SURVEY OF THE LEGAL FRAMEWORK FOR THE TRANSFER OF TECHNOLOGY IN NIGERIA AND TRINIDAD AND TOBAGO ENERGY RESOURCES LAW FOR SUSTAINABLE DEVELOPMENT[*]

Abstract

It is an indispensable fact that one major reason for the country's inability to achieve its optimum potentials by deploying oil wealth to stimulate economic development is the lack of or inadequacy of technical exploration technologies. There has been showing of no interest or enthusiasm to issues concerning technology transfers by appropriate authorities. Technology is the knowledge of how to manipulate materials (raw materials) by applying complex of techniques to achieve a patterned stipulated or expected end. It is very necessary in virtually every aspect of human endeavours including petroleum. The transfer of technology from experts therefore is very imperative. The question still remains - is Nigerian Energy Resources Laws so developed for optimum productivity, efficiency and effectiveness for transfer of technology when compared with Trinidad and Tobago. This is the précis of this research. There is no doubt that Nigeria has legal and statutory framework for transfer of technology but the problem lies in the implementation and execution of the provisions of these laws. Again, the influence of multinational corporation and corruption on the part of Nigerian authorities in the oil companies were identified to be limiting

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factors towards technological development and transfer. We made recommendations for improvement and how better to transfer technology for the sustainable development of the natural resources through technology transfer.

Keywords: Transfer, Technology, Energy Resources Law, Examination, Nigeria and Trinidad and Tobago.

Introduction

Etymologically, natural resources are from two words 'Natural' and 'Resources..' Natural connotes existing in nature: not made or caused by humans. Resources on the other hand depicts a supply of something that a country, an organization or a person has and can use especially to increase their wealth: the exploration of minerals and other natural resources.[1]

Nigerian and Trinidad and Tobago's natural resources Laws are the Regulatory Frameworks in both countries that regulate and control how these natural resources provided by a nature and not humans are tapped, explored, processed and managed for sustainable development. To explore, drill and process these natural resources require necessary knowledge and equipment (otherwise called Technology. Nigeria and Trinidad and Tobago being developing economies may not possess these necessary technologies, hence, the need to transfer them from developed countries or experts. The evaluation of Laws, if not the regulatory frameworks in both countries, to seeing whether they are capable and complete enough to harness these natural resources they are endowed by nature is what this research is aimed at.

[1] A S Hornby, Oxford Advanced Learner's Dictionary (Oxford: New 9th ed., Oxford University Press, 2015)

It is worthy to note that technology holds sway in virtually every aspect of human endeavour, the energy sector being no exception.[2] Attaining the objective of sustainable management of natural resources in the developing countries in Africa would require a paradigm shift from the present inequitable trends.[3] This objective, of course cannot be achieved without the knowledge of how to manipulate materials (raw materials) by applying complex of techniques to achieve a patterned stipulated or expected end and the equipment required to carry out these technological process.[4] This is what technology is all about. Where these technologies are not available in a given economy, they can be employed or sought for elsewhere; hence technology transfer. This is largely because energy is central to human existence and thus significantly influenced by technology. Petroleum in one form or the other has been used since ancient times and has grown to become the most important sources of energy in modern time.[5] Petroleum is a multifaceted material that is used to make products for use in virtually everything ranging from agriculture to medicine, construction, textiles and even to electronics.[6]

Stakeholders of the resources sectors in Africa tend to equate increase/investment in the downstream and/or upstream oil sectors and recent developments in the Liquefied Natural Gas

[2] Yemi Oke, Nigerian Energy Resources Law and Practice: Oil & Gas Law (Practice Cases & Theory) (Lagos: Princeton & Associate Publishing Co Ltd 2019) p. 307
[3] See Yemi Oke, Natural Energy & Natural Resources Law, Notes and Material (Lagos: Princeton & Associates Publishing Co. Ltd 2016) p. 1
[4] See Livinus I. Nwokike, Sustainable Strategies for Waste Management in Nigeria: A Legal Apprasial, a dissertation for the award of Doctor of Laws in the Faculty of Law of Nnamdi Azikiwe University, Awka, 2019, p. 214
[5] Yemi Oke, *Op.cit*
[6] *Ibid*

(LNG) and anticipated prospects of the solid mineral sector as evidence of global acceptability. The truth remains, globally, though the resources sector of Africa is perceived as attractive and cheap, but it is also largely viewed as environmentally reckless, socially perilous and community-unfriendly.[7]

One of the fundamental processes that influence economic importance of nations is technology transfer. Economists have long recognized that the transfer of technology is at the heart of the process of economic growth and that the progress of both developed and developing countries depends largely on the extent and efficiency of Technology Transfer. In recent years, economists have also come to realize (or rediscover) the important effects of international technology transfer on the size and patterns of world trade. The concept of technology transfer (also known as Transfer of Technology; TOT) is not a new phenomenon as it has been in existence for several decades. However, the issue of transfer of technology to developing countries has been a frequent subject of discussion in international economic relations. In order to gain a proper understanding of this concept, it is imperative that its definition and evolution be discussed.

Nigeria is yet to acquire what Stewart and James call, dynamic petroleum technology, which according to the duo is a sort of technology which tends to give the owner the capacity for invention and innovation. [8] The predominance of know-

[7] *Ibid*

[8] F Stewart and J James (eds.), *The Economics of New Technology in Developing Countries* (1982); Maxwell M Gidado, *Petroleum Development Contracts with Multinational Oil Firms: The Nigerian Experience* (Maiduguri: Edi Linform Services, 1999), Ch. 8, p. 195

how/technical assistance by the multinational oil companies (MNOCs) in the country reflects the very weak indigenous technological capability in the economy.[9] The absence of an effective legal or statutory framework for Nigeria to harvest technological, industrial and economic capital assets being generated by oil and gas activities for diffusion into the local economy is chief among the reasons for the country's economic underperformances despite its energy resources wealth.[10] Developing countries, therefore, should watch it.

It is stated that an appropriate self-reliance policy must be based on full understanding of the real role of multi-national corporations and of the essential requirements for industrialization. The most essential requirement for industrialization and for economic growth is technical know-how, but the multi-national corporations have as their main interest in developing countries the accumulation of profits. They repatriate the profits openly or clandestinely, and safe-guard the avenues for making profits by withholding the technical know-how from the citizens of their host countries, and they establish control over their economies.

Multi-national corporations have taken away much from the Nigerian economy and they are still digging in with a view to taking away more and more. If their action is left uncontrolled, the Nigerian economy will remain underdeveloped as has happened in Latin America. It is to be feared that when they are fully established, through the expansion of their businesses, which is being fostered by the indigenization policy and by taking

[9] Y Omoregbe, *Oil and Gas Law in Nigeria, Simplified* (Lagos: Malthouse Press Limited, 2001) p. 16
[10] *Ibid*

over the key sectors and sub-sectors of the economy, they must resort to the manipulation of the Nigerian government in order to safeguard their position better and further their interests more lucratively, as has been happening in Latin America.[11]

Conceptual Clarifications

Technology as "the systematic knowledge for product manufacture and service provision in industry, farming and commercial fields."[12] It has also been defined to mean the science of technical processes in a wide, though related field of knowledge.[13] The International Code on Technology Transfer in its definition of technology transfer defines technology as:

The systematic knowledge for the manufacture of a product, the application of a process or the rendering of a service, whether that knowledge be reflected in an invention, an industrial design, a utility model or a new plant variety or in technical information or skills, or in the services and assistance provided by experts for the design, installation, operation or maintenance of an industrial plant or for the management of an industrial or commercial enterprises or its activities.[14]

[11] Arthur A Nwankwo, Can Nigeria survive? An Explosive and disturbing expose of multi-nationals in Nigeria and a powerful indictment of enemies of Nigeria (Enugu: Fourth Dimension Publishing Co. Ltd., 1981) p. 102-103

[12] World Intellectual Property Organization (WIPO) definition of "Technology" on-line at: www.wipo.int/patents/topics/technology-transfer.html accessed June 5, 2018

[13] The New Webster's dictionary of the English language. Doris E Lechner et al. (Intl Ed. Philip Friedman Publishers)

[14] The UNCTAD International Code on the Transfer of Technology (the draft TOT code) 1985; Chapter 1, para. 1.2. See also U.N. Doc. TD/B/C. 6/AC. 1/2/supp.1/Rev 1, 3 (1975)

Technology includes both, the knowledge or methods that are necessary to carry on or to improve the existing production and distribution of goods and services which can lead to developing of entirely new products or processes and "entrepreneurial expertise and professional know-how." [15] Succinctly put, technology can be defined as "knowledge, skills and processes which are employed in developing and producing goods, materials and services."[16]

Petroleum technology more specifically, has been defined as a systematic body of knowledge formulated about the industrial activities in the field of petroleum and capable of changing as a result of researches leading to new discoveries.[17] It has two aspects: the tangible and the intangible. The tangible refers to the physical embodiment of the technology i.e. the equipment, tools, machinery and plant. The intangible on the other hand relates more to the knowledge and skill and the ability to use this knowledge and skills to repair, maintain and create modifications and innovations of the physical assets which are imported.[18]

Transfer on the other hand, generally connotes the movement of a thing or person from one place to another. It means 'to convey

[15] S Miagsam, Technology Transfer (Singapore: Singapore University Press, 1981) p. 4
[16] K Khan, "The Transfer of technology and petroleum development in developing countries: with special reference to Trinidad and Tobago", 4:1 (1986) *Journal of Energy and Natural Resources Law*, p. 11
[17] D H N Alleyne, "The State Petroleum Enterprises and the Transfer of Technology", in United Nations, ed., State Petroleum Enterprises in Developing Countries, (New York: Pergamon Press, 1980) 109 at 111
[18] L Atsegbua, *Oil and Gas Law in Nigeria: Theory and Practice* (2nd Ed, New Era Publications 2004) p. 188

or remove from one place or one person to another'.[19] Therefore, the term 'technology transfer' or 'transfer of technology' means the process of transferring skills, knowledge, technologies, methods of manufacturing, samples of manufacturing, and facilities among states and institutions. The ultimate aim of which is to ensure that scientific and technological developments are accessible to a wider range of users who can in turn further develop and exploit the technology into new products, processes, applications, materials, services. The movement may involve physical asserts, know-how, and technical knowledge. In some situations, it may be confined to the relocating and exchanging of personnel or the movement of a specific set of capabilities.[20]

The real transfer of technology lies in the ability of the host country to purchase or hire directly the most advanced technical means of petroleum exploration and development, at a reasonable price. It also lies in the development of the mental skills of the citizens in order to utilize these technical means with minimum or no supervision. The transfer can only be said to be successful if the receiving entity, the transferee can effectively utilize the technology transferred and eventually assimilate it.[21] This is however only possible if the people in the recipient country or entity are sufficiently developed to be able to utilize the particular skills effectively. Unfortunately, most developing countries, including Nigeria, are yet to fully attain this ideal.[22]

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[19] B A Garner (editor-in-chief), Black's Law Dictionary 9th Ed. Thomas Reuters Business

[20] S Miagsam, Technology Transfer (Singapore: Singapore University Press, 1981) p. 4

[21] K Ramanathan, The Polytrophic Components of Manufacturing Technology: Technological Forecasting & Social Change, p. 221

[22] *Ibid*

Technology Transfer is the process by which commercial technology is disseminated. This takes the form of a technology transfer transaction, which may or may not be covered by a legally binding contract but which involves the communication, by the transferor, of the relevant knowledge to the recipient.[23] Technology transfer, however, does not only mean a transfer of the technical know-how (knowledge) required to produce the product to the recipient but also the capacity to master, develop and later produce autonomously the technology underlying the products[24]. Technology transfer in the petroleum context refers to a process which enhances the ability of developing countries concerned to monitor and control the petroleum sector activities, to acquire directly the most appropriate means for petroleum exploration and development, and strengthen the domestic capability to utilize these means effectively by itself, if necessary, without outside assistance.[25]

Local Participation means "maximizing the depth and breadth of local ownership, control and financing, in order to increase local value-capture from all parts of the value chain created from the resource, including those activities in which nationals, local business and capital are not currently engaged, at home and abroad."

[23] M Blakeney, *Legal Aspects of Technology Transfer to Developing Countries* (Oxford: ESC Publishing, 1989) p. 136

[24] E Chesnais, *Science, Technology and Competitiveness OECD STI Review* ,1

[25] T Turner, "Problem and Issues Concerning the Transfer, Application and Development of Technology in the Energy Sector: Petroleum Exploration Contracts and the Transfer of Technology, (Study prepared by UNCTAD Secretariat 1982) TD/B/C6/AC.9/5, p.2

Local Content means "maximizing the level of usage of local goods and services, people, businesses and financing."

Local Capability development means "maximizing the impact of the ongoing sector activities, through the transfer of technology and know-how[…]"

Local Enterprise means "a person, firm or entity performing works, services and/or supplying goods and materials to Contractor, whether as a Subcontractor or otherwise, whose business enterprise is incorporated or otherwise organized under the Laws of Trinidad and Tobago and which is effectively owned and controlled by nationals of Trinidad and Tobago."[26]

Local Goods means "materials and/or equipment mined, grown, or produced in Trinidad and Tobago, whether through manufacturing processing, or assembly. An article, which is produced by manufacturing, processing or assembly, must differ substantially in its basic characteristics, purpose, or utility from any of its imported components. Manufactured goods would be considered to be of local origin if the cost of the local materials, labour and services used to produce the item constitute not less than fifty (50) per cent of the cost of the finished product."

Local Services means "works or services performed or supplied by a Local Enterprise" (Deep Water PSC)[27]

[26] Statutory Regulations and Contract Arrangements transfer in Trinidad & Tobago, online at https://eigitatricpository.uum.edu/la_energy_dialog accessed on 27th July, 2020
[27] *Ibid*

Technology Transfer and the Nigerian Experience

In the municipal petroleum industry, technology transfer is usually governed by national legislation, and by contractual clauses. At the time oil was discovered in Nigeria, there was little or no indigenous manpower to explore petroleum and its allied resources in the country. The nation's effort at developing the national economy during this period focused mainly on the establishment of infrastructure and industries utilizing assortment of technologies. These technologies, many of which were unsuitable, outdated and obsolete were sold at prices determined by the whims and caprices of the advanced countries under unfair contractual terms and conditions.[28]

At the early stages of energy production and development, Nigerians lacked the skill to negotiate technology transfer agreements for rapid development and therefore signed and executed technology agreements which did not favour national interest. Such agreements contained monopoly pricing and restrictive business practices, ranging from export restrictions, discriminatory royalty rates, coercive packaging, and tie-in-clause, dealing with capital equipment, raw materials and components, most of which were tied to the strings of the technology suppliers.[29] In most contracts, provisions on Research and Development were non-existent while little or no attention was paid to the training of Nigerian staff. The situation led to haphazard patterns of development in the petroleum industry and inhibited indigenous skill acquisition, transfer and development.

[28] Y Omorogbe, *op.cit*
[29] *Ibid*

Conscious of the need to bridge this gap, the Petroleum Decree No. 51 of 1969 was promulgated.[30] The government imposed regulations on the oil companies to employ Nigerian personnel rather than expatriate staff. It specified that at least 60 per cent of managerial, professional and supervisory categories and 75 per cent of the total senior staff be Nigerians by January 1970 at the earliest and by December 1978 at the latest.[31] This is a form of' Nigerianization' policy. It was to be enforced by refusing to issue permits to certain levels of expatriate staff.[32] In response to this, the foreign companies supported the establishment of departments and appropriate curricula for the training of Nigerians in oil related technological, science and engineering disciplines in Nigerian Universities through the award of scholarships and grants.[33]

On 4th June, 1973 the Petroleum Technology Development Fund (PTDF) was established as a Fund for the purpose of training and education of Nigerians in the petroleum industry.[34] This was in a bid to motivating technological learning and local absorptive capacity for both upstream and downstream petroleum operations through research and training. Prior to the establishment of PTDF, there existed the Gulf oil Company Training Fund which was subsumed into the PTDF.[35] The fund was to be made available inter alia for purposes of training Nigerians to qualify as

[30] Petroleum Decree No. 51 of 1969 later became designated 'The Petroleum Act, Cap P 30, LFN 2004, with the advent of democratic regime
[31] T Turner, 'The Transfer of Oil Technology and the Nigerian State, Development and Change,' (1976) p. 378
[32] *Ibid*
[33] *Ibid*
[34] Established by The Petroleum Technology Development Fund Act 1973. Cap P15, Laws of the Federation of Nigeria, 2004
[35] *Ibid*, Section 1

graduates, professionals, technicians and craftsmen, in the fields of engineering, geology, science and management in the petroleum industry in Nigeria or abroad.[36]

In 1975, the Petroleum Training Institute (PTI) was established towards the development of technological capabilities in the oil industry.[37] The purpose of its establishment was to provide course instruction, training and research in petroleum technology and to produce technicians and skilled personnel required for oil production.[38] In further pursuit of the objective of enhancing local manpower and technology, a merger between the Ministry of Petroleum Resources and the Nigerian National Oil Corporation (NNOC), led to the establishment of the Nigerian National Petroleum Corporation (NNPC) was established in 1977.[39] Part of its aim was the regulation of foreign and local producing firms, advancing technology transfer and the development of local content and indigenous participation in the industry. In a bid to further these aims, three upstream subsidiary companies were established in 1988; the Nigerian Engineering and Technical Company (NETCO), the Nigerian Petroleum Development Company (NPDC) and the Integrated Data Services Limited (IDSL).

However, despite these seemingly positive steps towards the gradual achievement of a successful technology transfer and indigenous participation in the oil and gas industry, not much success was being recorded. The MNOCs were still at the helm

[36] *Ibid*, Section 2
[37] Established by The Petroleum Training Institute Decree No. 37 of 1972 (now Act, 1972, Cap. P16 LFN 2004)
[38] Section 1(2)(a) of the Petroleum Training Institute Act
[39] Established by Decree No. 33 of 1977 (now Act), Cap N123 LFN 2004

of affairs in the industry and indigenous participation as well as technological advancement was relatively low. Dissatisfied with the status quo, the Obasanjo administration initiated the Nigeria local content policy in order to increase indigenous participation, the utilization of local resources and the promotion of technology transfer. This policy metamorphosed into the Nigerian Content Development Bill in 2003 which was passed by the National Assembly in March 2010 and following the assent of the President, came into effect on April 26 2010.[40]

Statutory Provisions on Technology Transfer

To breathe live, meaning and purpose into the policy of the Nigerian Government in the area of technology development and transfer, particularly in the energy sector of the country, a number of enactments and other statutory provisions have been made and/or inserted into sector instruments by way of Act, Laws, policies, regulations and others. Notable ones among such statutory instruments are briefly examined below with particular emphasis on provisions for transfer of technology in the energy sector.

(A) The Petroleum Act 1969

There are no specific provisions hinging on technology transfer in the Petroleum Act 1969.[41] However, Paragraph 38 of Schedule 1 stipulates that: The holder of an oil mining lease shall ensure that –

(a) Within ten years from the grant of his lease-

(i) the number of citizens of Nigeria employed by him in connection with the lease in managerial, professional and supervisory grades

[40] See Yemi Oke, "Multi-Jurisdictional Evaluation of the Nigerian Oil & Gas (Industry and Content Development Act, 2010" (2012) Vol. 2, No. 1, University of Ibadan Law Journal, at 153-179

[41] CAP. P10 LFN 2004

(or any corresponding grades designated by him in a manner approved by the Minister) shall reach at least 75% of the total number of persons employed by him in those grades; and

(ii) the number of citizens of Nigeria in any one such grade shall not be less than 60% of the total; and

(b) all skilled, semi-skilled and unskilled workers are citizens of Nigeria.

In addition, the Petroleum (Drilling and Production) Regulations 1969 made pursuant to the powers conferred upon the Minister by the Petroleum Act,[42] imposes specific obligations on the holders of oil-mining leases and oil-prospecting licenses to train and employ Nigerians.[43] The Regulations also require oil-prospecting licensees to prepare and submit (to the Minister for approval) a detailed programme for the recruitment and training of Nigerians in all phases of petroleum operations.[44] The petroleum operator has an obligation to report on the training programme and the process of "Nigerianization" at or about the end of June or December each year.[45] These provisions are aimed at ensuring that companies utilize local manpower in their exploration and production activities and therefore increase indigenous participation. Failure to comply with these provisions is a ground for the revocation of a lease at the instance of the Minister.[46]

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[42] Section 9

[43] Part iv of the Regulations, paragraph 26(1)

[44] *Ibid* paragraph 26(2)

[45] *Ibid* paragraph 29

[46] Schedule 1, Paragraph 26(1)(b) of the Petroleum Act states that where the holder of a lease has failed to comply with any provision of the Act or any other regulation or direction given under it or is not fulfilling his obligations under the special conditions of his licence or lease the minister can revoke his licence

(B) The Nigerian Oil and Gas Industry Content Development Act 2010

The Nigerian Oil and Gas Industry Content Development Act 2010[47] aim, essentially, enhancing indigenous participation in the Nigerian energy sector. The Act is the cumulative exercise of decades of attempts by the government and stakeholders in the petroleum industry to ensure by the government and stakeholders in the petroleum industry to ensure that the industry provides local value and maximized benefits to Nigerians. In furtherance of the Local Content Policy, the Government directed oil companies operating in Nigeria to commence in-country fabrication of equipment as well as other major components used in oil exploration. The Government reasoned that the implementation of the policy would be a means of dissuading capital flight and thus aspired that 45% of the total contractual jobs in the industry had to be done in Nigeria and 70% of the jobs done in the country by 2010.[48]

The Act is the first legislative enactment that has specific provisions on technology transfer in the oil and gas industry. Sections 43 – 46 contain requirements on technology transfer which oil and gas operators must comply with. Under this Act, each operator shall carry out a programme in accordance with the country's own plans and priorities, to the satisfaction of the Board,[49] for the promotion of technology transfer to Nigeria in

[47] See the Nigerian Oil & Gas (Industry and Content Development) Act, 2010 (Hereinafter referred to as "Local Content Act")

[48] The effect of the local content Act on technological transfer in Nigeria (Nigeria oil & gas) online at http://www.nigeria-oil-gas.com/nigerianlocalcontent-26-10-2art.html, accessed May 19, 2019

[49] The Nigerian Content Monitoring Board responsible for monitoring, co-ordinating and implementing the provisions of the Act

relation to its oil and gas activities.[50] The operator is to submit an annual plan to the Board, setting out a programme of planned initiatives aimed at promoting the effective transfer of technologies from the operator and alliance partners to Nigerian individuals and companies.[51]

The Act also imposes on duty on the operator to give full and effective support to technology transfer by encouraging and facilitating the formation of joint ventures, partnering and the developing of licensing agreements between Nigerians and foreign contractors and service or supplier companies agreements for all such joint ventures or alliances shall meet the requirements of Nigerian content development to the satisfaction of the Board.[52] The Operator or project promoter shall submit a report to the Board annually describing its technology transfer initiatives and their results and the Minister shall make regulations setting targets on the number and type of such joint venture or alliances to be achieved for each project.[53]

(C) The Petroleum Industry Bill

Since its first appearance in 2008, the Petroleum Industry Bill has been the subject of controversial debates and has undergone various modifications which have effectively delayed its passage into law.[54] The PIB is an attempt by the government to bring under a comprehensive law the various legislative, regulatory and

[50] Section 43
[51] Section 44
[52] Section 45
[53] Section 46
[54] M Kassim-Momodu and C S Nwajide "The Nigerian Petroleum Industry Bill 2012: Some observations and suggestions", (2012) *Petroleum Technology Development Journal, 2*

fiscal policies, instruments and institutions that govern the Nigerian Petroleum Industry[55] and thus provide for a better fiscal and regulatory management of the oil and gas sector.

The key objectives of the PIB include: enhancing exploration, exploitation and production; deregulate petroleum product prices, create a commercially viable National Oil Company and to promote Nigerian content by ensuring knowledge/technology transfer, encouraging Research and Development and generally increasing indigenous participation in the industry. In spite of these objectives, there are no express provisions in the Bill on technology transfer as opposed to what is obtained in the Nigerian Content Act.

The Bill preserves the Petroleum Technology Development Fund (PTDF)[56] for the purpose of training Nigerians to qualify as graduates, professionals technicians and craftsmen in the field of engineering, geology, science and management and other related fields. The fund shall be put to the following uses amongst others: the provision of scholarships and bursaries in universities, institutions and petroleum undertakings both in Nigeria or abroad[57] as well endowments to university faculties;[58] initiate, design and implement indigenous research and capacity development for Nigeria's petroleum industry,[59] liaise with Research and Development centres in Nigeria and abroad to adapt technology and innovation appropriate for the needs of the

[55] The PIB seeks to repeal the 16 existing Petroleum Industry Acts
[56] Section 73
[57] Section 76(1)(a)
[58] Section 76(1)(c)
[59] Section 76(1)(d)

Nigerian petroleum industry,[60] use existing human resources development facilities in Nigeria for an expanded manpower development in the industry,[61] periodically compute, evaluate and update the basic needs of Nigeria's petroleum industry in terms of skills, expertise and know-how,[62] etc

Trinidad and Tobago Strategy on the Management of Energy Resources for Sustainable Development

First, Trinidad and Tobago is a twin-Island developing nation and training. The story of the nation's energy sector stated from the period 1972 – 2005. This period tells a tale of energy – based boom all within a very short timeframe, with significant impact on the economic and social life of the nation as a whole.[63] Trinidad and Tobago witnessed a downturn in their economy after the boom of the seventies, the experience which was used to distill certain key deficiencies in the economic activity set of the time. Recognizing that the country was again experiencing an energy-driven period of buoyancy, we ask the question, 'What lessons can be learnt now toward the achievement of more sustainable development'[64]

It was discovered that key items which could move developing nations closer towards the idea of sustainable development include the following, to wit:

[60] Section 76(1)(e)
[61] Section 76(1)(f)
[62] Section 76(1)(h)
[63] A E Paul & A Philips, Management of Energy Resources for National Development – Looking for at the Trindad and Tobago model online at https://digitatrepository.uum.edu.la_energy_dialog accessed on 27th July, 2020
[64] *Ibid*

(i) Develop and institute credible local content policies describing how local value – added is defined and measured, what specific activities. It is apply, also explaining the monitoring mechanism in place as well as the penalties for non-compliance

(ii) Develop more thoughtful policies and strategic criteria for choosing partner companies as well as for encouraging local businesses so as to engender market and technology pull effect, as well as deep synergies linkages throughout the economy.

(iii) Enter into deep equity arrangements with external partners so that technology and business know-how can be transferred.

(iv) Augment to the local skill base, through a coordinated program of attracting skilled expatriate nationals to local opportunities in business and technology.[65]

The Trinidad and Tobago Energy Economy

In 1973/74 and again in 1979/80 world oil prices increased to unprecedented levels. This fact, coupled with unprecedented oil-finds of the south east coast of Trinidad had a profound impact on the Trinidad and Tobago economy. The Gross Domestic Product increased six-fold from US $1,309 million to US $8,140 over the period of 1973 to 1982 and foreign currency reserves also jumped from US $47 million to more than US $3 billion.

The government of the day invested heavily in laying certain types physical of infrastructure including electricity, water, roads transport and, most notably the Point Lisas Industrial Estates which it used to found a number of energy-intensive downstream industries among them urea, steel, fertilizer, methanol and ammonia.

[65] *Ibid*

The energy-based projects however, did not perform as anticipated. In the case of ammonia for example, actual prices turned out to be much weaker than predicted, and thus returns on those investments under-performed all forecasts. Also in the case of steel, due to a number of other factors, including technical inefficiency, substantial cost overruns and an anti-dumping charge from America, the iron and steel plant ran into significant financial difficulties.

By 1990 energy prices had reversed their upward spike and the country's GDP had decreased by 20% from 1982 levels. The external debt rose to over US $2 billion and foreign reserves plummeted to US $492 million (from over US $3 billion in 1982). With a serious balance of payments crisis on its hands, the government was forced to turn to the World Bank for help. The country even endured an unprecedented attempted political coup in that year, 1990, a testament to the political and social tensions brought about by the economic hardship of the time. The country's former dependency on the buoyancy of the world oil market, its inability to diversify the economy and limited strategic investment in its human capital, had become its undoing.[66]

The Theories Underpinning the Energy Economy

The economic and industrial development of the Carribbean, particularly Trinidad and Tobago, has been influenced by two main schools of economic thought:

1. Noted economist and Nobel Prize winner Arthur Lewis put forward the model of 'Export-led Industrialization by Invitation' for Carribbean territories.

[66] *Ibid*

2. Historian, Economist and former Prime Minister, Eric Williams pursued his 'Point Lisas Model' for the development of Trinidad and Tobago

The Arthur Lewis Model

The tenets of the Arthur Lewis model are as follows:

- Given the inability of agriculture to sustain high levels of employment in the region, industrialization was needed, complementarily, to achieve 'full employment'
- Domestic and regional markets were too small in populous and the level of domestic savings not sufficient for investment at the level needed to resolve the unemployment problem through industrialization. Therefore foreign investment would be required to provide access to foreign markets and to fill the domestic capital resource gap.
- Caribbean capitalist were regarded as 'risk averse', preferring the distributive trades and protected agricultural production over manufacturing production, especially for export. In order to develop the industrial sector, there was a need to invite foreign industrialists to teach Carribbean capitalists the 'tricks of the trade'.

The Point Lisas Model

The model rests on the same basic principles of the Arthur Lewis' model, but with some notable distinctions. This model called for:

- State led investment vs. foreign based capital
- Quick monetarization of energy assets through large-scale conversion into early stage primary products (e.g. natural gas to methanol)

- Created out of an assumption of surplus capital and an unlimited natural resources rather than unlimited labour.[67]

The Model in Practice

While both models assume the transfer of technology and business know-how – the 'tricks of the trade' – they both fell short of devising a specific process by which this knowledge transfer would be achieved – resulting in a lack of local innovation capacity, and limited strategic business and technology skill being developed regionally.[68]

International Law – WTO Agreements

- Trinidad and Tobago has been member of the WTO since March 1, 1995
- All World Trade Organization (WTO) members must adopt and abide by the obligations of TRIMs. This can impact a country's ability to impose certain local content requirements (referred to as "investment measures") to the extent they affect trade in goods.
- The following types of local content requirements are covered by TRIMS:[69]

- requiring a company to purchase or use products of domestic origin – TRIMs prohibits discrimination between goods of domestic and imported origin;
- limiting the amount of imported products that an enterprise may purchase or use depending on the volume or value of local products that the enterprise exports;

[67] *Ibid*

[68] *Ibid*

[69] It is important to be aware of the types of measures prohibited under the TRIMs Agreement, in order to avoid the potential for dispute settlement under the WTO – a state can bring an action against another state for an alleged violation of the TRIMs Agreement (i.e, 'state-to-state action')

- restricting foreign exchange necessary to import (e.g., restricting the importation by an enterprise of products used in local production by restricting its access to foreign exchange); and
- restricting exports

International Law – Bilateral Investment Treaties

- Among the 12 BITS signed by Nigeria, all were reviewed (and are available on UNCTAD database).
- Aside from the inclusion of National Treatment Obligations and Most Favoured Nation clauses, performance requirements are limited or prohibited in the BITs with 3 countries (United States, Canada and France). Clauses are quoted below:

Trinidad & Tobago – France

Article III – Fair and Equitable Treatment

"(…)Any unjustified or discriminatory restriction to the purchase of (…) means of production and exploitation of any kind, any impediment to the sale and transport of products inside the country and abroad, as well as other measures having similar effect are considered as de jure or de facto impediments to fair and equitable treatment (…)"

Trinidad & Tobago – United States

Article VI Performance Requirements

"Article VI prohibits either Party from mandating or enforcing performance requirements in connection with a covered investment. The list of prohibited requirements includes the use of local goods, the export of goods or services, the "balancing" of imports and exports, the transfer of technology, or the conduct of research in the host country. Such requirements are major burdens on investors and impair their competitiveness."

Training and Employment

- Operators need to minimize the employment of foreign staff and prepare programs for training (Petroleum Reg., Art. 42(f), (g):
  "A license shall (…)
  42. (f) minimize the employment of foreign personnel, ensure that such employees are engaged only in positions for which the operator cannot, after reasonable advertisement in at least one daily newspaper circulating in Trinidad and Tobago, find available nationals of Trinidad and Tobago having the necessary qualifications and experience; determine the rules of employment including salary scales in such manner as to ensure that all employees in the same category enjoy equal conditions irrespective of nationality;
  42.(g) prepare, in consultation with the Minister, programmes for industrial and technical education and training, including the grant of scholarships, and carry such programmes out diligently with a view to training nationals of Trinidad and Tobago to replace foreign personnel as soon as reasonably practicable and to affording nationals of Trinidad and Tobago every possible opportunity for occupying senior positions in the operations of the licensee."
- Nationals will be trained for all positions, including for the "specific purpose of taking over positions held by expatriate personnel"[70]
- Nationals will be selected and trained consistent with the performance standards of the contractors in relation to the activities of fabrication, information technology support, operations and maintenance support, maritime services, business support services, financing and trading.[71]

[70] Deep Water Production Sharing Contract (PSC), Art. 25.6
[71] Deep Water PSC, Art. 39.8 and 39.9

- In addition, the training needs to ensure that people take more value-added position, analytical and decision-making roles.[72]
- The contractor also needs to provide training to the Ministry's personnel as its own expense.[73]
  "Contractor shall at its own expense as part of Petroleum Operations provide a reasonable number of personnel of the Ministry with on-the-job training and where appropriate and practicable, with overseas training […] On-the-job training shall involve the inclusion of representatives of Minister on project teams […]"

Procuring Goods and Services

- The Local Content Framework recommends that the government gives preferential treatment to local suppliers by ensuring that they are given preference and assurances from the principal operator, which is not deferred to primary or other contractors. These assurances will include, access, treatment and reimbursement for goods and services actually provided.
- Sub-contractors need to be sized, when it is economically feasible and practical, in order to match the capability (time, finance and manpower) of Local Enterprises. The Contractor will manage the risk associated with their participation.[74]
- Local Enterprises will be given equal treatments and high weighing will be given to local value added in the tender evaluation criteria.[75]

[72] Deep Water PSC, Art. 39.10
[73] Deep Water PSC, Art. 25.7
[74] Deep Water Depth PSC, Art. 39.3
[75] Deep Water Depth PSC, Art. 39.6

- The minister and the contractor will agree on a list of projects for local procurement. Tenders will only be advertised in Trinidad unless a derogation is given by the Minister.[76]

  39.4 Contractor shall provide to the Minister together with the annual Work Programme and budgets (…) a list of all projects to be undertaken as well as goods and services that are required for the conduct of Petroleum Operations. The Minister and Contractor shall agree on a list of those projects and goods and services which shall be published in at least two local newspapers and on the Ministry's website.

  39.5 All tenders are to be advertised, evaluated and awarded in Trinidad and Tobago. Contractor shall apply to the Minister for prior approval where the circumstances warrant that any part of the tender process be conducted outside of Trinidad and Tobago.

Monitoring and Enforcement

Contractor must include a status report on the training programs with its submission of the quarterly status report.[77]

Records need to be maintained to facilitate local content monitoring[78] as stipulated by Annex C, Article 12. Every quarter the contractor needs to submit a statement of Local Content as described below by Annex C:

12.1 "Contractor shall maintain records to facilitate the determination of the Local Content of expenditure incurred in respect of Petroleum Operations. These records shall include supporting documentation certifying the cost of Local Goods, labour and Local Services used and shall be subject to audit by the Minister."

[76] Deep Water Depth PSC, Art. 39.4 and 39.5
[77] Deep Water Depth PSC, Art. 25.6
[78] Deep Water Depth PSC, Art. 39.11

12.3 "The Statement of Local Content shall include but not be limited to the following categories:

(a) payments made to Local Licenses who supply Local Goods and Local Services.
(b) Payments to Local Suppliers who supply Local Goods
(c) Payments to Local Licensees and Local Suppliers for providing a service in the supply of non-local goods.
(d) Payments made to non-local Licensees and suppliers who supply Local Goods.
(e) Payments of salaries, profits, dividends on shares and other tangibles paid to persons who are nationals of Trinidad and Tobago.
(f) List of all contracts awarded during the quarter and services and/or equipment contracted."

12.4"For the purpose of measurement, Local Content shall be comprised of all costs incurred as direct materials, direct sub-contracts, indirect materials, indirect subcontracts, construction management and other costs. Local Content shall not include any taxes or other statutory payments to government including payments made under this Contract."

Conclusion

There is no doubt that Nigeria and Trinidad and Tobago have statutory frameworks for technology transfer. What is lacking is improper management and political will. In fact, since the achievement of technological development in any petroleum industry depends to a large extent on the impact of governmental policies and the strength of institutional framework available in the economy. Nigeria and Trinidad and Tobago need to improve in this direction. In Nigerian, energy sector development and transfer we have in our sector instruments Acts, Laws, policies, regulations and institutions. In Trinidad and Tobago on the other

hand, there are such Acts, regulations, policies, international laws and contracts. Thus, these Acts, laws, policies and contract made provisions for the employment and training of their citizens, local content and production sharing contract with their foreign experts. The difference is proper implementation and execution of all the Acts, laws and policies. The implementation of these statutory and policy framework in Nigeria are tainted with corruption but in Trinidad and Tobago, they have interest of their citizens at heart than Nigeria. However, when compared with advance countries like United States of America and China both countries are far on technology transfer.

Recommendations

There is need to reform and strengthen the laws and minds of the policy makers in both countries. Most of these Acts, laws and policies are outdated. There is an imperative need to amend and reform them for sustainable development. Corruption need to be eschewed from the minds of Niger Delta Development Commission (NDDC) authorities and should be made to think technology transfer instead of their selfish interest. Provisions of these laws should be made to be of higher punishment and sanctions to serve as deterrence to the offenders and corrupt officials.