

**ANALYSIS OF LEGAL FRAMEWORK ON INVESTMENT
PROMOTION AND CONTRIBUTION TO TECHNOLOGY
DISSEMINATION IN TANZANIA**

A CASE OF SELECTED MINING COMPANIES

By

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**A Dissertation Submitted in Partial Fulfillment of the Requirements for the
Award of Master of Laws Degree (Commercial Law) of Mzumbe University.**

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CERTIFICATION

We, the undersigned certify that we have read and hereby recommend for acceptance by the Mzumbe University a dissertation entitled: Analysis of Legal Framework on Investment Promotion and Contribution to Technology Dissemination in Tanzania: The Case of selected Mining Companies, in partial/fulfillment of the requirements for the award of the degree of Master of Laws of Mzumbe University.

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DEDICATION

This work is dedicated to my Guardian Evans Tegete whose life is being sacrificed to helping the most vulnerable youths get education. Evans; in fact, was the first to dedicate his life to serving the needy including myself get education. May God reward his efforts in a special kind; I pray to God that Evans should live long to witness that his kindness is not wasted.

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LIST OF ABBREVIATIONS

ABG:	African Barrick Gold
BITs:	Bilateral Investment Treaties
BoT:	Bank of Tanzania
BOT:	Build - Operate - Transfer
BRELA:	Business Registration and Licensing Agency
CDTT:	Centre for the Development and Transfer of Technology
COSTECH:	Commission for Science and Technology
CSI:	Corporate Social Investment
CSR:	Corporate Social Responsibilities
DCs:	Developing Countries
DSE:	Dar es Salaam Stock Exchange
EIA:	Environmental Impact Assessment
EITI:	Extractive Industry Transparency Initiative
ELRA:	Employment and Labour Relations Act
EMA:	Environmental Management Act
FDI:	Foreign Direct Investment
GDP:	Gross Domestic Product
GGM:	Geita Gold Mine
GPP:	Golden Pride Project
ICMM:	International Council of Mining and Metal
ICTSD:	International Centre for Trade and Sustainable Development
IAs:	International Investment Agreements
IPA:	Investment Promotion Agency
IPPNW:	International Physicians for Prevention of Nuclear War
IPRLs:	Intellectual Property Right Laws
ITA:	Income Tax Act
ITT:	International Technology Transfer
LDCs:	Low Developed Countries
LHRC:	Legal and Human Rights Centre
LIA:	Labour Institutions Act
MAs:	Mineral Agreements

MD:	Managing Director
MDAs:	Mineral Development Agreements
MEM:	Ministry of Energy and Minerals
MFN:	Most Favoured Nations
MNCs:	Multinational Corporations
MU:	Mzumbe University
NEAC:	National Environmental Advisory Committee
NEEA:	National Economic Empowerment Act
NEEC:	National Economic Empowerment Council
NEMC:	National Environmental Management Council
OECD:	Organization for Economic Co-operation and Development
PAYE:	Pay As You Earn
PFI:	Policy Framework for Investment
PPAC:	Parliamentary Public Accounts Committee
PPP:	Public Private Partnership
PPPA:	Public Private Partnership Act
R&D:	Research and Development.
REPOA:	Research on Poverty Alleviation
RMB:	Rand Merchant Bank
RTD:	Research and Technical Development.
RDAC:	Research and Development Advisory Committee.
S&T:	Science and Technology
SADCOPAC:	Southern Africa Development Community Organization of Parliamentary Committee
SDL:	Skills Development Levy
SOEs:	State Owned Enterprises
TCME:	Tanzania Chamber of Minerals and Energy
TEITI:	Tanzania Extractive Industry Transparency Initiative
TIA:	Tanzania Investment Act
TIC:	Tanzania Investment Centre
TMAA:	Tanzania Mineral Audit Agency
TNCs:	Trans- National Corporations

TPA:	Tanzania Port Authority
TPDC:	Tanzania Petroleum Development Corporation
TPSF:	Tanzania Private Sector Foundation
TRA:	Tanzania Revenue Authority
TRIPS:	Trade Related aspect of Intellectual Property Rights
UDSM:	University of Dar es Salaam
UK:	United Kingdom
UNCTAD:	United Nations Conference on Trade and Development
US\$:	United States Dollar
US:	United States
VETA:	Vocational Education and Training Act
WB:	World Bank
WGTTT:	Working Group on Trade and Transfer of Technology
WIR:	World Investment Report
WTO:	World Trade Organization

LIST OF STATUTES

1. *Export Processing Zone Authority Act No. 11 of 2002*
2. *Special Economic Zone Act No.2 of 2006*
3. *The Bank of Tanzania Act No.10 of 2006*
4. *The Business Activities Registration Act No. 14 of 2007*
5. *The Business Names (Registration) Act No.1 of 1930, as am. By Business Laws (Miscellaneous Amendments) Act No. 3 of 2012.*
6. *The Companies Act No.12 of 2002*
7. *The Environmental Management Act No. 20 of 2004*
8. *The Executive Agency Act No.30 of 1997*
9. *The Immigration Act No.7 of 1995*
10. *The Income Tax Act No.11 of 2004*
11. *The Land Act No.4 of 1999*
12. *The Law of Contract Act No.55 of 1963*
13. *The Mining Act No.14 of 2010*
14. *The Mining Act No.17 of 1979*
15. *The Mining Act No.5 of 1998*
16. *The National Economic Empowerment Act No. 18 of 2004*
17. *The Public Private Partnership Act No.19 of 2010*
18. *The Science and Technology Act No. 7 of 1986*
19. *The Tanzania Investment Act, No. 26 of 1997*
20. *The Tanzania Revenue Authority Act No.11 of 1995*
21. *The Tanzania Science and Technology Act No. 17 of 1986*
22. *The Tanzania Trade Development Authority Act No.4 of 2009*
23. *The Universities Act No 5 of 2005*
24. *The Vocational Education and Training Act No.1 of 1994*
25. *The Petroleum Act No. 4 of 2008*

LIST OF POLICIES

1. *The Mineral Policy of Tanzania of October 1997*
2. *The Mineral Policy of Tanzania of September 2009*
3. *The National Gas Policy of 2013*
4. *The National Investment Promotion Policy of October 1996*
5. *The National Science and Technology Policy for Tanzania of April 1996*

ABSTRACT

This study premises that legal and regulatory framework on investment, particularly the mining investment, grants more promotions than it is necessary. The study was hopeful that since the government has hosted mining operations for a long time, and the benefits thereon have long been pecuniary ones, (*which have not transformed the country from poverty*) the government should have planned for the best benefits from mining investments. The best benefit proposed by this study is tapping technology which will enable the government operate and run the mining sector on its own, with little or no dependence on foreign entities. Technical development sustains the mining sector and renders the sector beneficial to the State and its nationals; instead of being enjoyed by the foreigners whilst the indigenous are impoverished.

In this study, data collection mechanisms involved: library research, interviews and direct observation. The targeted area of research was mining sector - via selected mining companies. The study's concern is that, technology transfer is neither cheap nor easy. Since the promotional benefits offered to the investors are excessive and most especially resulting in revenue loss, the benefits granted to the investors should be honoured at least by tapping, nurturing and sustaining the technical know-how which is already available in the boundaries of the nation as brought by the investors. This process would be less expensive than buying and transferring the same from the country of origin.

The study finds that investment promotion is a necessary evil. Lack of technology in respect of mining management jeopardizes Tanzania's participation in mineral indulgence. However; dissemination has been impractical due to lack of legal pressure to that effect. Neither the Mining Act¹ nor the Investment Act² nor any other law in the country has provided for a vigorous need to tapping technology. In order to achieve technology retention therefore laws and regulations governing mining and investment need a quick reform. Institutional framework should also be strengthened for purposes of making sure technology keeping in the territory is conceivable.

¹Act No.14 of 2010

² CAP 38 RE 2002

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CHAPTER ONE
INVESTMENT PROMOTION AND CONTRIBUTION TO TECHNOLOGY
DISSEMINATION IN TANZANIA

1.0 Introduction

The earliest organized prospecting and mining in Tanzania took place during the German colonial period, beginning with gold discoveries in the Lake Victoria region in 1894. Mining began at the Sekenke Mine in 1909. After 1930, gold production was substantial and increased steadily until World War II. By 1967, the gold industry had declined to insignificance, only to revive after 1974-75 when the world gold price increased greatly.³

Beginning in April 1990, the Bank of Tanzania began buying gold at the world market price through commercial banks, paying miners in Tanzanian shillings calculated at the parallel-market rate for the US dollar.⁴ In the late 1990s, Tanzania had economic reforms which had transformed the economy from centrally planned public owned economy into market driven private sector led economy. During this time the government recognized that it has the role to facilitate the private sector and other economic agents to actively and effectively invest in productive and commercial activities in order to accelerate economic growth and development.⁵ Responsively, several mining companies from Canada, United Kingdom, Australia and South Africa arrived in Tanzania, interested in gold exploration and development. From the year 2000, production of gold at an industrial scale is growing.⁶

Today Tanzania is discovered to have been endowed not only gold but other plenty minerals. The minerals that have been identified in Tanzania include gold, iron ore, nickel, copper, cobalt, silver, diamond, tanzanite, ruby, garnet, limestone, soda ash, gypsum, salt, phosphate, coal, uranium, gravel, sand, dimension stones and most

³Tanzania Mining History: Paragraph 2: <http://www.tanzaniagold.com/html>, accessed on 30.08.2013

⁴ Ibid, paragraph 4.

⁵TIC report on the Contribution of Foreign Direct Investment to Local Economy in Tanzania: Achievements, Challenges and Prospects presented at Tanzania Global Learning Agency on 1stAugust 2012 at pp 12- 32.

⁶Op.cit.

recent discovery gas,⁷ the matter that makes the mining sector more susceptible than before.

It is unfortunate that large scale investors in the mining are foreigners, the reason being that Tanzania is technologically incapable of running its own mining sector.

Consequential to technology incapacity by Tanzania to run its own mining sector, the country's legal and regulatory framework on investment has offered a lot of incentives to attract foreign and private investors, which results into both revenues loss and negative chance for the opportunities to reap technology brought by foreign investors in the country through mining investment.

This research has been carried on in the mining sector to see into it how can Tanzania benefit "*technology retention*" brought into the country via mining operations as a means to prepare to being a true owner of its mineral endowment in the future.

1.1 Background of the problem

Since 1990s,⁸ Tanzania has become one of the fastest-emerging gold producers in Africa and is now the continent's third-largest gold-producing country after South Africa and Ghana.⁹ Moreover; Tanzania is now a depository of many other types of minerals including those of which are found only in Tanzania around the globe (Tanzanite¹⁰) and more mineral potentials are being discovered daily.¹¹ Evidently, today minerals in Tanzania are the most speakable investment sectors.

Considering investment generally, by 1980s there were about 400 public owned corporations and companies in the form of State Owned Enterprises (SOEs). The

⁷ An overview of mining industry in Tanzania: at <http://www.tcme.or.tz/> , retrieved on 26.08.2013

⁸ Tanzania Mining History: at <http://www.tanzaniagold.com.html>, accessed on 30.08.2013

⁹ Gold in Tanzania: at <http://www.tanzaniagold.com/index.html>, retrieved on 22.10.2013

¹⁰ Tanzanite in Tanzania: at <http://www.gemstoneeducation.com/Tanzanite.htm>, accessed on 25.10.2013

¹¹ On new discovery oil deposits in Morogoro: Kilosa-Kilombero: <http://www.ippmedia.com/frontend/index.php>, accessed on 25.10.2013

majority of these were owned by the Tanzanian government with 100% shares¹² because the country was socialist oriented until in the recent years.¹³

The early intention by the government to attract both private and FDI was shown in 1963. However, there were minimal FDI activities taking place in Tanzania between 1970 and 1985. The revival of the foreign investment attraction came in 1985 when, among other things, Tanzania found that it could not cope with the ailing and ill-managed public enterprises and companies. Deliberate economic liberalization policies were initiated and implemented in order to promote local and foreign investments in the country.¹⁴

Due to promotional efforts by the country, FDI inflows into Tanzania have been increasing over time. The increased inflow can be attributed to, *inter alia*, the major and far-reaching reforms that Tanzania has been taking in the management of its economy mainly from the mid-1980s¹⁵ to date. (*Emphasis supplied*)

Optimistic commentators on FDI find that, FDI is the enabling mechanisms for the existence of local investment. According to classical theorists, it is FDI which by far was expected to facilitate the existence of local investment. Classical theorists argue that FDI is wholly beneficial to the host economy because it brings to the host country foreign capital, new technology, new employment creation and skills of management fused to local personnel.¹⁶

However, mobilizing investment and ensuring that it contributes to sustainable development is a priority for all countries. To achieve these goal specific investment rules and policies at the national and international levels is inevitable. At the national level, there needed to strengthen investment laws and regulatory framework, formulate State favourable investment policy, integrating investment policy into

¹²Repoa (2012), FDI: Roles in Economic Transformation for poverty reduction, at p.4

¹³Ibid at p.5

¹⁴Repoa (2012), FDI: Roles in Economic Transformation for poverty reduction at p.6

¹⁵Ibid

¹⁶ Classical Theory on Investment: <http://books.google.co.tz>. retrieved on 17.04.2013

development strategy, incorporating sustainable development objectives in investment policy and ensuring investment policy relevance and effectiveness. At the international level, there is need to strengthen the development dimension of international investment agreements (IIAs), balance the rights and obligations of States and investors, and manage the systemic complexity of the IIA regime.¹⁷

Tanzania has legally laid down substantial promotional measures.¹⁸ Responsively, a lot of FDI have infused Tanzania gradually. The World Investment Report for 2013 that was released in Dar es Salaam¹⁹ indicated that Tanzania registered a 38.77 per cent increase in FDIs from US\$ 1229.4 million in 2011 to US\$ 1,706 million 2013. FDIs have increased considerably since the country opened up her economy in the late 1980s and have shot up in the recent years after gas discoveries in Lindi and Mtwara regions. The report is another testimony that government's resolve to attracting more foreign direct investments are paying off and we are certainly moving in the right direction towards making Tanzania a middle income country by 2025 as envisaged in the 2025 development vision.²⁰

Regrettably, however, with its promotional mechanisms, there is more of what Tanzania is offering to the investors (both local and foreign) than what the country itself reaps from its own endowment. The presence of investment operations in Tanzania has since not been the blessings as it is expected. This is because the government is not yet able to exploit its mineral endowment without external assistance both financially and technologically.

Commentators opine that Tanzania has to develop a technological base to be able to run its own investment particularly in the mining sector with little confidence in

¹⁷UNCTAD 2012: World Investment Report 2012:Towards a New Generation of Investment Policies at p.97

¹⁸See the Tanzania Investment Act; CAP 38 R.E. 2002

¹⁹ on 15th July 2013

²⁰ Tanzania must maintain FDI inflow trend: <http://www.dailynews.co.tz/index.php/dailynews/19928-> retrieved on 25.10.2013

FDI.²¹ However, the country's investment legal system generally, mining laws, regulations and policy in particular do comprise compulsory mechanisms in which technology reaping can be realised.

Despite the long history of mineral existence, exploration and extraction operations in the country, Tanzania's speakable benefits have been only fiscal ones in terms of taxes and fines.²² The researcher is of the opinion that Tanzania's vision on both revenue sources and control of own investment; especially the mining sectors should go beyond fiscal supposition; and thus should go far onto technological benefit. It is only technology advancement that will make Tanzania the master of own natural endowments, especially in minerals.

Tanzania *prima facie* has opportunity to garner technology brought in the country by MNCs. The question is: *why has that been impossible ever since investment operations started in the country?* This research, therefore, investigated on the difficulties facing Tanzanian legal regime and has found out the reasons for impracticability of technological gain. The study explores both legal challenges and practical challenges and recommends solutions forthwith.

1.2 Statement of the problem

Despite the long history of mineral potentials in Tanzania and despite the efforts invested by Tanzania in promoting investment,²³ the country is still poor and dependent on external aid and grants on its national budget.²⁴ Most likely, one major reason is that Tanzania has legally sacrificed more in promoting investment in the country just to make sure the resources and opportunities available in the country are productively and exhaustively utilized than it has prepared to gain.

²¹ Science and Technology in Tanzania: at <http://www.tanzania.go.tz/.html>, accessed on 25.10.2013

²² NEMC regulatory powers on mining industry: at <http://www.nemc.or.tz/>, retrieved 28.10.2013

²³ Both Fiscal and non-fiscal: see ATPS-Tanzania: (2011): the role of FDI in local Technology capability, pp. 12-30.

²⁴ Tanzania needs external aid to facilitate its national budget: at <http://www.ruralpovertyportal.org/country/home/tags/tanzania>, accessed on 25.10.2013

Some of the detrimental promotional measures Tanzania has long been offering (and still offering) to foreign investors include: repatriation of income,²⁵ various tax exemptions,²⁶ allowing initial automatic immigrant quota up to five persons²⁷ and obtaining credit from domestic sources.²⁸ It is because of these “offerings” through which Tanzania is preferred as the best destination for foreign direct investment however detrimental.

Whilst the researcher believes technology retention, nurturing and sustaining is the most beneficial and that Tanzania can sustainably profit from most especially mining investment operations in the country, the Investment Act²⁹ (which regulates investment generally) has not provided for legal mechanisms under which the country is looking forward to tapping the technology brought into the country by way of investments.

Moreover, the Mining Act³⁰ (which governs mining operations) acknowledges lack of specialized skills, technology and capital to be the hindrance to participation of Tanzanians into mineral production.³¹ It is *prima facie* observed that incessant lack of technology and inadequate legal frame work for obligatory development of a technological base in the country’s mining sector will subject Tanzania to continuous exploitative contractual relationships with mining investors if the country continues to be silent both legislatively and practically.

One of the requirements under the Mining Act³² for the grant of the mining licence is an appended plan by the applicant to employ and train Tanzanians³³ and the same Act

²⁵The Tanzania Investment Act; CAP 38 RE 2002, s.21

²⁶The Export Processing Zones Act No.11 of 2002

²⁷Tanzania Investment Act, CAP 38 RE 2002, s.24

²⁸Ibid s.25

²⁹CAP 38 RE 2002

³⁰Act No.14 of 2010

³¹Ibid s.8 (3&4): That Gemstones mining licence is exclusively granted to Tanzanian. However; if the development of the gemstones mining requires technology unknown to Tanzanians; non-citizen are allowed joint-venture with citizens.

³²Act No.14 of 2010

³³ Ibid s. 49(1) (f)

has made it an obligation for the holder of the mining licence to employ and train Tanzanians in the mining sector.³⁴ Expectations are: skills will diffuse among the nationals and hence retained in the countries. However, none of these provisions seem helpful towards technology tapping. This is because the law does not go beyond to obliging the licensee to employ the Tanzanians in the technical demanding section. Therefore the licensee can employ the citizens but in a section which does not involve technical know-how.

This research therefore expects to ascertain whether the government has realized the extent to which the problem of lack of a workable technology will facilitate “neo-colonialism” in the mining sector and/or whether there are other arrangements to quench the hazard especially in this technical demanding field (Mining) for the sustainability of the sector.

1.3. Hypotheses

The hypotheses of this study are:

1. The mining sector is the most technological needy sector of investment in the country for its automation and for the country to enjoy its mineral endowment.
2. The Tanzanian legal and regulatory framework on investment has granted a lot of promotional benefits to the investors whilst sacrificing technology tapping opportunities and thus subjecting the mining sector under intense technological dependency on foreign investors.
3. There are several technological benefits from mining investment that Tanzanian legal and regulatory framework has not organised to gain.
4. Tanzania is technologically backward because it has not oriented its capacity for technological reaping, retention and nurturing from the technology brought in the county via mining investment operations.

³⁴ Act No.14 of 2010 s.47(b)

1.4. Research Questions

This study is guided by the following questions:

- ❖ How far has Tanzania established legal mechanisms to ensure effective technological fusion to the nation, which is emanating from mining investment operations?
- ❖ To what extent does the existing legal and regulatory framework on investment and mining facilitate technological tapping opportunities pasting - away?
- ❖ Does the government receive technological benefits in *quid pro quo* to the promotional benefits offered to the mining investors?

1.5 Objectives

The general objective of this study is to investigate the extent Tanzanian legal and regulatory framework on investment has offered potential benefits to the investors through its promotional measures and to ascertain the extent promotional offerings consequently jeopardises technological dissemination in the country.

1. To ascertain the extent to which lack of the law for effective technology tapping from mining investment operations is detrimental the sustainability of the mining sector in Tanzania.
2. To scrutinize the investment laws, particularly mining laws, policy space and mineral agreements (MAs) by the investors on how technological benefits from mining investment and/operations are to be realised.
3. To investigate the reasons Tanzania is still technologically “an infant” despite its hosting several mining investment operations for years, and look into the danger of technological dependence in the mining sector which jeopardises the sustainability of the sector.
4. To advise on the extent investment laws, particularly mining laws need reforms in line with the need to gather technology benefits from investment

operations in the country as emanates from mining operations for sustainability of the mining sector

1.6 Literature Review

Blen Associates (2009)³⁵ when carrying out an evaluation, assessment and efficiency of GPP commented that the government focuses on regulating, promoting and facilitating private investment. The report points further that in 1997 the Ministry of Energy and Minerals issued a new Mineral Policy which among other things, stresses on the commitment to the environment protection and social sustainability of any mining development. The vision of the Ministry is to raise the contribution of the mineral sector in the national economy through increased foreign exchange earnings, to increase the revenue of the government and to create the gainful employment. The report has not mentioned how the government is prepared to tap the technology associated with mining operations in Tanzania. This study has covered that gap by exploring whether Tanzania is prepared to retain and make use of technology brought in the country by mining investors and measures carried on to that effect.

The Tanzania Chamber of Minerals and Energy TCME (2013)³⁶ in analyzing the benefits of the Mineral Industry in Tanzania asserts that the mining sector is an instrumental part of the Tanzanian economy and, given the quantity of natural resources still to be exploited, will continue to be so for a considerable period of time. Mining companies and their operations benefit Tanzanians and the Tanzanian economy through a variety of means: Revenue generation through payment of taxes, duties and royalties, job creation, creation of new business opportunities in local communities, improved infrastructure in the form of roads, power and water which are actually prepared for investors themselves but made available to local communities as well, extensive Corporate Social Investment (CSI) programmes, creation and support of international investor relationships; meaning that the activity of the mining sector in Tanzania has attracted investors' attention and financial flows

³⁵ In their 2009 report: Socio-Economic Impact Assessment of Mining Gold; a Case of Lusu Nzega-at p.13

³⁶ Benefits of Mining in Tanzania: <http://www.tcme.or.tz/>, accessed on 23.08.2013

into the country thus encouraging continued and increased investments in the country. TCME does not explain about technology dissemination in the country. Doubtfully, is whether the chamber has realized the importance of technology in the mining sector. The researcher intends to make a case that technology tapping is the most beneficial factor Tanzania can expect from investment operations, especially given the fact that quantities of natural resources are yet to be exploited.

The International Council of Mining and Metal ICMM (2006)³⁷ reports Ghana to have done enough to promote investments particularly gold mining since the 1980s. Considering the reserve of gold Ghana has, Ghanaians optimally think that gold mining is the sector that benefits the country once reform has taken place and so mining extracting technology is the most Ghana would need then. The report indicates that governance and institutional weakness lie at the root of the problems Ghana is still experiencing. Nevertheless, Ghana's experience has led to the resolution of encouraging investment in the mining sector whilst further governance improvements are initiated. Ghanaians are of the views that policy reform should get started to revive potential benefits that have been long impossible to attain. Learning from Ghanaian government consciousness, the researcher advises the government of Tanzania to be prepared to manage own resources once foreign investors operations get to an end by resinous reforms since the existing legal regime has not laid down technological tapping mechanisms.

Gavin W. and Czelusta J. (2003)³⁸ insist that resource based development is not primarily a matter of geological endowment but technological and industrial revolution. They insist further that countries endowed with natural resource remain poor not because they have over promoted minerals but because they have failed to develop their mineral potential through appropriate laws and policies. However, the scholars, speaking from USA jurisdiction did not suggest how a poor country like

³⁷ The challenge of Mineral Wealth: Using resource endowment to foster sustainable development; the Report of 2006: spotting series 07

³⁸ Mineral resource and economic development: a paper prepared for the conference on sector reform in Latin America Stanford Centre for International Development: In Nov. 2003, at pp.1-12.

Tanzania has to usurp technology which is brought into the country. In concurring with the two scholars the researcher advises on how the regal regime should be reformed to ensure that Tanzania retains the technology accompanying the investment operations in the country.

ICMM (2003)³⁹ argues that Tanzania remains weak in many of the areas measured by World Bank's governance indicators. The report argues further that Tanzania's incomplete nature of the governance reform holds down the key to enhancing further the positive impacts on mining. The report comments further that public management system and their implementations remain tainted with corruption. The report comments that incomplete nature of Tanzanian governance holds down the key for enhancing the positive impacts ought to be gained from mining sector. However, the report does not comment/advise on what Tanzania should do to realize the "ever-lost" benefits. The researcher advises the government on what should be done to make sure that technology brought in the country via mining operations does not perish away when foreign mining operations ceases.

Marc, N.M. (2013)⁴⁰ reports that Tanzania loses over 3.2 trillion every year through the notorious rocket of illicit money transfers. The report argues the case of Tanzania in regard to Africa generally that Africa loses money ten-times the amount the continent receives from aid and FDI. Africa receives 77billion US dollars from abroad, the continent in the other hand loses 700billion US dollars to the rich ones overseas.⁴¹ In the case of Tanzania, the government sacrifices a lot for investment promotions in forgetfulness of what the country has to benefit. Repatriation of income⁴² is an example of promotion measures which contributes to capital out-flow overseas. However; the reporter points at pecuniary loss statistics. The researcher

³⁹ Loc cit at p.10: spotling series 09

⁴⁰ Reporting on monetary losses through illicit money out-flow as alerted by Zitto Kabwe. He is the Tanzanian chairman of the PPAC when he was speaking about the ongoing 10th annual conference and general meeting of SADCOPAC at Dar es Salaam: Daily News; 2nd Sep 2013 at p. 1

⁴¹Ibid: quoting UNCTAD official statistics report

⁴² TIA CAP 38 RE 2002; S.21

reported what Tanzania is likely/actually losing by letting go of the technology which enters the country in the mining sector and will advise accordingly.

Tanzania Private Sector Foundation, TPSF (2013)⁴³ laments that the government has not paid attention to how the Tanzanians have to benefit from the newly discovered gas in southern Tanzania. TPSF disassociates from the minister for energy and minerals on the views that Tanzanians “*investment capacity and knowledge are limited to soft drinks.*”⁴⁴ However, TPSF yells for economic benefits but not for technological concern. Neither has the TPSF argued in favour of the technological tapping nor has the minister explained the reasons he believes Tanzanians are incapable of investing in gas exploitation. The researcher has made a case that unless technology advancement is enhanced in the country, the Tanzania will not realise the benefits of mining in the country. Technology is the “fuel” the government needs to “gear” all types of development the country needs.

Domasa, S. (2013)⁴⁵ quotes the TPDC chairman: “We suggest that indigenous Tanzanian firms should outsource brains (experts) and seek financial support from financial institutions such as the World Bank.” He supplements the assertion by the Minister for Energy and Minerals that Tanzanians are incapable of investing above “soft drinks.” It is obvious that the government is aware that Tanzania lacks “capacity” in terms of both finance and technology. However, the two government officials have not suggested how the technology and / experts should always be available in the country for the betterment of the country. The researcher has discovered that the government has not planned for retention of two important asserts (capital and capacity) as they are available in the country so that Tanzania enjoys its entire endowments. Moreover, the researcher has made a case that the government should restructure the legal framework to retain operating technology in the mining.

⁴³Angrily reacting to the remark made by the Minister for Energy and Minerals that Tanzanians can only invest in fruit processing but not natural resource exploitation and thus that Tanzanian “knowledge” and “capacity” lies in investing in soft drinks. The Guardian: 3rd Sept.2013 at pp.1&2.

⁴⁴Ibid

⁴⁵ Ibid: The Guardian News Paper reporter: reports on how the chairman of TPDC (Michael Mwanda) defends the selling of 8 offshore gas blocks. The sale was criticised by TPSF back then.

Walter, L. (2013)⁴⁶ urges Tanzanian Universities particularly those teaching technology to put more stress on technology which would help them bring social and economic developments in the country. He insists: *“Tanzania should invest on teaching technology, instead of always importing technology from other countries.”* He opines that universities should not only invest on superior education, but also in secondary schools, vocational training and poly-technical centres, in order to increase the technical level of Tanzanian citizens. He said it is only through this that it will be possible to prepare the heads, which may change the country and produce modern technology within the country, instead of always importing it from abroad. Following his speech, he opines that having technology of Tanzania’s own is one thing and having where to apply it is another. The researcher, in concurring opinions believes that Tanzania would have benefited from mining industry more than it counts now if the technology applicable to the mines were of Tanzanian’s own. Moreover, the researcher has found out the extent technical universities’ education in Tanzania is committed to attain the technology need in mining industry and thus showering the hope for future management of the mining sector.

Kairuki, J. (2013)⁴⁷ declares that Tanzania has outperformed and replaced Kenya as the favourite investment destination for corporate entities in the East Africa Community. She contends that Tanzania and Kenya are the only East African countries to be included in the list of top ten destinations for corporate investment in Africa and that they are the most attractive for private capital investment in general and in particular, corporate organizations. Observing the TIC executive director’s concern, it can be observed that it is “promotions” that the country is dedicated to perform regardless the gain from investment operations. This research has explored the TIC’s intention is “promotion first, gain later” and has discovered the fact that

⁴⁶Dr Luhs, from photonic engineering department at German based Ley bold Didactic Company during a public seminar on discovering photonics at Dar es Salaam. The seminar attracted over 50 participants from technical Universities of Tanzania. Reported by the guardian newspaper of 19.09.2013 on <http://www.ippmedia.com/frontend/index.php?l=59470> accessed on 19.09.2013

⁴⁷ Tanzania Investment Centre (TIC) Executive Director: Speaking to journalists in Dar es Salaam yesterday on Rand Merchant Bank (RMB) 2013 Global Investment Banking 2013 report. Source: the Guardian newspaper of 18.09.2013 accessed at <http://www.ippmedia.com/frontend/index.php?l=59432>, on 20.09.2013

TIC sees the need to benefit from the technology brought into the country although no measures have been taken thereupon to retain technology.

Daniel N.K. and Johnson K (2009)⁴⁸ emphasise that the diffusion of new technology is a difficult process, filled with uncertainty and hampered by both market and cultural factors. They believe however that for the country's economic growth and development, technology diffusion is inevitable. They acknowledge the process of transfer or buying technology to be expensive, however, they contend that the easiest possible ways in which developing countries can fetch, trap and retain technology which is FDI and International Trade.⁴⁹ The two authors insist that for successful technology dissemination the government and a country's legal regime has to be active for the purpose of benefiting technology from FDI. The researcher concurs with the authors and has managed to finding out the extent the government has not balanced both promotions on investments which offers a number of reliefs to the investors and chances to benefit from the technology brought in the country via investment operations.

The United Republic of Tanzania (2009)⁵⁰ promises to develop a local base for technical capacity.⁵¹ The government further promises to continue attracting and enabling the private sectors to take the lead in exploration, mining, mineral beneficiation and marketing. Its purpose is to increase the mineral sector's contribution to the GDP and alleviate poverty by integrating the mining industry with the rest of the economy.⁵² However, it is promotional efforts that seem to take effect in investment laws but not technological manifestation. This research noted that the government, the MEM and all investment organising bodies have realised that "promotion of investment" need to balance the benefit the country deserves to strengthen its local technological base.

⁴⁸ In Colorado University working paper 2009-07 of 2009 on challenges of technology transfer and dissemination at pp. 22-45

⁴⁹ Ibid at pp.5, 9, and 21

⁵⁰ In the Mineral Policy of Tanzania (2009): MEM

⁵¹ Ibid; item (m)

⁵² Ibid at p.10

UNCTAD (2008)⁵³ comments that technology transfer is among the most important potential contributions that TNC participation can make to host developing countries. However, the report observes that limited domestic technological and engineering capabilities, as well as managerial and other expertise, prevent many developing countries from undertaking infrastructure projects and providing related services. The report recommends further that even without the direct participation of TNCs, domestic firms can build technological capabilities and improve services provision based on their own efforts, provided they have clear objectives and can invest in the necessary expertise.⁵⁴ This means that, for MNCs to feel obliged to disseminate their technology in Tanzania, efforts must have been done to want it both theoretically and practically. This is what the researcher has focused and recommended. The government should start with legislative mechanisms to ensure technology dissemination.

Honkonen, P. (2013)⁵⁵ urges the government not to attract investment at the cost of sustainability and stability. The author continues to insist that the government, while developing the mining laws and policies has to balance between attracting investors and ensuring mining industry's sustainability. The author opines further that giving out more than ¾ benefits to the investors as a means of attracting them in the country is an outdated approach even if it is obvious that countries are still competing for private capital inflows in their territories. He recommends a serious mining laws reform to the effect of realizing sustainability of mining industry. However, the author does not point out technological want as the factor for mining sustainability he is yelling for in the mining industry. His opinion is that social wellbeing and environmental protection suffices to sustain mining industry. The researcher concurs with the author but disassociate from him on the factors which makes the mining industry sustainable and most reliable for the benefits of all nationals. Whilst the

⁵³ UNCTAD: World Investment Report 2008: Transnational Corporations and Infrastructure Challenge: Technology Transfer and Diffusion: at p.130

⁵⁴ Ibid: at p.131

⁵⁵ Challenges of mining policy and regulation in central Asia: the case of Kyrgyz Republic: In the Journal of Energy and Natural Resources Law, Vol. 31 at pp. 27-32

author thinks good life for indigenous around the mines, the researcher has proposed technological tapping as the means for sustainability of mining industry in the hands of indigenous.

Bazilian, M. (2013)⁵⁶ poses a question whether mineral revolution is still a curse. He condemns the idea that mineral resource evolution is a “curse”. The concept of mineral curse suggests that large and newfound resource endowment can both directly and indirectly result in poor forms of governance that in turn incite, prolong and intensify political instability, graft and violence conflict.⁵⁷ The author believes the government is capable of both: to turn mineral revolution into a “curse” or “blessing.” He insists further that if the government acts prudently, honestly and transparently no curse is to be expected but the opposite of the mentioned would definitely amount to a curse. The researcher agrees with the author and this research has recommended on what the government should do, amounting to acting prudently so as not attract a resource curse in the country. The researcher is committed to advising the government how technology tapping can help to bring about diversification of mining industry and evolution of other industries only if the legal framework permits so.

Williams, J. (2012)⁵⁸ opines that the successful transformation of mineral resources into source of income and wealth requires initiative, innovation and investment in a very high risk of exploration, extracting, refining and selling minerals.⁵⁹ The author insists that risk-taking by the country does not necessarily mean too much incentivizing to impoverish the endowed country but establishing and implementing the terms and conditions for investors to bring about private development of the resources and sustainability of the mining sector. The author opines further that a general trend towards greater sovereign control and participation, increased

⁵⁶ Challenges of mining policy and regulation in central Asia: the case of Kyrgyz Republic: In the Journal of Energy and Natural Resources Law, Vol. 31 at p.36

⁵⁷ Ibid

⁵⁸ Global trends and tribulations in mining sector: Journal of Energy and natural Resources Law , Vol. 30; No.4 of December 2012 at pp 392-395

⁵⁹ Ibid at p. 392

obligations on mining companies to help develop local economy is the function of how the host country's legal system reflects the trend, maturity and sustainability of the host country's legal framework for mining sector.⁶⁰ However, the author has researched on other African countries such as Ghana, Mali and Zimbabwe (*to mention but a few.*) The researcher is in agreement with the author and has revealed that, unless Tanzanian investment legal framework undergoes a serious reform, it is incapable of tapping technology for mining industry sovereign control and sustainability.

Nigel, B. (2012)⁶¹ laments that both international investment rules/regulation/system and BITs protect the investments of the investors in the country of the host country. Trickery, they include the so called "*umbrella clauses*" pursuant to which each contracting party undertakes that it will observe all the promises made to an investor. The author laments further that at the investors' desire (their contract of adhesion/ BITs) host governments positively respond and for that are referred to as "best investments destinations" which puts the host country at loss in every aspect of obvious gain. The author thinks African Countries have given so much already in their "promotion struggles" and is of the opinion that governments should be reluctant to make long term commitments, gradually reduce and eventually withdraw incentives. He thinks governments should realize policy space for more commitment of technological solutions than fiscal benefits. He encourages the governments not to fear the external threat that they cannot support green initiatives.⁶² The researcher is in agreement with the author and has advised the government the way to do away with technological non retention BITs for Tanzanian mining industry sustainability and for industrial sector diversification.

⁶⁰ Global trends and tribulations in mining sector: Journal of Energy and natural Resources Law , Vol. 30; No.4 of December 2012 at p.395

⁶¹ Ibid at pp.499-503

⁶² Ibid at p.502

UNCTAD (2004)⁶³ alerts that in considering trends of IIAs, it is important to pay particular attention to their impact on development of the developing countries; and this should always be the paramount objective. The body adds that the DCs have sought to establish the legal framework that would reduce obstacles to FDI but the most important aspect is left behind which is: *“how IIAs would allow host States widen policy options to cater for their development objectives”* UNCTAD continues that IIAs tend to ensure high level of protection to investment, consequently they limit the host country’s policy options available to decisions makers for pursuing development objectives. The researcher agrees with UNCTAD report and has found out that the government is soon to realize and change the exploitative legal framework on investment, particularly in mining sector and already appreciating that technology tapping is the most efficient gain/benefit the country should look after to balance with promotion struggles in which the government offers a lot to investors than it retains. The researcher has pointed out that it is technology manifestation in the country that is likely to make Tanzania the owner of its own endowments.

UNCTAD (2004)⁶⁴ further cautions that transnational corporations (TNCs) seek to advance their paramount corporate objectives of competitiveness and profitability. They ensure all is done in their BITs and other types of IIAs. Seeking to advance host country’s development is not their concern though can be expected consequentially. The report calls upon the developing countries (Tanzania in this context) to be aware that *“an investor-friendly agreements will be development-friendly as well.”* The report insists it is upon the government in question to ensure the desired goals happen. The report recommends that it is the time that both IIAs and BITs should reflect the concerns of host states especially helping them benefit from their endowments especially through provision of technical assistance. This being the concern of this study, the researcher has recommended on what measures the government should take to restructure investment legal framework for the

⁶³On International Investment Agreements: key issues: Vol. I at pp 36-39.

⁶⁴ On IIAs issues at pp 56-58

purposes of nurturing “*technical know-how*” which is already in the country operating in the mining sector.

UNCTAD (2009)⁶⁵ recommends that technological progress is crucial for development and that developing countries can improve productivity by acquiring advanced technology from developed countries. The report is of the view that a number of factors related to the creation and dissemination of technology in developing countries have significantly limited the benefits they have reaped from technology transfer. The report points out that, one of the obstacles is that country firms may not be suitable or beneficial to developing countries, as their utilization is often constrained by geographical and climatic conditions. Although the report comments on agricultural technology the researcher has found out what could be the hindrance against disseminating and retaining mining technology which has already been brought in the country by the MNCs.

Asante S. K. B. (2004)⁶⁶ refers to investment promotions as “*creating a partnership of unequal partners.*” Speaking of FDI inflows in developing countries, he takes it as the shortest route towards obtaining working technology in host countries. He therefore advises the developing countries (Tanzania inclusive) that it is necessary to note, when welcoming foreign investors that States retain certain fundamental rights to decide what types of investment should be admitted and on what conditions based on the predictability of the desired development plans of the host State. Asante contend further that there is no right of admission or right to invest in a foreign country and hence States retain power to determine which foreign investor of investment to allow, in what sectors and under what agreements. He names BITs and other IIAs “*contracts of adhesion*” brought in by foreign investors which will never meet the scales developing countries need to cater for their development goals. He advises that treaties which create investment relations should be negotiated fairly and allowed flexibility to free Africans to adjust their anticipated benefit which match

⁶⁵ UNCTAD 2009: World Investment Report: TNCs participation and technology transfer; at p.138

⁶⁶San Diego International Law Journal of 2004 vol.5 at pp 146-162

global changes. The researcher has investigated the effect of BITs and other IIAs that confines Tanzania to no options to legislate with effect to technology tapping from investment operations and has advised accordingly.

Sornarajah, M. (2004)⁶⁷ advises that host States may endow efforts to maximizing benefits of the foreign investment to the local economy. He argues that, based on the principle of the sovereign rights of the States, they can ensure that the perceived benefits of the transfer of the skills to the local labour and management are realised. The author believes that all the development goals can be achieved by way of proper regulations, properly arranged by the host government. However, the author concedes that properly adopted policies by the developing countries can invent some new forms of investment which can benefit the host country irrespective of ever-long existed exploitative contracts which favoured the investors. The researcher concurs with the author and has advised how the government should go about when preparing the policies with effect to technology tapping and retention in the country.

UNCTAD (2004)⁶⁸ explains about the preservation of host countries' discretion in the negotiation, conclusion and operation of State contracts. The report advises that State contracts are often used in politically sensitive investment areas. Thus, they should usually be subject to a special legal regime that gives considerable discretion to the government in the contractual process. This regime is an expression of a government's right to regulate an investment in accordance with its national policy priorities. In effect, the national legal regime should aim to preserving national policy space. Discretionary powers by a host country under the applicable national legal order pertaining fulfilment of development goals are as good as *jus cogens*. The report recommends further that the provisions of IIAs should not out-weigh this inherent right of the host States. However, the report does not recommend on the curative mechanisms to the developing countries which are already affected by the

⁶⁷The International Law on Foreign Investment, (2004), University of Cambridge at p.131

⁶⁸ The International Investment Key Issues; Vol II at p.3

ever-existed IIAs to their detriment in the realisation of technological growth. The researcher has worked to cover that gap.

World Bank (WB)⁶⁹ recognises FDI as crucial to the economy of developing countries particularly in terms of improving the long term efficiency of the host country through greater competition, transfer of capital, technology and managerial skills and enhancement of market access and in terms of the expansion of international trade. Moreover, the guidelines consider the promotion of private foreign investment a successful mechanisms for achieving the mentioned above. However; the guidelines acknowledges being un-exhaustive for purposes of international standards and policy space of the parties in concluding IIAs and BITs. And the guidelines have not directed how the host countries should reap technology accompanied by the FDI in the territories of other States. The researcher has advised on what the government should consider to include in BITs for the purposes of technology gain from investment operations brought into the country.

Kisanga D. (2013)⁷⁰ reports Engineer Ally Samaje⁷¹ announcement in Dar es Salaam that uranium reserves amounting to 178.8 million tons had been confirmed at Mkuju River in Ruvuma region that would earn the government over \$360m in corporate tax and another \$50m in Pay as You Earn (PAYE), \$190m in royalties from commercial extraction as an Australian firm, Mantra Tanzania Limited, has won the tender to carry out the mining. However, his announcement was received with criticisms from mining experts⁷² who warned the government not to prefer revenue from uranium extraction due to its dangerous impacts. The advice is that “Tanzania should wait, not rush into uranium extraction.” According to the experts, Tanzania has no adequate

⁶⁹World Bank guidelines on the Treatment of Foreign Investors: see the preamble

⁷⁰ Uranium reserve discovered at Mkuju River: <http://www.ippmedia.com/frontend/index.php?l=60040>; retrieved on 23.10.2013: 5th October 2013 News

⁷¹The Acting Commissioner for Minerals

⁷² International Physicians for the Prevention of Nuclear War (IPPNW), Speakers and Specialists on Uranium and its effects from Australia, the United States, Canada, Germany, Switzerland, the Rose Luxemburg Foundation of Germany (East Africa office), the Legal and Human Rights Centre (LHCR) of Dar es Salaam, and other African countries at a meeting (The international conference) where Tanzania played host on 4th October 2013

knowledge of the mining sector generally, much less on desired technology needed in the sector. The researcher takes that advice positively in line with the search for technology. The government needs to learn and spread technical education in the field and perhaps be in position to extract uranium by itself in the future for sustainable development of the country.

Binala J. (2013)⁷³ reports the announcement made by Eliakim Maswi⁷⁴ that Mining and exploration contracts as well as oil and gas production sharing agreements between the government and multinational corporations (MNCs) will now be made public. The notice is in compliance with the demands of the International Extractive Industry Transparency Initiative (EITI) to which the country is a member. However, the government has made it clear that this applies only to new contracts and agreements, saying it is bound by law to keep past contracts confidential. Binala continues that Tanzania is a host to two gemstones that are not found anywhere else in the world: Tanzanite and green garnet.⁷⁵ The plan is liberal and flexible for possible opportunity for the government to receive advice from stakeholders and mining expertise. The researcher fearlessly advises the government that it is by way of technological advancement that will make Tanzania the master of own endowment to realize development goals. And technology fusion shall be achieved by properly enacted legal regime regulating the mining sector in respect of the subject matter.

1.7 Significance of the research

The study takes the position that technology transfer is not an easy and less expensive aspect in as far as IPRs demand. The study, therefore, divulges the need to nurture the technology which is invested in mining sector today (already available in the country) for enhancement of the mining sector in the future.

⁷³Mining and exploration contracts to be made public in Tanzania at <http://www.ippmedia.com/frontend/index.php?l=59853>; visited on 23.10.2013: the Guardian newspaper of 30th September 2013

⁷⁴ Permanent Secretary in the Ministry of Energy and Minerals of Tanzania

⁷⁵ Loc cit. at 21, p.26

The research findings have potential information and thus are one of the depositories of knowledge by adding information and awareness of the legal and regulatory aspects of investment in Tanzania, particularly in the mining industry. The work has revealed the significance of tapping technology that is brought into the country by investors and the possible benefits the country can attain by retaining technical-know how in the mining sector.

The research finding has useful information to the entire public on the extent Tanzanian legal framework has granted a considerable wealth to the investors by way of promotion and its time now to reshuffle. The research has urged the government, government agencies, private institutions, and private individuals to yell for technology retention above all other benefits expected from investment operations.

The findings of this research signal of law makers, policy makers, and the public on the need to reform the existing laws, policies and mineral agreements (MAs) with effect to technology tapping in the country.

Finally, the findings are essential for the re-structuring of the regulatory framework on investment in the country as it is expected that the findings will be incorporated into policies and laws governing investment for better assurance of technology dissemination and a sustainable mining sector in Tanzania. This work will also inspire scholars and other researchers as it will be an attracting reference on matters related to investment especially in the mining industry, motivate them to develop unsearched aspects in this field and eventually enable interested students in commercial law field into successful commercial lawyers.

1.8 Research Methodology

This part is about the framework within which the study was conducted. It deals with practical analysis of the methods which were applied in the field of study, or the practical analysis of the body of methods which were systematically used in the process of searching for this pertinent information during this study. It encompasses

concepts such as research design, study area, sample size and sampling procedure, data collection and data analysis.

1.8.1 Research Design

The research design is the case study of mining sector. The design is chosen by the researcher because the mining industry is rapidly expanding and a lot more in the industry is expected since several mineral depositories are exposed lately. Moreover, it is because there is a foreseeable opportunity that the mining industry is likely to continue expanding and it is the major source of government revenue now and in the future. Again, several researches have been conducted in the other areas of investment such as agriculture,⁷⁶ tourism⁷⁷ (*to mention but a few*) but none has addressed the mining sector. The design has considered the potentiality of the mining sector now and its worth of sustainability. The design has been chosen so as to open-up the mind of the Tanzanian mass that mining sector has a lot more to benefit the country than it is currently, the issue that has not been addressed before. This design therefore widens the scope of investigations on what adds value in the future national ownership of Tanzanian endowment.

1.8.2 Research Site

The study was carried out in Dar es Salaam. The selection of this area is influenced by the following factors. Dar es Salaam is a well-known place where head offices of the mining companies operating in Tanzania are located. In the head offices of the mining companies, pertinent information related to the study was gathered. Some of the top officials in the management of the companies' affairs were available at the head offices. The head offices provided the information relating to this study.

⁷⁶ See one by the URT: Transforming Agriculture in Tanzania: A report by Agricultural Sector Development Programme (ASDP) (2012) at pp.24-78.

⁷⁷Tanzania Tourism Sector Report: at <http://www.tanzaniainvest.com/home/reports/> accessed on 20.10.2013

Moreover; site visit in one of the mine (GPP)-Nzega Tabora was made where direct observation by the researcher had served to get relevant data. This was made possible with the permission by the MD of the Resolute (Tanzania) Ltd to visit the mine and refinery sites hoping that this research could benefit on physical- eye sight to the mine. In all the events, Dar es Salaam remains the hub of this study.

1.8.3 Study Population

The data included in this study was gathered at different times from lawyers, policy makers, universities which offer mining technical education, technical institutions, government officials, and offices of the mining companies, operational workers in the mine sites and mining stakeholders.

1.8.4 Sampling Techniques and Procedures

The selection of the respondents was based on random sampling technique. This is because during the time of this research, most of the projected respondents were not available and some were purposely escaping physical contact with the researcher. Since the study was concerned with relevant data, the adjustment was inevitable. In this regard, it was important to search for data irrespective of the be-holder. The plan was to reach lawyers, policy makers, universities which offer mining technical education, technical institutions and government officials, offices of the mining companies, operational workers in the mine sites, small scale miners and stakeholders generally and indeed the adjustment helped to arrive at what has been obtained.

Purposive and convenient sampling method was also used. The researcher had meetings with MDs and CEOs of mining companies who sincerely provided the information as expected. This method was employed because researcher believed the pre-anticipated respondents have relevant data for this study and doubtlessly the anticipation was concluded affirmatively. The technique was relevant to this study as some of the anticipated respondent indeed responded.

1.8.5 Sample Size

Four categories of respondents were targeted to enrich this study. The government, government Agencies, non-governmental institutions and mining stakeholders - individually and in groupings were targeted. The Ministry of Energy and Minerals (MEM), government agencies: TIC, TCME, TMAA, COSTECH, TPDC, and TPSF. The mining companies such as ABG, Resolute (T) Ltd and GGM were targeted.

This study has benefited from ABG, GGM and Resolute (T) Limited because these are the well-known large mining companies in Tanzania. With a wide range of the activities in their companies, they had a lot to contribute to this study. Additionally, Resolute (T) Limited has gone a step further into closing one of his mines. With the vast experience of being in operation since 1998 to 2013, the MD respondent to the researcher's interview has assisted a lot in responding to the requirements of this study.

1.8.6 Data Collection Procedures and / Tools

Combined methods of data collection were employed. The data was collected using primary and secondary sources. Primary sources encompass holding interviews, direct observation and conducting discussion. Secondary data were gathered from books, journal articles, published and unpublished materials, statutes, case laws, radio and television broadcasts, and internet sources. The libraries of Mzumbe University and University of Dar es Salaam (UDSM) were expected to be of great help because the Universities are the prominent public institutions with reliable and pertinent information but only MU library was of great help.

1.8.6.1 Interviews

Several interviews were conducted in to two different ways namely structured and unstructured interviews. The structured interviews, (as annexed hereto and marked thereupon) were directed to the selected officials the researcher visited for some information about the study. Moreover, the unstructured interviews were designed at the time when the targeted respondents seemed to possess the information which the researcher could not anticipate during restructuring the interview guide questions.

1.8.6.2 Informal Discussions

Data collection also involved informal discussion. Discussion was held between the site engineers; foreign expatriates and local mine operators (helpers.) This method was designed immediately after reaching the site; just to realize has yielded data which the MDs could not give. It was carried out at all stages namely during and after data collection and at random basis. During data collection, informal discussion served as data collection mechanisms and in some instances as clarification mechanisms. After data collection, informal discussion served as the means of testing the researcher's hypotheses.

1.8.6.3 Direct observation

Data collection also involved direct observation by the researcher. The researcher visited one of the mines in Tanzania (GPP) and saw how they operate. During the observation, the researcher noted how physically people are involved in mining processing in all stages including refining processes and the likelihood of the participant to acquire skills as they work. Direct observation favoured the completion of data collection because while at the site visit, the researcher had quickly to adjust to the other means of data collection (1.8.6.2.) above.

1.8.7 Data analysis

The data were analyzed both qualitatively and by the use of factual and logical interpretation.

1.8.7.1 Limitations

Time pressure was a problem. This is because, whilst the researcher was supposed to meet deadlines, the respondents could not respond for discussions as soon as desirable. Moreover, it was difficult to get hold of all the targeted respondents to this research. Some of the targeted respondents have not volunteered to give the information at all. However, in some of the agencies, the then targeted respondents appointed their delegates, who, nevertheless responded at the best of their knowledge. Again, there were difficulties to getting the MDs of the big Mining companies. Even in a few occasions when they could volunteer for an interview, the

researcher could be allowed to raise a limited number of the questions and come for the rest of the questions the other time, and to reschedule that other time was equally a problem. Methodology had to change to suit the situation. Questionnaire was fruitless. The questions which were extended to some of the respondents had not been responded to to-date. That is when interview (both structured and unstructured interview) had to be a resorted effective tool for completion of this study.

1.9 Conclusion

Supported by the authors opinion in the literature review above and the objectives of this study, the hypotheses of this study are positively tested and/answered. The combination of methodology used paves the way to a success research report. This research eventually liberalizes the majority on matters relating to mining in Tanzania.

CHAPTER TWO

CONCEPTUAL FRAMEWORK

2.1 Introduction

This chapter provides a broad understanding of the definitions, views, principles, concessions and experiences on of technology desire in the mining sector. The researcher puts down in this chapter, all that seems to be possible for technology tapping from the mining investment operations if all the opportunities otherwise availed to Tanzania would be exhaustively utilized. This chapter outlines all the prospects under which technology gain ought to have been possible.

2.2 The Concept of Technology and Technology Transfer

Technology refers to the application of science, especially to industrial or commercial objectives. It is the scientific method and material used to achieve a commercial or industrial objective.⁷⁸ The Oxford Advanced Learner's dictionary⁷⁹ defines technology as scientific knowledge used in practical ways in an industry. Mutagwaba: et al (1997) comment on technology as the aggregate of mental and physical capabilities designed to address a certain issue, such as a problem or production process. It involves the application of both human potentials (skills, knowledge, information) and physical or material aspects (equipment, tools and artifacts).⁸⁰ Technology transfer and diffusion on the other hand involves the cross-border flows of both physical goods and knowledge, be it tacit or formal.⁸¹ International technology transfer (ITT) moreover refers to any process by which a party in one country (donee) gains access to technical information of a foreign party (donor) necessary for skills gain and successfully absorbing into production process.⁸²

⁷⁸ The meaning of technology: at <http://www.thefreedictionary.com/>, accessed on 25.11.2013

⁷⁹ Of 10th Ed

⁸⁰ In their report "The impact of technology on poverty alleviation: the case of artisanal mining in Tanzania" REPOA; Report No. 97.2 of 1997 at p.17

⁸¹ Climate Change, Technology Transfer and Intellectual Property Rights: International Centre for Trade and Sustainable Development (ICTSD) June 2008 at p.11

⁸² Amy Jocelyn Glass and Kamal Sagai (2012): The Role of Foreign Direct Investment in International Technology Transfer: International Handbook of Development Economics at p.1

In the context of this study, technology dissemination in the mining industry include adapting, retaining, developing and sustaining *all sorts of technical-know* how applicable in the mining sector brought in the country by the MNCs or in any other way made available in the country for future utilization of the same by the government in the same industry.

2.3 The Concept of Investment

Investment means the contribution of local or foreign capital by an investor, including the creation or acquisition of business assets by or for a business enterprise and includes the expansion, restructuring, improvement or rehabilitation of a business enterprise.⁸³ Investing in the other hand means expenditure to acquire property or assets to produce revenue or simply a capital outlay.⁸⁴ Investment, in other words, is the act of giving time or effort to a particular task in order to make it successful.⁸⁵ The term "investment" is generally defined by several BITs as every kind of property, such as goods, rights and interests of whatever nature, and in particular, though not exclusively, it includes: tangible, intangible, movable and immovable properties as well as any other right *in rem* such as mortgages, liens, usufructs, pledges and similar rights, shares, debentures, stock and any other kind of participation in companies, claims to money or to any other performance having an economic value associated with an investment, intellectual and industrial property rights such as copyrights, patents, trademarks, industrial models and mock-ups, technical processes, know-how, trade names and goodwill, and any other similar rights; business concessions conferred by law or under contract, including concessions to search for, cultivate, extract or exploit natural resources.⁸⁶ In the context of this study however, it is “mining investment” which is the subject matter.

The exhaustive nature of the definition of “investment” in a commercial base as incorporated in different BITs infers the lesson that commercial relationships (in this

⁸³ Kenyan Investment Promotion Act, 2004

⁸⁴ Garner: Blackslaw Dictionary; 8thed

⁸⁵ Oxford: Advanced Learner’s Dictionary; 10thed

⁸⁶ Agreement between the government of the People's Republic of China and the Government of the Republic of Uganda on the reciprocal promotion and protection of investments

case investment agreements) is different from other political relationships. Commercially, parties need to focus on profit making and exhaustion of national priorities for the sake of development of both parties. The government in particular has not legislated exhaustively on how the laws governing admission of investors and their operations during their presence in the territories should yield technology in Tanzania. The law makers on the subject matter ought to have foreseen that the national policy priorities are “technological retention and development” in the mining industry for future self-reliance in the industry, the matter which has been inversely incorporated by investment and mining legal and regulatory framework.

2.4 The Concept of Investors

An investor is a person who spends money expecting to earn a profit.⁸⁷ The Tanzania Investment Act⁸⁸ categorizes an investor into two; *id est*, local and foreign investors. A foreign investor in the case of a natural person means a person who is not the citizen of Tanzania and in the case of a company, legal person is a company incorporated under the laws of any country other than Tanzania...⁸⁹ The BITs elaborates further on foreign investor: the "investor" as the natural person who has the nationality of either Contracting Party in accordance with the laws of that Contracting Party; legal entities, including company, association, partnership and other organization, incorporated or constituted under the laws and regulations of either Contracting Party and have their headquarters in that Contracting Party.⁹⁰ Optimally, the role played by the foreign mining investors in the country is more likely coupled with technological spilling in the country than it should be expected from local miners. Since the law⁹¹ recognises both foreign and local investors, the government should have recognised that local mining investors ought to have been geared up to receive, perpetuate and sustain whatever “technical-know how” brought

⁸⁷ Garner: Blackslaw Dictionary; 8thed

⁸⁸CAP 38 R.E 2002

⁸⁹Ibid s.3

⁹⁰The Tanzania Investment Act, CAP 38 RE 2002

⁹¹Ibid

into the country by the foreign mining investors for future integration of the same into the mining sector on its own.

2.5 Investment in the Mining Sector in Tanzania

The Mining Act⁹² has categorically grouped “investors” in the mining industry. The investor-hood in the mining sector is acquired by the mere act of holding a valid licence. A licence, though not expressly defined by the Mining Act, may be understood to be a *declaration of one’s mineral rights*. Mineral rights therefore means valid licences granted to the justified applicant (one who has fulfilled the requirement of the law for the purposes of requesting the licence) in order to invest in minerals.⁹³ Therefore, an investor in the mining sector may be either an indigenous or a foreigner as long as he falls within the following categories:

- a) **Primary licensee:** This is a mining investor whose licence is for small scale mining operations and whose capital investment is less than US\$100,000 or its equivalent in Tanzanian shillings⁹⁴ and according to mining law, this licence is exclusively reserved for Tanzanian nationals.⁹⁵
- b) **Medium licensee:** This is a mining investor whose licence is for medium scale mining operations and whose capital investment is between US\$ 100,000 and US\$ 100,000,000 or its equivalent in Tanzanian shillings.⁹⁶
- c) **Special Mining licensee:** This is a mining investor whose licence is for large scale mining operations and whose capital investment is not less US\$100,000,000 or its equivalent in Tanzanian shillings.⁹⁷

2.6 Other investment categories in the Mining Sector

Apart from small scale, medium scale and large scale investment, the law widens the opportunities for mining businesses. There are other mining businesses one can deal

⁹² Act No.14 of 2010

⁹³ Ibid s.4

⁹⁴ Ibid

⁹⁵ Ibid ss2&3

⁹⁶ Ibid

⁹⁷ Ibid

with, which do not necessarily need landing of physical equipment as may be needed for mining operations namely:

- a) **Broker Licence:** A broker licence is a legal permit⁹⁸ granted to an applicant to authorise the broker (licensee) to buy or acquire the minerals (as the licence may specify) from an authorized miner and to sell or dispose of them to a licensed dealer. A licensed broker is not authorized to export minerals.⁹⁹
- b) **Dealer Licence:** A dealer licence refers to a legal permit¹⁰⁰ granted to an applicant to authorise the dealer (licensee) to buy or otherwise acquire, sell or otherwise dispose of minerals specified in the licence, possess (for carrying on business as a dealer), export minerals specified in the licence.¹⁰¹

2.7 The Concept of Investment Promotion

Promotion means ensuring the achievement of progress, growth, or acceptance of something.¹⁰² Specifically, it is the furtherance of existing efforts towards achievement/success. In this context, investment promotions encompass all the efforts made by the State (Tanzania) to make sure investors (both local and foreign) agree to invest in the country. In other words, investment promotion is an attempt to make Tanzania the preferred destination for foreign direct investment by continuous improvements towards the creation of an enabling environment for investment.¹⁰³

2.8 Concept of Minerals and Mining Operations

Minerals refer to naturally occurring, homogeneous inorganic solid substance having a definite chemical composition and characteristic crystalline structure, color, and hardness.¹⁰⁴ In other words, minerals are substances which are naturally present in the earth and are not formed from animals or vegetables¹⁰⁵ but earth's endogenic

⁹⁸ The Mining Act No.14 of 2010 s.81(2): usually valid for one year but subject to renewal

⁹⁹ Ibid ss. 80-83

¹⁰⁰ Ibid s.75(1): usually valid for one year but subject to renewal

¹⁰¹ Ibid ss.73-76

¹⁰² Oxford: Advanced Learner's Dictionary; 10th Ed

¹⁰³ Investment Promotion: at <http://www.tic.co.tz/> accessed on 22.12.2013

¹⁰⁴ Definition of minerals: at <http://www.thefreedictionary.com/> retrieved on 20.01.2014

¹⁰⁵ Oxford: Advanced Learner's Dictionary; 10th Ed

processes.¹⁰⁶ Moreover, the Mining Act¹⁰⁷ defines minerals to include any substance; be it in solid, gaseous or liquid form occurring naturally in or on the earth or in or under the seabed formed by or subject to a geological process but does not include petroleum or surface water. On the other hand, mining operations mean operations carried out in the process of mining¹⁰⁸ whereas mining includes all direct or indirect processes/operations which would result into obtaining/producing a first saleable product.¹⁰⁹ The Mining Act (supra) has exhausted about what Tanzania would refer to as minerals. This is because of the potentials minerals have to the nation and to the citizens in general. However, in widening the definition of minerals, Tanzania has not considered the importance of widening the scope of benefiting from mineral endowment by mounting own technology which would be enough to manage the mining sector independent of foreign investors who are presumed to possess the required technology for mineralization in Tanzania.

2.9 Legal position on the Transfer of Technology in Tanzania

Tanzania has not legislated for strategies or plans for appropriate selection, acquisition and transfer of technology for effective integration of imported technologies with local capacity for R & D.¹¹⁰ Although deliberate efforts have been put into place in order to make sure that the speed of technology transfer is effective and sustainable *id est*, the establishment of Tanzania Commission for Science and Technology (COSTECH)¹¹¹ and the Centre for the Development and Transfer of Technology (CDTT) in 1994,¹¹² there are no deliberate efforts in particular directed in the mining sector to institute a workable mechanism for the coordination of capacity building, negotiation, adoption, research and development, information exchange and extension services to make sure retention of already available technical know-how in the country is successful.

¹⁰⁶ How mineral ore are formed: <http://www.ethlife.ethz.ch/>, accessed on 21.01.2014

¹⁰⁷ Act No 14 of 2010; s.4

¹⁰⁸ Ibid

¹⁰⁹ Ibid

¹¹⁰ Introduction: the The National Science and Technology Policy of Tanzania 1996; para 1-8

¹¹¹ Under The Tanzania Commission for Science and Technology Act; No.7 of 1986

¹¹² Science and Technology: <http://www.tanzania.go.tz/html>, retrieved on 04.11.2013

In spite of Tanzania being one of the Africa's most important mining countries with significant mineral resources potential and its richly endowed geology with mineral wealth, and despite the country's vast resources of metals and minerals such as gold, diamond, iron ore, nickel, copper, cobalt, silver, ruby, garments, uranium and most recently gas,¹¹³ and in spite of the fact that Tanzania is the sole producer of the precious tanzanite in the world and the third largest gold producer in Africa after Ghana and South Africa,¹¹⁴ the country has no technology relevant to run the mining sector. Therefore, there are notable difficulties in the mining sector's financial success and uncertain benefits to citizen's lives and thus mirror the national role on mining sector short of merit.

This study takes it a problem for the national efforts towards investment and particularly mining investment to have been "promotions," which poses *prima facie* exploitations to the detriment of the country. Investors have been taking advantage of the nation's incapacity technologically to manage the sector. It is evidently that the government has no options but accepting unequal terms on the contractual relationship with the foreign investors. This study observes that it is time to benefit and enjoy the national endowment by nurturing and developing technical base enough to run the mining industry with little or no dependence to foreign investors.

2.10 Assumptions / Principles of Investment cum Technology Gain.

Commentators¹¹⁵ argue that the diffusion of new technologies is a difficult process, filled with uncertainty and hampered by both market and cultural factors. FDI operations in the host countries therefore should be the cheapest means the host countries should expect for getting technology in their territories¹¹⁶. It is argued further that MNCs' operations in the host countries are the best opportunities for

¹¹³Report of the Presidential Mining Committee Review advising the government on oversight of the mining sector: at pp.18-47

¹¹⁴Tundu Lisu and Mark Curtis; "A Golden Opportunity, How Tanzania is Failing to benefit from Gold Mining; 2008 at p.16

¹¹⁵Daniel K.N. Johnson and Kristina M. Lybecker: Challenges to technology transfer: Colorado College Working Paper 2009-07 July, 2009 at pp 20-40.

¹¹⁶Ibid

technology gain by host country. However, MNCs are not interested in transferring knowledge to and supporting innovation in foreign affiliates beyond what is needed for their production process or products.¹¹⁷ Therefore, since transfer of technology is not an automatic nor costless process, legal and policy regimes of the host countries need to tighten their efforts towards technology dissemination in the country at the time of contractual arrangements of MNC's admission in the territories of host countries. Additionally, incentives ought to be given in order to achieve the most effective rate and approach for transfer of technology in relation to national needs and objectives. Government support should be projected to facilitate the acquisition and use of such technology and facilitate learning of foreign technology.

2.10.1 The UNCTAD Premise

United Nation Commission on Trade and Development proposes that the interaction between TNCs and domestic firms in developing countries should result in higher rates of knowledge and technology diffusion, by implementing a number of mechanisms, such as imitation, increased competition, training and human resources mobility.¹¹⁸ ICTSD¹¹⁹ opines further that market-base such as trade, foreign direct investment and technology licensing or informal such as imitation and the mobility of technical and managerial personnel can be major channels for technological rooting in the developing countries. Despite the long-time interaction between Tanzania and the developed countries through different interactions such as trade and investment, there is still a notable technology gap between Tanzania and developed countries.

¹¹⁷ UNCTAD: Foreign Direct Investment, the transfer and diffusion of technology, and sustainable development: Dec 2010, para 30, at p.30.

¹¹⁸Foreign direct investment, the transfer and diffusion of technology, and sustainable development: Dec 2010 at p.15

¹¹⁹Climate Change, Technology Transfer and Intellectual Property Rights: International Centre for Trade and Sustainable Development (ICTSD) June 2008 at p.7

2.10.2 The OECD Principle

Considering the need for LDCs to gain technical know-how from FDI operations, the OECD¹²⁰ directs the MNEs to endeavour and ensure that their activities are compatible with the science and technology (S&T) policies and plans of the countries in which they operate and appropriately contribute to the development of local and national innovative capacity. They should also adopt, where practicable in the course of their business activities, practices that permit the transfer and rapid diffusion of technology and know-how. Moreover, when appropriate, perform science and technology development work in host countries to address local market needs, as well as employ host country personnel in an S&T capacity and encourage their training, taking into account commercial needs. However; Tanzania has not organized legal framework and policy space to have facilitated technology dissemination and /or overriding goal tactically backed up by practical implementations in favour of the mining sector.

OECD¹²¹ propounds further that host countries' realisation / benefits from FDI's intangible assets such as proprietary technology, management and marketing skills transferred between the parent and its foreign affiliates spill over into the local economy should be done through linkages between foreign investors and local firms, whether as suppliers, customers, partners or competitors. Foreign investors can be given a protected market as *a quid pro quo* for performance requirements of the intended policy implements. However, Tanzania has not legislated nor has policy which demands technological dissemination and advancement, atleast for the mining sector's excellence.

2.10.3 OECD Premise

a) OECD's Initiative on Investment and Development, through the Policy Framework for Investment (PFI) discourages a lot of promotions. OECD propounds that many host governments seek to alleviate the administrative

¹²⁰OECD guidelines for MNEs on transfer of technology: June 2002; at p.23

¹²¹OECD conference on investment for development: Making it happen: 25-27 October 2005, Rio de Janeiro, Brazil: para 28 at p.11

burden on potential investors through a one-stop centre (TIC in Tanzanian context) which provides information on the necessary steps to start a business in that country, in effect “a tourist office for investors.”¹²² OECD cautions that investment facilitation is not just about helping firms to navigate administrative barriers but seeing into it what the host government benefits. Once the country starts to attract the interest of investors, negotiations, legal and regulatory framework should reflect what post-investment will benefit the host country.

- b) OECD¹²³ recommends that Investment Promotion Authority (IPA) is not a substitute for regulatory reform. It can nevertheless serve as a useful exercise by indicating to the host government the extent to which national priorities can be attained. Successful investment promotion is an exercise in persuasion, persuading foreign firms to invest and bring with them what the host government desires. As an interlocutor between the government and the investor, the IPA is well placed to act as the chief advocate for country needs including advocating for technology nurturing from investment operations. However; TIC has not played its role exhaustively. Technology dissemination in Tanzania is facing an impediment today because TIC’s role falls short of merit in respect of technology dissemination measures.
- c) OECD¹²⁴ establishes that evaluation of the costs and benefits of investment by the host country is inevitable. That the usage of financial and other specific incentives directed at attracting foreign investors is no substitute for pursuing the appropriate general legal and policy measures focusing on the broader objective of encouraging investment maximum benefit by host States. In some circumstances, incentives may serve either as a supplement to an already attractive enabling environment for investment or as a compensation for proven

¹²²OECD conference on investment for development: Making it happen: 25-27 October 2005, Rio de Janeiro, Brazil: paragraph 11 at p.5

¹²³OECD conference on investment for development: Making it happen: 25-27 October 2005, Rio de Janeiro, Brazil: paragraph 13&14 at p.5

¹²⁴Ibid; para 25; at p.9

market imperfections that cannot be otherwise addressed. Technology advancement would essentially establish an attractive investment environment and help to avoiding wasteful effects, pitfalls and risks of excessive reliance on incentive-based strategies of investment promotion. Moreover, even when the incentive promotional measures are applied, their relevance and the appropriateness of incentive strategies should be examined at regular intervals, (*not otherwise forever granted like Tanzania does*¹²⁵) in order to avoid waste of economic resources.

- d) OECD asserts further MNCs should contract with host countries in the unique manner possible to render the parties benefits possible between the two and (*only the sets of twos*) should get the opportunities to benefit from each other. OECD¹²⁶ asserts that the underlying assumption is that the more a firm is forced to compete, the more technology it will have to transfer to the affiliate in order for it to be competitive in that market. At the same time, the host government can undertake measures to improve the absorptive capacity of the local economy in order to enhance technology transfers, such as through education and training and investments in human capital. If Tanzania were careful and focused to streamline its strategies for technological want, the mining sector would have been already technologically stable.

2.10.4 The TRIPs Principle

The Trade Related aspect of Intellectual Property rights (TRIPs Agreement)¹²⁷ requires developed countries WTO members to 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. Since Tanzania is a least developed WTO member, it is expected that the country will maximize the exploitation of that

¹²⁵See Tanzanian Investment Act 1997; CAP 38; s.19(3) where the incentives granted to the holders of the certificates of incentives are endlessly provided; by promising the beholder “no changes of amendments to their detriment”

¹²⁶Loc cit. at p.38 para 31

¹²⁷Article 66(2)

international opportunity to attain technology dissemination in the country at the most affordable opportunity by way of regulatory framework for the autonomy of own investment especially the mining sector.

2.10.5 The Classical Principle

The classical economic theory on foreign investment is to the effect that foreign investment is “wholly” beneficial to the host economy. That FDI brings with it new technology which is usually retained in the host country. The technology so brought could not have otherwise been available if not FDI inflows in host country.¹²⁸ However; technology transfer is not automatic to the admission of foreign investors. (Pedro Roffe: 2012 et al¹²⁹) recommends that successful technology transfer involving partners from developed and developing countries requires financing, but above all it requires home and host country policy measures to stimulate the transfer and local adaptation of technology. Therefore, technology flows to developing countries should be enhanced by flexibility in the design of national technology laws and policies. In order for Tanzania to succeed in technology dissemination in the country, review of legal and regulatory framework should be done forthwith with the aim to streamlining technological aspiration from investment operations in the country.

2.10.6 WTO Principle

The World Trade Organization (WTO) through its Working Group on Trade and Transfer of Technology (WGTTT¹³⁰) directs that transfer of technology is often most successful when accomplished by means of foreign direct investment (FDI.) In this regard, *active* and *dynamic* national laws and policies are suggested important elements for making the interaction between technology transfer and FDI a virtuous relationship.¹³¹ Tanzania is a WTO member which is expected to have implemented

¹²⁸ Classical theory of FDI: www.books.google.co.tz; accessed on 20.11.2013

¹²⁹ Revisiting the Technology Transfer Debate: Lessons for the New WTO Working Group at p.2

¹³⁰ In 2001, in accordance with the mandate in paragraph 37 of the Doha Ministerial Declaration, to examine the relationship between trade and transfer of technology and any possible recommendations on steps that might be taken within the mandate of the WTO.

¹³¹ Ibid

the recommendations by WGTTC. Unfortunately, Tanzanian established body for science and technology in the country¹³² has not indulged itself with investment issues in the country. Therefore its legal capacity of seeing the loss of opportunities otherwise available for technology gain accompanied by investment operations in the country is curtailed.

2.10.7 The EAC Principle

The East Africa Community considers the need to stimulate the growth of technological bases among the partner States.¹³³ The partner States agree that the more technological base advancement the more international competitiveness is achieved in a field where high technology standards are applied. EAC agrees that the most affordable opportunity for technological development within the territories of the member States is by way of dissemination from the activities carried out within the territories.¹³⁴ Tanzania would have had the opportunity to gain technical know-how in the mining sector if only the legal and regulatory system had “stretch the arms” towards technology yell up from the mining sectors’ operations.

2.8 Conclusion

Conceptually this chapter explains in details how the situation ought to have been for the country to have achieved technical know-how sufficient to run the mining sector without dependence to the foreign investors and without waste of resources in the promotion struggles. Foreign Direct Investments (FDI) is important for economic development of host countries and crucial in building technological capabilities of local / host countries. It is a channel for international diffusion of technology, having the potential to transfer technological, organizational and managerial practices to developing countries.¹³⁵

¹³² COSTECH

¹³³ Article 42 of the protocol on the establishment of the East African Community common market

¹³⁴ Article 42(2)(a) of the protocol on the establishment of the East African Community common market

¹³⁵ ATPS: The Role of Foreign Direct Investment (FDI) in Local Technological Capacity Building: A case of Tanzania (2011) at p.5

Considering the extent of mining investment in Tanzania (FDI,) the level of mining technology in the country should be satisfactory. Tanzania had had opportunities to gather and develop reliable R&D in the country but such opportunities had gone astray for years. Observably, despite the increased flow of FDI in the country, very little is known about the role of their presence on local technological capabilities. Technological capability in the context of this study is the ability to diffuse and make effective use of technological knowledge in an effort to assimilate, use, adapt change and strengthen the existing technology base in the country.

CHAPTER THREE
LEGAL AND INSTITUTIONAL DISENTANGLEMENT PAVING
TECHNOLOGY GAIN OPPORTUNITIES PASTING-AWAY

3.1 Introduction

This chapter presupposes, among other things that, considering the benefits of mining sector in the economy of the country, sensibly, in the honour of the abundance of the minerals in Tanzania, there ought to have been laws and institutions specifically enabling technology dissemination in the country for mining sector's succession.

3.1.1 Laws and Legal Institutions Handling Technology Dissemination.

3.3.1.1 The Tanzania Commission for Science and Technology Act

The Tanzania Commission for Science and Technology Act¹³⁶ is the law regulating the acquisition, development and sustaining of technology in the country. The law establishes the Tanzania Commission for Science and Technology (the Commission.)¹³⁷ The Commission is entrusted, among other tasks, to acquire, store and disseminate scientific and technology information in the country.¹³⁸ In implementing its functions, the commission is guided by Science and Technology Policy in force for the time being.¹³⁹

The commission is empowered to establish Research and Development Advisory Committees on, among others, *natural resources*.¹⁴⁰ However; neither the commission has ever established the R&DAC on mining nor does the Mining Act¹⁴¹ establishes the room for this Advisory Committee to take part (in any case) in the mining industry administration, much less in the technology dissemination process. This attracts an observation that, neither Law nor *has Legal Institution* ever been

¹³⁶ Act No 7 of 1986

¹³⁷ Ibid s.4: COSTECH is established.

¹³⁸ Ibid s. 5(2) (c)

¹³⁹ Ibid s. 5 (3)

¹⁴⁰ Act No 7 of 1986, s.14 (3) (ii)

¹⁴¹ Act No 14 of 2010

established to *exclusively* and *specifically* deal with technology transfer and dissemination in the country.

3.1.2. Practicability and Possibility of Technology Fusion

Ever since the 19th century mining is still done following the same process-steps.¹⁴² Research and technical development (RTD) is one of the prime competitive factors in the dawning 'new mining industry.'¹⁴³ However; countries desiring greater technology spillovers use policies to promote trade and FDI and to promote better conditions for taking advantage of spillovers by absorbing them into domestic productivity gains.¹⁴⁴ Then technology diffuses into the rest of the world through among others¹⁴⁵ foreign direct investment (FDI.)

This chapter promulgates that Tanzania had had opportunities to gather mining technology especially from FDI but those opportunities have not been utilized exhaustively despite the long time exposure onto those opportunities. The chapter analyses *claw-back propositions* in Tanzanian investment legal framework and associated obviousness of technological pasting-away. Further, it discusses on how essential laws and policies pertaining investment and mining operations are short of contents for purposes of technology dissemination in Tanzania.

Moreover; the chapter analyses the extent to which institutions otherwise contemplated to mobilize technology gain in the mining sector/investment in the country have not well teamed up to strengthen their network for technology gain purposes.

¹⁴²Magnus Ericsson: Mining Technology- Trends and Development: POLINARES Working Paper No.29 2012: POLINARES

is a project designed to help identify the main global challenges relating to competition for access to resources, and to propose new approaches to collaborative solutions

¹⁴³ Ibid

¹⁴⁴By Pedro Roffe and Taffere Tesfachew: Revisiting the Technology Transfer Debate: Lessons for the New WTO Working Group at p.12

¹⁴⁵ Trade, migration and technology licensing

3.2 The Tanzania Investment Act

Although the Tanzanian Investment Act¹⁴⁶ does not wholly¹⁴⁷ apply to the mining sector, it is the law which opens the doors to all the investment activities. It is the law that is expected to have designed provisions which would demand technology back-ups in the relevant sectors especially mining sector. Instead, the law has been oriented to promulgate a lot of promotions and so the law has proposition, though intended to promote investment, results into the obviousness of “*no chance for technology dissemination*” is witnessed. The following legal propositions as promulgated by TIA contribute towards impossible technology dissemination in the country.

3.2.1 Transfer of Capital, Profits and Dividend

The transfer of capital, profits and dividend¹⁴⁸ is among the promotional benefits extended to the investors. It is these benefit that detriment technology tapping in the country. The fact that profits and all other investors’ fiscal gain are transferred to their home countries denies the host country opportunities for industry expansion and/or growth. The host country (Tanzania) remains therefore an arena for capital accumulations by the investors *whilst* the benefits of the accumulated capital are realized in their home countries. This situation cannot allow industrial growth and so the country continues to seeing no need for technology nurturing for no area of technical-applications since re-industriation has been defeated by repatriation of capital.

3.2.2 Credit Securing-Cum Local Capital Raise

Foreign investors are legally eligible for obtaining credits (capital) from domestic sources.¹⁴⁹ This promotional benefit adds bitterness to capital repatriation. Whereas the first notion on FDI’s operations in the host economy is to bring with foreign capital which couldn’t have otherwise been available, the conception is a reverse in

¹⁴⁶CAP 38 R.E. 2002

¹⁴⁷ Ibid s.2 (3) :Some of the provisions of this law apply to the mining investment on matters related to guarantees of transfer of monetary gain and guarantees against expropriation

¹⁴⁸The Tanzania Investment Act, CAP 38 R.E.2002

¹⁴⁹ The Tanzania Investment Act, CAP 38 RE 2002, s.25

Tanzania. The foreign investors, by implication, are welcomed even without capital. Chances to them therefore are that, they would accumulate capital using local capital, repatriate the accumulated capital back to their economies and in a way develop their home countries using Tanzanian resources. This is a lot to give especially if there are no reasons to endure this huge offering. This promotional benefit would be bearable if it was limited to certain period and there is technology grabbing from the loaned activities.

3.2.3 Initial Immigration Quota

Investors are allowed to accommodate an automatic immigrant quota up to five persons at the initial stage.¹⁵⁰ One serious problem with this promotional benefit is that, this law has not defined what a person would constitute.¹⁵¹ Moreover, this benefit obscures the chances for the locals to gain access of technical-know how of all the preliminary stages of the intended investment operations. In the field of mining for example, the initial stages entail a lot more to benefit technologically than all the rest of the stages in the mining operations. Instead of the law allowing immigrants to indulge in the early stages of landing investment operations in the country, indigenous should have lifted themselves towards the chances to associate with the investors at this crucial stage to see into it how much technology is needed among the nationals in favour of the mining sector.

3.2.4 Technology Transfer Agreements

Investors are allowed to enter into technology transfer agreements as they consider appropriate for their investment operations.¹⁵² This promotional benefit hinders the opportunity for technological growth in the country. The contract so formed between the investors and the technical-aiders has nothing to do with the government. It is the arrangement between technical providers and the investors. The government only requires the investors to register the hired technology with TIC.¹⁵³ Apart from the

¹⁵⁰ The Tanzania Investment Act, CAP 38 RE 2002, s.24

¹⁵¹ What if it is five artificial persons with (say 20) personnel each?

¹⁵²The TIA, CAP 38 R.E.2002; s.26

¹⁵³Ibid s.26(1)

likelihood that all the benefits are swallowed by the investors through *transfer pricing arrangement*¹⁵⁴, it is also possible that the independent contractors would never allow technology spill-over into the host economy by denying access to their operations by the nationals. Although the hirer are subject to a condition of employing local personnel,¹⁵⁵ this conditions does not extend to the hired, and the contract between the hired and the hirer is not subject to review by any government body for the purposes of technology dissemination. It is obvious that technical adoption in the mining industry is utopian as long as this legal proposition stands.

Without prejudice to the generality of the other laws which may have legislated for mitigations to the loss of technology dissemination in Tanzania, the TIA has propositions within which one cannot hope for technology gain emanating from investment operations in the country. In its generality in terms of application, the law should have proposed for possible mechanisms for technology tapping in appropriate fields, save for fields which would not need technology, (*if any.*)

3.3 The Mining Act

Today's Mining Act¹⁵⁶ is the third law in the history of mining legislations in Tanzania. The earliest was the Mining Act.¹⁵⁷ This law ceased to apply in 1998 after the second enactment,¹⁵⁸ which repealed and replaced it. The Mining Act No.14 of 2010 therefore is expected to be the best version of law after undergoing several reviews of the existed pieces of legislations. Despite several amendments carried out as a result of the amalgamation of the first and second mining laws, technology dissemination in the country has not got the chance to surpass. The followings are

¹⁵⁴Transfer pricing is a profit allocation method used to attribute a multinational corporation's net profit (or loss) before tax to countries where it does business. Transfer pricing results in the setting of prices among divisions within an enterprise. Transfer prices are charges for goods and services between controlled (or related) legal entities within an enterprise. Legal entities considered under the control of a single corporation include branches and companies that are wholly or majority owned ultimately by the parent corporation.

¹⁵⁵The Mining Act No 14 of 2010: The conditions for applying and renewing different lincenses For conducting different activities in the mining

¹⁵⁶Act No.14 of 2010

¹⁵⁷Act No.17 of 1979

¹⁵⁸Act No. 5 of 1998

examinations of how the mining law has slipped off opportunities in respect of technology dissemination.

3.3.1 Prospecting period

Considering that the prospecting period¹⁵⁹ goes up to eleven years¹⁶⁰ and considering that one of the requirements for the grant of prospecting licence is to affirm the financial and technical resources available to the applicant,¹⁶¹ the government has not utilized the opportunity of knowing the technical ability of the applicant. What is the essence of knowing the technical ability of the holder of prospecting licence if not for the sake of technology giving to the indigenous? The government has not legislated for the compulsory technology acquisition during the prospecting activities and thus a great opportunity of mining initial technical know-how nurturing has been lost.

3.3.2 Retention period

The retention period¹⁶² takes as long as ten years.¹⁶³ During the retention period, the holder of the retention licence does nothing but to make all the preparation necessary for mining operation. This is the time for possible technology gain from the investors but the government has not made it mandatory for the investors to engage the indigenous in all the stages of their activities for the sake of technical know-how diffusion. Observing the position of the law in this matter, the involvement of the indigenous in all the reconnaissance activities in the mining sector would have not only benefit the country in the technology tapping but also save as *checks and balance* into so many aspects the government requires to understand from the mining sector.

¹⁵⁹Op cit s.4: Means searching for any mineral by any means and to carry out any such works and remove any such samples as may be necessary to test the mineral qualities of land and includes all the reconnaissance operations

¹⁶⁰ibid s.32: 4years first grant, 3years first renewal, 2years second renewal and 2years more if the holder of prospecting licence has never been in any default.

¹⁶¹Ibid s.31(c)

¹⁶²See Act No.14 of 2010: The grace period the law grants to the prospecting successful investor who sees it impossible to go on with mining operations for the time being but could be possible in the near future

¹⁶³ibid s.(38)(3&4)

3.3.3 Application for licences

There are several licences the investors need in order to carry out mining operations such as prospecting, retention, mining and special mining licences.¹⁶⁴ It was possible for the government to establish the technical position of indigenous in the mining sector operations as a compulsory grant by the investors upon which the indigenous are exposed onto possible technological gain from the mining industry. Overlooking on this aspect in the mining legislations is fatal towards technology dissemination in the country.

3.3.4 Requirement to Employ and Train the Citizens of Tanzania

Although one of the requirements for the application of both mining and special mining licences is to append to the application a plan of employing and training the Tanzanians,¹⁶⁵ the government has not made the law to further direct the applicant of the licence to allocate the said Tanzanian into the technical demanding sections of the operations in the mining sector. It remains the option of the employer to engage the said Tanzanians in the technical demanding fields or not. Failure of the law to extend directions to the investors regarding how the Tanzanians so employed should acquire and prove to have acquired technical skills essential to operate in the mining sector marks it impossible for technology dissemination into the country. Legislators; during the enactment of this law acted *per incurium* in imagining that investors are up to profit making, not to benefiting the host states.

3.3.5 Entering into Mineral Development Agreements (MDAs)

MDA in the mining laws confers another opportunity to the parties to the mining contracts to arrange on the urgent or necessary matters not otherwise covered by the provisions of the law.¹⁶⁶ Moreover, the matter of transfer of skills to the indigenous is also considered to be the provisions of the MDA.¹⁶⁷ However, the contentions of the MDAs are mere agreements and confidential to the holder, they are less expected

¹⁶⁴Act No.14 of 2010, ss. 28, 37, 41 and 49 respectively

¹⁶⁵Ibid ss. 41(4)(h)and49(2)(f) respectively

¹⁶⁶See the Mining Act; No 14 of 2010, s. 10(4)

¹⁶⁷Ibid s.10(4)(f)

to pave the way for technology dissemination. The government has not set the mechanisms to make sure that the provisions of the MDAs are as equally as the provisions of the law.

3.3.6 Review of MDAs

Review of the MDAs is another opportunity for the parties to see into their performance and weigh the results to the benefit of each. The law stipulates that MDAs *shall be* subject to periodic performance review after every five years.¹⁶⁸ Since the review is just between government and the investors, the law has not established an independent entity for advice, checks and balance of what the parties on the MDAs fulfill their obligations, whether the recommended review is truly done after every five years and the extent to which MDAs benefits technical capacity in the country. The presence of an independent observatory body can help implementation of the provision of law for the purposes of technology nurturing in the country, evaluate the agreements of the parties to the effect of technology dissemination and advise accordingly.

3.3.7 Requirement for succession plan for expatriate employees

The law requires mining licensees and special mining licensees to show the proposed succession plans for expatriate employees.¹⁶⁹ Conversely, the law has not proposed how the investors will be able to obtain the skilled indigenous personnel equivalent to the outgoing foreign experts. In the other words, the government has not aided the training for the individuals who will be equipped with all the technical ability the investors in the mining sector would appreciate and hire. Alternatively, the law allows the investors to file with TIC the fact that there is no Tanzanian labour competent to suit the company's operations and so a foreign expert is thus required.¹⁷⁰ Evidently, the law has not helped the possibility for technology dissemination in the country.

¹⁶⁸ See the Mining Act; No 14 of 2010, s.12

¹⁶⁹ Ibid, s. 10(4) s.41(4)(h)

¹⁷⁰ See TIA; s.24(2)

3.4 The mining Act: Overthrown odds for technology dissemination

Despite the lacuna and/weakness of the mining laws and regulations, there are chances within this weak law otherwise available to the government within which reshuffle should have been possible for the purposes of technology dissemination if serious deliberation for technology desire had been raised. If the chances as discussed hereunder have been utilized optimally, technology dissemination ought to have been benefited to a certain level.

3.4.1 Review of mining policies

The government had had a great opportunity in respect of policy space exhaustion during the transformation achieved by reviewing and formulating new mining policy to consider and plan for technology dissemination in the country. Despite the first mining policy¹⁷¹ seeing one of the hindrances of the country towards realization of the potentials of mineral endowment is lack of technical skills,¹⁷² the second mineral policy formulated twelve years later¹⁷³ is not convincing on the concern of diffusing technical skills into the country. According to MEM, the 1997 policy (supra) was designed to promote private investment in the mineral sector and the 2009 policy (supra) is designed to increase mineral sector integration with other sectors.¹⁷⁴ The government has not considered that technical capacity building in the country will trigger maximum benefits of the mineral endowment which the country desires.¹⁷⁵

3.4.2 Repeal of the earliest investment law

The mining Act does not operate in isolation from the Tanzanian Investment Act¹⁷⁶ hence the positions of the same ought to have been mutual towards technological demand in the country. The repeal of the former investment law *id est* National Investment (Promotion and Protection) Act¹⁷⁷ as replaced by Tanzania Investment

¹⁷¹The Mineral Policy of Tanzania of 1997

¹⁷²Ibid: Mineral statement (f); at p.2

¹⁷³The Mineral Policy of Tanzania of 2009

¹⁷⁴The Mineral Policy of Tanzania: 1997: Mineral statement at p.30

¹⁷⁵Ibid, at p.1

¹⁷⁶CAP 38 R.E 2002: s.2(3) explains that some provisions of this law applies in the mining sector

¹⁷⁷Act No. 10 of 1990

Act¹⁷⁸ ought to have yielded contented provisions intending technology dissemination in the country. The fact that the repealed law (supra) contained feeble provisions regarding technology dissemination in the country, the new law cautiously ought to have developed exhaustive technology want provisions. Unfortunately, whereas the National Investment (Promotion and Protection) Act (supra) atleast provided for compulsory technology spilling in the country¹⁷⁹ as the measure for the grant of the certificate of incentive, the new investment Act and time to time amendments thereupon offers the certificate of incentives free from any compulsion towards technology rendering in the host economy. Lack of passion for technology gain in the investment laws lessens its growing aptitude, as diffused from mining operations into the country.

3.4.3 Renew of licences

The grant of mining licence¹⁸⁰ and special mining licence¹⁸¹ attaches to it a condition that there should be indicated a plan to employ the Tanzanians and how the indigenous will eventually take the positions occupied by foreign expatriates.¹⁸² However; the application for renewal of both licences has not been designed to consider the fulfillment of the obligations under which the former licences have been granted¹⁸³ as the measure for the renewal atleast for the sake of technology nurturing. Failure to supervise the fulfillment of the obligations under the licences ought to have been cured at the time of renewing the licences. The government has not realized that renewal of the licences would have been assisted as checks on what the licences were directing the mineral right holders to fulfill in badge of technology dissemination.

¹⁷⁸ CAP 38 RE 2002

¹⁷⁹ Act No. 10 of 1990 ; s.13(1)(d): Provides that application for a certificate for incentive to the investors shall be successful upon the applicant satisfying the centre that there is maximum arrangement for technology spilling in the country

¹⁸⁰ Act No. 14 of 2010; s. 4. Licence for medium scale mining operations whose capital investment is between US\$ 100,000 and US\$ 100,000,000 or its equivalent in Tanzanian shillings

¹⁸¹ *ibid*: Licence for large scale mining operations whose capital investment is not less than US\$ 100,000,000 or its equivalent in Tanzanian shillings

¹⁸² *Ibid* ss. 41(4) (h) and 49(2)(f)

¹⁸³ The Mining Act; No.14 of 2010; ss. 45(5) and 53(2): that the applicant will not be denied the renewal even when he is in default (though the default is not defined for the purposes of this section)

3.4.4 Re-negotiation of the MDAs

The law provides for periodic performance review of the MDAs.¹⁸⁴ The review is proposed to be carried out in every five years. The inference of the law is to examine the performance of the mining sector to both parties and see into it the measure towards rectification to each party's beneficiation. This is an opportunity for the government to have negotiated the extent technology diffusion mechanisms should have been planned in every five years. Five years interval is enough to learn a lesson for reshuffle and/ adjustment for realization of technology dissemination. Re-negotiation in this context signifies covering important and urgent matters which have been left out the statute but supported by mineral policy. The government has not exhausted this opportunity for the purposes of technology dissemination in the country.

3.4.5 The Minister's powers

The powers granted to the minister responsible for mining to make regulations for mining matters¹⁸⁵ synthesizes opportunity to claim technology retention in the country. The Minister is empowered to issue regulations on any matter pertaining the mining industry as he deems fit. This is a *prima facie* chance for a minister to issue directions on how the investors should divulge technology spill in the country. However, the list of the matters the minister may consider during making the said rules is also provided.¹⁸⁶ Observing the list, the need for technology dissemination as emanates from mining operation is left out of concern. The fact that the minister has to make regulations providing for matters directed by the Act,¹⁸⁷ and the list of those matters excludes the demand for technology dissemination,¹⁸⁸ marks the rule that *inclusion unius est exclusion alterius* and thus it is *prima facie* that technology dissemination has not been the country's priorities up to 2010 when the Mining Act (supra) was enacted.

¹⁸⁴ The Mining Act; No.14 of 2010; ; s.12

¹⁸⁵ Ibid; s.112(1)

¹⁸⁶ Ibid, s. 112(2)

¹⁸⁷ Ibid s.112(1)

¹⁸⁸ Ibid: See the whole of s.112(2); i.e (a-f)

3.4.6 Requirement to listing with stock exchange

The Minister responsible for mining is empowered to make regulations prescribing how the mining companies should list with stock exchange.¹⁸⁹ Moreover; several benefits are given to the listed mining companies.¹⁹⁰ The government has offered too much promotional fiscal benefit under this arrangement which for purposes of technology gain such benefits to the issuers yield nothing. The minister has not realized that this opportunity would have otherwise been utilized to design the requirements for the mining companies to list with stock exchange and the benefits thereupon which could be *in quid pro quo* to technology gain in the country.

3.4.7 Compulsory levy

There is a compulsory skills development levy (SDL) imposed onto employers for the purposes of developing skills in the country. The tax is charged under the Vocational Education Training Act,¹⁹¹ the law which repealed and replaced the Apprenticeships Ordinance and to makes further and better provisions for the regulation of the training of apprentices and other persons in the industry. The SDL is a tax imposed on payroll which is paid by the employer who employs more than four employees. It is 6% total gross monthly emoluments payable by the employer to all his employees every month,¹⁹² except for Government departments and to any public institution which is non-profit making and wholly financed by the Government.¹⁹³ Despite the fact that the mining companies pay exorbitant amount of SDL every month, the government has not utilized this huge amount of money to develop the skills essential for the management of mining indulgence among the Tanzanians and to properly sustain technology required for mining sector development.

¹⁸⁹ The Mining Act; No.14 of 2010s. 109

¹⁹⁰ See the ITA; ss.13&3(2) to the first schedule: Tax deductibility of all IPO costs for the purposes of Income Tax calculation and reduced corporate tax from 30%-25% for the period of three consecutive years from listing date.

¹⁹¹ CAP 82 RE 2006

¹⁹² CAP 82 RE 2006; ss. 14 & 16

¹⁹³ Ibid s.19

3.5 Legislations Expectants for Practical Technology Propagation in Tanzania

Practically, one law does not work in exclusion of the other. This means that, one legal problem may be solved by a set of several laws. In the like manner, it is presupposed that technology desire in the country ought to have been initiated by the set of laws. From that instigation, sole laws of the field (mining and investment laws) ought to have strengthened the basis already found in the other statutes.

Although there are no already established laws which make it compulsory for mining investors to deliberately disseminate technology in the territory of their operations; the government had had opportunities via the available laws to maximize technology dissemination and supervise the same and make sure it happens. The discussion hereunder analyses the laws which ought to have networked for the purposes of technology dissemination practicability and how the same ought to have succeeded if every legal entity acted accordingly. The discussion shows how the *lacuna* therein forfeits technology gain opportunities.

It is analysed further to show that, despite lack of emphatic slant in the investment Act¹⁹⁴ and the mining Act,¹⁹⁵ technology dissemination in the country ought to have been achieved by the correspondence of several pieces of legislations currently in use in the country.

3.5.1 The companies Act

The Companies Act¹⁹⁶ is the law in Tanzania established for regulating and controlling companies' matters. Regarding foreign investors,¹⁹⁷ the law provides how the foreign companies may establish itself in Tanzania. The foreign companies must register with the registrar of companies for them to run business in Tanzania. The law obliges the foreign companies to submit several documents to the registrar for

¹⁹⁴ CAP 38 RE 2002

¹⁹⁵ Act No.14 of 2010

¹⁹⁶CAP 212 RE 2002

¹⁹⁷Regard is to foreign companies because the technology dissemination in question is expected to flow from the technology accompanied their operations which is not otherwise in the country before their presence in the country.

him to consider their registration¹⁹⁸ and upon satisfaction of utmost compliance, the certificate of registration is offered to the foreign companies and thereupon the foreign company becomes as good as it is incorporated under the laws of Tanzania. However, the law does not require the foreign company to file with the company registrar the type of technology to be expected the country as the company starts its operations. This legal insufficient is fatal towards technology search and dissemination because if the new technology is to be expected from the beginning, there ought to be inspiration and preparation to benefit from it but if it is unknown, the government remains ignorant of technological benefits.

3.5.2 Environmental Management Act

The Environmental Management Act¹⁹⁹ makes it compulsory for mining dealers to conduct EIA before instituting any physical arrangement onto the land.²⁰⁰ The supposition is that, mineral right holder cannot become a mineral right holder unless he holds an EIA certificate.²⁰¹ The authorities established under this law²⁰² had an opportunity to make sure technology dissemination in the country stands. Since the project to be conducted is known prior, the law shouldn't have ended at requiring the mining companies secure EIA certificate but requiring further the plan of engaging local personnel into technical demanding sections of the proposed projects for the purpose of disseminating skills into the Tanzanians. The role of the authorities under this law for the purpose of technology dissemination should have been as good as the supervisory role for the purpose of environmental protection.

3.5.3 The Vocational Education and Training Act

The Vocational Education and Training Act²⁰³ is the law establishing the Vocational Education and Training Levy; charged, levied and payable the Vocational Education

¹⁹⁸CAP 212 RE 2002; s.434

¹⁹⁹ Act No. 20 of 2004

²⁰⁰Ibid s. 105 (1)

²⁰¹Act No. 20 of 2004, s. 81

²⁰²Ibid ss. 11- 41: National Environmental Advisory Committee (NEAC), Minister responsible for Environment, Director of Environment, National Environmental Management Council (NEMC), Sector Ministries, Regional Secretariat and Local Government Authorities

²⁰³ Act No.1 of 1994

and Training Fund.²⁰⁴ It is a tax collected at the end of every month, from every employer who has in his employment four or more employees. The sum of money payable is equal to two per centum six the total gross monthly emoluments payable by the employer to all his employees in respect of that month.²⁰⁵ Considering the basis of the levy under discussion; mining companies *prima facie* pay a good sum of money for the obvious reasons that they employ a good number of employees and paying huge amount of this levy. However; the law does not explain how this money has to be used in favour of technology progress in the country, at least for the purposes of constituting indigenous mining experts.

3.5.4 The land Act

The Land Act²⁰⁶ is another critical piece of legislation which ought to be of great assistance in favour of technology dissemination in Tanzania. This law offers land to the investors unconditionally save for fulfillment of the TIC requirements. However, the law has not extended the law in favour of technology dissemination by granting the derivative title to land to the mining investors based on a clear and sworn plan to undertake a portion of responsibilities towards developing mining technology in the country. This inefficiency of the law negatively impact technology dissemination from mining operations in the country.

3.5.5 The Income Tax Act

The Income Tax Act²⁰⁷ provides for several reliefs to the mining companies. For example, a corporation tax is lowered to the company which will be responding to registering with DSE²⁰⁸ by treating all the initial costs as allowable expenses for the purposes of calculating corporate tax.²⁰⁹ However, this tax reliefs offered under this category supports nothing towards technology advancement in the country in as far as the mining industry would demand. It presupposes therefore that, this law has a lot

²⁰⁴ Act No.1 of 1994 s.14

²⁰⁵ Ibid

²⁰⁶ Act No. 4 of 1994 (as amended from time to time)

²⁰⁷ Of 2004 (as amended from time to time)

²⁰⁸ Being a voluntary compliance with s. 109 of the Mining Act No.14 of 2010

²⁰⁹ Op cit s.13

more reliefs to offer to the mining companies in *quid pro quo* with the technical-capacity building in the country in the level important to enable the country foresee the possibility of managing the mining business solely and engage the local personnel all the processes of the mining operations.

3.5.6 The Universities Act

The Universities Act²¹⁰ is the law established make provisions for the establishment, composition and functions of the Commission for universities, the coordination and rationalization of the types and categories of universities, the promotion and financing of higher education, establishment and governance of universities, and for other related matters.²¹¹ Based on the legal powers the commission for universities has, it can establish technical mining universities. However, this law has not provided for the express establishment of the university which will be offering technical mining education only essential to offer technical skills required for the mining industry. Renunciation of this legal priority in this law draws an inference that mining technology and the accompanied benefits in the country is yet to be appreciated.

3.5.7 Labour Institutions Act

The Labour Institutions Act²¹² is the law that authorizes the labour officer to enter any premises (for purposes of administration of labour laws) searches for examining any information book, document or object.²¹³ The Labour Officer therefore; for the purposes of practical technology dissemination in the country is legally empowered to be certain of the local and foreign employees in the mining companies operations and in which technical capacities the said employees are positioned. It would assist to ascertaining expectations accruing from cessation of foreign expatriates and the involvement of local personnel.

²¹⁰ Act No. 5 of 2005

²¹¹ Act No. 4 of 2004

²¹² Act No. 4 of 2004

²¹³ Ibid s. 45(a) (ii)

3.5.8 Employment and Labour Relations Act

The Employment and Labour Relations Act²¹⁴ requires the employer to keep records of his employees.²¹⁵ Job description is one of the requirements to be kept in records for all the employees' tenure and five years after the employee's termination.²¹⁶ Moreover, the law (supra) empowers both the labour officer and labour commissioner to demand and/inspect the records so required to be kept by the employer for purposes of enforcing labour laws. This role is not being carried out honestly for reasons of enhancing technology dissemination in the country. The records ought to have been essential for the purposes of examining how many employees are engaged in technical demanding field and drawing expectations for the purposes of increasing technology dissemination in Tanzania. This would be a ground for denying approval for the admission of foreign experts.

3.5.9 The Immigration Act

The Immigration Act²¹⁷ is the law enacted to control immigration in the United Republic of Tanzania. This law prohibits foreigners to engage in paid employment and business without a valid permit.²¹⁸ Moreover, the law prescribes that residence permits shall be issued for any period not exceeding three years and may be renewed for any period not exceeding two years by an endorsement of renewal endorsed on it by the Director of Immigration Department. In a total case, the total period of the validity of the original permit and its renewals shall not exceed five years.²¹⁹ Additionally, employee's renewal shall be subject to recommendations by the Commissioner for Labour that there are no local personnel to horde the foreign employee's position and so renewal be granted forthwith.²²⁰ This practice is not upheld because the law does not require that the labour commission; in endorsing his approval for renewing the foreign employee's permit has to be supplied with utmost

²¹⁴ Act No.6 of 2004

²¹⁵ Ibid: s.5. Among the other things, Job description.

²¹⁶ Ibid. s.96(1)and (2)

²¹⁷ Act No.7 of 1995

²¹⁸ Ibid s. 16

²¹⁹ Act No.7 of 1995

²²⁰ Ibid: Regulation 36

proof that there are indeed no local personnel to take-over the position held by a foreign employee seeking permit renewal. This deficiency of the law prejudices the chances for technical skills fusion among the Tanzanians since what is supposed to be accomplished to that effect is denied legal strengths to succeed; ending up having no effect to progression.

3.5.10 The Tanzania Commission for Science Act

The Tanzania Commission for Science Act²²¹ is the law establishing the COSTECH to enable the acquisition, storage and dissemination of scientific and technology information. COSTECH is legally permitted to what it takes promote interest in science and technology development.²²² However, COSTECH is not assisting in technology acquisition in the mining and investment generally because the law is not mentioning the mining sector to be the priority sector for the purposes of strengthening technical capacity under this Act, nor does the law empowers the COSTECH to working with the mining companies for the purposes of seeing into their operation what would be the skills essential to diffuse from the investors' operations.

3.5.11 The National Economic Empowerment Act

The National Economic Empowerment Act²²³ establishes the National Economic Empowerment Council (NEEC).²²⁴ The NEEC is an apex body in charge of economic empowerment need and for the inflow of accurate information constantly. Such information is derived from the surveys and researches coordinated and conducted by the NEEC from time to time, and when there is a serious economic problem which needs urgent solutions. The NEEC is empowered to promoting research on economic activities and foster linkage with research institutions.²²⁵ In realization of its powers, the council has to coordinate and promote research geared towards facilitation of economic empowerment and foster linkage with research

²²¹ Act No.7 of 1986

²²² Act No.18 of 2004.

²²³ Ibid s. 5(2)(c)

²²⁴ Ibid s. 4

²²⁵ Ibid s.5(2)

institutions, to undertake studies to identify financial institutions which can focus on support of the different cluster of the economy, to carry out baseline studies on pertinent issues on economic empowerment, and disseminate research findings and ensuring they are put into implementation.²²⁶ However the law did not extend the role of NEEC into the mining sector where economic revolution is obviously enabled by the attainment of technical-know how imperative to run the mining sector solely by the government.

3.5.12 The Public Private Partnership Act

The Public Private Partnership Act²²⁷ provides for institutional framework for the implementation of public private partnership agreements between the public sector and private sectors entities. The Act establishes a Co-ordination Unit within the TIC. The Unit shall be an integral part of the Centre.²²⁸ The Co-ordination Unit shall deal with promotion and co-ordination of all matters relating to public private partnership projects in various sectors of the economy including exploration and mining. However; the law has not prioritized the need for quick PPP devotedness to fold necessary technology in the mining sector for the foreseeable technical capacity in the mining sector which ought to eventually result into total national growth both technically and economically, considering that the mining sector is the fast growing and technical capacity is what the country desires for truly economic advance.

3.6 Institutions Expedients for Investment cum Technology upkeep in Tanzania

Technology dissemination ought to have been a success if the institutional networking optimized legal obligation. The combination of the laws and institutional networking ought to have necessitated the practicability of technology dissemination in the country if the roles of each department established by the law were honestly optimized.

²²⁶ Act No.18 of 2004.

²²⁷ Act No.19 of 2010

²²⁸ Ibid ss 4-6

There are indigenous institutions which the country may counter on for advice based on different socio-economic demands and global economic changes. Although these institutions were not established solely to deal with technology dissemination in the country, they have been established according to technical expertise expectants of them. Ensuring technical upkeep as emanating from mining investment operations is incidental to their duties. They ought to have undertaken different roles towards ensuring it happen. The followings are the means and reasons why the discussed institutions hereunder have the roles (which they have neglected) to ensure optimum technology dissemination in the country as emanating from mining investment operations.

3.6.1 Tanzania Private Sectors Foundation (TPSF)

The Tanzania Private Sector Foundation (TPSF) was established on 4th November 1998 as a result of multi-folded efforts by various stakeholders of the Private Sector. The TPSF was established as a company limited by guarantee to promote private sector-led social and economic development in Tanzania by providing member organizations with services they value understanding and representing their common interest and engaging in effective advocacy with the Government.²²⁹ TPSF acknowledges that the Mining Sector in Tanzania has huge potential to contribute to the country's economic development and that mining sector resources can be harnessed to address the major investments required for infrastructure development and supporting the transformation.²³⁰ Despite *prima facie* chances for TPSF to successfully yell for technological fusion in the country and despite the obviousness that technology growth is inevitable for the growth of the mining sector, TPSF's efforts towards technology demand from mining investors is yet to be recognized. This duty-pass over diminishes hope for technology dissemination in the country.

²²⁹ Brief History of TPSF; <http://www.tpsftz.org/index.php/welcome/page/90/> retrieved on 01.04.2014

²³⁰ Policy and Advocacy on mining by TPSF; <http://www.tpsftz.org/index>, retrieved on 01.04.2014

3.6.2 Tanzania Mineral Audit Agency (TMAA)

The Executive Agencies Act²³¹ establishes the Tanzania Mineral Audit Agency.²³² The Agency is among the reputable government mining agent which is at better position to enhance technology tapping. One of the roles of TMAA is to monitor and audit quality and quantity of minerals produced and exported by large, medium and small scale miners, to determine revenue generated to facilitate collection of payable royalty, to collect, analyse, interpret and disseminate minerals production and exports data for projecting Government revenue, planning purposes and decision making in the administration of the mining industry.²³³ Being established on 6th November 2009²³⁴ to date, TMAA, based on the roles for which it was established, is positioned at realising the potentials of the minerals, the projections and vastness of minerals availability in the country and the benefits which would accrue if the government becomes a sole vendor of its mineral endowments in all spheres. Moreover, TMAA must have been aware that technology dissemination is the great benefit the government can aver from the mining investors for future utilisation in the same sector but TMAA has not acted towards lobbying the same.

3.6.3 Tanzania Chamber of Minerals and Energy (TCME)

The Tanzania Chamber of Minerals and Energy²³⁵ stipulates to be committed to promoting the sustainable growth of the mining sector in Tanzania, seek to promote the sustainable growth of the mining sector in Tanzania for the benefit of mining companies and Tanzanian citizens alike and continue to encourage industry actors to put sustainability at the forefront of their considerations to ensure future generations will also be able to enjoy the advantages of growth and development.²³⁶ Moreover,

²³¹ CAP 245

²³² Ibid s.3: It was established to carry out the functions of the Ministry's department. It came into operations after the Government Notice No. 362 on 6th November, 2009.

²³³ Roles and Functions of TMAA, <http://www.tmaa.go.tz/> retrieved on 01.04.2014

²³⁴ The History of TMAA, <http://www.tmaa.go.tz/> retrieve on 01.04.2014

²³⁵ The History of TCME: <http://www.tcme.or.tz/>; Established in 1994, the Tanzania Chamber of Minerals and Energy represents the interests of its members in the Tanzanian mineral sector. Acting as a voice for the industry the Chamber plays a pivotal role within the sector as a mediator between the mining investment community and key stakeholders, most notably the Government of Tanzania and the public. Retrieved on 01.04.2014

²³⁶ TCMA Statute of Principles: <http://www.tcme.or.tz/home/our-8-principles/> retrieved on 01.04.2014

unlike other agencies under the subject matter, TCME's commitments to ensure the maximum benefit to the Tanzanian economy is leveraged through activity in the mining sector²³⁷ is a lot more promising towards technology dissemination as emanating from mining operations although it took years to arrive at that realizations.

3.6.4 Tanzania Investment Centre (TIC)

One of the major purposes for which the TIC was established is that; the Centre be a one-stop centre for investors shall be the primary agency of Government to co-ordinate, encourage, promote and facilitate investment in Tanzania and to advise the Government on investment policy and related matters.²³⁸ What is the definition of "related matter" appearing in the section? Although "investment related matter" is not defined by the enabling law, those related matter ought to be "technology dissemination" in the country. Whilst the law has enumerated a number of what TIC should be doing to assist investors and enhance investment²³⁹ which are purely promotional functions, TIC is not doing anything related to deliberate measures related to technology dissemination in the country, although it is apparent that technology dissemination implements ought to be within the ambits of TIC. Neither does TIC works in collaboration with related agencies for the purpose of tapping technical skills utilized in the mining investment operations. This disconnection of the government institutions connotes nothing potential for purposes of nurturing technical skills important for mining operations in Tanzania.

3.6.5 Tanzania Port Authority (TPA)

Tanzania Port Authority is one of the competent government agencies in the country. One of its legal functions is to promote training, research and development, in the fields of marine and port services and facilities in collaboration with the universities and other educational institutions for the promotion of technical and operations education and trainings in the field of *marine and port, and port related services and*

²³⁷Opcit at p. 63

²³⁸See the Tanzania Investment Act; CAP 38 RE 2002; S.5

²³⁹See *ibid*, s.6

*facilities.*²⁴⁰ Acting under his power, TPA has indeed succeeded by running the technical institute competent to maintain marine and port technical skills in the country.²⁴¹ However, the legal functions of TPA does not extend to advising other government authorities on the manner possible to enhance technical skills dissemination in the country nor does TPA has the role to play in enhancing technology in the mining sector. TPA has not been allowed to spread its wisdom of achievement to other government agencies. This disassociation between the government agencies is mortal towards attaining technical skills important for sectoral growth; importantly being the mining sector.

3.6.6 Tanzania Revenue Authority (TRA)

Apart from general fiscal administration roles vested with TRA, the agency has also the role to advise the Minister *and other relevant organs* on all matters pertaining to fiscal policy, the implementation of the policy and the constant improvement of policy regarding revenue laws and administration.²⁴² In widening the roles of TRA on advising the minister and other *relevant* organs, the law has neither explained what the other relevant organs are nor mentioning specifically that mining affairs administrators would need advice from TRA however obvious it appears. Destabilization of the plausible networking among TRA and *other relevant* organs prejudice the chance to endeavour on how technology dissemination need be achieved in the country. Technology dissemination may not be enabled if advice of related government agencies in respect of technical skills giving in the country is blurred to diffuse into the attention of one other for proper implements.

3.6.7 Business Registration and Licensing Agency (BRELA)

Business Registration and Licensing Agency is a crucial government body established to undertake the registration of firms, individuals and corporations carrying on business under a business name and to provide for other related

²⁴⁰The Ports Authority Act; No. 17 of 2004; s.12(1)(k)

²⁴¹The Dar Es Salaam Marine Institute (DMI)

²⁴² The Tanzania Revenue Authority Act; s.5(1)(d)

matters.²⁴³ Since no business may operate in Tanzania unless registered,²⁴⁴ the inference is that BRELA should be aware of all the businesses operating in Tanzania. However, BRELA is not recording the nature of the business technologies used in the operations of the firms and the extent new technology has entered the country as accompanied by the business seeking registration. This information would have been essentially reliable for exchange among the other government agencies for purposes of technology dissemination so as to see into it how the country can benefit all the technical skills accompanying the businesses.

3.6.8 Commission for Science and Technology (COSTECH)

Tanzania Commission for Science and Technology (COSTECH) is a parastatal organization with the responsibility of coordinating and promoting research and technology development activities in the country. It is the chief advisor to the Government on all matters pertaining to science and technology and their application to the socio-economic development of the country,²⁴⁵ but this parastatal has not been legally empowered to intervene on matters related to technology dissemination as emanating from mining operations nor has the parastatal empowered to advise other mining coordinating agencies on matter related to mining operations and the importance of nurturing technology from mining operators. This institutional disconnection is fatal in team working for purposes of technology dissemination.

3.7 Conclusion

One law does not work in exclusion of another. Legal networking is essential for the purposes of technology grab and nurturing for the benefit of the State. In the like manner, government agencies roles overlap. For the purposes of technology dissemination in the country, and most especially in the mining sector, a serious reform in the existing laws is needed. Moreover, a serious institutional networking for the some purposes would be promising. For those reasons, an Act enabling the establishment and operation of semi-autonomous Executive Agencies within the

²⁴³The Business Names Act No.3 of 2012; s.5

²⁴⁴Ibid s. 4

²⁴⁵About COSTECH; at http://www.costech.or.tz/?page_id=1593ech; retrieved on 03.02.2014

ambit of Government Ministries for the purpose of providing public services in selected areas in a more efficient and effective manner and for related matters²⁴⁶ need a quick reform as well for the purpose of enhancing cooperation all the agencies for the common interests of grasping technology already available in the country as accompanying foreign business operations so as to get rid of imprudent autonomy in the operations of their functions which creates nothing but inanity in performing important obligations for the State.

²⁴⁶The Executive Agencies Act, CAP 245; Act No. 30 of 1997 read together with Act No. 18 of 2002.

CHAPTER FOUR
TECHNOLOGY DISSEMINATION: THE FATE OF TECHNOLOGY GAIN
IN TANZANIA

4.1 Introduction

Upon the summation of the methodology invested in the assembling the findings of this dissertation paper, a considerable observation are put in place in respect of technology dissemination in Tanzania as it would be expected to emanate from the operations of the mining investors in the country. This chapter draws a picture of what is happening in the operations of mining investment and to what extent Tanzania should anticipate for technology spill in the country. The gist of this dissertation is that, Tanzania's chance to reap on the already available technology in the country as accompanied by mining operations should have been enhanced by the investment legal framework, the mining laws in particular and other collaborative pieces of legislation, institutional framework and policy statements. Regard being the fact that technology possession involves the most expensive transactions, and the fact that the country may minimize expenses in respect of technology possession by arranging for mechanisms to benefiting the technology which is already available in the country rather than transferring the same from elsewhere in the world.

Centring about technology in the mining industry (*see chapter three*), the case of this dissertation has been physical hardware, operational procedures, organizational structures, information systems, and management practices. Mining and processing technology includes both fixed and mobile machinery and equipment (e.g. drilling, blasting, loading, and hauling equipment, crushers, conveyors, mills) as well as supporting technologies such as monitoring, control, and communications systems, planning and design tools and other support services.

Technology dissemination in respect of mining industry currently is not enhanced in the country for so many reasons. The reasons emanate from a combination of legal, enforcement, implementations and coordination breakdown as discussed hereunder.

4.2 Feeble National Investment Promotion Policy

There are the difficulties with Tanzania to realize the most wanted benefit the mining investors would pay-back in exchange for incentives given to them. Although Tanzania yells for a need for “new and appropriate²⁴⁷” technology, hardly have there been efforts to implement that desire. Tanzania had planned for promotion of investment of “balanced growth” in the country.²⁴⁸ However; has inversely implemented this policy. Promotions have long been in excess. In the overall national development goals, Tanzania sets to encourage the transfer of appropriate technologies, human resource development and enlarging local scientific technological capacity.²⁴⁹ This means that Tanzania had realised the need to acquire technology for serving different national strategies on or prior to setting out the policy in question falls short of implementing mechanisms.

Moreover; *whilst* the policy is looking forward to developing local capacities in the field of science and technology and the transfer of appropriate and new technology,²⁵⁰ the same policy is assuring the investors of the right to employ expatriate personnel required for their enterprises development and for the use of technology and skills that are not available locally for locals to gain such expertise.²⁵¹ This is impractical. The investors cannot hold such a dual task *id est* employing the expatriate personnel and take trouble to offer skills to the locals. Investors need to maximize profit at all affordable possibilities; not committed to advancing the host country’s technological base at their own cost especially when the same policy assures the investors to have the final say on what expatriates they need to engage in their businesses.²⁵²

4.3 Failure of the Mineral Policy of Tanzania

The government has not in particular set aside compulsory mechanisms to develop and sustain technological base with intention to fortify the mining sector. Although

²⁴⁷ The National Investment Promotion Policy 1996, para 3.3(h)

²⁴⁸ Ibid para 3.3(g)

²⁴⁹ Ibid para 2.1(e) at p.12

²⁵⁰ Ibid

²⁵¹ Ibid para 4.2.2.(c)

²⁵² Ibid on its proviso

government recognises the need to put into place an internationally competitive investment environment for the mineral sector (promotion,) to set the mission and vision to attain a profitable mining industry for the benefits of all the Tanzanians,²⁵³ the mineral sector development is beset by a number of constraints *inter alia* limited uses of appropriate and advanced technologies and inadequacy of modern management and technical skills.²⁵⁴ In the other words, it is technologically incapacity that debilitates the government to maximize the benefits accruing from the mineral sector.

For example, Tanzania's aspiration is to increase the mineral sector's contribution to the economy from its level of less than 2% to about 10% of the GDP by the year 2025.²⁵⁵ It is unfair for the government to be planning "about 10%" gain in mineral sector in 28years. Meaning that from the time when the Mineral Policy was drafted in 1997 to the year ending the long term planning 2025. The successful implementation of the Mineral policy may be utopian because of un-projected implementation mechanisms. A policy is simply the principle of actions proposed by the government, an individual or an organisation.²⁵⁶ In this context, it is insufficient that the government has put forth this policy. Strengths of the government ought to have been strengthening the technical base in the country for it to be ready to run the mineral sector independently. It is the autonomy of the government in running the mining sector at all levels that will make the government benefit the mineral sector gratifyingly.

4.4 Failure of National Science and Technology Policy for Tanzania

The policy propounds that Science and Technology Policy in Tanzania should reflect the key role that science and technology will play in bringing about rapid socio-economic development and subsequent realization of self-reliance.²⁵⁷ The policy statement elaborates further that it is possible for the government to spell out

²⁵³ The Mineral Policy of Tanzania 1997 at p.1

²⁵⁴ Ibid at p.2

²⁵⁵ Ibid at p.31

²⁵⁶ A concise Oxford Dictionary; 10thed

²⁵⁷ The National Science and Technology Policy of Tanzania 1996; para 10; at p.4

directions which science and technologies can be developed and utilised more effectively and efficiently in the key sectors of the economy.²⁵⁸ However, the government has not initiated nor set to implement that the mining sector needs to be prioritised in receiving new and appropriate technology. The government has not foreseen the possibility that it is only by possessing and sustaining mining technology which will make it “self-reliant” in the mining industry.

Analysing critical factors in implementing the Science and Technology Policy; Policy statement expels that formulation of a science and technology policy is only meaningful if certain critical factors and implements which lead to its smooth implementations are considered.²⁵⁹ The policy further explains to be there gaps between declared objectives in the policy statements and the actual implementations of the mentioned objectives.²⁶⁰ Some of the pointed out gaps are low level of support to science and technology system, weakness in coordination and operational instruments and lack of support and appreciation of the role played by scientists and technologists in national development by decision makers.²⁶¹ Tanzania has not prepared the environment to rear the scientists’ and their roles and efforts towards technological advancement. This accelerates the impossibilities to receive new and appropriate technology in the mining sector because Tanzania has no “recipients” for that matter.

4.5 Global Pressure and Political Will

Globalisation and external world’s political and economic pressure on the country are among the factors consequential to technological incapacity. Tanzania is not a globally an isolated island. It has therefore responded to global changes. These changes; including privatisation, global change in political regime and market demand driven economy have actually changed the country’s plans visionary projected by the national predecessors. Global pressure has caused, among other

²⁵⁸The national Science and technology Policy of Tanzania 1996; para 10; at p.5

²⁵⁹Ibid para 49 at p.35

²⁶⁰Ibid

²⁶¹Ibid

things, the influx of overseas investors in the country. The investors' presence in the country has led to the discovery of what the country has actually lost to them.

4.5.1 Significance of Nyerere's advice

One of Mwl. Julius Kambarage Nyerere's²⁶² speeches on Tanzania's need for own technology to manage own mineral endowment was that the nation has to be patient, not run into mineral exploitation until the indigenous have competent knowledge and skills for that purpose. He was optimistic that when that patience is achieved, all the benefits accruing from the mineral industry such as employment, continuous expertise and total ownership of the mining sector will diffuse among the Tanzanians. For him this is the summation of the efforts to alleviate poverty among the Tanzanians.²⁶³ He opined further that external aids, grants, loans and foreign capital brought by investors will never suffice to develop the nation sufficiently.²⁶⁴ He clarified foreign investors are seeking profits and will never develop the nation. He added that investor's missions are to re-invest in their counties of origin.²⁶⁵ However; his views are not given merits because today Tanzanians are evidently oppressed of the right to pamper into mineral production due to lack of both appropriate technical skills and capital.²⁶⁶

4.5.2 Disvaluing Imperative Advice

Jakaya's²⁶⁷ confusion on Tanzanian mineral-rich cum poverty is consequential to taking no notice of Nyerere's advice about Tanzanians to develop skills and

²⁶²Nyerere is the Founder of the Nation and the First President of Tanzania

²⁶³Nyerere's Speech on Science and Technology: Speech 3 You tube: <http://www.youtube.com/> accessed on 21.01.2014

²⁶⁴ ibid

²⁶⁵ The Arusha Declaration; 5th Feb. 1967: Part III on self-Reliance: <http://www.marxists.org/subject/africa/nyerere/1967/.htm> retrieved on 21.01.2014

²⁶⁶ The Mining Act, No.14 of 2010; s.8 where the low-skills demanding minerals' right is exclusively granted to the Tanzanians However; that right is also denied if it is discovered that more skills and technology would be needed and that skill is most unlikely expected to belong to the Tanzanians.

²⁶⁷ Jakaya, Mrisho Kikwete: the 4th President of the United Republic of Tanzania.

acquiring technology so as operate the mining industry independently; Kikwete²⁶⁸ after about 30years of Nyerere’s remark, is lamenting against mining investors:

“...so this fellow takes all the gold away and he says he makes losses and so he does not pay us anything...”²⁶⁹”

Moreover; when the president is questioned about why Tanzania should be the poor country despite its mineral potentials²⁷⁰ and other potentials such as tourism, he again asserts:

“I don’t know. Of course this is precisely the question that I ask myself every day: what is it that we have not done? I think we have been leading the continent in terms of attracting mining investments in the mining sector”²⁷¹ ...”

This shows the fact that despite a lot of incentives offered to the mining investors, Tanzania will forever be exploited on its own endowment unless technology development is afforded.

4.6 Less Struggling Government

Tanzania has been exploring for oil and gas for more than half a century. The first natural gas discovery was made on the Songo Songo Island in 1974 followed by another one in the Mnazi Bay in 1982. In 2004 and 2006 commercial production of natural gas on the Songo Songo Island and in the Mnazi Bay commenced respectively. From 2010, Tanzania has witnessed further exploration and discoveries of significant quantities of natural gas both on- and off-shore.²⁷² These developments should have created the challenges to the Government on how to

²⁶⁸Jakaya Mrisho Kikwete, the forth President of the United Republic of Tanzania

²⁶⁹On his interview with Financial Times (media) in New York when he was questioned on too How he takes too much incentives given to the mining investors; <http://www.ft.com/cms/> retrieved on 21.01.2014

²⁷⁰ Tanzania is the 4th largest gold producer in Africa after South Africa, Ghana and Mali. Mining in Tanzania Over-view: <http://www.tcme.or.tz/>: retrieved 20.01.2014.

²⁷¹op cit

²⁷²See the foreword to the Natural Gas Policy of Tanzania (2013)

manage the fast growing natural gas industry. The government ought to have foreseen technology is the only necessary resource needed to maximize the benefits from gas industry and so the only lee-way to achieving what the policy-statement states:

“Natural gas resource found in Tanzania belongs to the people of the United Republic of Tanzania, and must be managed in a way that benefits the entire Tanzanian society.”

Evidently, it is until technology dissemination, nurturing, sustaining and enhance R&D are achieved for Tanzania and her people to feel the owner of mineral-rich in the country.

4.7 Lack of consciousness

The government has not realized that there ought to be mechanisms/arrangements through which technical-know how from mining operations carried out in the country can be inherited, nurtured and sustained for the benefit of the nation. Whilst the investors think it is highly probable putting in place the arrangements to enhance mining technology in the country via the linkage between their activities and enabling policies; the government has not discovered that negotiation with the investors in respect of technology dissemination in the country is practicable during the investor’s stay in the country nor has the government set plans for that purpose. The government’s focus has been; and still is fiscal gain from the mining sector.

4.8 Poor policing/ planning

Policy space in respect of technology gain in Tanzania is improbable. Policy-makers admit to have not implemented full sovereign command over policy instruments and they have not been able to control specific policy targets effectively in pursuing technology grasp in the territory. This problem has acutely affected the country especially considering that policies ought to have aimed at achieving structural change and thus involving a continuous adaptation of targets, instruments and behavioural relations. Policies ought to have helpful in tapping up technology in the country, regard being their global recognition and veneration where laws fall short of

expectations. The fact is that, policy operation in Tanzania in favour of technology dissemination in the country from mining operations currently in the country is ineffective. The investors admit to be ready to do what it takes to developing the technical ability of the country on fair basis between them and the government.

4.9 Obliteration of important Investment law

Investment legal framework in respect of technology dissemination was jeopardized by the abolition of *Investment (Promotion and Protection) Act*²⁷³ which established the Investment Promotion Centre.²⁷⁴ This law had established the coordination between the IPC and the Commission for Science and Technology (COSTECH) which together had the role of establishing rules and regulations for rationalizing the acquisition, evaluation, choice, coordination and development of technology as well as conceiving policy measures that will facilitate an enabling environment for technology autonomy and sustainable development.

The repeal of the Investment (Promotion and Protection) (supra) Act as replaced by the Tanzania Investment Act²⁷⁵ means cutting off the role of COSTECH in the investment arena since no provision in the new Investment Act to retain that position. That is how the dreams for dissemination of technology in the country were misguidedly lost. The COSTECH role and indulgence into the investment operations/management was also prejudiced to the detriment of technology receiving as would be otherwise expected from the investors from abroad.

4.10 Absence of the law

There is no law in place in Tanzania today in respect of compulsory technology giving to the country. Even if there were some laws existing in respect of technology reap from the mining operations in the country, the mining investors are of the views that; in the absence of special arrangement (most especially beneficial to them and the government of which they were reluctant to suggest); technology giving as

²⁷³Act No 10 of 1990

²⁷⁴See *ibid* s.4

²⁷⁵CAP 38 RE 2002 (of 1997)

emanating from their mining operations is utopian. They opine that technology is globally protected under Intellectual Property Rights Laws (IPRLs) and it cannot just be given without any covenants. The respondents commented that:

“No law can succeed to forcing the investors to offer free technology....technology is pretty abundant throughout the globe and can be fairly bought and utilized.”

This shows that investors’ willingness to develop the country’s technological base is improbable. The lesson by the government should be to design the concessions which signifies the reception of technology desired in *quid pro quo* basis.

4.11 Deficiency of the law

The laws of Tanzania are short of contents. Even where it is perceptibly that some laws ought to have covered some aspects in respect of technology assemblage, the laws ended where the inference of technology dissemination could not be studied. Examining the possible legal networking which could have enhanced technology dissemination emanating from mining investment operations in the country; important matters for the purpose of technology reaping were left ought. The investors are of the views that, if the country intends to harvest technology from their operations, there should be the law in place in that regard which would confer even benefits to both; the giver and receiver, considering that technology is not available free of charge globally, so it can’t be in Tanzania.

4.12 Compromising Implementations of the Laws

The investors openly disclose that, they don’t just pop-in the country without thorough research on the legal framework on the matters which would affect their operations. This means that; should any matter disfavour their operations, that matter must be tabled for discussion with the relevant authority, this is where the law is supplemented (usually as the mitigating factor) with the separate agreements; remarkably, these agreements are always given weights as good as the laws and so obscure where the laws ought to have acted very straight in respect of issues which would have otherwise assisted in technology gain in the country. Examples are the existence of MDAs, processing of the different permits through the TIC. The mining

investors agree that, if the laws were implemented in a success manner, technology giving would have been possible although they think separate agreements in that respect ought to have existed as well.

4.13 Severe Implementation of the Laws against the Investors

The authorities in the supervisory roles²⁷⁶ over the mining investment and operations have been reported to act harshly when implementing the laws against the mining companies especially in issues where fines have to be imposed against the companies and where taxes have to be collected. The mining investors are aggrieved by the fact that; even where there is the right to be heard in respect of the violations on environmental management is allegedly against them, that right is in most of the cases not availed to them. In the like manners, TRA collects taxes even where the legality of the so collected taxes are challenged. The practice is that, the mining companies either condone with the taxes collected or challenge it in the courts of law. The investors see this practice boring and in a way creating less-friendly relationship between them and the government. With the combinations of the hassles by the government, the mining investors are inclining to do something extra for the country; especially those based on volunteerism in their part; including but not limited to technology free giving in the county.

4.14 Strong recant and ineptitude of the Indigenous

There is a tendency were the indigenous suffer inferiority to the foreign expatriates. The foreign experts arrogantly claimed disassociation with local personnel because of their ineptitude. One foreign-expert responded to the interview that, they usually don't receive expected team-work on associating with local personnel. Indigenous don't consider themselves' capable of handling technical duties without close and tight supervision by the foreigners. Thus, the recommendation lodged to the employers in the mining sectors is against employing local personnel to avoiding inefficiencies. Investors-employers acknowledge the fact that hiring a foreign employer may cost five-times the cost of engaging a local one, however; the

²⁷⁶ Reportedly NEMC and TRA

preference goes to the foreign employees even in vacancy positions were the local employee would suit; all because the indigenous are both inefficient and ineptitude.

4.15 Colonial Temperament

The colonial mentality is still distressing the government. The government still considers it impossible for the indigenous to possess both capital and technical skills to manage the mining sector independently without inviting the foreign investors to take part. Responding (on behalf of the government) on the fact that; since the law has allowed the foreign investors to borrow from the local banks and obtain credit from local sources²⁷⁷ it is evident that MNCs sometimes are not capital- sufficient indifferent from the local indigenous, he affirmed positively. He added that the government has acknowledged the failure to the western world upon which the foreign investors have taken advantages. The respondent is nevertheless optimistic that the government is capable of empowering own people technologically, and when it is successful, the mining sector can forever be managed solely by the government for economic evolution.

4.16 Insecurity of the government officials

There is weakness in the government conduct among the networking group in charge of coordination of mining issues. Some of the officials lamented that, the fact that their posts in the government orientation are subject to appointment, every time they act is because they are directed to act accordingly even when the impact of their acts are visibly harmful towards the otherwise important effectiveness. Some of the questions-lead of the discussion made between them and the researcher were answered affirmatively in respect of technology dissemination failure as impacted by improper/deficient regard being paid by them. Examples were the issues of MDAs whose role in the mining sector is of nothing but begging in your own home; some of the officials insisted. They acknowledge seeing the loss but their worry is that any revolution in respect of intentional technology gathering may take forever to achieve cognisance in the country and in the process of implementing the same, they may be

²⁷⁷See the TIA, CAP 38 RE 2002; s.25

caught in the middle as traitors against their appointees. The gist is that: the government networking group in respect of mining sector supervision does not want any one above their intellect.

4.17 Individualism and Pessimism

Some of the government officials recognize the extent mineral sector is prejudiced by unfair contractual agreements. They even come to the senses that technical-capacity would have been the most beneficial factor if the government exhibited interests towards the want of it from the mining investors. However, none has courage to stand in favour of the truth. Some of the officials in charge of mineral sector consider their tenure timed- limited for them to undertake such imperative changes in the sector. Moreover, they even find it impossible to initiate the changes and bring the same into the mind of the majority whom it would take forever to understand and implement.

4.18 Employment to Foreign Experts

The respondents were liberal enough to reveal that most of the foreign experts get employment by way of selling just mining technical services to the mining companies and mining companies enter into such contract to offer utilize those opportunities supplied by the independent contractors. The companies believe the independent contractors do the best in delivering technical services properly, efficiently, promptly and at the most technical expected level. The investors see no reasons for not creating job opportunities to colleagues who would do nothing but increase efficiency in their mining operations. The presence of foreign independent contractors (in fact companies registered in Tanzania for that purpose) minimises the chance of involving a number of local personnel who would otherwise get to be involved in the mining activities and learn from the expatriates from overseas.

4.19 Expedited Legislative Processes

The fact that the important law in respect of mining issues (The Mining Act²⁷⁸) was enacted under “certificate of urgency” is the problem mentioned to be its failure to cover-up important matters like technology tapping mechanisms. The mining legislation bill was tabled under the certificated of urgency; the meaning of which normal procedures were to be ignored to enact the law as quickly as possible. Avoiding the normal procedures which would have invited the participation of several mining stakeholders is counted as one chance towards deficiency of the law to the detriment of technology dissemination in the country.

4.20 Loopholes in Tanzanian Laws

Moreover; mining investors appreciate the laws in Tanzania to have been fair in respect of continuous hiring foreign technical experts instead of enhancing local technical capacities. Investors opine that; they don’t see reasons to sacrifice on giving free technology to the government of Tanzania since they are on business; obviously for profit. They insist that; the options availed to them by some of the laws²⁷⁹ in Tanzania don’t give a deem of thinking on how the alternative can be to creating technical capacity in the territory. For purposes of capital accumulating, mining investors stand to opt for the most plausible mechanisms to reduce their expenses. They consider training the indigenous up to technical levels appreciated for purposes of mining operations for which no alternative of even benefits to be a burden on their dealings and so impracticable to their part.

4.21 Imprecision of the Indigenous

Explaining why some of the local workers in the mining sites have not approached where the most technical activities in the sites are taking place despite working in the area for over the decade, the respondent (investor) explained that most of the local employees are tainted with carelessness, dishonest and gross negligence at work. The respondent company had the list of workers who negligently and carelessly operated

²⁷⁸ Act No.14 of 2010

²⁷⁹ See the Income Tax Act: s.83: Withholding tax on the expatriates is lower than that imposed on local employees.

some of the expensive machines in the technical sections, causing the company to suffer losses. Although the company could tolerate and keep some local personnel in the employment, after they became skilled enough to handle some technical duties independently, they left both the employment and the country. The company had also a record of several employees who fled the country after they have been placed under technical sections of the mines for both assistance and skills developing. Such behaviour had to be controlled by not offering technical demanding employment opportunities to the indigenous, a decision which evidently impairs technical-spilling in the country.

4.22 Independent Technical Third Party Contracts

The investors enjoy the fact that the law allows them to hire experts to offer technical skills important for their operations.²⁸⁰ They also appreciate that technology transfer agreement is made between them and the independent contractors. They further don't have control over how the independent contractor would want to affect "technical service supply," the concern remains on constant supply of the service hired. The concern on how the investors would further engage the indigenous into the technical field for apprenticeship ends where the independent contractor takes over. The investors opt for engaging independent contractors for many reasons including lowering operation costs.

4.23 Promotional benefits vis a vis concessions

Whatever was conceptually considered promotional benefits by the researcher, it means something else to the investors. Investors appreciate the fact that these (so called promotional loss to the government) are created by laws and/ agreements. They consider them concessions for purposes of mitigating the hardships they would otherwise face when investing in the country. Elaborating the point on why concessions are inevitable the MD of the respondent company had this to say:

"The industry is energy intense and it uses heavy equipment on its operations and power generations being earth moving and power generating for running

²⁸⁰ See TIA; CAP 38 RE 2002; s.24

the processing plant which requires 14MW to start up and 8MW to keep running. The mine consumes on average of one million litres of diesel per month....this is the amount to be consumed by a small town for similar period.....why not given concessions considering that huge operation cost...?

Moreover, investors in the mining sector don't accept the fact that they get any benefits on whatever the government is sacrificing on promoting investment. Investors are of the views that, the government is simply creating conducive environment for investment, the absence of which would have expelled investors away. Therefore mining investors are seeing none to be offered in *quid pro quo* with the concessions they receive from the government.

4.24 Visions of Managing the Mining Sector

The government had hardly anticipated for running the mining sector solely and independently. The country had discovered huge mineral potentials decades back, still new discoveries are reported, but the country still looks for the investors to come and extract the minerals. One of the respondent to this research commented that Tanzania simply needs to train own people for receiving and maintaining technical-know how needed for the mining sector. He continued that technology is available all-over the world on purchase, just like other commodities necessary for the wellbeing of the country. Tanzania is therefore said to have not been ready to accepting the fact that, the government is capable of running the mining sector on its generality solely and independently. For this reason, free technology giving should not be expected to flow from the investors whilst they understand and opine there is the means to possess technical-know how important for managing the mining industry.

4.25 Acceptance of Science by Indigenous

It is indisputable fact that the country-men escape scientific base from grass-root. This is because the government has not established conducive environment for scientific bases. The problems start with education set-up where science base is being escaped. This gives the inference that, technology grasp from the mining operations

does not succeed for lack of recipients to sustain it. The MD-respondent to this research expounded that, it takes forever for indigenous to be trained and so cause pretty nuisance for the operations in the company. He explained further that, some of the vacancies occur urgently with essentially no chance to get to train the employee. Hiring the local employees in the technical part of the industry therefore is avoided because it creates additional cost to the company than it would have been expected by the company.

The MD-respondent to this interview is managing the company which was registered in Tanzania 1998 and whose operations (Tanzania) commenced in 1998. He explained that the company had had enough local employees and an analysis of the Tanzania was clarified in depth. In the early days of the companies' operations; some of the Tanzanians who had knowledge on mining engineering were employed in the first line of preference. They were trained in the country and abroad for the furtherance of the company. However; as they considered themselves better than in their previous level of understanding, they went for better positions overseas. This is how the company came to senses that hiring local expensive may be a burden to the company and so the same needed minimization.

4.26 Neglect Important Procedures

There are some legal procedures which are neglected for unknown reasons. The procedures that the Commissioner for labour need to comment on whether the foreign employee's resident permit should be renewed before the Director of Immigration Services offers the renewal is otherwise valid in favour of technology dissemination but is invariably neglected. The law allows the maximum period (five years period) a foreign expert should stay on the employment in the country. The law is in favour of technology grasp if it was positively implemented.

The extension/renewal of these foreign workers is subject to the commissioner's recommendations as to whether there is no local expert to cover-up for the outgoing foreign experts. If the findings are affirmative; the renewal is denied and vice versa. This procedure is evidently in favour of technical growth in the country but rarely

this procedure is fulfilled. There is no procedures set to enable the commissioner for labour matters to discover that there is someone to cover for an outgoing going foreign expert; consequently, every renewal tabled is granted without scrutiny and thus jeopardise the chance for locals to assume posts upon which technical-skills would have afforded.

4.27 Maintenance of Local Scientists

Tanzania has not maintained trained and well prepared mass of human resources for effective and successful application of science and technology in the mining sector. The managing director of one of the respondent company to the interview in favour of this dissertation explained that some of the local personnel who had an opportunity to work in the mine and acquired important technical skills escape to overseas after their contractual time is over. The reasons they escape the country is to look for good pasture where the country cannot avail them with something to do worth their qualifications; not even things to do with their qualifications. This means that skilled/local expatriates find nothing to do in their own country and thus opt for going abroad where their labour is both utilized and honoured fairly.

4.28 Level of Education based on Mining Technology

The government has not established persuasive strategies and mechanisms to provide technical knowledge/education enough to operate the mining activities. The universities in the country offer mining engineering and geology²⁸¹ but unexpectedly, the graduates from the universities in the country are not delivering the skills expected of them when they are employed in the mining industries. The respondent to this interview explained how the company set aside the fund to train the employed graduates for them to manage the activities in the mining operations; the skills which ought to have acquired if the university has taught well the subject matter. This fact continues to discourage the mining companies-employers to hire local people because hiring them is as good as additional cost to the companies. Therefore

²⁸¹UDSM and DIT in particular

continuous avoidance of the local people in the technical demanding sections adversely impact on technology dissemination among the local individuals.

4.29 Unfriendly Taxes

The investors indignantly responded why the country should even be poor technologically when there are several funds available to the government for the purposes of developing skills for the indigenous, technical skills in particular. The respondent to this research remarkably commented that mining companies are the largest tax payers in the country and most employing companies and highly paying the employees in the country. Considering huge amount of salaries paid to the employees, the government taxes six percent (6%) on the pay-roll every month under the so called Skills Development Levy (SDL.) The employers in the mining sectors believe to be paying a good sum of money in complying with this law. This levy is enforced as good as other taxes by the Commissioners for Income Tax since the taxpayers are not entitled to question on how this amount of money have been spent (as it is expected they develop technical education in the country) the investors have the right to refuse other arrangement to develop technical capacity in the country save where there is a good consideration in that regard.

4.30 Conclusion

Technology dissemination in the country in favour of the mining sector has to be enhanced by several factors. If Tanzania hopes for technology spill from the investment operating in the country in mining field, the country has to enter into agreements in respect of technology gain but the current “by-chance” situation will not hold these expectations successfully. In order to accord science and technology and its central role in the mining sector, it is important to ensure that institutions established in charge of one or more investment / mining issues have to cooperate and see into it possible arrangements in favour of skills-keeping out of operations taking place in the mining.

CHAPTER FIVE

CONCLUSION AND RECOMMENDATION

5.1 Conclusions

5.1.1 Inevitability of Investment Promotions

Within an overarching strategy for improving investment in the country, investment promotion and facilitation is inevitable. However, promoting investment and promoting technology dissemination in the country are two different matters. Success in promoting investment therefore requires a careful calculation of how to promote effective exhaustion and utilization of natural resources without dramatic economic loss. Despite the evidently a lot of promotional benefits Tanzania offers to the investor, it is considered not to have promoted enough for exchange of technology development in the country. Investors comment that Tanzania will have to offer a lot more in exchange with technology strengthening in the country if the same has to be expected from the mining investors cum their operations.

5.1.2 Difficulties in Tapping Technology

Technology transfer and dissemination is a complex process in many developing countries including Tanzania. Tanzania is experiencing difficulties in establishing effective policies in respect of both investment promotion and technology gain thereupon simultaneously. Consequently, simply opening up to foreign investment is not likely to transform the technological base of developing countries. The technologies and functions which TNCs actually transfer depend largely on government strategies and local capabilities. In particular, government policies need to encourage both domestic and foreign investments in building productive and adaptive capacities and fostering business linkages, enhancing spill-overs effects and promoting technological advances in the country.

5.1.3 Environment for Technology Development

Tanzania is not well equipped and well-resourced for development and promotion of science and technology. It is not possible to pioneer many major scientific discoveries or inventions across the whole scientific and technological spectrum owing to these limitations. However, it is possible to legally spell out directions in

which science and technology can be developed and utilized more efficiently in the key sectors of the economy such as mining sector than has been hitherto. If technology in the mining sectors is taken as matter of law; then compliance in respect of technology upkeep is quite likely and thus Tanzania will become the owner of both mineral endowment and technology for the betterment of the nation.

5.1.4 Retention Difficulties

Technology dissemination is globally proved beneficial. However, Tanzania has no trained and well prepared critical mass of human resources and a mechanism for effective and successful reception and application of technology in the country. Tanzania has no agreements between with the foreign partners in favour of technology upkeep. It is very likely that even when technology dissemination is achieved, sustaining it would be impractical.

5.1.5 Legal and Institutional Framework

Tanzania has no clearly defined legal framework to facilitate harmonious functioning of all institutions dealing with the promotion, development and facilitation of both mining investment and investment in general in respect of technology dissemination. The institutional framework and linkages are not enhanced enough to ensure that there are detailed plans which ought to be drawn in respect of technology dissemination in the country. The absence of clearly defined structural and functional linkages to harmonise and synchronise all the functions of the relevant institutions negatively impacts on the access to gain and / absorb the technical knowledge brought in the country by the foreign investors via the mining operations.

5.1.6 Balancing promotions

Offering financial and other incentives (as promotions of investment) to attract foreign investors is not a substitute for pursuing policy measures that create a sound investment environment for domestic and foreign investors. In some ways; incentives should complement an already attractive environment for investment. The danger of over promoting investment in Tanzania is that; each individual incentive may make sense at the time but they may not in the future. Investors can continue claiming for

more incentives and the cumulative effect of all incentives offered might, with time become unaffordable / unbearable by the government. It is important for the incentives/promotion mechanisms to be periodically reviewed for adjustment.

Therefore, technology advancement in Tanzania is proposed to be the most attraction to the investors and not otherwise a lot of fiscal sacrifices the government is offering in respect of promotion of investment. The usage of financial and other specific incentives directed at attracting investors are not the substitute for advancing and strengthening technology base in the country. In some circumstances, incentives offered in terms of promotion of investment are supposed to serve as a supplement to an already attractive enabling environment for investment.

5.2 Recommendations

5.2.1 Stressing Technology Transfer

A realistic Science and Technology policy for Tanzania should reflect the key role that science and technology will play in the mining sector. The mining sector is the country's recommendable source of revenues above all other sectors. Therefore dissemination of technology should project the fact that Tanzania need to own and govern all the activities in the country in respect of mining exploration, production and selling. If the government is receiving 4% loyalty currently, it is very likely for the government to excel once benefits 100% of mineral endowment available in the country. It is therefore beneficial to develop scientific bases among the Tanzanian population necessary for management of the mining sector by the government and hence rapid social economic development of the country and subsequent self-reliant nation.

5.2.2 Optimization of technology transfer

The relationship between transfer of technology and investment (trade) is not automatic nor is it cost-free. Successful technology transfer involving partners from developed and developing countries requires financing, but above all it requires home and host country policy measures to stimulate the transfer and local adaptation of technology. In effect, the government should incorporate flexibility in the design

of national technology policy which recognizes the need to create conditions conducive to fostering transfer of technologies and possible implement measures towards successful technology dissemination in the country.

5.2.3 Technology Transfer Consensus

There needed mutually beneficial arrangements that maintain a balance between the interests of technology generators/suppliers and those that rely on transfer for their technological development. Transnational corporations as the main, but not exclusive, suppliers of technology to developing countries seem to prefer methods of transfer where they can exercise some control over the process, while host countries prefer transfers that contribute to local technological development. What would therefore seem appropriate is to create conditions in the host countries that encourage a multitude of channels of transfer of technology and permit the designing of incentives (independent of those already availed to the investors) that would motivate the investors to participate in the efforts of the country to boost domestic technology capabilities.

5.2.4 Concessions Review

It is not a bad practice to grant concession. Concessions help a new firm to become profitable or direct its limited capital into productive asserts that promise greater revenues in the future when profits grow. However, concession should be granted for a finite period. This is because endless time for concession limits / prevents Tanzania's revenues and indirectly forces higher taxes onto existing business, consumers or other categories of tax payers; making the lives of majority miserable and finally remain with the question: *Tanzania is a mineral-rich country, why should its population be as poor as it appears today...?* Concessions in the mining sector should be exchanged with technical dissemination.

5.2.5 Careful Admission of FDI

Foreign Direct Investment (FDI) should be welcomed in the country after measuring the benefits it brings in the country. This means that, FDI should not often be welcomed in the country just for its contribution to overall levels of investment and

employment but also because it can bring additional benefits to local citizens through the diffusion of new technology and human resource and management expertise.

5.2.6 Joint Venture Strengthening

Joint ventures with foreign firms can be a success for transfer of knowledge to local firms and dissemination in local economy. Although TNCs potentially have much to offer in Tanzanian developing local technological capacities, in many cases they are not interested in transferring knowledge to and supporting innovations in host countries beyond what is needed for their production process or products. Measures should be taken to ensure other arrangements in favour of technical capacity / skills giving. The government therefore should support and facilitate the local firms in respect of merger and acquisition with the foreign enterprises so as to acquire such technology and access to process of learning foreign technologies in the course of business indulgence. This would mean therefore that experience gained by Tanzanians firms' merger with TNCs will develop knowledge networks and thus enhance skills, transfer competencies and strengthen manpower among the local personnel.

5.2.7 Developing Innovation Systems

The innovation systems of Tanzania are weak. There should be laws and policies correcting weaknesses that hamper knowledge acquisition, dissemination and use in the productive sector especially the mining sector. Policy goals should include lowering the inherent risks associated with innovative activity, removing obstacles to coordination among innovation actors and addressing the issue of innovation externalities. Achieving such goals requires, among other things, well-calibrated incentives and benchmarks, consistent monitoring and evaluation and the existence of accountable innovation governance structures with competent staff and visible political support. Creating technological capabilities at the firm and industry levels is equally critical for an effective innovation system, including actions to promote the establishment of knowledge links among firms and between them and the education and research subsystem, and the emergence of technology intermediaries.

Accordingly, technology relevant to the mining industry will be nurtured and sustained.

5.2.8 Domestic Preparation

In order to maximize technology dissemination, it is imperative for government to establish and implement policies that help enhance the absorptive and adaptive capacities of local firms. This involves the creation of a skilled workforce, not only for TNCs to tap into, but also to promote high quality, competitive domestic enterprises. To accelerate skills formation in relevant areas, governments need to be informed about the skills in demand by the agencies in charge of mining related matters in the country and in charge for technology growth and sustainability in the country. The government should strengthen the capabilities of small and medium-sized enterprises by including improvement of extension and training services. The government should also provide venture capital to encourage merger between local entrepreneurs and TNC employees to establish enterprises that take advantage of the skills and technologies developed by TNCs for the benefit of technology growth in the country, especially for the mining sector because it is the most economic yielding sector in the country.

5.2.9 Acknowledge Local Scientists

There are local scientists and emerging technologists in Tanzania. These people's presence should be appreciated. In essence, some of them acquire their expertise by their own funding and sources, independent of the government support. The only means to keep them in the country is by creating environment conducive for them to work, attractive careers, incentives and improved conditions of services in order to encourage them stay in the country. The government can benefit from their creativity and inventiveness and they can be potential recipients of disseminated technology.

5.2.10 Identifying Priorities

The government should target the promotion of specific technologies relevant to priority areas in the development strategies for the mining sector. This means that; instead of offering investment promotions whose impact is fiscal loss, the

government should plan for promotions whose benefits are technology gain. The governments should seek to attract TNCs into specific (high) technology demanding sectors. Considering the mining sector as the most income generating for the country, efforts should be made to ensure the dissemination and utilization of already available research findings both generated from within and outside the country and adopt or adapt the available technologies in order to suit the needs of the mining sector in the country with a view to optimizing the mineral resources-endowment at the country's disposal.

5.2.11 Periodic Technological Review

There should be instituted a periodic review system in every technical demanding sectors which will regularly monitor and evaluate the need and performance of the scientific and technological activities in the country. This will update and advise the government on the potential roles technology in relevant sectors. There should be review in the mining sector and see how much and what type of technology the sector indeed desires. They should record the applicable technology in the mining operations, even if not for the purposes of dissemination but for future importation.

5.2.12 Public-Private Partnerships Approaches

Tanzania already has a Public Private Partnership Act²⁸² (PPPA). The government can opt to utilize the PPP options in developing R&D. The government should target TNCs that are already present in the country for entering into partnership agreements in favour of technology growth essential for the mining industry. For instance, offering incentives to move into more complex technology and to increase or upgrade the technological R&D undertaken locally is possible if PPP arrangements are carried out as enabled by the law.²⁸³ Under this arrangement; the government can collect, organize and disseminate information from TNCs about the technical, research and training facilities in the country and improve technology access for

²⁸²See Act No. 19 2010: An Act established to provide for institutional framework for the implementation of public private partnership agreements between the public sector and private sector entities; to set rules, guidelines and procedures governing public-private procurement, development and implementation of public-private partnership and the related matters.

²⁸³ See ss. 8-29 of Act No. 19 of 2010

local enterprises, by providing information on foreign and local sources of technology.

5.2.13 Linkage Approaches

Technology alliances and linkages between TNCs and domestic firms are among the key modes of promotion and transmission of technology. Whether domestic companies acquire technology from TNCs, to what degree and at what speed, depends on the type, scale and quality of the interface that exists between them. The type of interface may involve joint venture partners, competitors, suppliers or public-private partnerships (PPPs). For instance, joint ventures²⁸⁴ can result in effective transfer of technologies provided there is mutual trust between partners and absorption capabilities. PPPs with TNCs, for example build-operate-transfer (BOT) arrangements may include technology disseminated to local partners through training and transfer of the facility or plant to the local enterprise(s) after an agreed period. Therefore, the establishment of local technological and industrial clusters with the participation of both domestic firms and foreign affiliates can enhance the exchange of know-how and expertise.

5.2.14 Protecting Intellectual Property Rights (IPRs)

Technology dissemination in Tanzania could prosper if IPRs laws are strengthened. Countries which have fairly well-developed innovative capabilities are likely to agree to promote technology transfer and dissemination by TNCs if the interests are protected in host countries.

²⁸⁴ See Paul Latimer; (2004); Australian Business Law at p.633: Joint Venture is an association of persons, natural or corporate who agree by contract to engage in some common, usually ad hoc undertaking for joint profit by combining their respective resources without however forming a partnership in the legal sense (of creating that status) or corporation; their engagement also provides for a community interest among the joint venturers each of whom is both a principal and agent as to others within the scope of the venture which each venturer exercise some degree of control.

5.3 Conclusion

Considering the time mining investments have been hosted in the country, technology dissemination should have been expected from mining investment operations. The problem is that, the government has not struggled to make it a priority. The expected enabling laws²⁸⁵ for the purposes of technology dissemination are short of strengths for that purposes. The government still has priority eyes on fiscal benefit from the mining investments. The government has not given weight to the fact that technical skills among the Tanzanians will enable the country run the mining sectors on its own and hence maximize profits in all life spheres. Moreover, the government has not recognized that the role of mining investors is to make as maximum profits as possible, they wouldn't give a deem to offering technical skills to the nationals voluntarily. Therefore, urgent reform for the purpose of ensuring technology dissemination has to take place.

Technology dissemination and / advancement in natural resource sector is inevitable. Technology is the key factor for the optimization of the of the country's resource endowment "*by the indigenous*" and "*for the indigenous.*" Moreover; technology advancement in the country is recommended the most promotional measures the investors would feel attracted to invest in the country. Strengthening technological base in the country would benefit Tanzania massively. For instance, the investors' alarm that, if the country's technical base is spread among the indigenous, they could not have hired foreign experts from overseas as keeping the foreign experts is quite expensive. They instead could be hiring local labour in all sectoral operations and perhaps give more to the Tanzanian societies by way of (CSR) as they believe hiring local expatriates would be less expensive to give enough profit to share with the Tanzanian societies.

²⁸⁵CAP 38 RE 2002 & Act No.14 of 2010

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Appendices

Appendix I

Interview guide questions with the Managers and Directors of the Mining Companies visited.

1. What was your strong point when you chose to invest in Tanzania
2. How long have you been operating in Tanzania?
3. What are the challenges you encounter in your business which you think if it wasn't in Tanzania, you couldn't have faced them?
4. What are the promotional benefits do you enjoy in the country for the sole reason of being a mining investor?
5. What do you enjoy the most; of all the promotional benefits extended to you under various legislations/laws?
6. What do you do for Tanzania to make sure all the technical skills used in the mining operations are familiar among the Tanzanians?
7. Are you aware of the laws which direct you to employ the local personnel?
8. To what extent do you comply with the laws mentioned in 2 above?
9. Is there difficulties encountered in compliance with the laws in 2 above?
10. What can you say about the government agency/institutions/department who is duty bound to supervise the compliance mechanisms under the laws mentioned in 2 above?
11. How are you seeing the Tanzanian labour?
12. If there were laws compelling you investors to forcefully comply with the requirements of making sure you set mechanisms for technology gain in the country.?
 - a) What would be your points of objections?
 - b) What would be your points of appreciating?
 - c) If you have points of appreciation, would you need government support?
13. What are you seeing as an opportunity in the mining laws which ought to have been utilized by the government for the purposes of technology dissemination but not opted for by the actors?

14. What is your advice to the government in favour of technology dissemination in the country?
15. Are there hassles from the government which you think with due diligence on the part of the government, there shouldn't be one?
16. Are there occasions when you feel mistreated by the government on the purportedly implementations of the laws in the country? Say; any law....?
17. As you undergoing mine closure (GPP), how have you perceived investment in Tanzania?

Appendix II

Interview guide questions with the with workers of the Mining Companies (indigenous)

1. How do you cooperate with foreign personnel in the mine?
2. How do you working in the mines with other places or field of employment you have worked before?
3. How do you consider the employment in the mine?
4. How long have you been working in the mines?
5. How much have you leant from your colleagues, especially foreigners?
6. How much do you think you still want to learn?
7. Have you ever travelled to learn technical expertise abroad?
8. If yes, how did the trip improve your skills?
9. Are there working skills employed abroad which you do not apply here? If yes, why?
10. Are there differences/appreciations you would recommend among yourselves?
11. How are you being treated in the working environment?
12. How long would you want to work in the mines if you are guaranteed life time employment?
13. What are your strengths against foreign employee?
14. What can you tell your fellow Tanzanians who hunger to work in the mining industry?
15. What is your advice to the government about employment trends in the mining sector?

Appendix III

Interview guide questions with the with workers of the mining companies (Foreigners)

1. What is your country of origin?
2. How were you recruited?
3. What is the expertise you brought in this mine?
4. How can you explain about working in Tanzania?
5. Have you worked in the other country before working in Tanzania? If yes,
6. How can you compare the employments - in Tanzania and where you have worked before?
7. What did you consider before choosing to work in Tanzania?
8. How do you cooperate with local employees?
9. What are your strengths against local employees?
10. What are your expectations when you are employed in the mine?
11. What can you comment on Tanzanian employment trends in the mining sector?
12. What do you appreciate in the Tanzanian legal system governing foreign employment and residency?
13. What would you like to recommend on the legal framework?
14. What can you advise the government on the mining issues?