, research questions, hypothesis of the study, significance of the study, literature review, research methodology, outline of chapters, delineation and limitation of the study.

Chapter Two

This chapter will focus on the concept of TTs, types of TTs and importance of TTs. I will also discuss International Framework of TTs by focusing on TT provisions in multilateral, regional and bilateral agreements such as the TRIPS, UNCTAD, WIPO among others and International legal order in the transfer of TT.

Chapter Three

The third chapter will review the concept of TT in Ghana, an analysis of TTAs registered in Ghana, local legislation on TT regimes in Ghana, institutional framework of TTRs in Ghana. This will enable to access the current architectural framework for TTs in Ghana.

Chapter Four

This chapter shall focus on comparative analysis of TTRS in Ghana, Egypt and Nigeria with the aim is to extract lessons that could be learnt there from Ghana. Issues such as concept of TT with these countries, the legal framework of dealing with TT transactions and the Institutional arrangement of managing TT will be discussed. An Analysis of the enforcement mechanisms put instituted will be discussed with the aim of suggesting ways to improve on Ghana's dispensation.

Chapter Five

This chapter will contain recommendations and conclusion. It will also discuss the summary of findings and areas for future research.

CHAPTER 2

UNDERSTANDING THE CONCEPT OF TECHNOLOGY TRANSFER

2.1 Introduction

As stated above, this research focuses on analyzing the legal and regulatory framework of TT regimes in developing countries of which Ghana is used as a case study. In view of what the research is set out to achieve, it is very useful to understand the concept of TT. This chapter therefore discusses the concept of technology (2.2), the concept of transfer (2.3) and narrow it down to the concept of TT (2.4). This will then lead to a discussion of the various methods through which technology can be transferred. It is important to discuss International instruments that contains provisions on TT (2.5). It is imperative to discuss the problems developing countries encounter in the TT and International standards of TT.

2.2 The concept of technology

As discussed in chapter 1, there is no consensus among authorities as to what constitutes technology or how technology should be defined.³² The debate of the concept of technology is essential for gaining a clear grasp of the nature of technology and determining what constitutes TT.³³ Technology is a challenging notion to grasp, examine, and evaluate since it is fundamentally abstract.³⁴ Despite the substantial research on the subject, many of the literatures are fragmented by specialties and there is no widely acknowledged paradigm.³⁵ Lan and Young emphasize that

³² YH Tessema 'The Legal Framework for the Transfer of Technology in Ethiopian', (2016) 55 *Journal of Law, Policy and Globalization* at 148, <https://iiste.org/Journals/index.php/JLPG/article/view/34245> (accessed 23 August 2021)

³³ NM Reddy and other International Technology Transfer, A Review Research Policy (1990)285 [https://www.scirp.org/\(S\(i43dyn45teexjx455qlt3d2q\)\)/reference/ReferencesPapers.aspx?ReferenceID=2121301](https://www.scirp.org/(S(i43dyn45teexjx455qlt3d2q))/reference/ReferencesPapers.aspx?ReferenceID=2121301) (accessed 23 August 2021)

³⁴ M Blomstrom, & A Kokko 'Multinational Corporations and Spillovers' (1998) *Journal of Economic Surveys*, 12(3), 247-277. <http://dx.doi.org/10.1111/1467-6419.00056> (accessed 23 August 2021)

³⁵ Tessema (n32) 150

the notion of technology varies by author and discipline context.³⁶ Maskus has broadened the concept of technology by defining it as

*the information necessary to achieve a certain production outcome from a particular means of combining or processing selected inputs which include production processes, intra-firm organizational structures, management techniques, and means of finance, marketing methods or any of its combination.*³⁷

In other words, rather than the output of a system, the essence of technology is the technical capability of individuals. TT is the act of passing on such information to another person. Successful TT leads to the development of technological capabilities.

2.3 The concept of transfer

In TT, the term 'transfer' refers to the movement of technology from one project to the next.³⁸ Licensing, technical assistance, managerial assistance, joint ventures, and franchises, among others, are common examples of such transfers, in which the licensor/transferor offers the licensee/transferee the right to use its technology in exchange for royalties and/or fees.

2.4 The concept of technology transfer

TT refers to any method through which one party, the transferee, obtains access to the knowledge of a second party, the transferor, and successfully learns and incorporates it into his production function. Clearly, the majority of TT takes place between willing participants in voluntary exchanges.³⁹ As indicated in Chapter 1 above, there has not been any formal agreement as regards the definition of TT. This being the case, UNCTAD defines TT as:

³⁶ Tessema (n32) 150

³⁷ KE Maskus (2004). Encouraging International Technology Transfer. UNCTAD/ICTSD Capacity Building Project. On Intellectual Property Rights and Sustainable Development at 7 <https://www.semanticscholar.org/paper/Encouraging-International-Technology-Transfer-on-Maskus/7e745b0c2f03c0caea9824eb7cb854ebe5382ce5> (accessed 28 August 2021)

³⁸ Communication from the Commission, Guidelines on the application of Article 101 of the Treaty on the Functioning of the European Union to technology transfer agreements (2014) *Official Journal of the European Union* c89/03 <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52014XC0328%2801%29> (accessed 1 September 2021)

³⁹ Maskus (n37) 8

*'the transfer of systematic knowledge for the manufacture of a product, for the application of a process or for the rendering of a service and does not extend to the transactions involving the mere sale or mere lease of goods.'*⁴⁰

The definition is largely concerned with the transfer procedure itself. It gives a lot of importance to the technology's adaptation and diffusion for industrial use.

TT transactions, according to UNCTAD's definition, include:

- a. *The assignment, sale and licensing of all forms of intellectual property;*
- b. *The provision of know-how and technical expertise e.g. plans, diagrams, models, instructions, guides, formulae;*
- c. *The provision of technological knowledge necessary to acquire, install and use machinery, equipment, intermediate goods and/or raw materials which have been acquired by purchase, lease or other means; and*
- d. *The provision of technological contents of industrial and technical cooperation arrangements.*⁴¹

The definition above appears to suggest that TT does not include product transactions, such as a mere sale or lease or software package. Sometimes, technological know-how may be embodied in machines and equipment. In the course of operating these products or services, the purchaser may acquire important know-how for the manufacture or improvements of goods or services. However, the effectiveness of the TT included in the transaction frequently determines the success of the international corporate transaction under discussion.⁴²

2.4.1 Types of Technology Transfer

Vertical and horizontal TT are the two major types of TT.

⁴⁰ The Role of Intellectual Property Rights in Technology Transfer in the Context of the Convention on Biological Diversity: A Technical Study, <https://www.cbd.int/doc/meetings/ttc/egtsttc-02/other/egtsttc-02-oth-techstudy-en.pdf>. (accessed 3 September 2021).

⁴¹ United Nations Conference on Trade and Development 'Transfer of Technology and knowledge sharing for development Science, technology and innovation issues for developing countries' (2014) *UNCTAD Current Studies on Science, Technology and Innovation. N°8 at 3* https://unctad.org/en/PublicationsLibrary/dt1stict2013d8_en.pdf (accessed 4 September 2021)

⁴² T Agmon & AVG Mary *Technology Transfer in International Business* (1991) 16

- a. **Vertical Technology Transfer** include basic research to applied research, applied research to development, and development to manufacturing are all part of this cycle of transmission. Internal technology transfer is another term for it. This form of transfer occurs mostly between research organizations, universities, and governments, among other entities.⁴³
- b. **Horizontal Technology Transfer** is when a technology that has previously been implemented or used in one company is transferred to and used in another. External TT is another name for it. This form of transfer occurs in a variety of settings, including private corporations, small and large businesses, and government agencies.⁴⁴

2.4.2 Mode of technology transfers

It is necessary to recognize the techniques or channels through which technology can be conveyed in order to completely comprehend the notion of TT. TT is primarily accomplished through business-to-business transactions, such as the transfer of IPRS, including licensing, the execution of agreements for the supply of technical know-how or the provision of technical services and assistance, or the sale and import of capital goods, parts, or other components, or as part of franchise or distributing agreements, or as a result of FDI.⁴⁵ TT generally take the form of contracts.⁴⁶ This part of the research discusses the various methods by which TT occurs.

2.4.2.1 The sale or assignment of Intellectual Property (IP) Rights

This approach entails a proprietor selling all of his or exclusive rights to a patented innovation to another person, and the latter purchasing those rights. An assignment of such rights occurs when the owner of a patented invention transfers all of his exclusive rights to another person without

⁴³ P Shreya Technology Transfer: Meaning, types and steps <https://www.origiin.com/2020/09/13/technology-transfer-meaning-types-and-steps/> (accessed 3 September 2021)

⁴⁴ Same as above

⁴⁵ World Intellectual Property Organization 'Licensing Guide to Developing Countries' (1977) *A Guide on the Legal Aspects of the Negotiation and Preparation of Industrial Property Licenses and Technology Transfer Agreements appropriate to the needs of Developing Countries* at 23 https://kcp.go.id/an-component/media/upload-gambar-pendukung/brsdm/Sentra%20KI/Buku/LICENSING%20GUIDE%20FOR%20DEVELOPING%20COUNTRIES%20wipo_publication/620.pdf (accessed 4 September 2021)

⁴⁶ R Stim *Contracts: The Essential Business Desk Reference* (2010) 215

any condition. Other objects of IP such as trademarks, industrial designs and copyright assignment are subject to similar principles and characteristics.⁴⁷

2.4.2.2 Licensing

An agreement under which the licensor of a patent, trademark or other intellectual property gives right to licensee to use the technology developed or owned by the Licensor for a specified time period is known as licensing.⁴⁸ It may be for the granting of an exclusive or non-exclusive right. The licensee may have the right to sub-license.⁴⁹ Licensing may be restricted by territory, time, purpose, or virtually any other factor desired by the parties.⁵⁰

2.4.2.3 Know-How Contract

Another method for TT is know-how. It refers to a collection of non-patented practical information derived from experience and testing that is confidential, significant, and identifiable.⁵¹ It can be separated or form part of a license contract. It could be conveyed in a physical form. Documents, photographs, plans, computer cards, and microfilm, among other tangible forms, are examples. Industrial architectural designs, schematics of the layout of factory equipment, drawings or blueprints of machines, manuals or instructions for the operation of machines or the assembly of components, process flow charts, and packing and storage instructions are all examples of physical know-how.⁵² Know-how can be expressed in intangible form. Examples include a supplier's engineer explaining a process to the recipient's engineer or an engineer from the recipient observing a production line in the supplier's facility.⁵³

⁴⁷ D Kuzniatsou's (2013) 'Making Technologies Work' <http://innodigest.com/technology-transfer-methods/> (accessed 2 September 2021)

⁴⁸ Same as above

⁴⁹ Same as above

⁵⁰ Same as above

⁵¹ PF Fine *The EC Competition law on technology licensing* (2006) 57

⁵² World Intellectual Property Organisation; Overview of Contractual Agreements for the Transfer of Technology www.wipo.int/sme/en/documents/pdf/technology_transfer.pdf (accessed 2 September 2021)

⁵³ Importance of technology transfer <https://www.scribd.com/doc/8998973/Importance-of-Technology-transfer> (accessed 2 September 2021)

2.4.2.4 Joint Venture, Collaboration and Development Contracts

A joint venture (JV) is a business relationship in which two or more parties agree to combine their resources in order to complete a specific task.⁵⁴ A foreign entity may choose to begin a business relationship with an entity in the host country.⁵⁵ The parties may incorporate a separate entity. They may also jointly exploit an IP through contractual relationship. This is normally called collaboration agreements, joint development agreements, co-marketing or revenue sharing agreements.⁵⁶

2.4.2.5 Franchise

Commercial TT can also take the shape of product and service franchising. A franchise or distributorship is a commercial structure in which one party's (franchisor's) reputation, technical knowledge, and skill are paired with another party's (franchisee's) investment with the goal of selling goods or providing services.⁵⁷ A trademark, service mark, or trade name, as well as a unique décor (the 'look') or design of the premises, are frequently used to establish a franchise. The license of such a mark or name by its owner is usually linked with the provision of know-how in some form, such as technical information, technical services, technical assistance, or management services in the areas of production, marketing, maintenance, and administration by that owner.⁵⁸

2.4.2.6 Acquisition of Equipment and their Capital Goods

TT can also happen when equipment and other capital commodities are sold or purchased. The purchase of machinery and equipment is a significant source of knowledge for companies looking to innovate. Firms can use more efficient production methods thanks to the technological know-how embedded in machines. The introduction of machinery, equipment, and components into

⁵⁴ H Marshal 'Joint Venture: what is it' <https://www.investopedia.com/terms/j/jointventure.asp>

⁵⁵ Unzco. (2015) Technology Licensing/ Joint Ventures. <https://www.unzco.com/basicguide/c6.html>.(accessed 2 September 2021)

⁵⁶ LPP Suzanne Weakley 'Intellectual Property in Business Transactions (2014)' *Continuing Education of the Bar. Oakland, California* at. 4 [WorldCat.org] (accessed 3 September 2021)

⁵⁷ AJ Sherman *Franchising & Licensing: Two Powerful Ways to Grow Your Business in any Economy (2011)*13

⁵⁸Technology Transfer Methods https://www.academia.edu/31811552/TECHNOLOGY_TRANSFER_METHODS (accessed 4 September 2021)

manufacturing processes that incorporate new technologies created in other enterprises, whether domestically or internationally, is embodied in technology diffusion.⁵⁹ A license contract and/or a know-how contract may be coupled with contracts involving the sale and purchase of capital goods as well as the import of capital goods. In some cases, the licensing contract or the know-how contract may contain restrictions governing the sale and purchase of capital goods, as well as the import of capital goods.⁶⁰

2.4.2.7 Consultancy Arrangements

Consultancy services is another source of TT. Consultants that provide advise and other services related to the planning and purchase of new technology can be beneficial to entities and governments interested in acquiring technology abroad. Not only is assistance in purchasing technology provided in such a business agreement, but the experience gained and lessons learned in engaging and working with the individual consultants will be useful knowledge that can be applied to future initiatives.

2.4.2.8 Turn key project

Turn key project may be another source or method of TT. A turn-key project is a comprehensive agreement in which a transferor agrees to give over an entire industrial facility to a transferee that is capable of running in accordance with agreed performance requirements. Typically, a turnkey project will also include an agreement by a transferor to provide the design for an industrial plant as well as technical information on its operation to a transferee.⁶¹

⁵⁹ G Papaconstantinou and others. (1996), Embodied Technology Diffusion: An Empirical Analysis for 10 OECD Countries, OECD Science, Technology and Industry Working Papers, 1996/01. <https://www.innovationpolicyplatform.org/www.innovationpolicyplatform.org/content/acquisition-machinery/index.html> (accessed 4 September 2021)

⁶⁰ International Trade Centre, What are the main contractual agreements for the transfer of technology? <https://www.intracen.org/What-are-the-main-contractual-agreements-for-the-transfer-of-technology/> (accessed 4 September 2021)

⁶¹ World Intellectual Property Organisation (n52) 24

2.4.2.9 *Cross border movement of personnel*

Cross border movement of technical and managerial personnel is another channel of TT. Another pathway for TT is international mobility of persons linked with nationals studying or working abroad for a limited period of time and utilizing their new knowledge when they return, or inward movement of foreign nationals into the country.⁶²

2.4.2.10 *Original equipment manufacturer*

It's a type of subcontracting arrangement in which a foreign firm gives a piece of its technology to a local company, which then manufactures according to the agreement's parameters. This type of agreement allows local businesses to absorb technologies and restructure their production processes.⁶³

2.5 **Technology transfer provisions in some international instruments**

It is to be noted that, over eighty multilateral, regional and bilateral instruments contain provisions on TT and the number is increasing.⁶⁴ Depending on the intent and purpose of the various instruments, the technology-related provisions contained in such instruments take a variety of approaches. However, in most situations, such provisions only include 'best efforts' obligations rather than binding requirements⁶⁵ and all these provisions and instruments incorporated helps in widening the legal framework of TT.

This part of the dissertation highlights some selected international instruments on TT. Concentration will be on the development of three particular international agreements namely; the Paris Convention for the Protection of Industrial Property (Paris Convention); Agreement on

⁶² BM Hockman & Others (2005) Transfer of Technology to Developing Countries: Unilateral and Multilateral Policy Options World Bank Policy Research Working Paper 3332, 10 <http://documents.worldbank.org/curated/pt/110301468332982540/text/526760PUB0FREN1r0Development1French.txt> (accessed 4 September 2021)

⁶³ Same as above

⁶⁴ Compendium of International Arrangements on Transfer of Technology UNCTAD/ITE/IPC/Misc.5 (2003) <https://unctad.org/system/files/official-document/psiteipcm5.en.pdf> (accessed 4 September 2021)

⁶⁵ UNCTAD publications *Compendium of International Arrangements on Transfer of Technology* (2001)5 <https://unctad.org/system/files/official-document/psiteipcm5.en.pdf> (accessed 29 August 2021)

Trade-Related Aspects of Intellectual Property Rights (TRIPS); and Agreement on Trade-Related Investments Measures (TRIMs). Regional agreements such as the European Commission's legislation on TT and the Pan African Investment Code (PAIC) will be discussed. These treaties are part of a systematically incorporated into what is now known as the most imperative and comprehensive international agreement on the subject.⁶⁶

2.5.1 Paris Convention for the protection of industrial property

An important goal of intellectual property rights treaties is to encourage technology transfer across countries.⁶⁷ The Paris Convention, was the first international agreement to deal with the system of trademarks and patents, grants legal protection to trade marks on the grounds of national treatment. The Paris Convention also established the right of priority by providing a six-month priority to a trademark application.⁶⁸ Article 4 of the Paris convention provides for the facilitation of the transfer of patent rights from one country to another. It establishes the principle of independence of patents. Under this principle, cancelation or expiration of patent in one country of the convention does not affect the expiration or cancellation of a patent for the same invention in another member state of the Paris Convention.⁶⁹ Being one of the oldest convention for the protection of IP rights, the Paris convention has been subject to many amendments and revisions and the idea of possible revision was first advanced in 1974 when the Director General of WIPO created an ad hoc group of governmental experts, which in 1977 adopted a declaration which served as a basic document on the revision of Paris Convention. Under the declaration access to technology and transfer of technology and dissemination of knowledge were at the heart of declaration.⁷⁰ Other than the articles 2 and 4 some other part of the Paris Convention also governs the international patent system.

⁶⁶ PYS Tan. International Trade Policy for Technology Transfers: Legal and Economic Dilemmas on Multilateralism verses Bilateralism (2009) *Kluwer Law International* at 85

⁶⁷ M Petra and others, Do Treaties Encourage Technology Transfer? Evidence from the Paris Convention (July 22, 2011) https://www.ssc.wisc.edu/~kbilir/Bilir_Moser_Talis.pdf (accessed 1 September 2021)

⁶⁸ World Trade Organization, Ministerial Declaration, WTO Doc. WT/MIN (17)/40 (2017) https://www.wto.org/english/thewto_e/minist_e/mc11_e/documents_e.htm (accessed 1 September 2021)

⁶⁹ TR Sagafi-Nejad, and others *Controlling International Technology Transfer: Issues, Perspective and Policy Implications* (2013) 68

⁷⁰ J Faundez and C Tan *International Economic Law, Globalisation and Developing Countries* (2010)313

2.5.2 Trade related aspects of intellectual property rights (Trips) agreement

TT is seen as part of the bargain in which developing countries have agreed to protect intellectual property rights. The framers of the TRIPS Agreement recognized the daunting challenges facing TT to LDCs and thus specifically mandated developed countries to provide incentives to domestic firms.⁷¹ The objective of Article 66.2 of the TRIPS Agreement is that *'the protection and enforcement of intellectual property rights should contribute to the promotion of technological innovation and to the transfer and dissemination of technology.'*⁷² Article 66.2 creates a legal obligation for developed country members to encourage TTs to the LDCs. Article 66.2 reads: *'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 66.2 establishes a positive legal obligation not merely make a suggestion.⁷³ Despite the expansive language in Article 66.2, LDCs have repeatedly criticized developed countries and the WTO for failing to implement the provision's mandate.⁷⁴ The TRIPS Agreement explicitly deals with IPRs, nevertheless, it has a key role for international TT and many of its provision expressly speak about TT.

2.5.3 Trade Related Investment Measures (TRIMs) agreement

The TRIMs Agreement has major implications for TT and emerging nations' skill building. GATT 1947 established a prohibition on investment measures that violated the principles of national treatment and the general abolition of quantitative limits, but the scope of the prohibition remained unclear.⁷⁵ Certain investment policies, according to TRIMS, can restrict and distort trade. While there is no multilateral agreement that deals explicitly with TT, however, the TRIMS Agreement

⁷¹ S Moon, Does TRIPS Art. 66.2 Encourage Technology Transfer to LDCs? (2008) 3 *International Centre for Trade and Sustainable Development Policy Brief Number 2*, https://unctad.org/system/files/official-document/iprs_pb20092_en.pdf (accessed 1 September 2021)

⁷² World Trade Organisation Agreement on Trade Related Aspects of Intellectual Property Rights (TRIPS), 1994, Art 7

⁷³ C Correa, Can the TRIPS Agreement Foster Technology Transfer to Developing Countries? in K. E. Maskus and J. H. Reichman (Eds.), *International Public Goods and Transfer of Technology under a Globalized Intellectual Property Regime*, 2005 at 253.

⁷⁴ C Hutchison *Does TRIPS Facilitate or Impede Climate Change Technology Transfer into Developing Countries?* (2006) 517

⁷⁵ P Reddy 'Transnational Corporations, Learning and Innovation; Implications of the TRIMs Agreement' (2003) *Technology Transfer Policy* at 2 https://www.merit.unu.edu/publications/pb/tpb_v2_01_2003.pdf (accessed 1 September 2021)

is important because of the strong connection between TT and FDI ⁷⁶ whereas trade and development policies are a key determinant of international technology diffusion. TRIMS discriminate against imports by providing incentives (in addition to import duties) for domestic producers to source input. Foreign enterprises may be expected to transfer knowledge to ensure that local input meets their criteria, which is a common incentive for TRIMS.⁷⁷

2.5.4 European legislation on technology transfer

The European Commission (EC) adopted new competition rules, the Technology Transfer Block Exemption Regulation (TTBER and Guidelines) for the assessment of TTAs, on March 21, 2014. TTAs are agreements in which a licensor allows a licensee to use patents, know-how, or software to produce goods and services.⁷⁸ The TTBER and the guidelines cover agreements for the TT. Article 1(1)(b) of the TTBER provides that the concept of technology rights covers *‘know-how as well as patents, utility models, design rights, topographies of semiconductor products, supplementary protection certificates for medicinal products or other products for which such supplementary protection certificates may be obtained, plant breeder's certificates and software copyrights or a combination thereof as well as applications for these rights and for registration of these rights. The licensed technology rights should allow the licensee, with or without other input, to produce the contract products.’*⁷⁹ The TTBER only applies in EC member states when the licensor owns relevant technical rights. There are no technology rights to be transferred under the TTBER if this is not the case.

2.5.5 Pan African Investment Code (PAIC)

Under the African Union (AU), the PAIC is the first continent-wide model investment treaty. It was written with developing and low income countries in mind, with the goal of promoting long

⁷⁶ World Trade Organization (2015) ‘Agreement on Trade Related Investment Measures’ https://www.wto.org/english/tratop_e/invest_e/invest_info_e.htm (accessed 1 September 2021)

⁷⁷ BM. Hoekman and others, Transfer of Technology to Developing Countries: Unilateral and Multilateral Policy Options 23 (Working Paper, 2004) <http://www.betsaonline.com/SystemAnalysis/TransferTechnology.pdf>. (accessed 3 September 2021)

⁷⁸ Licensing Agreement for transfer of technology <https://ec.europa.eu/competition/antitrust/legislation/transfer.html> (accessed 1 September 2021)

⁷⁹ Communication from the Commission — Guidelines on the application of Article 101 of the Treaty on the Functioning of the European Union to technology transfer agreements <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52014XC0328%2801%29> (accessed 1 September 2021)

term development. It contains many innovative features and makes sustainable development its overarching objective. It specifies horizontal obligations, for example, on how investors can assist in the promotion of TT, clean technologies, and environmental protection in Africa.⁸⁰ It is provided that, *‘Member States shall put in place policies for the purpose of promoting and encouraging the transfer and acquisition of appropriate technology. It is provided that investors are encouraged to adopt in the course of their business activities, practices that permit the transfer and rapid diffusion of technologies and know-how, with due regard to the protection of intellectual property rights, on reasonable terms and conditions and in a manner that contributes to the research and development goals of the host State.’*⁸¹

AU members also undertakes *‘to cooperate and facilitate the international transfer of technology by various measures such as: getting access to available information regarding description, location and, as far as possible, approximate cost of technology; establishing or strengthening of technology transfer centers; providing training for research, engineering, design and other personnel engaged in the development of national technologies or in the adaptation and use of technologies transferred; providing assistance in the development and administration of laws and regulations with a view to facilitating the transfer of technology; granting credits on preferential terms for financing the acquisition of capital and intermediate goods in the context of approved development projects involving transfer of technology transaction; and assisting in the development of technological capabilities of the companies and their personnel.’*⁸²

The provisions of TT discussed above required instrument that will regulate the transfer of technology among countries. In the attempt to provide developing countries with the TTs entities in developed countries included a lot of restrictive conditions at the detriment of their counterparts

⁸⁰ S Schacherer ‘The AfCFTA Investment Protocol: An Opportunity to Converge and Propel the Pan African Investment Code (PAIC) Insights from the Negotiations of the PAIC’ *Paper presented at the AfAA 2nd Annual International Arbitration Conference (2021)*. <https://afaa.ngo/page-18097/10440007> (accessed 2 September 2021)

⁸¹ Article 29 (1) of the PAIC https://au.int/sites/default/files/documents/32844-doc-draft_pan-african_investment_code_december_2016_en.pdf (accessed 1 September 2021)

⁸² Article 29(3) of the PAIC https://au.int/sites/default/files/documents/32844-doc-draft_pan-african_investment_code_december_2016_en.pdf (accessed 1 September, 2021)

in the developing countries. These restrictive conditions are discussed in detailed under section 2.6 of this chapter.

2.6 Restrictive Conditions in Technology Transfer Agreements

TTAs are the main form of market-based TT mechanisms. Different studies indicate that such type of agreements is often subject to restrictive clauses and conditions which, in varying degrees, limit developing countries' access to technology.⁸³ As a result, TT regulatory system of these countries prohibits the inclusion of such type of terms and conditions in the agreements. The present section is devised to briefly explain the most common types of restrictive terms and conditions in TTAs.

2.6.1 Tie- Ins

Tie-Ins clauses are terms and conditions which restrict the source of supply of inputs. These terms restrict the transferee choice to purchase intermediate goods, capital equipment, spare parts and even experts.⁸⁴ Technology transfer agreements with Tie-ins clauses, the transferee is required to obtain equipment, tools, spare parts or raw materials exclusively from the technology supplier (transferor) or a designated source specified by the latter even if the inputs are available at a competitive price in domestic market.⁸⁵ Tie-ins clauses deprive the transferee the possibility of exploiting market opportunities. In addition, by reason of their exclusive position, transferor may charge higher prices than the price of comparable equipment and other inputs that could otherwise be obtained elsewhere.⁸⁶ It may also be added that the structure of the market for intermediate and other inputs which are tied to the sources of technology by the transferor has implied an increasing

⁸³ Hoekman & Others (n77) 13

⁸⁴ M Blakeney 'Transfer of Technology and Developing Nations' (1987) 11, *Fordham International Law Journal* at 709 <https://core.ac.uk/download/pdf/144226654.pdf> (accessed 3 September 2021)

⁸⁵ Y H Tessema 'The Legal Framework for the Transfer of Technology in Ethiopian' (2016) *Journal on Law, Policy and Globalisation* at 154 <https://iiste.org/Journals/index.php/JLPG/article/download/34245/35217> (accessed 3 September 2021)

⁸⁶ GY Sipa-Mjah, The Role of the International Patent System in the Transfer of Technology to West Africa: Case Studies- Ghana and Nigeria (1986) (unpublished Ph.D. dissertation, the University of Warwick), <http://go.warwick.ac.uk/wrap/39315>. (accessed 3 September 2021)

dependence on imports of capital goods and intermediate outputs.⁸⁷ This creates a perpetual dependency relationship between the parties, and thus makes little room for freedom of action by the latter.⁸⁸ Furthermore, tie-ins clauses are anti- competitive.

2.6.2 Export Restrictions

The other most common category of restrictive terms and conditions are clauses which prohibit or limit export of the goods and services produced by the transferee. These terms and conditions take various forms. They may range from ‘*express total prohibitions on exports, through permissible exports of designated products to designated markets, and to market share arrangements implied between parent and subsidiary enterprises.*’⁸⁹ The obvious impact of this type of restrictions is that, it hampers on the growth and competitiveness of the transferee. This will, in turn, compel the transferee to maintain production at a minimum level. Consequently, it will not fully exploit the foreign technology. It may also be discouraged to invest in new production facilities.⁹⁰

2.6.3 Competition Restrictions

TTAs often contain provisions which prohibit the transferee from the use of other competitive techniques. Such type of clause may also prohibit the transferee the use of complimentary technology. These categories of terms and conditions have the effect of limiting the range of technology and sources of technologies available to the transferee.⁹¹ They may also prevent the adaptation of the technology to suit local market needs.

2.6.4 Research & Development (R&D) Restrictions

TTAs may also contain clauses which impose restriction on R&D activities of the transferee in connection with the technology transferred. Such type of clauses may have the effect of preventing

⁸⁷ Sipa-Mja (n86) 34

⁸⁸ Sipa-Mjah (n86) 35

⁸⁹ Hoekman & Others (n77) 18

⁹⁰ Sipa.Mijah (n86) 51

⁹¹ Hoekman & others (n77) 24.

the adaptation and modification of the transferred technology to accord to local situations and to be appropriate for local consumption.⁹² They may also hamper incremental innovation.

2.6.5 Quota Restriction

Quota retractions are also a typical restrictive terms and conditions in TTAs. TTAs may include conditions limiting the volume of production or sale of a technology recipient's product. These types of provisions have negative effect on the optimal utilization of the transferred technology by the transferee. They may also have adverse effect on the competitiveness of the transferee.

2.6.6 Grant Back Clause

A grant back clause binds the licensee to give the licensor the rights to future advancements or upgrades in the licensed technology.⁹³ When the tension between cooperation and competition shifts toward competitive behavior rather than cooperative behavior, the grant back clause kicks in.⁹⁴ The licensors motive for licensing out a technology to the licensee often include a remuneration structure in which the licensee agrees to a payment scheme in the form of an upfront fee or a royalty rates.⁹⁵ While a grant back clause is intended to allow licensors to avoid losing competitive advantages while still reaping the benefits of participating in technology markets, it may also limit the overall benefits because the inclusion of a grant back clause in a TTA removes much of the licensee's incentive to invest in the technology's further development.⁹⁶ While licensing may act as a catalyst for follow-on inventions⁹⁷ the clause may cancel out much of the mutual learning to further develop new technologies.

⁹² Hoekman & others (n77) 23.

⁹³ KL Maria & others, Cooperation Or Competition: Grant-Back Clauses In Technology Licensing Contracts Paper to be presented at the DRUID 2012 https://conference.druid.dk/acc_papers/flxv2ovbg6hajpvt0eu6ldrog3ob.pdf (accessed 2 September 2021)

⁹⁴ G Hamel Competition for Competence and Inter-Partner Learning Within International Strategic Alliances (1991) 12, *Strategic Management Journal* at 83

⁹⁵ TV Dijk 2000. License Contracts, Future Exchange Clauses, and Technological Competition. *European Economic Review* 44(8) (2000) <https://www.sciencedirect.com/science/article/pii/S0014292199000045> (accessed 5 September 2021)

⁹⁶ Same as above

⁹⁷ J Bessen, Patents and the diffusion of technical information (2005) 86 *Economics Letters, Elsevier* at 121-128 <https://ideas.repec.org/a/eee/econlet/v86y2005i1p121-128.html> (accessed 5 September 2021)

In general, restrictive terms and conditions have negative impact on technology recipient countries' desire to access and adapt foreign technologies, and develop local technological capability. They also have negative effect on their firms' competitiveness in the international market in one way or another. As a result, the TT regulatory system of most developing countries prohibits their inclusion.

2.7 Regulation of technology transfer

As indicated in the preceding chapters, developing countries faced a lot of challenges in their quest to import of technology from the developed countries. The exorbitant expenses, the imposition of restrictive terms and conditions that hampered economic and technological development, and the lack of guarantees from the transferors on the technology transferred were among the issues. Furthermore, some poor countries lacked experience in the design of TTAs. In several developing countries, there was also a lack of a sufficient legislative framework for controlling TT or establishing transfer conditions.⁹⁸

In view of these major setback developing countries encountered in transferring technology from the developed countries, UNCTAD by a resolution 74 (X) dated 18th September 1970 established an Intergovernmental Group on the TT. The Group was tasked with drafting an international code of conduct on TT to lead TT to poor countries, among other things.⁹⁹ Even though the code is not binding on member countries it has become the standard for regulatory framework for TT.

2.7.1 The draft International Code of Conduct for transfer of technology

UNCTAD's initiatives on a code for TT, which date back to 1961 and attempted to modify international patent law in favor of developing countries, are the most significant attempt to regulate TT at the international level.¹⁰⁰ A series of studies published in the late 1960s sparked the idea for a worldwide code, highlighting the importance of the TT in the development process

⁹⁸ Report of the Secretary General, United Nations Commission on International Trade Law Eighteenth session on Legal Aspects of Technology Transfer: Current activities of International Organizations within the United Nations System, Vienna, 3-21 June 1985 at 4 [https://undocs.org/pdf?symbol=en/A/40/17\(SUPP\)](https://undocs.org/pdf?symbol=en/A/40/17(SUPP)) (accessed 4 September 2021)

⁹⁹ (n68 above) 5

¹⁰⁰ P Roffe Transfer of Technology: UNCTAD's Draft International Code of Conduct (1985) 19 *The International Lawyer* at 689-707 <https://www.jstor.org/stable/i40031094> (accessed 4 September 2021)

of developing nations as well as the current situation in the flow of technology to these countries.¹⁰¹ The Draft International Code of Conduct on Technology Transfer is expected to be the culmination of a UN-sponsored effort to draft a multilateral agreement to control international technology transfer legislation.

The poor countries thought that the Code would be a legally enforceable pact that would allow receiving countries to establish restrictions aimed at improving trade terms for their citizens.

The developed world, on the other hand, preferred a voluntary code and a more laissez-faire approach.¹⁰² The Code's deliberations have run across a number of roadblocks. Some of the challenges stem from the various ways and philosophies used by governments to deal with the TT process.¹⁰³

The following parts summarize the Code by focusing first on the Code's key characteristics, then on the regulation of TT transactions, and finally on the Code's application and execution at the national and international levels. A description of the Code's outstanding issues is also taken into account.¹⁰⁴ However most countries uses the code as the international standard for regulation of TTs. Below is a detailed description of the Code.

2.7.1.1 Main objectives of the International Code

The Code's principal goal is to establish a set of general and equitable norms for all parties involved in technology transfer agreements, taking into account the parties' legitimate interests as well as the unique needs of developing nations.¹⁰⁵ Other goals of the Code include the formulation, adoption, and implementation of national TT policies and laws, as well as the promotion of unpackaging in terms of information about the various elements of the technology to be

¹⁰¹ Same as above

¹⁰² KE Davis 'Regulation of Technology Transfer to Developing Countries' (2005) 27 *The Relevance of Institutional Capacity LAW & POLICY* at 10 <https://www.semanticscholar.org/paper/Regulation-of-Technology-Transfer-to-Developing-The-Davis/6803c9d3d43531ecf94ac7b7405308f3e2865e1f> (accessed 18 September 2021)

¹⁰³ Roffe (n100) 643

¹⁰⁴ Roffe (n100) 692

¹⁰⁵ Paragraph 2.1(i) of the Code

transferred, such as that required for technical, institutional, and financial evaluation of the transactions.¹⁰⁶

The Code's scope is universal, and it is addressed to all parties involved in TTAs in all countries.¹⁰⁷ Despite its universal nature, the Code places a special emphasis on developing countries' special interests and concerns.¹⁰⁸

2.7.1.2 *The concept of technology transfer in the Code*

As stated above, the Code provides that TT is the “*transfer of systematic knowledge for the manufacture of a product, for the application of a process or for the rendering of a service. Transactions involving the mere sale or mere lease of goods are specifically excluded.*”¹⁰⁹ It explains the notion even further by identifying transactions that are covered by the instrument, such as:

- *transactions involving industrial property, except trademarks, service marks and trade names, unless these are part of a transfer of technology transaction;*
- *transactions involving the provision of know-how and technical expertise; and*
- *the provision of technological knowledge necessary for the installation, operation and financing of plants and equipment and turnkey projects.*¹¹⁰

The issue of identifying the scope of application of the Code in terms of what constitutes an international transfer of technology transaction is a source of disagreement. When technology is transmitted beyond national borders, the Code will apply. When technology is not moved across national borders, but the parties to the transaction are located in different countries or one of the parties is controlled by a foreign corporation, there is a disagreement about how the Code should be applied. The industrialized countries believe that in order for a transaction to be international and come inside the scope of the Code, technology must be transmitted across national borders.

¹⁰⁶ Paragraph 5.2(c) of the Code

¹⁰⁷ Paragraph 1.5 of the Code

¹⁰⁸ Preamble, Chapter 2 and Chapter 6 of the Code

¹⁰⁹ Paragraph 1.2 of the Code

¹¹⁰ Paragraph 1.3 of the Code.

This group, however, maintains that the principles of the Code of Conduct may be applied to transactions between parties within their national borders through national legislation.¹¹¹

The concept suggested by emerging countries and centrally planned economic countries, on the other hand, is that if technology is moved over national borders, transactions are international. However, where the parties to the transaction are located and who controls them is also emphasized in this approach. If the parties are from different countries, the Code will still apply. However, even if both parties are in the same country, the Code would apply if one of them is controlled by a foreign entity.¹¹²

It is my considered opinion that the Code must apply where one of the parties to the transaction is located outside the jurisdiction and in the event that both parties are within the same country the transferor must be controlled by a foreign entity.

2.7.1.3 Substantive provisions of the Code

The substantive provisions of the Code fall into two broad categories: namely; those concerning the regulation of TT transactions and of the conduct of the parties to them; and those relating to steps to be taken by governments to meet their commitments to the Code.

The first category of provisions, establishes certain generally agreed and universally applicable standards, covers the identification and clarification of responsibilities and obligations of parties (Chapter 5); determination of practices and arrangements involving transfer of technology which are to be deemed undesirable, and under what conditions (Chapter 4); and the law and forum to be selected for the settlement of disputes (Chapter 9).

The second main category of provisions in the Code is basically on steps to be taken by governments to meet their commitments to the Code. it covers provisions related to the regulation of transfer of technology transactions by States (Chapter 3); provisions relating to international collaboration, on a bilateral, multilateral, regional or interregional basis, to facilitate the flow of technology and the growth of the technological capabilities of developing countries (Chapter 7) and special treatment to developing countries (Chapter 6); and provisions concerning the

¹¹¹ Appendix C of the Code

¹¹² Same as Above

establishment of an international institutional machinery responsible for the application and implementation of the Code (Chapter 8).”¹¹³

2.7.1.4 Restrictive practices

The Code's Chapter 4 discusses TT transaction practices that should be avoided. Provisions dealing with the following restrictive practices have been agreed upon or are close to being agreed upon.¹¹⁴

The text list some restrictive practices which must be avoided by parties in their TT transactions. They are discussed below.

a) Grant back provisions

In certain cases, the Code avoids grant-back clauses that would obligate the transferee to return any enhancements made to the acquired technology. When grant-back provisions would be an abuse of the transferor's dominant market position, it is generally agreed that they should be avoided. The question is whether it should be avoided when they are on an exclusive basis, with no offsetting consideration or reciprocal obligations from the supplying party, or when they are on an exclusive basis, with no offsetting consideration or reciprocal obligations from the supplying party.¹¹⁵

b) Challenges to validity of patents

The Code seeks to avoid practices that require the transferee to refrain from challenging the validity of patents and other types of protection for inventions involved in the TT, or the validity of other such grants claimed or obtained by the transferor, subject to the appropriate applicable law and the terms of the agreement to the extent consistent with that law.¹¹⁶

¹¹³ Roffe (n100) 695

¹¹⁴ Roffe (n100) 696

¹¹⁵ United Nations Commission on International Trade Law, Legal Aspects of Technology Transfer: Current Activities of International Organizations within the United Nations System Eighteenth Session (June 1985) <https://undocs.org/pdf?symbol=en/A/CN.9/269> (accessed 4 September 2021)

¹¹⁶ Same as above

c) Exclusive dealing

Practices that limit the transferee's ability to enter into sales, representation, or manufacturing agreements relating to similar or competing technologies or products, or to obtain competing technology, should be avoided when such restrictions are not required to protect legitimate interests, such as ensuring the confidentiality of technology transfers.¹¹⁷

d) Restrictions on research and development

The Code avoids practices which restrict the transferee either in undertaking R&D directed at adapting the transferred technology to local conditions or in initiating R&D programs based on the transferred technology for the purpose of developing new products, processes or equipment.¹¹⁸

e) Restrictions on the use of personnel

Except to the degree essential to provide an efficient transmission period for the TT, the Code avoids procedures that oblige the transferee to use personnel identified by the transferor. However, the exception would be conditional on the availability of well-educated local employees. A requirement like this should only be prohibited if it is irrational.¹¹⁹

f) Price fixing

The Code prohibits practices that allow the transferor to set prices for products or services manufactured or provided using the technology transferred in the relevant market.¹²⁰

g) Restrictions on adaptations

The Code forbids methods that impede the transferee from adapting or innovating the imported technology to local conditions. It also bans clauses requiring the transferee to make unwelcome or unneeded design or specification changes unless the transferee does so on his own initiative and without utilizing the transferor's name, trade or service marks, or trade names. The limits would

¹¹⁷ Same as above

¹¹⁸ Same as above

¹¹⁹ United Nations Commission on International Trade Law (n115)6

¹²⁰ Same as above

not apply if the adaption had an unfavorable impact on the items made with the transferred technology, for example.¹²¹

h) Exclusive sales or representation agreements

Except in cases of subcontracting or manufacturing arrangements where the parties have agreed that all or part of the production under the TT arrangement will be distributed by the transferor or any person designated by him, practices that require the transferee to grant exclusive sales or representation rights to the transferor or his nominees are avoided.¹²²

i) Tying arrangements

Practices that oblige the transferee to accept extra technology, future inventions and upgrades, and commodities or services that the transferee does not want as a condition of acquiring the required technology. Tying arrangements, on the other hand, should be permitted if the transferor has a legitimate interest in enforcing them, such as maintaining the quality of the product or service due to the transferee's use of a trade or service mark or another identifying item, or if the transferor is required to keep promises made to the transferee.¹²³

j) Patent pool or cross-licensing agreements and other arrangements

Patent pools, cross-licensing agreements, and other international TTAs that might obstruct access to new technological advancements or result in an abusive monopoly of an industry or market with negative implications for TT are avoided. Restrictions that are necessary and auxiliary to cooperative arrangements are allowed an exception.¹²⁴

k) Restrictions on publicity

Practices that limit the transferee's ability to advertise or publicize the transferor's trade or service marks, trade names, or other distinguishing elements are avoided, unless such restrictions are

¹²¹ Same as above

¹²² Same as above

¹²³ United Nations Commission on International Trade Law (n115)7

¹²⁴ Same as above

necessary to protect the transferor's goodwill or reputation. Restrictions may be necessary, for example, if the transferor is mentioned in the advertising or publicity.¹²⁵

l) Payments and other obligations after expiration of industrial property rights

Payments or the imposition of additional responsibilities in exchange for continuing to use industrial property rights that have been invalidated, revoked, or expired should be avoided. Payment responsibilities for technology will be governed by the applicable legislation and the conditions of the agreement to the extent that they are compliant with that law.¹²⁶

m) Applicable law and settlement of disputes

The wording for Chapter 9 on applicable law and dispute resolution is still yet to be agreed upon. Choice of law, amicable resolution of disputes or differences between parties, arbitration, encouragement of the use of internationally accepted arbitration rules, such as the United Nations Commission on International Trade Law (UNCITRAL) Arbitration Rules, and recognition and enforcement of arbitral awards are some of the elements that could be included in this chapter.¹²⁷

2.7.1.5 Conduct of parties to the technology transfer

Parties' responsibilities and obligations are addressed in Chapter 5 of the Code. It contains a number of laws governing how parties to TT transactions should conduct themselves while negotiating and carrying out their agreements. It includes provisions on responsiveness to the parties' respective nations' economic and social development objectives, notably the technology-acquiring countries, as well as fair and honest business practices.¹²⁸

2.7.2 National regulation of transfer of technology transactions

Chapter 3, on national regulation of TT transactions, recognizes states' right to enact TT-related laws, regulations, rules, and policies, as well as the types of actions that can be done. Finance, renegotiation, technological problems, and organizational forms and methods for TT are among the solutions addressed.¹²⁹

¹²⁵ Same as above

¹²⁶ United Nations Commission on International Trade Law (n115)8

¹²⁷ Chapter 9 of the Code

¹²⁸ Paragraph 5.1 of the Code

¹²⁹ Paragraph 3.1 of the Code

2.8 Conclusion

In conclusion, it is worthy of note that the concept of technology, transfer and TT do not have a universally accepted definition. Authorities try to define the concept based on the context and the purpose to be achieved. Therefore, to put the discussion in a proper context, types, channels and problems associated with technology transfers were made. Provisions of TT in International instruments were also discussed. It is realized that even though most multilateral and bilateral treaties contain provisions on technology transfers little is done to ensure the full implementation of those provisions to achieve their set objectives.

It should be mentioned that the adoption of an international code of conduct on technology transfer will primarily respond to the ambitions expressed by developing nations for increased access to scientific and technological achievements in order to improve their living standards. Although the Code emphasizes developing nations' specific concerns, it does not yet bind countries; rather, it provides general and equitable criteria that are fundamentally universal in applicability and addressed to all parties as well as all countries and groupings of countries.

CHAPTER 3

THE LEGAL, REGULATORY AND INSTITUTIONAL FRAMEWORK OF TECHNOLOGY TRANSFER REGIME IN GHANA

3.1 Introduction

The preceding chapter discussed the concept of technology, transfer and TT. It further looked at the challenges, channels and International legislation with technology transfer provisions. It ended by discussing international standard of code of conduct in the technology transfer.

This chapter will focus on a review of the concept of TT in Ghana, types of TTAs in Ghana, restrictive business practices prohibited by TT legislation, institutional framework of TTR in Ghana, an analysis of TTAs registered from 2011 to 2020, local legislation on technology transfer regimes in Ghana and a discussion of other legislation with TT provisions.

3.2 The concept of technology transfer in Ghana

Act 2013 defines a TTA as an agreement with a business that lasts at least eighteen months and includes the following:

- a) *the assignment, sale and licensing of all forms of industrial property, except trademarks, service marks and trade names when they are not part of transfer of technology;*
- b) *the provision of technical expertise in the form of feasibility studies, plans, diagrams, models, instructions, guides, formulae, basic or detailed engineering designs, specifications and equipment for training, services involving technical advisory and managerial personnel and personnel training;*
- c) *the provision of technological knowledge necessary for the installation, operation and functioning of the plant and equipment, and turnkey projects; and*
- d) *the provision of technological knowledge necessary to acquire, install and use machinery, equipment, intermediate goods or raw materials which have been acquired by purchase, lease or other means.*¹³⁰

¹³⁰ Ghana Investment Promotion Centre Act 865 Of 2013, Section 43

3.3 Types of TTAs in Ghana

It should be noted that TT to developing countries is typically accomplished through enterprise-to-enterprise agreements, such as the transfer of intellectual property rights, including licensing, technical know-how, technical services and assistance, the sale and import of capital goods, parts or other components, franchise or distributing agreements, or FDI (including joint ventures) with the resulting infusion of entrepreneurial, managerial, or technical skill by one enterprise.¹³¹ It is to be noted that GIPC legislation contemplate on four main types of TTAs. These are discussed below.

3.3.1 Industrial property (IP) right license

A patent of invention, an industrial design, a utility model, a plant variety, a brand or a service mark, among other things, is the subject of an IP license.¹³² Below are the various categories of IP license contemplated by Act 865.

3.3.1.1 Assignment or sale

The first mode of TT envisaged under Act 865 is the assignment or sale of IP rights. This occurs where licensor transfers all or part of IP rights embodied in an IP to a licensee or the outright purchase of those rights by the licensee.¹³³ The consideration for assignment is either a payment of lump sum or a continuing payment known as royalty.¹³⁴ It should be noted further that; one or more IP license agreements may be involved in any given TTA. An IP license agreement can be found on its own or in conjunction with other legal documents.¹³⁵

3.3.1.2 Franchise and trademark

TT can also be transferred through the sale of products and services in a franchise agreement. A franchise is a commercial structure in which a franchisor's reputation, technical information, and expertise are paired with a franchisee's investment for the goal of selling goods or providing

¹³¹ World Intellectual Property Organization *Licensing Guidelines to Developing Countries* (1977) 24 <https://tind.wipo.int/record/40403?ln=en> (accessed 9 September 2021)

¹³² World Intellectual Property Organization (n131) 25

¹³³ PM Rao & JA Klein *Strategies for High-Tech Firms: Marketing, Economic and Legal Issues* (2015) 111

¹³⁴ World Intellectual Property Organization (n131) 27

¹³⁵ R Stim *Contracts: The Essential Business Desk Reference* (2010) 215

services directly to consumers.¹³⁶ The principal outlets utilized to distribute products under a franchise transaction are usually trademarks, service marks, trade names, and a unique décor or appearance of the premises. The franchisor's license of such a mark or trademark is usually accompanied by the provision of know-how in some form, such as technical knowledge, technical services, technical help, or management services in the areas of production, marketing, maintenance, and administration.¹³⁷

Not all franchise agreements constitute TT. What counts as a TT within the context of a franchise is tricky and requires a close review of the type and nature of the specific franchise. Franchises are divided into three categories: trade name franchises, product distribution franchises, and pure franchises.¹³⁸ The franchisee purchases the right to be identified with the franchisor's trade mark or name in trade name or trade mark franchising.¹³⁹ In such type of franchising, the franchisor may provide minimal assistance to the franchisee. As a result, there might not be a TT component in the franchising relationship. If the trade mark licensing is coupled with the provision of extensive technical assistance, trade mark franchising shall be considered as a TT arrangement.¹⁴⁰

It is worthy of note that, trademarks, service marks and trade names when they are not part of transfer of technology are not considered as TT. To constitute a TT, the franchisor should have the obligation to provide technical and other assistances. The franchisee should also have the right to use, inter alia, the business operation model and marketing strategy of the licensor under the agreement.¹⁴¹

¹³⁶ D Foray (2009), Technology Transfer in the TRIPS Age: The Need for New Types of Partnerships between the Least Developed and Most Advanced Economies 8 (ICTSD Programme on IPRs and Sustainable Development, Issue Paper No.23 http://www.iprsonline.org/New%202009/foray_may2009.pdf (accessed 10 September 2021)

¹³⁷ Overview of Contractual Agreements for the Transfer of Technology <https://docplayer.net/14569712-Overview-of-contractual-agreements-for-the-transfer-of-technology.html> (accessed 10 September 2021)

¹³⁸ Types of Franchising, <https://www.boundless.com/business/textbooks/boundless-business-textbook/types-of-business-ownership-6/franchising-52/types-of-franchises-257-1725/> (accessed 10 September 2021)

¹³⁹ Types of franchising (n138)5

¹⁴⁰ Types of franchising (n138)7

¹⁴¹ Ghana Investment Promotion Centre Act 865 of 2013, section 43

3.3.2 Technical assistance, services or support

Technical services or support agreements include, among other things, agreements covering technological services, design and engineering services, marketing and commercial services, planning, research and development services and turnkey agreements. These are discussed below.

The evaluation and improvement of production methods and quality controls, the establishment of industrial plant regulations and codes, including construction standards, safety facilities, studies and recommendations of environmental aspects of the industrial plant and the product or process are all examples of technological services.¹⁴²

Design and engineering services, on the other hand, refers to broad consulting services for the installation or assembly of equipment or a full industrial plant.

Plant design, tender document preparation for equipment and civil engineering, bid evaluation, equipment installation or assembly, supervision of the erection, start-up, and testing of the industrial plant, as well as assistance in the initial operation of specific items of equipment or the entire industrial plant are some of the services that may be provided.¹⁴³

Marketing and commercial services, on the other hand, may include research and advice on brand names, labeling and packaging, advertising and other sales promotion techniques, after-sales service, distribution channels, consumer preferences and acceptability, merchandising techniques, storage, handling, transportation, payment methods, and expected sales turnover, including the volume of expected domestic and export sales.¹⁴⁴

Planning, research, and development services are also associated with the product, investment, or organization. These services may include assessing a product's market potential, developing programs and projects to improve an existing product or process for its manufacture or develop new products or processes, determining the need for additional investment and the organizational

¹⁴² World Intellectual Property Organisation (n131) 82.

¹⁴³ World Intellectual Property Organisation (n131) 81.

¹⁴⁴ World Intellectual Property Organisation (n131) 83

structures to carry out the programs and projects, and determining the need for additional investment and the organizational structures to carry out the programs and projects.¹⁴⁵

The transferor is responsible for all TT procedures, including technology design, funding, equipment supply, construction, and commissioning, under a turnkey deal.

The transferor assumes complete responsibility for the project's execution; the project will have a fixed price unless there is a force majeure; the transferor guarantees the performance and efficiency of the technology to be transferred.¹⁴⁶

3.3.3 Technical knowledge or know-how services

It is to be noted that the supply of technical knowledge or know-how service is one of the channels of TT envisaged by Act 865. The word "know-how" refers to a collection of non-patented practical knowledge gained through experience and testing that is kept hidden, significant, and identifiable.¹⁴⁷ An agreement to communicate technical information and skills concerning the usage and application of industrial procedures may be the topic of a supply of know-how agreement. Engineers, technicians, specialists, and other experts may provide technical information and skills through documentation, orally, or by demonstration and training.¹⁴⁸

Consultants or other experts who provide services and assistance in areas such as basic engineering of an industrial plant or its machinery and equipment, installation, operation, and maintenance of an industrial plant, and/or management of an enterprise and its industrial and commercial activities can also provide know-how.¹⁴⁹ It is to be noted that, Act 865 provides for the supply of TT through know-how transactions.

3.3.4 Management services

Management services requires the provision of key management staff by the transferor to manage the business of the transferee at a fee. Complex TT transactions can put a lot of pressure on management and organizational skills. Managers of the transferee can gain these abilities via

¹⁴⁵ World Intellectual Property Organisation (n131) 82

¹⁴⁶ D Kuzniatsou, (2013) Making Technologies Work (<http://innodigest.com/tag/agreement/>) (accessed 10 September 2021).

¹⁴⁷ PFL Fine *The EC Competition Law on Technology Licensing* (2006) 57

¹⁴⁸ World Intellectual Property Organisation (n131) 23

¹⁴⁹ Same as above

learning by doing in management and organization with the support of consultants, or by signing management service contracts. Review and evaluation of an existing production or marketing program or project, planning and supervising the product's production and marketing, and application of rules and procedures for carrying out or otherwise administering personnel, financial, and fiscal policies are examples of management services..¹⁵⁰ The transferor charges the transferee for the services provided by these key employees. The employees seconded by the transferor to manage the business of the transferee still remains the employees of the transferor.

3.4 Restrictive business practices

Apart from Act 865 and L.I 1547, there are no further restrictions on TTA registration in Ghana.

Ghana has more liberal regulations than other jurisdictions, which require the use of local components, raw materials, and labor. The transferor and transferee can choose and agree on their labor and raw material sources, as long as the transferor does not impose any restrictions.¹⁵¹ The transferor, on the other hand, is required by the legislation to give the necessary training to the transferee and its people in order for the technology to be used effectively.¹⁵²

Furthermore, under the regulations, TTAs that contain sections prohibiting the following restrictive business practices are inapplicable and unenforceable.

3.4.1 Prohibition of volume of production, sale or exports of the transferee's product

Clauses in TT transactions that limit the scale of production or the sale of the transferee's products in Ghana are prohibited under LI 1547.¹⁵³ Clauses requiring the transferee to export exclusively through the transferor or on disadvantageous terms; or the transferor's prior authorization before any export transaction; or the transferee to pay a higher royalty on export sales are forbidden or

¹⁵⁰ World Intellectual Property Organization (n131) 82

¹⁵¹ EC Bensah & others (2015), China-Ghana South-South Cooperation on Renewable Energy Technology Transfer: Identification of Barriers to Renewable Energy Technology Transfer to Ghana, Stakeholder consultation workshop https://www1.undp.org/content/dam/ghana/docs/Doc/Susdev/UNDP_GH_SUSDEV_C-G_Identification%20of%20barriers%20to%20renewable%20energy%20technology%20transfer.pdf (accessed 13 September 2021)

¹⁵² TTR, LI 1547 of 1992, Regulation 5

¹⁵³ TTR (n152), Regulation (4b)

unenforceable.¹⁵⁴ Clauses that fully ban the transferee's products from being exported or that restrict the transferee's ability to export to certain geographic areas other than those where the transferor has previously granted exclusive rights to third parties are forbidden and unenforceable.¹⁵⁵

3.4.2 Obligation on the transferee to acquire inputs exclusively from the transferor

Clauses in a TT transaction that require the transferee to obtain or procure its inputs, such as equipment, tools, parts, raw materials, or intermediate products, exclusively from the transferor or any other person or a specific source are prohibited and unenforceable, unless such inputs are not commercially available elsewhere or are required to meet the specifications of the product.¹⁵⁶

3.4.4 Obligation to employ personnel to be appointed by the transferor

TT transactions that impose on the transferee an obligation to employ personnel to be appointed by the transferor and whose remunerations shall be provided by the transferee are prohibited and unenforceable, unless the GIPC considers the obligation indispensable, taking into account the work to be performed by the personnel in relation to the transferred technology; the remuneration for it compares favorably with what prevails in the industry; and the remuneration for it compares favorably with what prevails¹⁵⁷

3.4.5 Grant back clauses

Causes in a TT transaction that require the transferee to transfer improvements or innovations introduced or developed, or patents acquired by the transferee in respect of the licensed technology to the transferor, are prohibited and unenforceable, with the exception that such a clause, excluding patents acquired by the transferee, may be permissible if they are mutual or reciprocal.¹⁵⁸

3.4.6 Prohibition to manufacture or sale of products of expired technology transfer agreement

Furthermore, clauses in TT transactions that prohibit the manufacture or sale of products based on the technology transferred after the agreement expires, or prohibit the use of licensed technical

¹⁵⁴ TTR (n152) Regulation(4d)

¹⁵⁵ TTR (n152) Regulation (4c)

¹⁵⁶ TTR (n152) Regulation 4(e).

¹⁵⁷ TTR (n152) Regulation 4(f).

¹⁵⁸ TTR (n152) Regulation 4(g).

know-how acquired from the use of licensed technology after the agreement expires, are prohibited and unenforceable.¹⁵⁹

3.4.7 Preventing the transferee from contesting or assisting in determining the IP

TT transactions containing terms prohibiting the transferee from opposing or aiding in determining the validity of the transferor's industrial property rights asserted or obtained in Ghana, either administratively or through court procedures, are illegal and unenforceable.¹⁶⁰

3.4.8 Restriction of research & development (R&D)

Clauses that limit the transferee's ability to modify and adapt the licensed technology through research and development or restrict the transferee's access to continue improving techniques and procedures linked to the licensed technology are forbidden and unenforceable.¹⁶¹

3.4.9 Forbidden the transferee the use of complementary technology

Any clause in a technology transfer agreement that prohibits the transferee from using complementary technologies, from manufacturing products that are different from those covered by the agreement, or from manufacturing products that are similar to those covered by the agreement is prohibited and unenforceable.¹⁶²

3.4.10 Approval of the transferor before any changes the products, process or plants

Clauses requiring the transferor's consent before the transferee can make changes to products, processes, or plants, or requiring the transferee to introduce unnecessary designs, are prohibited and unenforceable, unless the licensed technology is used to manufacture specific products under a license or trademark.¹⁶³

Clauses that limit the scope, volume of production, or sale or resale prices of the transferee's items are similarly forbidden and unenforceable.¹⁶⁴

¹⁵⁹ TTR (n152) Regulation 4 (i).

¹⁶⁰ TTR (n152) Regulation 4(j).

¹⁶¹ TTR (n152) Regulation 4(k).

¹⁶² TTR (n152) Regulation 4(l).

¹⁶³ TTR (n152) Regulation 4(l).

¹⁶⁴ TTR (n152) Regulation 4(n).

3.4.11 Price Fixing

Again, clauses in a TTA that require the transferee to sell all of its manufactured products to the transferor at a price set by the transferor or to any other person or enterprise designated by the transferor are prohibited, unless the transferee is exclusively engaged in the manufacture of intermediate products, parts, or components for the transferor's subsequent transformation, assembly, or finishing, and the transferor is the sole potential buyer.; or or the requirement is limited to specific export markets; or the transferor can demonstrate that it has a sufficient distribution infrastructure or trade reputation to market the products covered by the agreement more effectively than the transferee.¹⁶⁵

3.5 Payments

L.I 1547 provides thresholds under which a transferor can charge the transferee under a technology transfer. The fees that a Transferor is entitled to be paid depends on the kind of services that are being provided in an agreement. Below is a breakdown of the categories of services under these regulations and their corresponding fees:

- Royalties for Industrial property - 0% - 6% of net sales¹⁶⁶
- Technical Services/assistance including knowhow sales¹⁶⁷ - 0% - 5% of net sales
- Know-how only - 0% - 2% of net sales¹⁶⁸
- Technical Services/assistance only - 0% - 3% of net sales
- Management Services - 0% - 2% of profit before tax¹⁶⁹

¹⁶⁵ TTR (n152) Regulation 4(o)

¹⁶⁶ TTR (n152) Regulation 14

¹⁶⁷ TTR (n152) Regulation 15 (1)

¹⁶⁸ TTR (n152) Regulation 15 (2)

¹⁶⁹ TTR (n152) Regulation 16

It must be noted that clauses in a TT transaction which require payment for patent and other IP rights after their expiration, termination or invalidation is prohibited and unenforceable.¹⁷⁰

3.6 Regulatory design and institutional capacity of technology transfer regimes in Ghana

It's worth noting that, in most cases, technology transfer regulations work by requiring that an international technology agreement be reviewed and approved by a national administrative authority before it can be enforced.¹⁷¹ Many nations, including Ghana, established legislation limiting the content of inbound technology transfer agreements during the 1980s and 1990s.

These rules were frequently incorporated into the country's broader foreign investment laws or were independent laws overseen by separate entities.¹⁷² The GIPC is the institution clothed with the mandate to regulate technology transfers in Ghana.

The GIPC is a government organization in charge of encouraging and promoting investments in Ghana by creating an appealing incentive framework and enabling environment.¹⁷³

GIPC has a number of functions, including:

- a) *To formulate investment promotion policies and plans, promotional incentives and marketing strategies to attract foreign and local investments in advanced technology industries and skill-intensive services which enjoy good export market prospects;*
- b) *To initiate and support measures that will enhance the investment climate in Ghana for both Ghanaian and non-Ghanaian enterprises; and*
- c) *To register and keep records of all technology transfer agreements.*¹⁷⁴

GIPC legislation require that all technologies transferred to Ghana must be by an agreement between a transferor who is located outside Ghana and a transferee, who is located in Ghana. The GIPC is mandated to review, register and monitor all technology transfers to ensure compliance

¹⁷⁰ TTR (n152) Regulation 4h

¹⁷¹ Bensah & others (n151) 31

¹⁷² AS Gullerman 'The Legal Regulation of Technology Transfer Arrangements' <https://www.taylorfrancis.com/chapters/edit/10.4324/9781849772846-23/lessons> (accessed 12 September 2021)

¹⁷³ GIPC Act 865 of 2013, Section 2.

¹⁷⁴ GIPC Act (n173) Section 4

with the terms and conditions of the agreement.¹⁷⁵ An agreement is enforceable subject to the registration by the GIPC.¹⁷⁶ For example, technology transfer fees can only be paid to the transferor upon registration of the agreement with the GIPC. It is illegal to transfer technology transfer fees to the transferor without registration with the GIPC.¹⁷⁷ A renewal of a technology transfer agreement requires an approval from the GIPC and Regulator of the relevant sector.¹⁷⁸

3.7 Registered TTAs in Ghana

REGISTERED

TTAs: 2011-

2020

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Management Service	0	0	0	0	0	0	0	0	0	0
Technical & Know-how	0	0	0	1	0	1	3	0	1	1
Technical Services only	0	2	1	1	1	0	1	1	1	1
Know-how only	0	0	0	0	0	2	0	0	0	0
Industrial Property (IP)	1	2	0	0	0	2	0	0	1	2
Management & Technical	1	5	1	0	0	3	3	1	1	0
IP & Technical	0	0	1	1	1	1	0	0	1	0
IP & know-how		0	0	0	0	0	0	3	0	0
Technical, Know-how & IP	0	0	0	0	0	0	0	1	0	0

¹⁷⁵ GIPC Act (n173) Section 4(f)

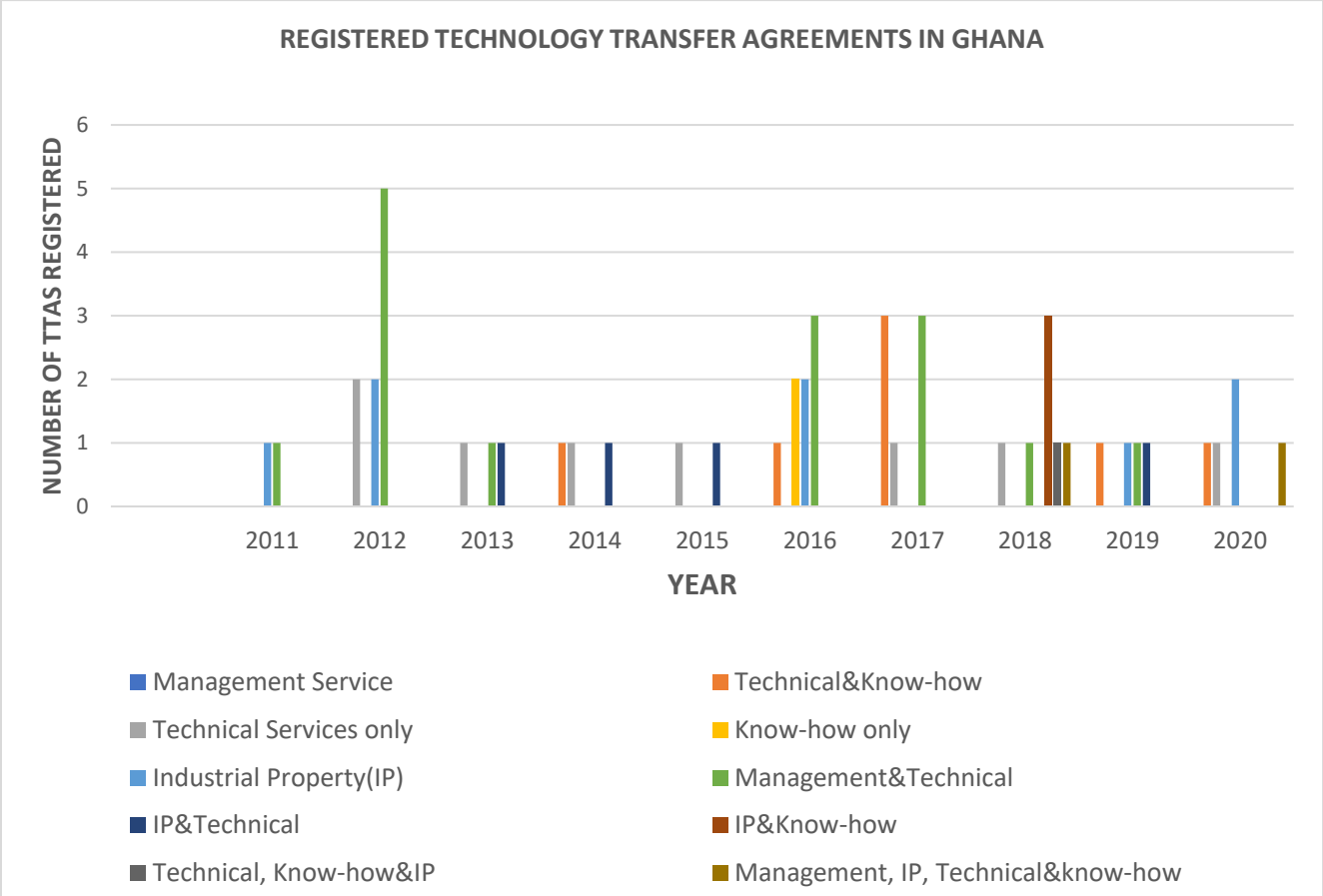
¹⁷⁶ GIPC Act (n173) Section 37(5)

¹⁷⁷ GIPC Act (n173) Section 32(c)

¹⁷⁸ GIPC Act (n173) Section 37(6)

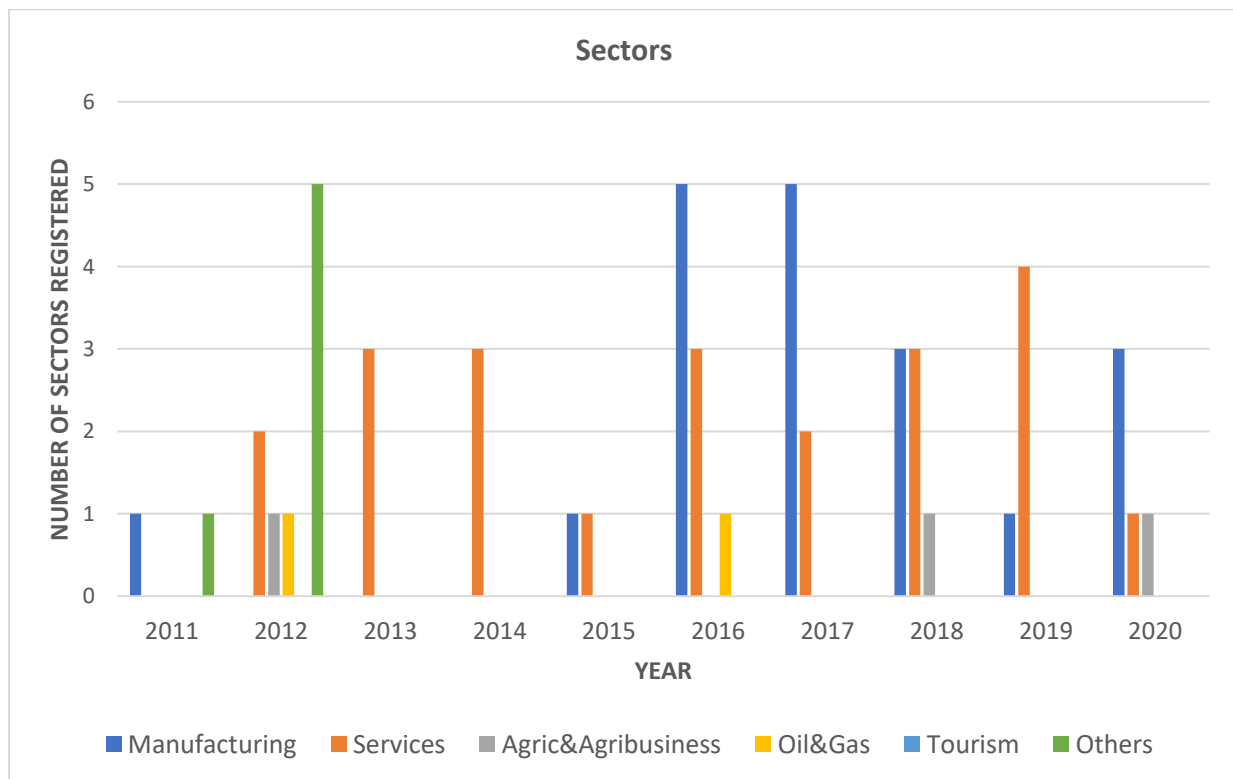
management. IP, Technical

& know-how 0 0 0 0 0 0 0 1 0 1



SECTORS

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
	1	2	3	4	5	6	7	8	9	0
Manufacturing	1	0	0	0	1	5	5	3	1	3
Services	0	2	3	3	1	3	2	3	4	1
Agric & Agribusiness	0	1	0	0	0	0	0	1	0	1
Oil & Gas	0	1	0	0	0	1	0	0	0	0
Tourism	0	0	0	0	0	0	0	0	0	0
others	1	5	0	0	0	0	0	0	0	0



- Source: Ghana Investment Promotion Centre

3.8 Analysis of technology transferred registered by the GIPC since 2011 to 2020

As indicated earlier, GIPC is mandated by both Act 865 and L.I 1547 to review, register, monitor and keep records of all technology transfer transactions. From the data received from the GIPC, the Centre in 2011 registered two (2) transactions, nine (9) in 2012, three (3) both in 2013 and 2014, two (2) in 2015, nine (9) in 2016, seven (7) both 2017 and 2018, and five (5) both in 2019 and 2020. The sectors that benefited from the registered technology transfer transactions include, manufacturing, services, Agric & agribusiness, oil & gas, tourism among others.

There is no adequate data from the GIPC for example the number of TTAs that were received during the period under reviewed, the period it took to complete the registration processes among others to analyze the efficiency of the current institutional arrangement in registering technology transfers in Ghana.

3.9 Other Legislation with technology transfer provision

From the ensuing discussion, it appears that it is only GIPC legislation which has provision and mandates the GIPC to regulate TTs and other related activities in Ghana. However, several other legislations such as the Ghana Free Zones Authority, the Petroleum Commission of Ghana, the Ghana Atomic Energy among others have provisions of TTs. This part of the dissertation therefore will discuss these legislations with TT provisions.

3.9.1 The Ghana Free Zones Authority (GFZA)

The Ghana Free Zones Act¹⁷⁹ established the GFZA with the purpose of promoting economic growth and regulating businesses. It is intended to foster the development of commercial and service activities as well as the formation of Export Processing Zones (EPZs) to boost the processing and manufacturing of goods.¹⁸⁰ Act 504 ensures investor protection in the enclave of free zones. Among other things, every firm in a free zone is guaranteed unconditional transfer of fees and charges in freely convertible currency through any approved dealer bank in respect of any technology transfer arrangement.¹⁸¹

¹⁷⁹ The Ghana Free Zones Authority Act 504 of 1995

¹⁸⁰ The Ghana Free Zones Authority <https://gfzb.gov.gh/> (accessed 13 September 2021)

¹⁸¹ The Ghana Free Zones Authority (n179) Section 30(c)

Act 504 provides for the transfer of fees and charges for TTAs, however nowhere in the act does it indicate how these technology transfers under the act shall be regulated. It does not make reference to the GIPC as an agency responsible for the registration of the TTAs.

3.9.2 The Petroleum Commission of Ghana

As a result of commercially significant hydrocarbon discoveries, the Petroleum Commission was established by an Act¹⁸² to oversee and manage petroleum resource exploitation and to coordinate policies in the upstream petroleum industry.¹⁸³ The Parliament of Ghana enforced the Local Content and Local Participation Regulations (L.I.2204) in February 2014. The objectives of L.I. 2204 includes among other things to facilitate technology and skills transfer; and increase competitiveness of local companies.¹⁸⁴

According to L.I. 2204, the Commission must develop a national policy on technology transfer for the petroleum industry in consultation with the National Development Planning Commission (NDPC), relevant Ministries, Departments, and Agencies identified by the Commission, and publish the policy in the Gazette and a national circulation newspaper.¹⁸⁵ Entities in the upstream oil and gas sector are also required to support and implement a program in accordance with the national plan for technology transfer and priorities for the promotion of technology transfer to Ghana in the petroleum industry.¹⁸⁶

As noted above, Section 4, of Act 865 mandates the GIPC to review, register and monitor all TTs whereas L.I 2204 also mandates the Petroleum Commission to regulate TTs in the petroleum industry. This may cause role conflict, double dipping and can increase to cost of business in Ghana since each agency charges clients for services provided.

¹⁸² The Petroleum Commission Act 821 of 2011

¹⁸³ [The Petroleum Commission Ghana Organizational Brief](https://www.petrocom.gov.gh/organizational-brief/) <https://www.petrocom.gov.gh/organizational-brief/> (accessed 13 September 2021)

¹⁸⁴ A Robert and others (2018) Local Content in the Upstream Petroleum Sector of Ghana. How Well Is Ghana Doing So Far? <https://ssrn.com/abstract=3185844> (accessed 30 September 2021)

¹⁸⁵ The Petroleum (Local Content and Local Participation) Regulations, L.I 2204, Regulation 22.

¹⁸⁶ The Petroleum (Local Content and Local Participation) Regulations, L.I 2204, Regulation 23

3.9.3 Ghana Atomic Energy

TGAEC established the TTMC on July 23, 2014, under the MESTI/COTVET Project Support Unit, as part of Component 2.2 of the Ghana Skills and Technology Development Project, called Making GAEC Responsive to the Demands of the Ghanaian Private Sector.

The project's main goal was to transfer commercially valuable technologies to the private sector, which would need increased efficiencies in their operations.¹⁸⁷

3.10 CHALLENGES WITH THE CURRENT TECHNOLOGY TRANSFER SYSTEM

Barriers or challenges to effective TT regime in Ghana ranges from Institutional arrangement and capacity, obsolete laws and regulatory architecture. This aspect of the dissertation is to espouse challenges facing the current system of TTs in Ghana.

3.10.1 Institutional arrangement

As indicated above, the GIPC is mandated to review, register and monitor all technology transfer transactions in Ghana. In the GIPC set up, it is the Legal, Finance and Monitoring & Evaluation Divisions which are assigned to manage the process of reviewing, registration and monitoring activities. It is the responsibility of the Legal Division to review, register and keep records of the TT transactions. The Finance Division also review the fees associated with the transactions while the Monitoring and Evaluation Division monitors the transactions to ensure compliance with the agreement. All these divisions have their core functions and, as a result, causes delay in the process.

As indicated earlier, the Revenue Administration Act¹⁸⁸ provides that the Ghana Revenue Authority is a partial administrator of the GIPC Act however Act 915 fails to mention the exact role the GRA is supposed to play in administration of Act 865 especially when the GIPC is the only body established by Act 865 and is responsible for the implementation of Act 865. Since the GRA is not given any specific instructions with respect to Act 865, it has decided that one of its roles is to enforce registration of TTAs. It is the opinion of the GRA that, its role in implementing

¹⁸⁷ Ghana Atomic Energy Commission, Technology Transfer <https://gaecgh.org/technology-transfer/> (accessed 2 June 2021)

¹⁸⁸ The Revenue Administration Act 915 of 2016

the provisions of Act 865 is to deny tax deductions technology transfer transactions that was not registered with the GIPC.¹⁸⁹

In the case of *Beiersdorf Ghana Limited vrs The Commissioner General, Ghana Revenue Authority*¹⁹⁰ where the Commissioner General rendered a tax liability on the Appellant for not registering their TTA with the GIPC by disallowing and surcharging the Appellant. The Court of Appeal held that the High Court erred when it said the effect of non-registration of a TTA is the denial of tax deductions.¹⁹¹ The decision of the court in the case makes it difficult as to the exact role the GRA is supposed to perform in the implementation of Act 865.

3.9.4.2 Taxes

According to the regulation, every TTA must include a provision requiring the transferor to pay all royalties taxes payable. Royalties are payments made in exchange for the right to utilize another's property. Royalties are derived from licensing, which is the process of granting or obtaining permission to possess, produce, or utilize something developed or owned by someone else.¹⁹² This presupposes that taxes shall only be paid on royalties for the use of IP rights. The question is what happens to other types of TT transactions.

3.9.4.3 Payments

The regulation allows for a variety of payment methods. It stipulates that, depending on the nature of the technical service, its duration, and the transferee's reliance on continuous foreign technical competence, parties may opt for a 'running' or 'lump sum' price. When continuous service is necessary, 'running' rates will be preferred.¹⁹³ It is to be noted that the LI does not define what a lump sum payment means and how it is to be calculated. It does not also differentiate between royalties, lump sum and running fees. This makes implementation more subjective.

¹⁸⁹ Jamalamaney, [Technology Transfer Agreements in Ghana – What is Ghana Revenue Authority's role? Ghana Tax Review](https://gntaxpolicy.wordpress.com/2018/07/02/technology-transfer-agreements-in-ghana-what-is-ghana-revenue-authoritys-role/) <https://gntaxpolicy.wordpress.com/2018/07/02/technology-transfer-agreements-in-ghana-what-is-ghana-revenue-authoritys-role/> (accessed 13 September 2021)

¹⁹⁰ 2019 suit No. Hi /140 Unreported

¹⁹¹ 2019 suit No. Hi /140 Unreported at 34

¹⁹² Royalties, what are they? <https://www.thebalancesmb.com/what-are-royalties-how-they-work-4142673> (accessed 10 September 2021)

¹⁹³ TTR (n152) Regulation 15(3)

3.9.4.4 Definition of net sales

It should be noted that, for the purpose of TT net sales is defined as *'ex-factory selling price of the product exclusive of sales tax and excise duties levied by Government or the net income accruing from a service, minus the landed cost or payment for any component, materials and supplies imported from the technology supplier other than initial capital equipment and the first round of components, materials and supplies imported therefrom.'*¹⁹⁴ The definition of net sales appears to be skewed towards manufacturing companies, what happens to the TT in other sectors of the Ghanaian economy.

3.9.4.5 Others

The legislation stipulates that if a transferor provides management/technical services in addition to patents, know-how, and trademarks, the total charge cannot exceed 8% of net sales. The law is silent on what constitutes patent know-how.¹⁹⁵ It further states that incentive royalties will be available for licensed items sold in foreign regions if they are marketed under the transferor's trademarks, and that any such approvals will apply to subsidiaries of foreign companies.¹⁹⁶

3.9.4.6 Conclusion

In conclusion, Chapter 3 looks at the concept of TT in Ghana. It was discovered that the definition of TT under Act 865 is identical to the UNCTAD definition of TT. Act 865's TT provisions were discussed. This sparked a discussion about prohibited commercial activities that are unenforceable under Ghanaian law. The topic of institutional arrangements for TT regulation was discussed. It was discovered that Act 865 requires the GIPC to review, register, and monitor all TTAs. Despite the fact that Act 865 mandates the GIPC, TTAs are also covered by other laws. This prompted a discussion on TTA provisions in other legislation, as well as a discussion of Ghana's TT issues.

¹⁹⁴TTR (n152) Regulation 20

¹⁹⁵ TTR (n152) Regulation 18

¹⁹⁶ TTR (n152) Regulation 19

CHAPTER 4

THE LEGAL AND REGULATORY FRAMEWORK OF TECHNOLOGY TRANSFER REGIMES IN SOME DEVELOPING COUNTRIES

4.1 Introduction

The conceptual framework of Ghana's legal and regulatory regime for TTs was discussed in chapter 3. It was noted that, during the 1980s and 1990s, many developing countries passed regulations governing the content of inbound TTAs. These rules were either a component of a country's overall foreign investment laws or a separate statute managed by independent authorities.¹⁹⁷ This chapter focuses on the legal and regulatory framework of TTs from other developing countries namely Egypt and Nigeria.

The question is why these two countries. Nigeria is one of the most powerful nations in Africa, not just in West Africa. Nigeria is regarded as the country with the greatest GDP because of its rapid economic development.¹⁹⁸ In the area of TT regulation, as far back as 1979, Nigeria established the National Office for Technology Acquisition and Promotion (NOTAP), an agency under the aegis of the Federal Ministry of Science and Technology by Decree No. 70 of 1979, as the National Office of Industrial Property (NOIP). NOIP was mandated to implement policies and programs for the acquisition, promotion and development of TTs into Nigeria. The name was changed to NOTAP by Decree No. 82 of 1992 to remove ambiguities and misconceptions to reflect its function. NOTAP was also given additional functions aimed at luring foreign innovations and the development of indigenous technology in order to align the agency's work with international best practices and in accordance with globalization and liberalization of the world economy.

NOTAP is also in charge of implementing the country's technology development policy. The development of Intellectual Property and Technology Transfer Offices (IPTTO's) in Nigerian universities, academic institutions, and research institutes is one of NOTAP's major

¹⁹⁷ Same as above

¹⁹⁸ S Olawale, Top 20 Largest Economies in Africa 2021 <https://naijaquest.com/largest-economies-in-africa/> (accessed 15 September 2021)

achievements.¹⁹⁹ To improve upon service delivery, the agency in 2017 automated its application processes. The process enables clients to track their applications and respond to queries raised by NOTAP. In the year 2015, one thousand, one hundred and ninety (1,190) TTA applications were received while one thousand and fifty (1,050) representing 88.24 per cent were registered.²⁰⁰

In Egypt, a new Commercial Code, Law No. 17/1999, was enacted in an attempt to boost Egyptian enterprises' global competitiveness. It includes key provisions on TTs.²⁰¹ Egypt's TT legislation is largely influenced by the UNCTAD draft code's theories and nomenclature, as well as TT legislation in other developing countries including India, Mexico, and the Philippines.²⁰²

As a result, it is important to examine the legal and regulatory frameworks of TTs in both countries with the goal of suggesting best practices from the two nations to Ghanaian authorities.

4.2 The concept of technology transfer in Nigeria

The NOTAP Act,²⁰³ governs TT in Nigeria. According to Cap. N62, the primary function of NOTAP is to supervise the transfer of foreign technology to Nigeria.²⁰⁴ The act does not define the concept of TTA. However, it mandates NOTAP to register all contracts or agreements having effect in Nigeria for the transfer of foreign technology, if the agreement involves:

¹⁹⁹ EC Orji, Country Presentation On IP: National Office For Technology Acquisition and Promotion- World Intellectual Property Organisation, JPO Study Programme On IP Asset https://www.wipo.int/edocs/mdocs/aspac/en/wipo_ip_dev_tyo_09/wipo_ip_dev_tyo_09_ref_u_nigeria.pdf (accessed 30 September 2021)

²⁰⁰ S Okayini 'NOTAP saved Nigeria N79.7b in four years, says DG' *the Guardian* (Nigeria) 15 November 2019 <https://guardian.ng/news/notap-saved-nigeria-n79-7b-in-four-years-says-dg/> (accessed 15 September 2021)

²⁰¹ R Cavandoli and H Zaghoul, International Technology Transfer Contracts in Egypt: Practical Considerations from the Perspective of a foreign Licensor in relation to Arbitration and applicable Law (2018) https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3164556 (accessed 15 September 2021)

²⁰² SM Hamzah & HL Stovall, Proposed Egyptian Law to Regulate Technology Transfers <https://www.jstor.org/stable/3381903> (accessed 15 September 2021)

²⁰³ Cap N62 Laws of the Federation 2004

²⁰⁴ E Ekpenyong and U Igwe (2017) Legal Framework for Transfer of Technology in Nigeria <https://www.mondaq.com/nigeria/contracts-and-commercial-law/608826/legal-framework-for-transfer-of-technology-in-nigeria> (accessed 15 September 2021).

- a. *the use of trademarks;*
- b. *the right to use patented inventions;*
- c. *the supply of technical expertise in the form of the preparation of plans, diagrams, operating manuals or any other form of technical assistance of any description whatsoever;*
- d. *the supply of basic or detailed engineering;*
- e. *the supply of machinery and plant; and*
- f. *the provision of operation staff or managerial assistance and the training of personnel.*²⁰⁵

4.2.1 Types of technology transfer transactions envisaged under NOTAP

The key agreements registered by the NOTAP include but are not limited to:

- a. **Technical Know-How Agreement:** This includes granting a license, providing technical know-how, information on manufacturing processes, drawings, diagrams, operating manuals, expertise, engineering assistance, designs, standard and quality control of products, and advice on necessary equipment, plant, machinery, and manufacturing capability, among other things.²⁰⁶
- b. **Management Services Agreement:** This agreement incorporates all agreements in the areas of insurance, marketing, human resources, administration, accounting, sales promotion, hotel management agreements and other related services.²⁰⁷ It involves services that are related to the daily management of a company by expatriates to ensure that the business is

²⁰⁵ Same as above

²⁰⁶ National Office for Technology Acquisition and Promotion ‘Revised Guidelines for Registration and Monitoring of Technology Transfer Agreements in Nigeria’ 2018 <https://notap.gov.ng/content/revised-guidelines-registration-technology-transfer-agreements> (accessed 15 September 2021).

²⁰⁷ Fred-Young & LP Evans (2019), Types of Technology Transfer Agreements Registered in Nigeria <https://www.mondaq.com/nigeria/new-technology/782364/types-of-technology-transfer-agreements-registered-in-nigeria> (accessed 15 September 2021)

profitable and that the products and/or services meet the international standards of the transferor.²⁰⁸

- c. **Technical Services Agreement:** This agreement covers the transfer of experts from the transferor to the transferee for a maximum of 6 months to provide short-term technical services locally. The agreement must include extensive information about the experts . Installation and commissioning of new plants, supply of equipment and machinery, operation, repairs, and maintenance of equipment are all examples of this category of TT.²⁰⁹
- d. **Consultancy Services Agreement:** This is a type of agreement is entered into when a part of a contract/project is handled by a consultant whose payment is a portion of the contract sum.²¹⁰ This type of TT cut across various sectors such as construction, manufacturing, agriculture and includes the provision of architectural designs, engineering designs, construction works and feasibility studies.²¹¹
- e. **Software License Agreement:** This type of TT involves the deployment of software products in any desired sector of the economy. It can be entered into between an end user and an Original Equipment Manufacturer (OEM) or representative.²¹² It also involves the use of application packages to drive the operation of companies, such as, banking and other financial institutions, pension, telecommunication companies. Payment is made once, while payment for an annual technical support is on a yearly basis and commences 1 year after the implementation of the software license agreement.²¹³

²⁰⁸ National Office for Technology Acquisition and Promotion (n203) 7.

²⁰⁹ Same as above

²¹⁰ National Office for Technology Acquisition and Promotion (n200) 8.

²¹¹ E Ekpenyong (2019) Types of Technology Transfer Agreements Registrable in Nigeria <https://www.advisoryexcellence.com/types-of-technology-transfer-agreement-registerable-in-nigeria/> (accessed 15 September 2021).

²¹² Same as above

²¹³ Same as above

- f. Trademark License Agreement: This agreement governs a licensor's grant of an exclusive or non-exclusive right to use a mark in the manufacture and sale of goods and services to a licensee. A trademark license agreement must include technical know-how to ensure that the goods and services for which the trademark will be used match the licensor's stipulated standard. The trademark must be internationally recognized and accompanied by licensed know-how; the items must be manufactured locally; the products must be for export; and the licensor must not possess more than 75% of the licensee's share capital to be registrable.²¹⁴
- g. Franchise Agreement: This sort of TT is usually a complete bundle that includes all of the necessary IPR to run the business. It may also incorporate other pertinent information provided in a brochure, such as advertising or copyright connected to the manufacture, selling, and marketing of goods or services to clients. It includes industries such as product manufacturing, service provision, goods distribution and sales, and service provision and marketing.²¹⁵
- h. Hotel Management Agreement: This is a contract for hotel management and operation. It is usually for a period of 5 years at first, with the possibility of renewal. It registers the transferor's IPRs, including the trade name.²¹⁶
- i. Research & Development Agreement
- This agreement focuses on the following;
- a. *Grant of access to the patent, inventions and results or research and development activities carried out by the transferor in respect of the specified products;*
 - b. *Advice on engineering products design and product development services;*
 - c. *Advice on international research and development works carried out on the specified products including new or modified methods of manufacture, formulation product and process improvements;*

²¹⁴ Same as above

²¹⁵ National Office for Technology Acquisition and Promotion (n200) 9

²¹⁶ Same as above

- d. *Provision of specialist staff to assist the licensee company overcome its technical problem as they arise;*
- e. *Making available the licensor's specialist departments and the specialist department of any of its subsidiary or associated companies for the licensee's use when required.*²¹⁷

4.2.2 Applicable license fees

In registering the agreement, NOTAP ensures that, fees charged are not excessive.²¹⁸ The various fee categories are discussed below.

- a. Management Service fees typically vary from 1 to 5% of earnings or profit before taxes. When profit is not expected in the first few years of a project's implementation, the NOTAP may allow 1-2 percent of net sales for the first 3-5 years only.²¹⁹
- b. Technical Support fees are based on man-hour, per-diem, or monthly costs. It is based on international standards rather than net sales. Payment based on per diem/monthly rate is not permitted for agreements lasting more than six months, as rules require technical service fees and salary for expatriates to be remitted through Personal Home Remittance (PHR).²²⁰
- c. A software license fee is a one-time payment that is calculated based on the type of software product, the number of end users and market price for similar goods in the industry where the software will be used. The implementation fee is granted as a lump sum fee based on the licensor's obligations to be fulfilled.²²¹

²¹⁷ Same as above

²¹⁸ Business Law in Nigeria (2021) Technology Transfer Agreements in Nigeria <https://ioclaw.com/2021/02/23/technology-transfer-agreements/> (accessed 15 September 2021)

²¹⁹ Same as above

²²⁰ Same as above

²²¹ Same as above

- d. The annual charge for technical support, upgrades or maintenance does not exceed 23% of the software licensing fee. According to the NOTAP standards, any maintenance and installation services must be carried out by a local vendor/partner. A minimum of 40% of the annual technical support charge must be paid to the local vendor.²²²
- e. There are three different types of franchise fees. The initial/basic charge is a lump sum (to be determined by the parties and approved by NOTAP), the franchise/continuing fee is 0.5 percent to 2% of net sales or revenue, and the marketing/advertising fee is 1% of net sales or revenue.²²³
- f. Trademark License fee is a maximum of 1% of net sales.²²⁴
- g. Technical Know-How fee ranges from 1-5% of net sales.²²⁵
- h. Consultancy fee is a maximum of 5% of the total project cost.²²⁶

4.2.3 Institutional arrangement

The Federal Government of Nigeria established NOTAP to encourage the adoption of the finest contractual terms and conditions in TTAs in order to assist the country in achieving technological growth and correcting trade imbalances. It is in charge of promoting locally developed technologies and registering all TTAs.²²⁷ The Act prohibits all financial institutions, including the Ministry of Finance, the Central Bank and other banks, from transmitting any form of licensing fees or royalties unless a valid certificate of registration issued by NOTAP is

²²² National Office for Technology Acquisition and Promotion (n200) 8

²²³ Same as above

²²⁴ Same as above

²²⁵ National Office for Technology Acquisition and Promotion (n200) 9

²²⁶ Same as above

²²⁷ National Office for Technology Acquisition and Promotion Act, Cap, N62 Laws of the Federation 2004NO, Section 4(d)

presented.²²⁸ NOTAP verifies that the agreements are compliant with Nigerian laws and that imported TTAs reflect local content development when they are registered.²²⁹

4.2.4 Additional responsibility given to NOTAP

NOTAP has been given additional functions by shifting its focus from regulatory and control activity to promotional and development roles as a result of the dynamics of global technological growth and in accordance with the government's aim of attracting FDI into Nigeria.²³⁰ The office has been mandated to perform the following additional functions.

- a. *Rendering technological advisory services to the public and the private sectors of the economy.*
- b. *Training of Nigerians entrepreneurs in all stages of the development of technological capabilities.*
- c. *Providing technology information.*
- d. *Acting as a patent attorney or patent agent to assist in patenting indigenous innovations,*
- e. *Creating awareness in the concept of BOT scheme and strategic alliances as alternative mechanism for the acquisition of foreign technology and investment profiles.*
- f. *Undertaking techno-economic survey on industrial project profiles.*
- g. *Organizing workshops and seminars on various issues relating to technology acquisition and negotiating for the public and private sectors.*²³¹

The following discussion focuses on Nigeria's legal and institutional framework for TT regulation. NOTAP was established with the explicit goal of developing policies to promote, facilitate and monitor both imported and locally developed technologies. Financial institutions are expressly prohibited from transferring funds for the payment of TT and other related fees. NOTAP has automated the TT operations, among other things. It is worth noting that the various types of TTs

²²⁸ National Office for Technology Acquisition and Promotion Act, Cap, N62, Section 7

²²⁹ What you should know about Technology Transfer Agreements in Nigeria- <https://iheanyiigboko.wordpress.com/2018/05/17/what-you-should-know-about-technology-transfer-agreements-in-nigeria/> (accessed 12 September 2021)

²³⁰ O Daniel, Regulatory Framework for the Transfer of Technology in Nigeria (<https://www.scribd.com/doc/49588909/Regulatory-Framework-for-the-Transfer-of-Technology-in-Nigeri-1>) (accessed 15 September 2021).

²³¹ National Office for Technology Acquisition and Promotion (n200) 12

and their correspondence allowable threshold of fees are described in detail. Ghana's current legal and regulatory regime of TTs generally lacks these initiatives. Implementing the aforementioned policies will help Ghana improve its TT regime.

4.3 The legal and regulatory framework of technology transfer in Egypt

Egypt is one of the biggest economies on the African continent. TT in Egypt is regulated by the Egyptian Commercial Code No. 17/1999 specifically from Articles 72 to 87.²³²

4.3.1 The concept of technology transfer in Egypt

TTA IS defined as *'an agreement, by virtue of it, a supplier of technology (licensor) undertakes to transfer technical information to an importer of technology (licensee), in return for a fee, to be used in a technically specified method for the production or development of a specific commodity, the installation or operation of machines or equipment or for providing services.'*²³³ It should be noted that under Egyptian laws, the simple sale, purchase, lease, or rental of commodities or trademarks is not deemed a TT unless it is explicitly stated as part of, or is related to, the TT.²³⁴ The sale of trademarks or brands, or the granting of a license to use them, is not a TT. This will be regarded as a type of tenancy. The rules of the Law, on the other hand, shall apply to any sale or lease of trademarks or brands made as part of the TT process, whether through a single contract or multiple contracts.²³⁵

TT is very broad under the laws of Egypt. It includes any agreements for the sale or license of all forms of IP, know-how, technical expertise and technical assistance. Management assistance includes agreements such as those common in the hotel and banking industries. The TT provisions apply also when a contract includes the transfer of technology as an ancillary element.²³⁶ On the

²³² S Solaiman, Transfer of Technology under Egyptian Law (<https://www.hg.org/legal-articles/transfer-of-technology-under-egyptian-law-23907>) (accessed 4 October 2021)

²³³ Egyptian Commercial Law No. 17/1999, Article 73

²³⁴ Y Saleh 'The Transfer of Technology Contract in the Egyptian Law: The Governing Rules' (2017) <https://www.hg.org/attorney/youssry-saleh-law-firm/105102> (accessed 17 September 2021)

²³⁵ Egyptian Commercial Law No. 17/1999, Article 72

²³⁶ Same as above

basis of the wording of Article 73, the provisions of TT do not seem to apply to transfer of know-how when the know-how is not technical such as business know-how, marketing, financial strategies among others.

4.3.2 Prohibitions in a technology transfer agreement

Article 75 provides that any condition prescribed in the TT contract, which restricts the freedom of the transferee in its use, development, acquaintance of the product or its advertisement, may be invalidated. This shall apply in particular to the conditions binding the importer with one of the following requirements:

- a) Accepting the improvements introduced by the supplier of the technology, and paying their value;
- b) Prohibiting the introduction of improvements or modifications to the technology to suit the local conditions or the conditions of the importer's establishment, as well as, prohibiting the acquisition of another technology similar to or competing with the technology the subject of the contract;
- c) Use of specific trademarks to distinguish the commodities for which the technology was used in their production;
- d) Limiting the volume of production, its price, the method of its distribution or its export;
- e) Participation of the supplier in running the establishment of the importer or his interference in choosing its permanent employees;
- f) Purchase of the raw materials, equipment, machines, apparatuses, or spare parts for operating the technology, from the supplier alone, or from the establishments exclusively specified by him;
- g) Restricting the sale of the production, or the delegation for its sale exclusively to the supplier or the persons which he defines.

4.3.3 Payment of fees

It is provided that, the transferee shall pay the charges for the technology and the improvements introduced to it, at all the times and places as agreed. The charges may be a lump sum payment or in several instalments. The charges may as well be in the form of a certain quantity of the

commodity in which the technology is used for its production, or a primary material the importer produces and undertakes to export to the supplier.²³⁷

4.3.4 Dispute resolution

It is to be noted that, Egyptian courts have jurisdiction over any dispute arising from the TTAs. The parties may agree to amicably settle the dispute or refer the dispute to arbitration to be conducted in Egypt according to the laws of Egypt.²³⁸ Article 87 represents a clear and substantial restriction on the parties' contractual autonomy, in spite of the fact that Egypt has ratified the New York Convention on the Recognition and Enforcement of Foreign Arbitral Awards of 1958 and that parties to a contract in Egypt normally have the freedom to agree to the governing law of their contract.²³⁹

4.3.5 Institutional arrangement

In Egypt, the Ministry of Higher and Scientific Research (MHESR) is responsible for registering TT transactions. A covering letter, copies of the TTA, memo, and articles of association of the transferee, as well as payment of the applicable registration costs, must be sent by the transferee. Within 48 hours, the MHESR analyzes and processes the applicant's application, and the agreement is registered. If there are issues (for example, monopoly pricing, restrictive business practices, export limitations, high royalty rates, tie-in provisions, and a lack of training provision), the agreement should be reviewed.²⁴⁰

The Egyptian TT regime differs from the Nigerian system. There is no established agency in Egypt with sole aim to regulate TTs. There is a division with the MHESR that is tasked with the responsibility of managing the regulation of TTs. The turn around time for TT registration is 48 hours. As indicated above there is no dedicated division, in Ghana to regulate TTs. The task is

²³⁷ Commercial Law No. 17/1999, Article 82

²³⁸ Commercial Law No. 17/1999, Article 87

²³⁹ R Cavandoli & H Zaghoul 'International Technology Transfer Contracts in Egypt: Practical Considerations from the Perspective of a Foreign Licensor in relation to Arbitration and applicable Law' (2018) <https://www.mondaq.com/government-contracts-procurement-ppp/819778/international-technology-transfer-contracts-in-egypt-practical-considerations-from-the-perspective-of-a-foreign-licensor-in-relation-to-arbitration-and-applicable-law> (accessed 15 September 2021)

²⁴⁰ Egypt 'Register a Technology Transfer Agreement' <https://www.wikiprocedure.com/index.php?title=Category:Egypt> (accessed 15 September 2021)

shared among three separate divisions. To ensure customer satisfaction and improve upon the TT management, Ghana may emulate the Egyptian system by having a division created to manage TTs.

4.4 Conclusion

In conclusion, chapter 4 examined the legal and regulatory framework for TTs in developing nations, with Nigeria and Egypt as case studies. NOTAP is a Nigerian organization established by the federal government of Nigeria to regulate all TTs. TTs in Egypt are regulated by a division under the MHESR. It is worth noting that registering a TT transaction in Egypt takes no more than 48 hours if all of the application materials are in order.

CHAPTER 5

FINDINGS AND RECOMMENDATIONS

5.1 Introduction

This study has been premised on analyzing the legal and regulatory framework for TT regimes in developing countries with special focus on Ghana. The main objective of the study is to analyze the legal and regulatory framework of TT regimes in Ghana. To achieve the overall objective therefore, analysis of the concept of TT, the various types of TT, mode of TT and challenges to TT were carried out. It was important to discuss how the concept of TT has been featured in some multilateral, regional and Bilateral treaties. Also, an assessment of the international legal order was carried out. Emphasis here was on the UNCTAD's draft Code for TT. It was realized that the UNCTAD's Code is supposed to have a universal application but it has not yet been adopted by member states. However, the Code is used as a benchmark for countries particularly developing countries in enacting laws and regulations for inbound TT.

It is noted that many developing countries enacted legislation regulating the content of inbound TT during the 1980s and 1990s. In order to fully appreciate and analyze the current framework in Ghana, regulatory and legal regimes of other developing countries specifically Nigeria and Egypt were analyzed. Each of the two countries have a unique regulatory system for TT. In order to take advantage of foreign technologies to develop the country, Nigeria has established NOTAP with a mandate among other things is to facilitate the flow of foreign technology into Nigeria by registering all contracts for TT and also promote locally generated technologies.

The Egyptian government enacted a new Commercial Code, Law No. 17/1999, including particular regulations on the TT, in an attempt to boost Egyptian enterprises' worldwide competitiveness. It was highlighted that Egypt's TT laws borrow substantially from the UNCTAD's draft Code's theories and vocabulary, as well as TT laws in countries like India, Mexico, and the Philippines. In both nations, there is a detailed description of the many types of TTs. For the efficiency of the TTA application procedure, NOTAP has automated it, but in Egypt, the turnaround time for an application to be registered is 48 hours. Not only that, but NOTAP has

designed a clear pricing structure to ensure that parties to a TTA can readily apply the charges associated with their type. The two countries' various concepts of technology transfer were examined.

In Egypt, a Department within an Institution is mandated to control TTs, whereas in Nigeria there is an official body to regulate TTs. Issues of payments, restricted business practices that will make TTs unregistrable among others were discussed. These reasons propelled the use of the two countries.

The goal of this chapter is to revisit the research challenge outlined in the first chapter and evaluate it in light of the subsequent discussions in chapters two, three, and four. Following that, the conversation will come to a conclusion. Following the completion of the discussion, recommendations on particular areas where the Ghanaian government should focus in order to enhance the legal and regulatory framework for TTs will be made. There will also be a list of areas that require further research that this study was unable to address.

5.2 Restating the research problem

In chapter 1, it is said that TT is very significant and plays a major part in all countries' economic and developmental prospects. It was discovered that TTs have numerous advantages. These advantages have prompted countries to improve their technology capacities by implementing measures to make TTs easier. As a result, in the early 1990s, many developing countries enacted legislation to regulate TTs in order to take advantage of the multiple benefits outlined in chapter 1.

Ghana adopted legislation regulating TTs in 1992 to benefit from the numerous advantages that inbound TT brings. The authority to regulate TTs does not appear to be confined to a single institution, as TTs are covered by various pieces of legislation. As previously stated, the only regulatory framework (LI 1547) for TTs has been unchanged for nearly three decades. As indicated, this study aims to examine the legislative and regulatory framework for TTs in Ghana in this context. Analyze analogous regimes in Nigeria and Egypt for lessons that Ghanaian officials should learn, and offer the best reforms for Ghana.

5.3 Summary of findings

The major research findings of the study are summarized in this section. The purpose of chapters 2, 3, and 4 was to investigate the validity of the thesis statement's assertions. The major goal of Chapter 2 was to learn about the concept of TT and the international standard used in TT legislation around the world. The third chapter discussed the legal framework for technology transfers in Ghana, as well as the notion of TT. chapter 3's goal was to see if Ghana's legal system met the international minimum requirement. It also attempted to highlight the institutional framework for TT regulation and enforcement. chapter 4 discussed the legal and regulatory frame work of TTs in Nigeria and Egypt. The main objective of chapter 4 was to establish how Ghana can learn from the two systems.

As a result, the findings will be summarized in light of the questions and objectives that guided this study, which include the following.

5.3.1 The Concept of Technology Transfer

It is acknowledged that the term "technology transfer" does not have a broadly accepted definition. The context in which the notion is utilized, as well as the activities that are involved, have a significant impact on the definition. The UNCTAD concept appears to have been accepted as the working definition in the previous chapters' analyses. As discussed in chapter 2, in industrialized countries, the term frequently refers to the process through which universities or research institutes provide access to innovations generated there through a variety of market-interaction methods. On the other hand, the definition of the concept in most developing countries mirrors the understanding of UNCTAD of the concept which are as follows.

- a. ²⁴¹*The assignment, sale and licensing of all forms of industrial property, except for trademarks, service marks and trade names when they are not part of technology transfer transactions;*
- b. *The provision of know-how and technical expertise in the form of feasibility studies, plans, diagrams, models, instructions, guides, formulae, basic or detailed engineering designs, specifications and equipment for training, services involving technical advisory and managerial personnel, and personnel training;*

²⁴¹ Same as above

- c. The provision of technological knowledge necessary for the installation, operation and functioning of plant and equipment, and turnkey projects;*
- d. The provision of technological knowledge necessary to acquire, install and use machinery, equipment, intermediate goods and/or raw materials which have been acquired by purchase, lease or other means;*
- e. The provision of technological contents of industrial and technical cooperation arrangements.*

It is worth noting that UNCTAD's description of the concept is reproduced verbatim in the GIPC legislation. Despite the fact that the concept is not defined in Nigerian laws, the description of agreements that requires NOTAP registration falls within the scope of the concept as outlined above. Similarly, Egyptian legislation reflects UNCTAD's definition of the term.

However, as discussed in Chapter 2, it appears that the definition of TT transactions excludes product transfers such as a simple sale, lease, or software package. The exclusion of products sales from the scope of TT appears to be problematic, as technological know-how can occasionally be embedded in machines and equipment. The purchaser may get crucial know-how for manufacturing or improving the items or services produced while operating these devices.

5.3.2 Ghana's Domestic Legislation and the International Standards

In chapters 1 and 2 it was realized that, developing countries in their quest to import technology from developed countries faced a lot of challenges. The problems included high costs, imposition of restrictive terms and conditions which militated against economic and technological development and the absence of guarantees from the transferors' pertaining to the technology transferred. This necessitated UNCTAD to establish an Intergovernmental Group on the transfer of technology to develop a code of conduct for the transfer of technology. As indicated in chapter 2, the code if implemented will have a universal application, however it has not yet been adopted by member states.

It is to be noted that, the main objective of the Code is to establish a general and an equitable standard among stakeholders in technology transfer transactions having regard to the legitimate interests of the parties and the special needs of developing countries.

chapter 4 of the Code deals with practices which parties should avoid in technology transfer transactions. Substantial agreement has been reached by member states on provisions dealing with the following restrictive practices which must be avoided by parties in their technology transfer transactions. As stated above, they include, grant-back provisions; challenges to validity of patents; exclusive dealing; restrictions on research; restrictions on the use of personnel; price fixing; tying arrangements; payments and other obligations after expiration of industrial property rights among others.

The text on applicable law and settlement of disputes, contained in chapter 9, has not been agreed upon. The elements that may be included in this chapter are choice of law, amicable way of settling disputes between parties, encouragement of the use of internationally accepted rules of arbitration, such as the UNCITRAL Arbitration Rules, recognition and enforcement of arbitral awards.

Similarly, as discussed in chapter 2, chapter 5 sets forth a number of provisions on the manner in which parties to transfer of technology transactions should behave while negotiating and performing their agreements. Provisions on responsiveness to the economic and social development objectives of both countries particularly of the technology acquiring country, and the observance of fair and honest business practice the parties must be adhered to.

As indicated, even though the code is not binding on member countries it has become the standard for regulatory framework for technology transfers.

As provided in chapters one and three, the primary legislation governing inbound technology transfer in Ghana are the GIPC Act 865 and L.I 1547. As stated, Act 865 provides the definition of the concept, renewals, the effective date among others. As noted in chapter 3, Regulation 4 of L. I 1547 contains similar provisions like Chapter 4 of the Code. It is realized that L.I 1547 also provides restrictive practices which parties must avoid in technology transfer transactions. They include, grant-back provisions; challenges to validity of patents; exclusive dealing; restrictions on research; restrictions on the use of personnel; price fixing; exclusive sales or representation agreements; payments and other obligations after expiration of industrial property rights; and tying arrangements.

On the issue of choice of law, Regulation 10 of the L.I provides that a technology transfer shall be govern by the laws of Ghana.

Furthermore, on dispute resolution, the Regulation sets down how disputes should be resolved. Regulation 11 provides that where any dispute arises between the transferor and transferee in respect of any technology transfer transaction, all effort shall be made by the parties to an amicable settlement. Any dispute between which is not amicably settled by the parties may be submitted to arbitration; the rules of procedure for arbitration of the United Nations Commission on International Trade Law shall be used; or the framework of any bilateral and multilateral agreement on investment protection to which the Governments of the parties are signatory to; or in accordance with any other international machinery for the settlement of investment disputes agreed to by the parties.

5.3.3 Institutional Arrangement for the Regulations of Technology Transfer in Ghana.

As noted in chapters one and three, in Ghana, there are many legislations with technology transfer provisions. Legislations such as the Ghana Free Zones Act, the Petroleum Regulations, the Revenue Administration Act, among others. TTMC as established by GAEC has a key objective to transfer technologies that are of commercial value.

However, Act 865 specifically mandate the GIPC to review, register and monitor all TTs in Ghana. Again, it was realized that in the GIPC set up there is no division which has a sole responsibility of regulating these TTs. The legal division is responsible for the review of the agreements. The finance division is in charge of reviewing the forecast of fees. The monitoring division is assigned with the responsibility of monitoring TTAs to ensure compliance of the agreement.

5.3.4 Mechanisms to enforce technology transfer regulatory regime in Ghana

As noted in chapter three, Act 865 of 2013 provides that the effective date of a TTA is the date of registration of the agreement by the GIPC. Section 32(c) of Act 865 provides that payments under a TTA shall only be made under a registered agreement. It is an offence under section 40 to transfer fees under an unregistered agreement. An enterprise which commits any offence under Act 865 is liable on summary conviction to a fine of not less than five hundred penalty units and not more than one thousand penalty units and in the case of a continuing offence to an additional fine of not less than twenty-five penalty units and not more than fifty penalty units in respect of each day that the offence continues.

To further ensure enforcement, the act mandates the GIPC to consult with the appropriate agency to consider the following additional punishment.

- a. suspend the registration of an enterprise;*
- b. cancel the registration of an enterprise;*
- c. order the payment or part-payment to the appropriate agency of fees, taxes, duties and other charges in respect of which benefits were granted to the enterprise;*
- d. revoke some or all of the incentives granted to the enterprise;*
- e. advise the Bank of Ghana to suspend any remittance including transfer of capital, profits and dividends from or by that enterprise; and*
- f. take any other action that the Board considers appropriate* ²⁴²

5.3.5 Best Practices from Technology Transfer Regimes in Egypt And Nigeria

The following are some best practices derived from analyzing the legal regimes of the two countries.

5.3.5.1 Institutional arrangement

It was realized from chapter 4 that, in order to take advantage of foreign technologies to develop, Nigeria established NOTAP with a mandate to facilitate the flow of foreign technology by registering all technology transfer agreements. It also has the mandate to also regulate and promote local technologies. This mandate of the NOTAP helps to cure the lacuna (what constitutes International transfer) in the definition of TT provided by UNCTAD as was noted in Chapter 2. In the case of Egypt, however, MHESR is mandated to register TTAs. The MHESR evaluates and process the applicant's application and the agreement is registered within 48 hours if all documents are in good order.

The systems in these two countries enhances the effectiveness and the efficiencies of the regulation of TTs.

²⁴² GIPC Act (n173) Section 43

on intellectual property rights may be charged a cost ranging from 0% to 6% of net sales, technical services may be charged a price ranging from 0% to 3% of net sales, and where know-how is incorporated, an extra 2% may be charged. The rates for management services range from 0% to 2% of PBT. When the transferor owns more than 60% of the transferee's shares, the fee is pro-rated.

5.3.5 Registration process

It is interesting to notice in chapter 4 that registering a TT transaction in Egypt takes 48 hours. This is something Ghana can learn from in order to improve the registration system's efficiency.

5.4 Recommendations

From the ensuing discussions, it is recommended as follows.

5.4.1 Review of the GIPC legislation

It is realized that LI 1547 is outdated and must be reviewed. LI 1547 contemplates on only four categories of technology transfers including IP, technical services/assistance, know-how services and management services. However, it was noted from the Nigerian regime that there are several modes of technology transfers including trademark licence for manufacturing only (not for selling products or rendering services); technical know-how; management services; technical services; consultancy; software license; franchise; R&D; trademark licence and technical know-how agreement; technical know-how & management services; hotel management agreement; consultancy and technical know-how; value added services and shared services.

Also, the definition of net sales in Regulation 20 of LI 1547 as the 'ex-factory selling price of the product exclusive of sales tax and excise duties levied by Government or the net income accruing from a service, minus the landed cost or payment for any component, materials and supplies imported from the technology supplier other than initial capital equipment and the first round of components, materials and supplies imported therefrom' appears to be skewed towards the manufacturing sector as discussed in Chapter 3. Furthermore, there is no definition of terminologies such know-how services, technical services, management services among others in the legislation.

It is therefore recommended that the legislation be revised to make it more comprehensive, provide definition of terminologies, set out clearly how fees can be calculated using the various modes and clearly outline the types of technology transfers that Ghana requires to develop.

5.4.2 Removal of Minimum Capital Requirements

It was realised that, one of the most important pathways for TT is through FDI, particularly joint ventures. Section 28 of the GIPC Act 865 stipulates that in a joint venture with a Ghanaian partner, the foreigner must contribute a minimum of two hundred thousand US dollars in cash or capital goods relevant to the investment, or a mix of both, through equity participation. To encourage the transfer of foreign technologies to Ghana, it is proposed that joint ventures with the goal of technology transfers be exempted from the minimum capital requirement under section 28 of the GIPC Act.

5.4.3 Institutional Arrangement

As previously stated, Ghana has a plethora of laws that include provisions for technology transfer. This could have an impact on Ghana's TT monitoring, coordination and policy development. While Act 865 requires the GIPC to review, register, and monitor all TTs, the Petroleum Commission is also responsible for TT management in Ghana's upstream oil industry. As a result, it is suggested that any TT provisions in other legislation be repealed and brought within the GIPC's jurisdiction.

Also, as realized in the ensuing discussion, in the GIPC structure, three divisions (legal, finance and monitoring) currently manages the review, registration and monitoring process. To enhance the effectiveness and efficiency of the management process of TTs, it is recommended that a division is created for the sole purpose of TT activities.

5.4.4 Institutional Collaboration

TT has far reaching consequence on national security, public health, economic and technological development. Effective management of the technology transfer process will ensure substantial foreign exchange savings and also create enormous employment opportunities. It is therefore recommended that the GIPC should effectively collaborate with institutions such as the Bank of Ghana, GRA, among others, to ensure effective enforcement of the TT legislation.

5.4.5 Establishment of Technology Transfer Agency

It is advised that the government establish a National Technology Transfer Agency in the long run to ensure that Ghana has a centralized agency for the effective planning and coordination of policies to promote TT operations. When the agency is founded, it should be staffed with interdisciplinary professionals who have the necessary expertise to deal with the complex concerns surrounding technology transfers.

5.5 Areas for future research

The limit placed on the study and the scope of this research could not allow to cover all facets of technology transfers particularly in the area of legal and regulatory framework. There are more areas to be researched on. It is therefore suggested that future research on technology transfers be focused on the following.

- a. The legal and regulatory framework TT from publicly funded research organizations, such as universities, Centre for Scientific and Industrial Research among others.
- b. Analyzing the contribution of TT to the socio-economic development of a country.
- c. Effective dispute resolution mechanism to enhance TT disputes.

5.6 Conclusion

TT has evolved into a critical pillar that aids countries in their quest for development and economic prosperity. Countries and private businesses embrace new technologies on a regular basis in order to stay competitive by enhancing quality and lowering manufacturing costs. International treaties give enough strategic chances for countries and businesses.

As previously said, TT facilitates technical improvement between developed, developing and less developed countries, it assists the development of home markets, generates numerous job opportunities, and aids in foreign exchange savings, among other things. Ghana stands to gain a lot from TTs if the current legal and regulatory framework for transferring technology is revised and the above proposal is taken into account.

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