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Scientific, Legal and Socio-economic Aspects of Oil and Gas in Tanzania

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Edited By

Opportuna L. Kweka and H. I. Majamba

University of Dar Es Salaam

SCIENTIFIC, LEGAL AND SOCIO-ECONOMIC ASPECTS OF OIL AND GAS IN TANZANIA

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- Picture one top taken from TPDC website showing gas flaring
- Picture two taken by Dr.O. Kweka, at gas wells at Mnazi Bay

PREACE

This book comprises a collection of issues that emerged from research findings of a large collaborative pproject on "Capacity Building in Higher Education Institutions in Tanzania in the Development of Oil and Gas Sector". The Project was initiated by the University of Dar es Salaam (UDSM). Later on, the University of Aberdeen, Scotland, joined the Project, and became a collaborator and provided support in an application for funding from the European Union (EU). The EU grant contract ended officially in March 2018 with a no-cost extension until September 2018. It is through this Project that the UDSM provided research grants to several sub-projects that targeted different disciplines in the two institutions. The targeted beneficiaries of the Project were Tanzanian citizens whose knowledge on issues of oil and gas is comparatively low.

The research findings of the sub-Projects, from diverse topics covered in the book reveal, among other things, that dominant literature on oil and gas had portrayed fear, tension, and in some cases, conflicts in oil and gas producing countries. This has been attributed to the resource curse theory. However, this book brings a different perspective to the understanding of this literature. The focus of the book is on the national scale and aggregate quantitative data which forms the main approach in the resource curse thesis. It also draws from the legal and mostly the social-cultural and economic issues of oil and gas at their early stages, i.e. the investment stages. In this regard, it not only fills gaps in existing literature but also provides an understanding of different issues in the investment process in oil and gas, and also in the expectations of communities. It thus offers a balance between those who seek to put up investment in the sector, the policy maker, the academic and the communities in general.

The editors of this book, together with contributing authors, have brought to the fore critical issues for both the general public and policy makers engaged in oil and gas in the country to ponder. This is the first book on oil and gas at the University, and it serves as a baseline for understanding very fundamental issues of oil and gas in the country. The University is proud of all of these researchers, and is thankful to the collaborators in Aberdeen and the EU for their financial and technical support. There is no doubt that the book has fulfilled some of the key goals of the project that included building the capacity for oil and gas through improved educational programmes and capacity building of staff at the Uuniversity the post-graduate programmes and staff exchange). In addition, the book provides guidance for the creation of a conducive research and knowledge exchange environment in sustainable development of oil and gas issues at the UDSM in particular, and Tanzania in general.

It is hoped that the knowledge produced from this new field of research in the country will reach different stakeholders; academics in different fields, students in higher learning institutions, policy makers, and the general public. In this respect, a wider circulation of the book is therefore envisaged to promote growth of a sound oil and gas industry that is premised on a legal framework while at the same time supporting national energy and industrial policies that seek to ensure that the domestic needs for energy met and support the local industries in addition to exporting for fostering inclusive and sustainable national development.

Director, Research, UDSM
October, 2018

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CHAPTER 1

INTRODUCTION

H.I. Majamba and O. L. Kweka

The oil and gas sector in Tanzania is over half a century old. The earliest exploration activities in Tanganyika (now Mainland Tanzania) started as early as 1952. However, relatively new discoveries have been traced to the 1970s when the newly independent government of Tanzania permitted a foreign company to conduct explorations along the whole of the southern coast of Tanzania. As such, the development of this sector can aptly be summarized in five main phases. The first phase covers the period between 1952 and 1964 where two companies, British Petrolum (BP) and Shell were awarded a concession covering onshore areas including the islands of Pemba, Mafia, and Zanzibar. However, these discoveries were not developed immediately as it was realized that the volume of the natural gas found was not commercially viable.[1]

The second phase, covering the period between 1969 and 1979 commenced with the establishment of the current National Oil Company, the Tanzania Petroleum Development Corporation (TPDC), and the drawing up of the first production sharing agreement (PSA) between TPDC and AGIP from Italy where AGIP was awarded a concession covering a small onshore area. Between 1973 and 1982, AGIP, in collaboration with another company discovered oil and gas deposits in Songosongo. The third phase covers the period between 1980 and 1991. This phase witnessed the

[1] Pedersen, R.H. and Bofin, P. (2015), "The Politics of Gas Contract Negotiations in Tanzania: A Review', Danish Institute for International Studies (DIIS) Working Paper 2015: 03, p.9.

enactment of the Petroleum Production Act (1980) to regulate the industry due to the high prices which encouraged increased interest in exploration activities. It was during this phase that the Mnazi Bay gas field was discovered, and the SongoSongo gas field delineated. The period between 1992 and 1999, which is the fourth phase, was relatively dormant as there were no active concessions, and there were also very few activities, except for various studies. Further increase in exploration activities and efforts to develop the SongoSongo gas field were put in place, and an agreement to develop Mnazi Bay gas discovery and to build a power plant generation were negotiated. From 2000, the fifth phase, more interest developed as a result of significant discoveries of gas reserves in the deep off-shore. This was the period when the SongoSongo and Mnazi Bay fields started production in 2004 and 2006, respectively.[2]

Change of mindset on using gas to generate electricity triggered off the need for development of the natural gas fields at SongoSongo.[3] As such, the commercial development of the natural gas in Mnazi Bay and SongoSongo in 2006 and 2004, respectively, had the effect of encouraging further exploration for natural gas, both on and offshore. Today the oil and gas sector is one of the fastest growing sectors in Tanzania. The full production of petroleum is anticipated to boost the economy of the country and potentially open up diverse avenues for employment of people with the required expertise and benefit all.

So far there is no significant and economical discovery of oil has been made in Tanzania, though there are a number of reported

[2] United Republic of Tanzania (2013), the National Natural Gas Policy of Tanzania -2013, pp. Xi, 1; See also Mkenda, A.F. (2014), "An Overview of Natural Gas Industry in Tanzania" a paper presented at the East African Community – International Monetary Fund (FAD and AFR) Workshop on *Fiscal Management of Oil and Gas in East Africa*, January 15-17, 2014 Arusha, Tanzania, pp. 3-4.

[3] Ibid, pp. 11-13.

surface manifestations of oil seeps such as Wingayongo seep in Rufiji Basin, Makukwa seep in Ruvuma basin, Tambalani seep in Tanga Basin and Tundaua seep in Pemba.The other evidence of presence of oil deposits has been documented in several drill holes while a number of oil seeps and slicks have also been reported from the Interior Rift Basins of the country. This evidence shows the presence of a working petroleum system in highly potential sedimentary basins hence intensive and extensive exploration and research program is strongly recommended to convert these potentials into reserves and define new discoveries.

Tanzania officially entered the natural gas economy in 2004 when first gas was transported from the Songosongo Island in Kilwa District in Lindi Region to Dar es Salaam, following the long period of exploration. The Songosongo gas pipe project was funded by the World Bank and is owned by private investors: the Songas and Pan African Energy. Currently Mnazi Bay serves as an extraction point for the Madimba processing Plant which transports gas to Dar es Salam in a longer and wider pipe than the one from Songosongo. The TPDC has constructed a purification Plant and a pipe running parallel to the previous pipe from Songosongo connecting to the pipe transporting gas from Mnazi Bay in Mtwara to Dar es Salaam at SomangaFungu.

The Mnazi Bay operations are run by Maurel and Prom and the Madimba plant is owned by the government of Tanzania through its TPDC. As noted above, the largest discoveries of natural gas in Tanzania are in the offshore of the coast between Mtwara and Lindi. Since this discovery there are plans to construct a huge Liquefied Natural Gas (LNG) plant at Lindi municipality owned jointly by the main gas investors in the country who are Statoil, Exxon mobil, Shell, Ophir and TPDC. Most of the gas is now used for electricity and in industries in Dar es Salaam but with the completion of the

LNG Plant it is projected that there will be major industries that would use the gas.

The total natural gas so far discovered is about 57 Trillion Cubic Feet (TCF) both on the shore and offshore of Mtwara and Lindi regions in Southern Tanzania. The offshore gas alone is more than 50TCF and still new discoveries are announced along river Ruvu. The LNG plant is yet to be developed though there are plans to build an LNG Plant the processes of land acquisition have been completed and an area in Lindi Municipal has been identified for that purpose. At the moment there are Host Government Agreements being negotiated although at a relatively slow pace.

The developments in the oil and gas sector outlined above have led to promulgation of policy, legislative enactments and the establishment of institutions to regulate the sector. These developments have covered the three main phases in oil and gas development, the upstream activities which involves exploration and drilling, the midstream activities which involve processing and transportation and the downstream activities which involve consumption in different forms including the petrochemicals. The policy, legal and institutional frameworks to ensure a vibrant oil and gas sector that have been put in place by the government have increasingly been re-designed to revitalize the economy and improve revenue generation to enable the government improve, among other things, the economic and social status of citizens.

The Chapters that follow provide illuminating insights on the efforts made by the government to ensure it reaps the benefits of this sector for purposes of ensuring that livelihoods of local communities are improved on the one hand and to ensure revenues derived from it are shared equally and evenly, on the other. The challenges that have plagued the government's efforts and attempts to address them are also probed into. Conclusions and recommendations on how the

government could address the challenges identified are also provided.

The book is divided into 8 Chapters. Chapter 1 sets out the introduction which provides for the background and lays out the historical development of the oil and gas industry in Tanzania with a view to providing a basis for a comprehensive understanding of the initiatives put in place to regulate the industry. Chapter 2 focuses on an overview of the science of oil and gas, its occurrence and activities in the upstream, mid and down-stream and general oil and gas exploration and development in the country. This Chapter has been specifically tailored to provide the foundation for a basic understanding of the science of oil and gas and also lay the groundwork for the selected topical themes in the subsequent Chapters.

Chapter 3 presents the historical account of the oil and gas policy and legislative frameworks of Tanzania prior to 2015. It sets the foundation for an analysis of the current state of affairs in the legislative, policy and institutional frameworks in Chapter 4. Picking up from the preceding Chapter, Chapter 4 addresses the factors that have shaped and informed the petroleum laws and policies in Tanzania. Chapter 5 delves onto the economic dimensions of the oil and gas revenues and related policy challenges. Chapter 6presents an in-depth review of the impact of oil and gas exploration and related operations on local communities with specific focus on coastal communities. Chapter 7is primarily focused on an examination of the policy and legislative regime governing local content in the sector. Chapter 8 sets out the overall conclusions and recommendations.

CHAPTER 2

THE SCIENCE OF OIL AND GAS: AN OVERVIEW

E. S. Mulaya

1.0 Introduction

It has been noted that the word 'Petroleum' comes from a combination of two Latin words: *petra*, meaning 'rock' which also means the same in Greek and *oleum*, meaning 'oil'. Petroleum also known as hydrocarbon or oil and gas refers to the naturally occurring hydrocarbon fluids found in the rock formations. Tanzania is endowed with plenty of natural resources in proven favourable settings for hydrocarbon generation and accumulation in sedimentary basins. These include those found on onshore basins such as rift basins, coastal basins and offshore basins such as deep offshore and shallow offshore basins. Until now the exploration activities in Tanzania have revealed massive gas discoveries in the deep offshore basins and few from onshore basins. The formation of these basins are related to the Gondwana break-up events and the East African Rift System (EARS) which occurred since the Permian (298 Ma) and Miocene (23 Ma), respectively creating avenues for sediment deposition on the earth's crust (Nicholas et al., 2007).

This Chapter provides a basic foundation for understanding the science of oil and gas. It presents the chronological order of value chain in oil and gas industry for both offshore and onshore operations including; upstream, midstream and downstream highlighting different geological stages, facts and aspects about the petroleum industry in Tanzania. Through these components of the value chain all the operations, structures and activities are narrated to provide an overview from exploration, development, production, and

transportation to refineries and processing until marketing to final consumers. A basic understanding of these processes sets the groundwork for a better comprehension of the socio-economic, legal and political issues related to the oil and gas industry in Tanzania that are analyzed in the Chapters that follow.

1.1Generation, Occurrences and Applications of Oil and Gas

The oil and gas accumulation found on both onshore and offshore basins that are discovered today were generated millions of years ago from decomposed living organisms. These organisms sank to the bottom of the water bodies where they eventually accumulated and became buried in fine grained sediments and later preserved in source rock within a sedimentary basin. On a scale of millions years of time, these preserved organic matter in source rock under influence of temperature below the surface of the earth eventually transformed the remains into oil or gas, depending on the intensity of temperature, type and richness of organic matter in play. Once formed, that gas or oil migrates from source rock towards the more porous and permeable reservoir rock particularly sandstones and carbonate rocks where they accumulate and get trapped under impermeable cap/seal rock.

Searching for this trapped oil and gas is the main target in the upstream sector and can only be confirmed through drilling thousands of metres in the mapped trap within the rock layers. If not trapped, the migrating oil and gas leaks away and may form seepages exhibited by thick black/tarry oil pools and gas-bubbling, respectively on the sea water/bed or on the surface of the land. These seepages are important indicators of the presence of subsurface oil and/or gas and can help geologists in their search for new discoveries of oil and gas fields.

Natural gas is a physically occurring mixture of hydrocarbon that is highly compressible and expansible comprising mainly of methane

(CH_4) (more than 85%) as the chief constituent with lesser amounts of ethane (C_2H_6), propane (C_3H_8), butane (C_4H_{10}) and pentane (C_5H_{12}) or condensates. Other constituents include carbon dioxide, helium, nitrogen and hydrogen sulphides (Jahn et al., 2008). The raw gas must therefore be refined in the processing plant to make it pure and commercial. Most of the natural gas discovered in Tanzania falls in the category of *'dry gas' or 'lean gas,'* which contains a few or no liquefiable liquid hydrocarbons hence only little plant condensate is normally collected at the gas processing plant.

Some of the refinery gases from the crude distillation tower include light hydrocarbon gas mixtures from methane to butanes and some pentanes. These refinery gases are processed further for separation of the propane-butane mixture for use as Liquefied Petroleum Gas (LPG). Propane LPG is used as a prime portable fuel in homes, transportation and agriculture. It may also be used or marketed alternatively as a feed to cracking units for olefin production.

Other refinery gases such as hydrogen gas provide a valuable source of raw material for ammonia and urea synthesis and also with carbon monoxide for the production of methanol. In addition, the hydrogen sulphide, a by-product of refinery gases from which the sulphur is extracted, is used for production of sulphuric acid. Other diversified uses for sulfur include vulcanization of rubber and in pharmaceuticals industry. The sulfur–asphalt blends produce perfect road surfaces for construction of road pavements.

Currently, the major four uses of natural gas in Tanzania include power generation e.g. Ubungo and Kinyerezi Power Plants, industrial fuel, Compressed Natural Gas (CNG) used as vehicle fuel and for domestic and commercial uses where residential houses and commercial enterprises are increasingly being linked to natural gas supply, through pipelines. In power generation the natural gas is generally used as a turbine fuel, smelting plants and in cement

industries as a process heat to replace heavy fuel oil. In the household this gas is used for heating and cooking. Other uses of natural gas include use for propelling motor vehicles, methanol plants, plastics industries and in petrochemical manufacturing as a feedstock, manufacture of fertilizer (urea and ammonia).The largest volume products of the oil industry are fuel oils such as gasoline (petrol) and diesel. Petroleum (oil) apart from supplying energy is also used as raw material for many chemical products including pharmaceuticals, solvents, fertilizers, pesticides, synthetic fragrances and plastics.

The geological distribution in Tanzania associated with the occurrences and accumulation of petroleum resources started during the break up of Gondwana Supercontinent in Carboniferous to Early Permian, 359-272 million years (Ma) which initiated the formation of basement controlled coastal and early interior basins. The early depositional history of the coastal basins was initiated in the Late Paleozoic (~298 Ma) and Permo-Triassic (~201 Ma) and continued through the rift phase until the end of the Early Jurassic (174 Ma). The rift phase or synrift stratigraphic units, from the top of basement to the end of Early Jurassic are best represented in the Selous, Ruvu, Mandawa, and Ruvuma basins of eastern Tanzania, Rukwa basin and deep offshore basins(Kent et al., 1971; Mbede, 1991; Nicholas et al., 2007).

From Middle Jurassic (~174-163 Ma) onwards, the coastal basins were established as the continental shelf of a passive margin and subjected to various deltaic and marine depositional environments. Several transgressive and regressive phases resulted in the significant thickness sediments of Mesozoic (~252-66 Ma) and Cenozoic (~66-<1 Ma) sediments being deposited. These sedimentary rocks consist of marine marls, shales, sandstones and limestones which are potential for hydrocarbon accumulation and occurrences in Tanzania (Kent et al., 1971).

The geological history and settings, research findings and previous exploration activities of hydrocarbon in Tanzania reveals huge potential and achievable possibilities of unlocking new significant and economical discovery of petroleum (oil and gas). The proven favourable settings for petroleum generation and accumulation are located in various sedimentary basins. These potential basins include; inland rift basins and modern rift system covering an area of 114,000 km^2, coastal and continental shelf basins (onshore and offshore including the Islands of Zanzibar Pemba and Mafia) occupying 280,000 km^2 and deep sea basins (300m to 3000m of water depths) covering 140,000 km^2. This implies that more than half of the area of Tanzania (534,000 km^2equivalent to 56% of the country size) is potential for oil and gas resources. So far the significant gas discovery has been made partially in the coastal and offshore basins leaving most of the areas untouched in terms of exploration and research (MEM, 2013).

1.2 Offshore and onshore activities

The nature of petroleum (oil and gas) activities varies widely depending on environmental conditions. The drilling activities and many other related operations fall into two main categories: offshore and onshore. The most obvious difference between the two is the location of the drilling activities and any other operations. The location affects several areas of project performances including processes, timelines, profits, cost for drilling and management.

Onshore activities mainly drilling requires making of deep boreholes down into the earth's surface to reach the subsurface in search and proof of oil and gas accumulation. The drilling rig or platform is placed on a dry land hence offering a solid base with the drilling structures and storage areas built directly on the soil. Some of the onshore areas where exploration wells have been drilled in Tanzania include; Rukwa basin, Mandawa basin extending between Mtwara

and Lind Region and Ruvuma basin mainly covering Mtwara Regions with gas discoveries made significantly at Ntorya, Ruvu, Kiliwani, Mkuranga, Mnazi Bay and Songosongo.

The offshore activities, as the name suggests, take place off the shore in oceans of different depths. Deep water drilling typically ranges from 400 m to 1,500m deep, while ultra-deep water drilling may reach depths between 3,000-4,000m from the seabed. The deep offshore operations in Tanzania involve drilling in water depth ranging from 2,000m with additional 2,000 m depth or more from the seabed drilled to reach the gas reserves in the subsurface. Most of the discovery wells are in demarcated blocks located more than 100 kilometres from the shoreline.

Offshore drilling platforms include bottom-supported rigs that have contact with the seabed while the floating rigs do not come in direct contact with the ocean floor and instead float on the water. Some are partially submerged and anchored to the seabed while others are drilling ships that can drill at different water depths. The platforms remain safe and stable even in deep and rough waters at all times.

Both onshore and offshore operations require huge initial investment and can provide different return on value based on investment costs, timeline and many other factors. Understanding of these parameters makes decisions about the investments in the oil and gas industry a little easier and profitable. Usually, onshore drilling projects require a shorter timeline than offshore drilling rigs. An onshore well typically takes only a matter of days to drill, meaning production can begin much faster. An offshore well, on the other hand, can take months or years to drill hence onshore projects are normally much faster than offshore.

The costs for onshore and offshore drilling operations are very different. Offshore drilling tends to cost much more due to the

increased difficulty of drilling in deep water. The specific cost depends on a number of variables, including the specific location, well size, design, drilling depth or any other special circumstances affecting the field operations. According to the U.S Energy Information Administration (EIA, 2018) the average onshore oil well costs between $4.9 million and $8.3 million in total for one well as capital costs plus additional lease operating expenses between $1 million and $3.5millions which may play into the cost over the life span of the wellbore. Most of the costs emerge mainly from drilling, well completion, facilities and daily operations. Offshore wellbore costs as much as engaging in onshore wells but, of course, with additional costs depending on the well depth, water depths, productivity and distance from the shoreline hence making the average cost per well around $120 millions.

Generally, drilling in the petroleum industry is a highly specialized activity and costly. The drilling costs normally increases tremendously with depth and the rates vary for offshore and onshore. In 2010 deep-offshore drilling rig rates were reported to cost $420,000/day and a high-pressure, high-temperature well of duration 100 days can cost about $30 million. Onshore wells are normally cheaper compared to particularly when the earlier is drilled in shallow depth where the costs range from less than $1 million to $15 million for deep offshore wells (Alsahlawiet al., 2014).

Comparatively, the offshore market is much less volatile and presents more of a challenge unlike the onshore which comprises of short lived projects on dry land since offshore operations take longer to drill. This partly explains why offshore contracts are typically long-term based with a view to providing the oil exploration companies with more security despite bearing greater risks and hazards including proneness to marine harsh weather and pollution from time to time in the sea.

2.0 Value chains in oil and gas operations

The oil and gas industry encompasses a range of different activities and processes which jointly contribute to the transformation of underlying petroleum resources into useable and valued end products. These different activities are inherently linked within each other in form of individuals, firms, companies and countries. The key linked constituent activity of the petroleum sector therefore involves a series of social, economic and technological activities that takes raw materials and with each step adds value to it. The value chain sectors therefore include upstream, midstream and downstream accompanied by three major important links in practice. The first link focuses on optimization of the extraction where resources are delivered to the surface with no damage to other values and sustainable values to the country. The second relates to value enhancement where at each phase of activities there is a value added in different forms. The thirds is revenue management where the host country converts the petroleum resources into lasting benefits to the local people and society. The resource and revenue management options depend on the available resource base, market and enterprise capacity of the local nation. The only optimal gateway to benefit these value chain components mainly involves domestic capacity to supply the inputs (backward link) and forward links (outputs).

2.1 Upstream operations

The upstream sector, also known as the exploration and production (E&P) sector, includes all the activities either onshore or offshore pertaining to searching for potential oil and gas fields, drilling of exploratory wells, and subsequently developing the wells in order to recover and bring the petroleum crude oil and/or raw natural gas to the surface. During upstream operations the projects undergo different phases of life cycle. The exploration and production cycle provides an overview of the activities carried out at the various stages of field development until production and decommissioning during upstream operations. The exploration or searching for oil and

gas begins in a frontier area with several activities involving geological and geophysical surveys. Seismic survey is the most powerful survey analogous to x-ray diagnosis to human being. Other activities include aeromagnetic survey and gravity surveys.

During the exploration stage the geologists struggle to search for the hydrocarbon traps as a primary target and prerequisite for the occurrences and accumulation of oil and gas. The other petroleum system elements to be sought in the sedimentary basin include; source rocks, a trap, a seal rock and a reservoir. On the other hand the timing of the events for the set up of these petroleum systems needs to be identified. Consequently, the only way to prove the presence of hydrocarbon is through drilling hence a number of exploration wells are normally drilled to find out if the well really contain hydrocarbon (discovery well) or has nothing (dry well).

If the wells drilled during exploration phase are successful, the next stage is to drill appraisal wells to find out how much oil and gas are present, and whether it is worth developing the field. The geoscientists are also interested in determining the size, shape and architecture of the reservoir in the field. Furthermore, appraisal of a field starts to reveal the internal architecture of the reservoir whether the field is divided into compartments; one isolated from another, reservoir quality and optimal technical development.

Where the appraisal wells confirm that field development is commercially viable, the next task is to develop the field by drilling the number of production wells required to maximize oil and/or gas output or the recovery rate. Numerous appraisal wells have been drilled in different blocks both onshore and offshore Tanzania and many companies are looking forward to the development and production phases after all necessary infrastructures are put in place.

2.2 Midstream Operations

The midstream sector connects the upstream sector to the downstream sector. Major activities in midstream sector include laying of pipelines and other transport systems such as oil tankers, rails and barges that can be used to move crude oil or raw gas from production sites to refineries and deliver the various refined products to downstream distributors. Therefore, midstream operations involve processing, storage, transportation/ pipelines and refining of crude oil and gas. Since the raw oil and gas may contain un-required ingredients or impurities, then before final consumption they must be cleaned and refined. Refining involves a series of physical and chemical processes that treat and convert crude oil or gas into various finished end products ready for use using different methods. The final products and it's by products can also be reprocessed for other industrial uses for instance petrochemical, pharmaceutical and fertilizers industries as a feed stock. After refining, the end products need to be transported from one place to another for marketing and consumption. The different methods that are used for transportation of crude oil in petroleum industry include pipelines, railroads, LNG ships and tank trucks.

2.3 Downstream Operations

The downstream sector, in the oil and gas language include pipelining crude oil to refining sites, refining crude into various products, and pipelining or otherwise transporting products to wholesalers, distributors, or retailers and marketing. In essence, it entails providing a closest link to everyday users. Downstream operations therefore involve all activities pertaining to transmission, marketing and distribution to remote areas and utilization of refined products of petroleum for consumption. It includes products such as compressed natural gas, liquefied petroleum gas and crude oil products.

In practice, the boundary and definition of upstream, midstream and downstream sectors needs to be clearly stipulated in the contractual agreements between business players (oil companies) and the host government regardless of whether the model used is either concessionary or production sharing agreement. This in return affects scope and economic gain of one sector and another extending from company to company, company to country or country to country.

The total natural gas discoveries in Tanzania for both onshore and offshore accounts to approximately 57.25 trillion cubic feet (tcf) of gas initially in place (GIIP) of which approximately 10.12 tcf is from onshore and 47.13 tcf from offshore.The onshore discovery includes areas such as Ntorya, Ruvu, Kiliwani, Mkuranga, Mnazi Bay and Songosongo while the deep offshore discovery has been significantly made in some of the demarcated blocks in the sea (MEM, 2016).

According to U.S Energy Information Administration (2017), the United States of America with population of approximately 325 million (six times more than Tanzania) consumed about 9.25 tcf for electric power generation, 7.90 tcf for industrial and 4.42 tcf for residential use. This implies that the discovered gas in Tanzania (57.25 tcf) can feed the USA in these three areas of consumption for about 3 years. In other words, 57.25 tcf can be able to generate electric power for 6 years, industrial use for 7 years and residential use for 13 years in the United States of America.

The amount of hydrocarbon found in particular pool or reserves of oil are often given terms of tens of thousands to billions barrels while the economic discovery of giant gas fields can be greater than 1 trillion cubic feet (tcf) of gas. For instance the total gas reserve for all discoveries in Tanzania accounts to 57.25 trillion cubic feet or 57,250,000,000,000 cubic feet. Measurement of natural gas is always tricky because of its variability at different pressure-temperature conditions. The standard cubic foot (SCF) and the standard cubic

meter are the most widely used (1 m^3=35.31 SCF) (IGU, 2012).It is important that these conditions are clearly defined at the time of signing any gas contract because of different standard conditions from one region/country and another.

Assuming the same consumption rate would be applicable in Tanzania with a population of approximately 55 million people; this gas reserve can be used to generate electric power for more than 36 years, industrial use for more than 42 years and residential use for more than 78 years. Again, if this reserve (57.25 tcf) is divided to among each individual in the country, then everyone will secure more than one million cubic feet (1 MMcf) of natural gas. It should be borne in mind that currently there are only two onshore producing gas fields in Tanzania as discussed below. If these increase, benefits are bound to increase as well.

3.0 Natural Gas Production in Tanzania

As noted earlier, Tanzania has been producing natural gas for more than a decade. However there are only two onshore gas fields that are currently operational. These are the Songosongo and Mnazi Bay gas fields. The Songosongo gas field is located on an island 15 km off mainland and about 200 km south of Dar es Salaam. It was discovered in 1974 by AGIP, a subsidiary of an Italian oil and gas multinational Eni SpA. The appraisal drilling was conducted from 1976 to 1982 revealing enough gas. A reserve of about 2.5 tcf of gas initially in place is contained in Lower Cretaceous inner shelf sand reservoirs with porosities averaging greater than 20%, and net porous intervals up to 155 m thick. The construction of the pipelines infrastructure was completed to transport gas from Songosongo to Somanga fungu then to Ubungo power plant in Dar es Salaam for use in industries and power generation. From 2004 the project started commercial operations and the demand was higher after the gas to electricity project was commissioned and Songas Ubungo power

plant built. Power generation was linked to the national grid power, industrial uses, vehicles and household consumption (TPDC, 2018).

The Mnazi Bay gas field, on the other hand, is located in the southern coastal Tanzania in Mtwara region, bordering Mozambique. It was discovered by Agip Spa/Amoco in 1982 at that time having a reserve of about 5.0 tcf of gas initially. The gas discovered was tested gas in the Oligo-Miocene sands of the Ruvuma Delta complex and the production started in 2006 (MEM, 2015).From experience of these two gas fields, it is worth noting that the timelines since discovery to production took between 24 and 30 years. This does not include the several years from the start of exploration to the development phase. Therefore the journey for petroleum exploration until production takes decades before the first oil and gas reaches to the final consumer.

4.0 Natural Gas Processing

Before delivery to the customer the raw natural gas from Songosongo and Mnazi Bay gas fields are processed at onshore processing plant at Songosongo Island and Madimba processing plant in Mtwara respectively, which receive gas from these gas fields. Gas piped to these plants is normally treated to prevent liquid dropout under pipeline conditions (dew point control), to remove any considerable volumes of natural gas liquids and other contaminants. The common contaminants in natural gas including the hydrogen sulphide, water vapor, nitrogen, carbon dioxide and condensable liquids.

The composition of natural gas varies considerably from lean non-associated gas, which is predominantly methane to rich associated gas containing a significant proportion of natural gas liquids. Natural gas liquids refer to those components remain after methane and all non-hydrocarbon components have been removed where butane (C_4H_{10}) and propane (C_5H_{12}) can be further isolated to make

Liquefied Petroleum Gas (LPG)(Alsahlawiet al., 2014).

4.1 Liquefied Natural Gas (LNG)

Liquefied natural gas (LNG) is a natural gas condensed into a liquid at close to atmospheric pressure by cooling it to approximately −160°C hence reducing its volume to about 1/600th the volume of natural gas in the gaseous state (Jahn et al., 2008). To liquefy natural gas, impurities that would freeze are removed, such as water, carbon dioxide, sulfurand some of the heavier hydrocarbons. This volume reduction makes it easy and economical for the gas to be exported by refrigerated tankers rather than by pipeline. When the transported LNG arrives to a receiving terminal, it gets unloaded and converted back into a gaseous phase before being distributed through pipelines to customers.

The LNG plants require very high initial investment hence it is only feasible for the proven large volumes of reserves normally between 5 –10 trillion cubic feet (tcf). The Tanzania case has proven huge gas initially in place accounting to 57.25 trillion cubic feet. This reserve has put the country on a position to construct and develop a world scale LNG project planned to be located in Lindi Region. Tanzania is favorably positioned to access robustly priced Asian Pacific LNG markets and development of a diverse domestic market. Recent discoveries along the East African coast in the deep offshore have confirmed the region as the world's newest exploration hotspot and a prime target for the next wave of LNG development.

4.2 Gas Distribution Infrastructure

Currently the gas processing plants include onshore Songosongo Island, Mnazi Bay and Madimba gas processing plant in Mtwara. The pipelines includes 8-inch pipelines, 27km long from Mnazi Bay to Mtwara, a 36-inch, 487km pipeline from Mtwara to Dar 25 km, 12-inch marine pipeline from Songosongo Island to the mainland at Somangafungu and 207 km, 16-inch pipeline from Somangafungu to

Ubungo power plant. The other distribution pipelines to final consumer includes a 16 km, 8-inch diameter pipeline from Ubungo to Wazo Hill cement plants and to many other industrial and residential areas(Pipeline international, 2015; MEM 2016).

5.0 Decommissioning

Decommissioning refers to termination of project once the net cash flow of the company becomes negative or when production from the petroleum reservoir can no longer sustain running costs(Jahn et al., 2008). The process of decommissioning planning seeks to minimize the environmental effects after all the preliminary phases and associated activities. During this phase the company can also start to dismantle some of the production and processing facility at the site as oil and gas run out.

The planning for decommissioning operations involve economic and decision gates including defining the optimal time to shut down producing facilities and at the same time ensuring financial security is in place to meet decommissioning liabilities. The execution plan for project abandonment needs to be technically feasible, cost effective and environmental friendly. On the other hand this needs to be boosted by policy, regulatory framework and international protocols.

6. Conclusion

Tanzania presents an exciting opportunity as a relatively under explored frontier region in Africa as supported by previous exploration activities and relatively few discoveries made. Geologically the sedimentary basin types and settings in Tanzania including rift basins, coastal basins, onshore basins, shallow and deep offshore basins reveal all the prerequisites for the active petroleum system in place hence increasing the potentiality for further discoveries of petroleum resources.

Until now only petroleum reserve accounting to 57.25 tcf of natural gas in place has been discovered while uneconomical quantities of oil or oil shows have been reported. Confidently, this suggests the existence of more potentially generated liquid hydrocarbons in place that needs to be unlocked through intensive and extensive exploration and research. It is from this basis the destiny to oil discovery in Tanzania is not that far. Also it is worth noting that until now all the gas discoveries have been made only in the coastal basins and deep offshore basins of Tanzania while other basins still remain as an undiscovered potential. The natural gas reserve in Tanzania is sufficient for the domestic market as well as for export to capture international gas prices towards maximizing government revenues and improve socio-economic welfare of Tanzanians.

The development of oil and gas resources has positive and negative impacts depending on each nation's approach. On the other hand, these resources are finite and therefore, their development and use should be as wise as possible to ensure that the benefits are invested in developing sustainable environment and motivational to the growth of other economic sectors to avoid resource curse and 'Dutch disease.' Furthermore, local capacity to deal with oil and gas environmental aspects should be enhanced to ensure compliance and meaningful contribution of the industry to the nation's sustainable development and the future that we want.

The future of oil may look uncertain as more alternative energies are prioritized as fuel and confrontation of economic downturns and geopolitics with time. Nevertheless, the demand for products made from oil and gas as a feedstock such as fertilizers and petrochemical industries coupled with global population will keep increasing and more oil will be demanded in return.

All in all, the business of petroleum exploration is a high risk investment and statistically the chance of getting oil and gas is

normally low hence it needs high expertise and specialized skills towards data acquisition, interpretation and risk assessment for successful exploration. Virtually every oil field decision is founded on discovery and profitability. Without continued discovery of new oil and gas fields the petroleum industry will come to a halt one day. Therefore, continuous exploration intertwined with technology employment and economic gate as the main enablers are essential if the industry is to remain in business. The Chapter that follows sets in motion a platform for an analysis of the legal, policy, institutional frameworks and related regulatory regimes that the government has put in place to regulate the oil and gas industry.

CHAPTER 3

PRE - 2015 POLICY AND LEGISLATIVE FRAMEWORK FOR OIL AND GAS

S. F. Materu and L. Mussa[4]

1.0 Introduction

Prior to 2015, the oil and gas sector in Tanzania was regulated by the policy and legal framework which, to some extent, did not satisfy the demands and expectations of different stakeholders. This Chapter provides an overview of the legislative and policy framework that regulated the oil and gas regime in Tanzania before 2015. It provides a foundation for the next Chapter which makes an analysis of the post- 2015 policy and legislative framework governing the industry. The foundation is critical for a comprehensive understanding of the legal and policy framework of the oil and gas regime due one fundamental reason: The common law legal system which Tanzania has adopted requires reference to past laws to understand the current ones. This tradition is embodied in the doctrine of precedent. Also, current laws usually have provisions calling for the retention of provisions of past laws. The analysis of policies is this part is necessitated by the fact that these set the basis for enacting laws. Put differently in this context, laws are the main tools for implementing policy directives.

2. Policy Framework for Oil and Gas Prior to 2015

2.1 Overview

By the time the earliest discoveries of oil and gas were made, there was no clear legal and policy framework regulating the industry.

[4]The authors would like to thank Professor John Paterson from the Faculty of Law, University of Aberdeen for his constructive comments on the drafts of this Chapter.

Efforts to have the industry legally regulated came with the enactment of the now repealed Petroleum (Exploration and Production) Act of 1980. Subsequent to the enactment of this law, Tanzania made further discoveries of large quantities of natural gas and started its commercial production.[5] The earliest Policy, which had some bearing on the oil and gas industry, was formulated in 1992 and reviewed in 2003.

Thus, prior to the year 2015, the oil and gas industry in Tanzania was generally guided by the National Energy Policy of 2003. A more specific policy, namely the National Natural Gas Policy, was formulated later, in 2013, to specifically provide guidance for the oil and gas industry. It is this new policy which forms the main basis of the 2015 legislative reforms. This part provides a general overview of the policy framework on oil and gas in Tanzania prior to 2015. An overview of the legal framework prior to and after 2015 will be discussed in the next Chapter.

2.2 The National Energy Policy, 2003

The National Energy Policy was adopted in 2003 after a revision of the National Energy Policy which had been in place since 1992. The 2003 Policy embodies the national aspirations regarding the energy sector as a whole, oil and gas being a part thereof. It was formulated in view of, among other things, the structural changes in the energy sub-sector as well as other political and economic changes that emerged in Tanzania. The main objective of the policy is to "provide an input in the development process by establishing an efficient energy production, procurement, transportation, distribution, and end-user systems in an environmentally sound manner and with due regard to gender issues".[6] The 2003 Policy was also formulated with

[5] See The National Natural Gas Policy of Tanzania – 2013, p. ix.

[6] See Tanzania National Energy Policy, 2003, p.6. <https://mem.go.tz/wp-content/uploads/2014/02/0001_17022013_National_Energy_Policy_2003.pdf> (accessed 20 June 2016).

a view to creating a better balance between national and commercial interests in the energy sector.[7]

Regarding the oil and gas subsector, the Policy identifies dependency on imported petroleum as one of the main challenges inhibiting Tanzania's quest to meet the national energy demand.[8] To avoid this dependency, oil discovery is seen as a panacea. The Policy provides that despite the limited financial and other resources, oil exploration will be kept as a national priority and will be given the highest possible emphasis.[9]It also aspires to have in place a strategy to ensure sustainable and increased oil and gas upstream activities (exploration, discovery and production) through promotion of private sector participation.[10] This will ultimately ensure that there is optimal utilization of Tanzania's natural gas potential, a fact which will make that resource a dependable local energy source.[11] The Policy further embodies the aspiration that Tanzania should introduce a better regulatory framework of the natural gas sub-sector in order to ensure, *inter alia*, that both national and stakeholders' interests are protected; that markets are strengthened; and that infrastructure and the investment environment are improved.[12] The road to achieving these national aspirations is expressed through three Policy statements, namely the intention to: (i) promote natural gas exploration and exploitation; (ii) promote and develop natural gas markets for diversified application; and (iii) establish an appropriate regulatory framework for the natural gas industry.[13]

[7] *Ibid.*

[8] *Ibid,* pp 21.

[9] *Ibid*, p 22.

[10] *Ibid*., pp. 10, 13, 22.

[11] *Ibid*, p. 19 and 23.

[12] *Ibid*, p. 23.

[13] See *ibid*, p. 24.

2.3 The Natural Gas Policy, 2013

This Policy is specifically designed to address the natural gas sub-sector. Its main objective is to provide "guidance for the sustainable development and utilization of the natural gas resource and maximization of the benefits therefrom and contribute to the transformation and diversification of the Tanzanian economy".[14] The policy requires that the development of Tanzania's natural gas potential must ensure that the resource contributes to the improvement of quality of life of citizens. It directs that this can be achieved by ensuring that the resource first satisfies the demands of the domestic market before the external market can be considered.[15]
The specific objectives of the Policy are reflected in its underlying five pillars, which are: (i) optimization of benefits of natural gas to be achieved through strategic participation, apparently via a national oil and gas company, interventions and equitable benefit sharing; (ii) well developed and strengthened institutional framework and human capacity to ensure a sustainable and efficient natural gas industry; (iii) transparency and accountability in, *inter alia*, the management of revenue from the natural gas industry; (iv) adequate disaster management systems with a view to preventing adverse impact and protecting people's health, safety and the environment; and (v) strategic linkage of the natural gas industry to other economic sectors in order to, *inter alia*, accelerate broad based growth and socio-economic transformation. [16]

To achieve the objectives, the Policy aspirations are linked with existing short- and long-term national developmental plans, strategies, visions and other sectoral and cross-sectoral policies

[14] URT, 'The National Natural Gas Policy of Tanzania, 2013', pp. 4-5, available at <http://www.tanzania.go.tz/egov_uploads/documents/Natural_Gas_Policy-Approved_sw.pdf>(accessed 21 June 2016).
[15] *Ibid.*
[16] See the National Natural Gas Policy of Tanzania, 2013, pp. 3-4.

aiming at eradicating poverty in Tanzania.[17] These include the Tanzania Five Year Development Plan,[18] the National Strategies for Growth and Reduction of Poverty 2010-15,[19] the National Development Vision[20] and the Second National Strategy for Growth and Reduction of Poverty (*MKUKUTA* II).[21]

Another aspect covered in the Policy is the desire for Tanzania to put in place a "natural gas supply chain" to be achieved through building of an efficient "natural gas infrastructure", covering processing, liquefaction, transportation, storage and distribution (already covered under 'natural gas infrastructure' above). The Policy requires a firm and direct government involvement through a number of ways such as Public-Private Partnership (PPP) through national companies, e.g. the Tanzania Petroleum Development Corporation (TPDC).[22] The Policy also has the inspiration that aspires that revenue from natural gas should be properly managed through a special fund to be created and legally managed.[23] It calls for the putting in place a good legal, regulatory and institutional framework in order for the government to create efficient management and expedite development of mid- and

[17] URT, 'The National Natural Gas Policy of Tanzania, 2013', p. x, available at <http://www.tanzania.go.tz/egov_uploads/documents/Natural_Gas_Policy-Approved_sw.pdf>(accessed 21 June 2016).
[18] URT, 'The Tanzania Five Year Development Plan 2011/2012-2015/2016' available at file:///C:/Users/user/Downloads/FYDP-2012-07-26.pdf> (accessed 21 June 2016)
[19] URT, 'National Strategy for Growth and Reduction of Poverty (NSGRP I and II)', respectively available at http://www.povertymonitoring.go.tz/Mkukuta/MKUKUTA_MAIN_ENGLISH.pdf > and <http://www.tzonline.org/pdf/mkukutalldraft.pdf> (both accessed 21 June 2016).
[20] URT, 'The National Developmental Vision 2025' available at http://www.tzonline.org/pdf/theTanzaniadevelopmentvision.pdf accessed 21 June 2016.
[21] See the National Natural Gas Policy of Tanzania, 2013, p. 3.
[22] See *Ibid.*, pp. 7-9 and 21-22.
[23] See *Ibid*, pp. 10-11.

down-stream activities and thereby maximize benefits accrued from natural gas resources.[24] The Policy clearly provides for the institutions charting their specific roles to play in implementing its directives. These include the Central Government, Local governments, the Bank of Tanzania, the National Oil and Gas Company, a regulatory authority (to be established), academic and research institutions.[25]

Other aspirations that the Policy focuses on include the need to ensure that the natural gas sector stimulates other related sectors.[26] It also calls for building and enhancing the capacity of domestic educational institutions to enable them efficiently participate in the training and imparting knowledge on oil and gas, corporate social responsibility by companies involved in the natural gas industry, effective communication to the public. It advocates for managing local communities' expectations relating to the operations of the natural gas resource and for international and regional cooperation in various aspects of the natural gas industry, including education, research and exchange of data and information.[27]

2.4. Other Relevant Policies

2.4.1 The National Environmental Policy, 1997

This Policy seeks to ensure, *inter alia*, that human development is not achieved at the expense of the environment. With regard to energy, the Policy requires that development of energy-related projects should not have an adverse impact on the environment. It calls for sound assessment and management of impacts of energy development and use in order to minimize environmental degradation.[28] It is obvious that activities related to oil and gas

[24] *Ibid*, p.24.
[25] *Ibid*., pp.26-30.
[26] *Ibid*., p. 13.
[27] *Ibid*, pp. 15-18.
[28] The National Environmental Policy, 1997, p 21.

(exploration, production, transportation, distribution, etc) will have an impact on the environment. Thus, the Policy remains relevant to the extent that investment in such activities will, as a matter of principle and policy, require a thorough environmental impact assessment, *inter alia,* before they are carried out.

2.4.2 The Land Policy, 1995 (Revised in 1997)

This Policy covers issues of land use, disposition, ownership, etc. One fundamental provision in the policy is that land ownership in Tanzania is not absolute. The President, in whose trust all the land is vested, can acquire the land compulsorily for public interest, provided that the person from whom the land is acquired is paid adequate compensation.[29] As regards land acquisition and possession, the policy gives priority to citizens of Tanzania, both natural and corporate. The right to access land for foreigners and foreign companies (i.e. including companies with foreigners as majority shareholders) is to be restricted and highly regulated. Such category of people can only be allocated land for purposes of investment and that can only be done through the mechanism set out in the investment laws.[30]

It is clear that investment in oil and gas infrastructure and activities, such as processing, refinery, distribution and transportation, etc, will require significant areas of land. If such investment is by the government and the land is already owned lawfully, then such land must first be acquired through the compulsory land acquisition process set out in the relevant law. In addition, all investments in oil and gas by foreigners or foreign companies will have to abide by the policy restrictions indicated above, as long as they involve acquisition of land.

[29] See URT, The National Land Policy 1997, pp. 16-16 <http://www.tzonline.org/pdf/nationallandpolicy.pdf> accessed on 27 June 2016.
[30] Ibid. pp. 11-12.

3. Legal Framework for Oil and Gas

3.1 Overview

Pre -2015 operations relating to oil and gas resources in Tanzania are traced from the colonial period. As noted in the introductory part to this book, the operations, especially exploration and, later on, extraction, are classified in a useful timeline on the state oil company's website into five phases as follows: Phase I (1952-1964); phase II (1969-1979); phase III (1980-1991); phase IV (1992-1999); and phase V (2000 to the present).[31] There have also been other undertakings such as importation, export, transmission and distribution of petroleum and related products in the country.

Although new legislation dedicated to the oil and gas sector was introduced in 2015, all of the earlier operations were conducted within a pre-existing legal framework. The description begins with laws which were directly related to the sector and ends with legislation which was/is indirectly related to the sector. Laws included in the description are those which were in force at the time the new regime came into being. It is critical to point out that the new legislative framework has retained some rudiments of the pre-2015laws. This reflects the earlier observation that the common law system requires reflections on past laws to understand the current laws.

3.2 The Pre-2015 Framework

3.2.1 The Petroleum (Exploration and Production) Act[32]

The objective behind the enactment of the Act in 1999 was to make provision for the regulation of exploration and production of petroleum in the country.[33] Property in and control over petroleum

[31] www.tpdc-tz.com/upstream.php, accessed on 13th June 2016 at 18:36.
[32] Cap 328, R.E., 2002 (repealed by the Petroleum Act 2015, section 260(1).
[33] *Ibid.*, see the Preamble.

was vested in the United Republic of Tanzania.[34] Exploration and production were to be undertaken with a licence from relevant authorities.[35]

Additionally, this legislation regulated issues like the institutional framework;[36] licences and their attendant conditions, duties and obligations;[37] dispute resolution;[38] and royalties.[39]

3.2.2 The Petroleum Act[40]

The main objective behind the enactment of this law in 2008 was to make provision for the following matters: exportation, importation, transformation, storage, wholesale and retail sale of petroleum products in Tanzania.[41] The Act also provided for the functions of regulatory authorities,[42] licensing of petroleum supply operations,[43] obligations of licence holders,[44] and issues relating to public health and environmental protection,[45] among others.

[34] *Ibid.*, section 4(1).
[35] *Ibid.*, section 4(2).
[36] *Ibid.*, sections 8 – 12.
[37] *Ibid.*, sections 13 – 72.
[38] *Ibid.*, sections 76 – 80.
[39] *Ibid.*, for example, section 81(1). Under this section, a registered holder of development licence was required to pay royalty in respect of petroleum obtained in the development area.
[40] No. 4 of 2008 (repealed by the Petroleum Act 2015, *op cit.*).
[41] *Ibid.*, the Preamble.
[42] *Ibid.*, sections 4 – 6. The main regulatory authorities were the Energy and Water Utilities Regulatory Authority (EWURA) and the Minister responsible for energy and minerals.
[43] *Ibid.*, sections 7 – 12.
[44] *Ibid.*, sections 19 – 23.
[45] *Ibid.*, sections 26 – 30.

3.2.3 The Energy and Water Utilities Regulatory Authority Act[46]

This Act, passed in 2001, establishes the Energy and Water Utilities Regulatory Authority (EWURA) for purposes of regulating certain sectors, goods and services.[47] According to the Act, regulated sectors include electricity, petroleum and natural gas transmission and distribution, and distribution of water and treatment of sewerage.[48]

With regard to the regulated sectors generally, EWURA is given power to monitor performance with regard to the following matters, namely, levels of investment; availability, quantity and standard of services; costs of services; and efficiency of production and distribution of services.[49] On oil and natural gas, the authority regulates matters pertaining to transmission and distribution.[50]

3.3 Ancillary Laws

3.3.1 The Income Tax Act[51]

Prior to 2015, the Income Tax Act governed taxation of income derived from oil and gas operations–exploration, production/ extraction and distribution. At a very general level, such income could be taxed on the grounds of three bases, that is, employment, business and investment.[52] This means that companies and individuals in the petroleum industry getting income from the three sources were to be taxed accordingly. In case such income accrued to a company, the tax rate was 30% as per the provisions of section 53 read together with paragraph 3(1) of the Schedule to the Act.

The Act also provides for matters which are specific to the oil and gas industry. A few instances may serve to substantiate this point.

[46] Act No. 11 of 2001.
[47] EWURA is established under section 4 of the Act.
[48] The Energy and Water Utilities Regulatory Authority Act, *ibid.*, section 3.
[49] *Ibid.*, section 7(1)(c) (i) – (iv).
[50] *Ibid.*, section 7(1)(d).
[51] Cap 332 , R.E,2008.
[52] *Ibid.*, sections 7 – 9.

First, some definitions are peculiar to petroleum operations. Examples include 'contract area', 'petroleum' 'petroleum agreement' and 'technical service'.[53] Second, where separate and distinct petroleum operations are carried out by the same person in different petroleum contract areas, determination of allowable deductions for each contract area should be treated separately.[54] Third, some of the assets used in the exploration for and extraction of natural resources, including oil and gas, are depreciable. This means proprietors of such assets are entitled to tax allowances under appropriate circumstances.[55]

3.3.2 The Land Act[56]

This Act, passed in 1999, is the basic statute on land matters in Mainland Tanzania. With respect to oil and gas, the following aspects of the law are worth noting. First, it excludes petroleum from the definition of 'land'.[57] Second, a granted right of occupancy does not confer on the holder thereof any right to, *inter alia*, petroleum and petroleum products found on a given piece of land.[58] Third, in cases where the right of occupancy is acquired or revoked by the State, previous occupiers are entitled to full, fair and prompt compensation.[59] The last point is very critical because it is possible for the Government to ask landholders to relocate in order to make way for operations relating to exploration, extraction or transmission of petroleum and its products.

3.3.3 The Companies Act[60]

[53] *Ibid.*, section 3.
[54] *Ibid.*, section 11(4).
[55] *Ibid.*, Third Schedule, paragraph 1(1) (4).
[56] Cap 113, R.E., 2002.
[57] *Ibid.*, section 2.
[58] *Ibid.*, section 22(2).
[59] *Ibid.*, section 3(1)(g).
[60] Cap 212, R.E., 2002.

The Act, passed in 2002, governs the formation and operation of companies in Tanzania.[61] This law is relevant to the oil and gas sector for three main reasons. First, local investors who want to participate in exploration and/or production activities may wish to form companies to achieve this goal. As such, Part II of the Act becomes relevant as it contains provisions on incorporation of companies. Second, foreign companies are also allowed to carry out business relating to petroleum operations. These companies are required to be registered in Tanzania in line with the provisions of Part XII of the Act. Third, all companies, regardless of whether or not they deal with matters pertaining to oil and gas, must comply with the provisions of the Act in their day-to-day transactions.

3.3.4 The Stamp Duty Act[62]

The Act provides for documents on which stamp duty is chargeable. These are of two categories, namely, those executed in Tanzania and those executed outside the country but relating to property in or transactions to be carried out in Tanzania.[63] In the context of oil and gas, it is likely that some of the instruments attract this charge/duty. These may include the following: agreements,[64] valuations,[65] awards,[66] cheques,[67] copies of extracts,[68] debentures,[69] deed polls,[70] indemnity bonds,[71] allotment of shares,[72] letters of credit,[73]

[61] *Ibid.*, the Preamble.
[62] Cap 189, R.E., 2006.
[63] *Ibid.*, section 5(1) (a)&(b).
[64] *Ibid.*, items 5 & 6 of the Schedule.
[65] *Ibid.*, item 8 of the Schedule.
[66] *Ibid,* item 10.
[67] *Ibid.*, item 20.
[68] *Ibid.*, item 23.
[69] *Ibid.*, item 26.
[70] *Ibid.*, item 27.
[71] *Ibid.*, item 33.
[72] *Ibid.*, item 35.
[73] *Ibid.*, item 36.

mortgage deeds,[74] notarial acts,[75] powers of attorney,[76] receipts,[77] and transfers.[78]

3.3.5 The Standards Act[79]

The law was enacted to cater for the standardization of specifications of commodities and services in Tanzania.[80] It establishes the Tanzania Bureau of Standards (TBS) as the overseer of standards.[81] One of the functions of TBS is to undertake measures for quality control of commodities and promote standardization in industry and trade.[82]

Under the former oil and gas legal regime, TBS had a very critical role to play, especially in operations relating to distribution of petroleum products. For example, according to the repealed Petroleum Act 2008, the Minister responsible for energy and minerals was empowered, in consultation with TBS, to do the following. First, to approve the official denomination, technical specifications, standards and quality control norms for all petroleum products imported or produced in Tanzania.[83] Second, the Minister had powers to approve the application of technical specifications, standards and quality control norms for purposes of protecting the public and the environment.[84]

3.3.6 The Value Added Tax Act[85]

[74] *Ibid.*, item 39.
[75] *Ibid.*, item 40.
[76] *Ibid.*, item 46.
[77] *Ibid.*, item 51.
[78] *Ibid.*, item 60.
[79] Act Number 2 of 2009.
[80] *Ibid.*, the Preamble.
[81] *Ibid.*, section 3(1)&(2).
[82] *Ibid.*, section 4(1).
[83] The Petroleum Act, *op cit.*, section 4(c).
[84] *Ibid.*, section 4(d).
[85] Act No. 5 of 2014.

VAT is defined as the tax which is imposed on taxable supplies or taxable imports.[86] For that matter, the tax is chargeable on all taxable imports and supplies, subject to some exceptions.[87] Some supplies and imports are exempted from the ambit of the tax. Some of these exemptions are relevant to the oil and gas industry. Examples include the supply of petroleum products[88] and goods imported for exclusive use in oil and gas exploration operations.[89]

3.3.7 The Environmental Management Act[90]

This is the main law governing environmental issues in Tanzania. Part VI of the Act provides for environmental impact assessment (EIA) in respect of certain projects.[91] The regulations[92] made under the Act give detailed information on how the assessments are conducted. Projects subject to EIA requirements are grouped into three, each of which has relevance for the oil and gas sector. First, energy; that is, storage of natural gas, thermal power development, hydro-electric power, and development of other large scale renewable and non-renewable sources of energy.[93] Second, petroleum; which covers areas like oil and gas fields exploration and development, construction of offshore and onshore pipelines, construction of oil and gas separation, processing, handling and storage facilities, construction of oil refineries, construction of depots, and transportation of petroleum products.[94] Third, extractive

[86] *Ibid.*, section 2(1). 'Taxable supplies' and 'taxable imports' are also defined under the same section.
[87] *Ibid.*, section 3.
[88] *Ibid.*, Part I, item 15(1) – (11) of the Schedule.
[89] *Ibid.*, Part II, item 10 of the Schedule.
[90] Act No. 20 of 2004.
[91] *Ibid.*, sections 81 – 103.
[92] The Environmental Impact Assessment and Audit Regulations 2005.
[93] *Ibid.*, First Schedule, item A(7)(i) – (v).
[94] *Ibid.*, item A (8)(i) – (vi).

industry; that is, extraction of petroleum, extraction and purification of natural gas, and deep drilling involving bore holes and wells.[95]

3.3.8 The Fair Competition Act[96]

The Act was enacted in order to enhance people's welfare by promoting and protecting effective market conduct.[97] With respect to the oil and gas industry, two points may be noted. First, under section 24(1)(a)-(g) of the repealed Petroleum Act 2008, petroleum operations were subjected to the Fair Competition Act with regard to the following market practices: formation of cartels; barriers to entry and exit; abuse of dominant position and market power; attempts to control prices; hoarding of goods; and other restrictive trade practices. Second, the Fair Competition Commission was given the mandate to monitor market conditions and trade practices.[98]

3.3.9 The Land Acquisition Act[99]

The Act empowers the President to acquire any land where such land is required for public purpose.[100] According to section 4(1)(e), one of the components of 'public purpose' is where land is required for or in connection with mining for minerals or oil.[101] This shows that there is a possibility for the State to acquire land from current occupiers for purposes of facilitating petroleum operations, especially exploration and extraction.

Acquisition of land for public purpose requires that previous occupiers be compensated for the value of unexhausted

[95] *Ibid.*, item A(16)(i) – (iii).
[96] Act No. 8 of 2003.
[97] *Ibid.*, section 3.
[98] The Petroleum Act, *op cit.*, section 24(3).
[99] Cap 118, R.E., 2002.
[100] *Ibid.*, section 3.
[101] Emphasis ours.

improvements.[102] In the alternative, such occupiers may be given other plots of land in lieu of monetary compensation.[103]

4. Concluding Remarks

It has been shown that prior to 2015, the policy framework on oil and gas in Tanzania comprised only two specific policies, namely those relating to energy and gas. However, there are other policies, mainly those relating to land and environment, which were (and still are) relevant, even though they do not specifically or directly regulate issues relating to oil and gas. What is clear is that the policies directly applicable to oil and gas were adopted more than three decades subsequent to the first discovery of natural gas in Mainland Tanzania. Given that no huge discoveries had been made at the time of its adoption, the Natural Gas Policy of 2013 clearly stated that the natural gas then available was intended to first cater for the needs of the domestic market before considering the external markets. However, in view of the huge discoveries of natural gas which were made subsequent to the adoption of the Policy, it appears that the domestic market by itself may no longer be large enough to consume all the gas when full exploitation is achieved, or even to justify the investments envisioned in the oil sub-sector. This suggests that a parallel development of domestic and external markets will now be inevitable.

On the legal framework, three points come out clearly. First, the oil and gas legal regime before 2015 focused on two main undertakings, that is, export, import and distribution, on one hand; and exploration, extraction, transmission and distribution, on the other. Second, some of the laws had a direct bearing on the sector while others were indirectly related to it. Third, some of the statutes which were applicable under the former regime are still relevant to the current

[102] The Land Acquisition Act, *op cit*, section 11(1). Section 12(1) of the Act prohibits compensation in respect of vacant land.
[103] *Ibid.*, section 11(2).

legal framework and in some cases have been retained, which brings us to the focus of the next Chapter.

CHAPTER 4

POST 2015 LEGISLATIVE AND POLICY REFORMS FOR OIL AND GAS

H. I. Majamba and E. E. Longopa[104]

1. Introduction

This Chapter part provides a review of the legislative framework that has been put in place after 2015 that seeks to regulate the oil and gas sub-sector in Tanzania. As noted earlier, the Chapter fittingly fits into the preceding analysis of the pre-2015 policy and legal framework. In the process of analyzing the legal framework, some comparison will be made with the legislative framework of selected countries confronting similar issues. The countries have been purposefully selected with a bias on framework legislation with a common law tradition and with relatively similar social, cultural and historical ties as Tanzania. Also, such countries have developed legislative frameworks to ensure that the oil and gas sectors benefit their economies. The countries that have been selected are Kenya, Uganda and Trinidad and Tobago. In some isolated cases, cross reference is made to legislative provisions from other countries with a common law tradition for comparative purposes.

The analysis primarily focuses on selected elements of the legislation in the jurisdictions identified, namely: resource rights, licensing regimes, institutional and administrative frameworks, environmental concerns, local content, fiscal regimes, transparency and availability of information.

[104] The authors would like to thank Professor John Paterson from the Faculty of Law, University of Aberdeen for his comments on this chapter.

In addition to sector-specific legislation, the oil and gas sector in Tanzania, as has been noted, is also subject to a number of pieces of general or cross-cutting legislation. Analyses of pre-existing sector-specific legislation as well as of general legislation that has a bearing on oil and gas have been provided elsewhere. The present analysis focuses primarily on the provisions of the Constitution, international legal instruments that have a direct bearing on the oil and gas sector and the recently enacted laws: the Petroleum Act 2015, the Oil and Gas Revenue Act 2015 and the Transparency and Accountability Act 2015. The chapter first begin by a review of factors necessitated the reform in the legal and policy regime of oil and gas in Tanzania and before that is the background to the sector in Tanzania.

The large quantities of natural gas discovered in Tanzania are considered as offering an opportunity for the country to transform from an agricultural dependency economy to a diversified industrial economy. If this opportunity is to be taken in such a way as to benefit the people as a whole, then certain key issues need to be considered.

1.Overview

As noted in the preceding Chapter, Tanzania had in place several policies and legal instruments governing the extractive industry generally and the petroleum sector in particular. These laws were made to regulate the sector before Tanzania had discovered large quantities of natural gas. These policies and laws included the National Energy Policy of 2003 which recognises the potential offered by natural gas in the energy sector in Tanzania and calls for promotion of natural gas exploration and exploitation; development of markets with diversified applications and establishment of appropriate regulatory arrangements for the natural gas industry, among others.[105]The main and relevant legislative instruments include the Energy and Water Utilities Act, Cap 414 R.E. 2002; the

[105] See Paragraph 3.2.3 of the National Energy Policy, 2003.

Petroleum (Exploration and Production) Act, Cap 328 R.E. 2002; and the Petroleum Act, Cap 392 R.E. 2002.

All these laws were considered to be ineffective to cater fully for the booming natural gas industry in Tanzania, as they could not squarely address the need of the day for the sector to bring economic and social development. As a result, there has been a need for major reforms in policies and laws of Tanzania to cater for the growing natural gas sector. This was informed by experiences acquired in other extractive industry sectors where the benefits have not been realized to the maximum despite the fact that Tanzania is endowed with a lot of natural wealth in the mining sector. As Mwihava puts it: "the legislative framework prior to recent reforms regulated the petroleum industry with limitations namely: the mid stream and downstream activities only. In particular, the upstream activities lacked a regulator."[106]

These reforms have been motivated by the aspirations of the citizens and the Government of United Republic of Tanzania that maximum benefits are realized from the natural gas sector.

2.The Policy Aspirations for Reforms in the Natural Gas Sector

This part traces the various factors that have led to the reform of the policy and legal framework in the petroleum sector from 2015 onwards.

3.1 Economic Development - Towards a Middle Income Economy

First and foremost, the government and the people desired that Tanzania achieve enhanced economic development. The Tanzania Development Vision 2025 was developed along this goal. It sought

[106]Mwihava, N.C.X *et al* (2015), *15 Years of Implementation of Tanzania Development Vision 2025 in the Extractive Industry Development*, Dar es Salaam, Ministry of Energy and Minerals, p. 5.

to steer the country into a middle-income economy by 2025, making it necessary to diversify the country's economic sectors to achieve this goal. Accordingly the Vision should enable the creation of a strong, diversified, resilient and competitive economy which can cope effectively with development challenges and adapt to the changing markets and technological conditions.[107] Thus, discoveries of natural gas in Tanzania and its development would significantly boost the economic development towards achieving the Tanzania Development Vision 2025.

According to the Planning Commission, the discoveries of natural gas in Tanzania have opened up a crucial window for Tanzanians to benefit from the oil and gas economy in the near future. The Commission is on record to have stated:

> ...recent discoveries of a significantly large endowment of natural gas in Tanzania, offer the country a window of opportunity of its kind to build up the country's industrial capability, accelerate socio-economic transformation and realize the national aspiration to become a middle income country by 2025. The revenues from these resources can be used to break the most binding constraints to growth identified in the Five Year Development Plan 2011/12 – 2015/16, especially power and transport infrastructure gaps (port, railway, road, marine, air) as well as irrigation and skilled human capital deficit.[108]

The development of the natural gas sector is likely to add to the major contributors of foreign exchange earnings in Tanzania if well managed. Having in place a proper and up-to-date regulatory and institutional framework is essential in order to guarantee economic

[107] See Paragraph 1.2.5 and 3.3 of the Tanzania Development Vision 2025.

[108] President's Office, Planning Commission (2013), "Planning for the Gas and Oil Industry for R*apid* Socio-economic Development in Tanzania" a key note speech presented at Oil- & Gas Conference 2013 – Tanzania held at The MwalimuNyerere International Convention Centre, Dar-es-Salaam on October 23rd - 24th, 2013, pp. 2-3.

growth. On this understanding, it has been argued that "as the world enters what is described as 'the era of natural gas revolution', Tanzania must seek to optimize investment in the sector to fit the predictions that the gas sector will definitely be among the best performing investment categories for the foreseeable future."[109]

3.2 Improvement of Quality of Living

Development of the natural gas sector is not only to ensure Tanzania becomes a middle-income country, but also to alleviate poverty and improve the quality of life of all of its citizens. This would ensure that development is people-centred.

Insofar as the Government is only a trustee of the resource on behalf of and for benefit of the citizens, the extraction, utilization and management of the natural resources must be carried out in such a way that their benefits are widely shared rather than being concentrated in the hands of the few. This would be in line with the Tanzania Development Vision 2025 which provides that "for Tanzania this development means creation of wealth and its distribution in the society must be equitable and free from inequalities and all forms of social and political relations which inhibit empowerment and effective democratic and popular participation of social groups in the society."[110] It is further asserted that proper management of such resources (efficiently, fairly and openly) contributes to the remarkable improvement of the wellbeing.[111]

[109]Bukurura, S.H and Mmari, D.E, (2014), *'Hydrocarbon Resources in Tanzania: Achieving Benefits with robust Protection'* Special Paper 14/3, Dar es Salaam, Research for Poverty Alleviation (REPOA), p.6.

[110] Paragraph 1.2.1 and 3.1 of the Tanzania Development Vision 2025.

[111] President's Office, Planning Commission (2013), "Planning for the Gas and Oil Industry for R*apid* Socio-economic Development in Tanzania" a key note speech presented at Oil- & Gas Conference 2013 – Tanzania held at The Mwalimu

Improvement of livelihood can be only achieved where the legal, regulatory and institutional frameworks are designed in a manner that puts the interests of citizens at the forefront. The previous legislative, institutional and regulatory framework was inadequate to address the interests of the citizens in the natural gas industry, as it was not considered to be one of the major sectors of the economy. Increasing discoveries of natural gas in commercial quantities necessitated reform of the framework governing the sector.

3.3 Public Participation

Public participation in resource management is one of the key principles of modern natural resources management. In essence, this Principle calls for the citizens to be adequately informed about their natural resources and to participate effectively in decision making regarding the processes of their extraction and utilization.

Under International law, there is recognition of the right to public participation of stakeholders in management of natural resources, including all concerned citizens at all relevant levels.[112] For instance, Agenda 21 declares:

> One of the fundamental prerequisites for the achievement of sustainable development is broad public participation in decision-making. Furthermore, in the more specific context of environment and development, the need for new forms of participation has emerged. This includes the need of individuals, groups and organizations to participate in environmental impact assessment procedures and to know about and participate in

Nyerere International Convention Centre, Dar-es-Salaam between October 23rd - 24th, 2013, p.3.

[112] See for instance, Principle 10 of the United Nations Conference on Environment and Development Declaration (Rio Declaration); the Preamble to the Convention on Biological Diversity, 1992; and Principles 16 and 24 of the World Charter for Nature, 1982.

> decisions, particularly those which potentially affect the communities in which they live and work. Individuals, groups and organizations should have access to information relevant to environment and development held by national authorities, including information on products and activities that have or are likely to have a significant impact on the environment, and information on environmental protection measures.[113]

Proper public participation entails the involvement of different stakeholders. As such, Nwapi argues that "a review of international legal instruments shows that there are six possible broad categories of the participants: the specific public concerned, the local community or people, indigenous people, Non Governmental Organizations (NGOs), and the historically marginalized groups of women and youth."[114]

Another aspect of effective citizens' participation in the natural gas sector is the local content issue. This entails ensuring that procurement of goods and services are obtained from the investment host country insofar as these may be easily obtained there. This is deemed crucial due to the fact that the majority of actors in the extractive industries, including the natural gas sector, are foreign multinational companies that tend to procure all goods and services from their home country companies even where such goods and services would be readily available in the host countries. Insofar as goods and services of the appropriate standard may be obtained locally, encouraging or compelling such procurement will ensure that the economic benefits of investments in the sector are spread as widely as possible. Under such circumstances, there is a general satisfaction and feeling that citizens are taking an active role in that specific sector.

[113] See Chapter 23(2) of the Agenda 21.

[114] Nwapi, C. (2010), *"A Legislative Proposal for Public Participation in Oil and Gas in Decision –Making in Nigeria"*, Journal of African Law, Vol. 54, No. 2, pp. 194.

3.4 Equitable benefit sharing mechanisms

The benefit sharing mechanisms between the stakeholders is one of the vital issues in sustainable natural resources management. In the natural gas industry, the question of the benefit sharing mechanisms takes centre stage. It may be recalled that in 2013 residents of Mtwara region revolted against the Government on account that there are no tangible benefits accruing to the local communities in the extraction of the gas in that region. The demonstrations in Mtwarawere in essence an opposition on what was perceived as the government's plan to transportgas by pipeline from Mtwara to Dar es Salaam on the grounds that construction of an industry in their area would trigger job creation and development of social services. Local communities perceived this is a scam. [115]

Equitable benefit sharing mechanisms in the extractive industry in Tanzania has not been well articulated, particularly in the mining sector. The discovery of natural gas in large quantities called for a change in this trend. As such, it was imperative to have reforms intending to address these inadequacies experienced under the previous legislative framework and practice. For instance, it has been clearly argued:

> ...the mineral policies in Tanzania were designed largely to benefit investors and were less friendly to the broader interests of the host country and its development objectives. The Mining Act, 1998 which governed the industry during the significant investment period, did not require applicants for mining licences to present plans for the local procurement of goods and services. Other limiting

[115] For details see Elias Mhegera, Discovery of Oil and Gas in Tanzania: a Blessing and a Curse" Published on: Sunday, 17th March 2013 -http://www.shout-africa.com/top-story/discovery-of-oil-and-gas-in-tanzania-a-blessing-and-a-curse/retrieved on 9th July 2016.

provisions included those that constrained the State's ability to introduce new policy changes aimed at advancing certain development goals.[116]

It is clear that concerns for Local Content Policy and Corporate Social Responsibility (CSR) which would have improved benefit sharing mechanisms and participation of the public were not fully emphasized in the mining sector. It is in this regard that some had argued then that in order to "maximize benefits, the Government should recognize the importance of Tanzanians' participation in the entire oil and gas value chain. Key focus areas recommended was to include promoting capacity building and technology acquisition, Tanzanians and Tanzanian owned entities' participation, procurement, and usage of locally produced goods and available services, among others."[117]

In order to change that legislative and practical landscape in the natural gas sector, it was important to have reforms in developing the policy and legislative frameworks in order to avert repeating the same mistakes experienced for almost two decades in the mining sector. Chapter 7 which delves on the local content Policy will shed more light on the government's approach in this regard.

3.5 Development and strengthening institutional frameworks

Development of the natural gas sector encompasses activities in upstream, midstream and downstream. These activities are wide ranging, from exploration to the marketing and consumption of the final products. Undertaking such activities generally is costly and involves a lot of risks. In order to avert risks that are likely to arise, it

[116]Bukurura, S.H and Mmari, D.E (2014), *'Hydrocarbon Resources in Tanzania: Achieving Benefits with robust Protection'* Special Paper 14/3, Dar es Salaam, REPOA, p.12.

[117]Mwihava, N.C.X *et al*(2015), *15 Years of Implementation of Tanzania Development Vision 2025 in the Extractive Industry Development*, Dar es Salaam, Ministry of Energy and Minerals, p. 5.

is important to have in place adequate and vibrant institutions to deal with the sector, including regulating the upstream activities which previously lacked a regulator.

The introduction of a new institutional framework entails having in place a new policy and legal framework that will clearly provide for the establishment, functions and mandates as well as the limits of these institutions. These institutions include the regulatory institutions along the whole oil and gas value chain including the regulator for upstream activities.

The need for having in place sound and strong institutions has been the subject of discussion in different forums. For instance, the President's Office Planning Commission observed that, "Tanzania will have to work on sound and robust institutional framework for managing this wealth prudently. This may include creating an independent operating, yet state-owned oil and gas company similar to PETRONAS in Malaysia that will legally have to be involved in all oil and gas operations in Tanzania as a partner of foreign companies. As the shareholder, the government would then be entitled to dividends and tax payments."[118]

Effective participation in oil and gas includes increasing the roles of the National Oil Company (NOC). As Bukurura and Mmari note, "while the influence of International Oil Companies (IOCs) diminishes, others who were once marginal actors have also found their niche and become significant and established players in the oil

[118] President's Office Planning Commission (2013), "Planning for the Gas and Oil Industry for R*apid* Socio-economic Development in Tanzania" a key note speech presented at Oil- & Gas Conference 2013 – Tanzania -The MwalimuNyerere International Convention Centre, Dar-es-Salaam October 23rd - 24th, 2013, p.4; and Bukurura, S.H. and Mmari, D.E.,(2014), *'Hydrocarbon Resources in Tanzania: Achieving Benefits with robust Protection'* Special Paper 14/3, Dar es Salaam, REPOA, p.13.

and gas industry. As a consequence, they have also captured part of the market share that was once in the hands of IOCs. As if it was not enough, new players, namely NOCs, have emerged and matured to become giants in their own rights."[119]

Tanzania has had in place its own NOC in the form of the Tanzania Petroleum Development Corporation (TPDC) as its agency in regulating oil and gas exploration and production with a limited role in the natural gas sector. With the discoveries of natural gas in commercial quantities, reform of the TPDC was imperative to ensure that its participation is appropriately expanded to allow it to represent the interests of Tanzanian citizens in the Public Private Partnerships (PPPs) that will come to characterize the natural gas sector.

It is clear that having a NOC is the modern trend of most producer countries. It is argued that 15 out of the 25 largest oil and gas companies in the world by 2012 were state owned and operated. These are scattered throughout the continents and strategic collaboration between NOCs and the IOCs is now the preferred option along the whole oil and gas value chain - upstream, midstream and downstream.[120]

Other aspects of the institutional framework include building up domestic expertise in petroleum geosciences and economics, as well as in managing Production Sharing Agreements (PSAs), taxation and auditing, contract negotiation and administration and data management.[121] As such, development of human resources is an

[119]Bukurura, S.H and Mmari, D.E (2014), *'Hydrocarbon Resources in Tanzania: Achieving Benefits with robust Protection'* Special Paper 14/3, Dar es Salaam, REPOA, p.7.

[120]Bukurura, S.H and Mmari, D.E., *ibid,* p.8 ; and Amao, O. O (2008), Corporate Social Responsibility, Multinational Corporations and the Law in Nigeria: Controlling Multinationals in Host States", *Journal of African Law*, Vol. 52, No. 1, p. 94.

[121] President's Office Planning Commission, *Op cit.* p. 4

important aspect of the institutional framework to ensure that Tanzania has a sufficient number of well trained personnel to deal with oil and gas industry.

3.6 Transparency and Accountability

Tanzania recognizes that transparency is essential in natural resources to support sustainable national development. Tanzania strives to promote transparency and accountability in the management and use of natural resources. This includes: increasing public access to comprehensive, timely and quality information on revenues; increasing disclosure of revenue allocation and spending; increasing accountability and reducing actual and perceived corruption; reducing social and political tension; improving stakeholders' confidence; and creating an improved and predictable business environment in both energy and minerals. [122]

According to the Extractive Industry Transparency Initiative (EITI) principles, EITI share the belief that prudent use of natural resource wealth is an important engine for sustainable growth that contributes to sustainable development and poverty reduction. As a result, transparency and accountability in the utilization of the resources and management of revenues from the extraction of resources is of great importance.[123]

The importance of transparency and accountability stems from that fact that petroleum can stimulate development and growth of other sectors of the economy. Transparency and accountability are crucial in the governance of the natural resources, from the decision to

[122]Mwihava, N.C.X *et al*(2015), *15 Years of Implementation of Tanzania Development Vision 2025 in the Extractive Industry Development*, Dar es Salaam, Ministry of Energy and Minerals, p. 11.

[123] See Extractive Industries Transparency Initiative (EITI) (2016), The EITI Standards 2016, EITI Secretariat, Oslo –Norway, p. 11. These standards may be accessed at https://eiti.org/files/english_eiti_standard_0.pdf as retrieved on 10th July 2016.

extract to the granting of concessions, the collection of revenues and the management of the resource revenues. This can increase the efficiency of government policies, reduce opportunities for self-dealing and diversion of revenues for personal gain, raise the level of public trust and reduce the risk of social conflict.[124]

For instance, it is observed that

> "disclosure of the extractive industries payments and revenues through the EITI has helped to improve revenue collection and accountability. Kilwa District Council is the case example. The 2009/10 TEITI Report revealed that the service levy paid by Pan African Energy Tanzania Limited from SongoSongo field in Kilwa were wrongly paid to Ilala Municipality in Dar es Salaam where the company's main office is located as opposed to paying the levy to Kilwa District Council which hosts extraction of the gas. Since that revelation, the Kilwa District Council receives around TZS 110,000 million (USD 61,000) on every quarter of the year."[125]

Tanzania subscribed to the Extractive Industries Transparency Initiative in 2009 and it became EITI compliant in 2012. However, a study conducted in 2012 indicated that Tanzania's laws were falling short of the minimum disclosure and transparency required by the EITI. The study suggested that it is necessary for the country to carry out comprehensive amendments to legal and regulatory framework in order for it to comply with the requirements of EITI. These laws include the Petroleum (Exploration and Production) Act, 1980; the Mining Act, 2010; the Stamp Duty Act, Cap 189, R.E. 2002; the Income Tax Act, Cap 332 R.E. 2002; and the Local Government Finance Act, 1982. In addition, it was clear that Tanzania had no

[124]Mwihava, N.C.X *et al*(2015), *15 Years of Implementation of Tanzania Development Vision 2025 in the Extractive Industry Development*, Dar es Salaam, Ministry of Energy and Minerals, p. 11.

[125] Extractive Industries Transparency Initiative (EITI) (2016), *2016 Progress Report: From Reports to Results*, EITI International Secretariat, Oslo Norway, pp.19-20.

legal and regulatory arrangements to regulate the Tanzania Extractive Industries Transparency Initiative (TEITI) operations. In the context of the trend in other jurisdictions, it was strongly recommended that a comprehensive legal and regulatory framework be established in Tanzania to regulate TEITI operations in accordance with the EITI principles.[126]

3.7 Protecting Government Interest

Natural resources, including oil and natural gas, are under the prerogative of the host country in which these resources are located. Under the Public Trust Doctrine (PTD), these resources can be well managed if they are under the control of the State for benefit of the citizens of that particular State. There has been an ever-growing trend of host States asserting more control over resources within their jurisdictions. According to Bukurura and Mmari, such increased assertiveness by States is known as "resource nationalism", where the host States have demanded greater benefits mainly through increased involvement of the NOC in joint ventures.[127] Under resource nationalism, host countries have sometimes moved to expropriate IOC assets or enforced changes to the terms on which resources are extracted and monetized in order to obtain greater domestic benefits. This has been the trend worldwide and not only in African, Asian of Latin America countries. For instance, the Government of Australia, Canada and the United Kingdom have periodically imposed royalties or higher taxes on oil and gas production. Similarly, The Netherlands and Norway have also used

[126]United Republic of Tanzania (2012), *Preparation of Legal Framework Review for Tanzania Extractive Industries Transparency Initiative: Final Report*, Ministry of Energy and Minerals, pp.76, 91-95.

[127]Bukurura, S.H and Mmari, D.E (2014), *'Hydrocarbon resources in Tanzania: Achieving benefits with robust protection'* Special Paper 14/3, Dar es Salaam, REPOA, pp.1, 3, and 11.

different instruments to increase domestic benefits derived from oil and gas resources.[128]

Such assertiveness by host States is based on the international law Principle of permanent sovereignty over natural resources (PSNR). This recognizes that host States have mandates to control the natural resources within their territories for the betterment of the lives of their citizens. It gives States the right to possess, use and dispose freely of any surface and subsurface natural resources within their national territories. The Principle basically requires that PSNR must be exercised in the interests of national development and the well-being of the peoples concerned. It also lays out basic rules on the treatment of foreign investors.[129]

With this PSNR in mind, nation States desire to maximize government take and exercise control over hydrocarbon resources in ways that support their diverse development and political objectives.[130] In order to ensure that government properly focuses on its national development objectives, reforms are important in policy, legal and regulatory frameworks. For example, Amao argues that in the 1960s the government of newly independent Nigeria introduced changes that altered the status quo where Shell-BP had to surrender some of their concessions and allow other Multinational Corporations to operate in the field. Also, legislation changed the modalities of operation for the MNCs in the Nigerian petroleum industry where all foreign MNCs in the oil and gas sector operate through a joint venture partnership with the Nigerian National Petroleum Corporation (NNPC), a statutorily established and state-owned corporation. The share of the government in the joint venture through NNPC as NOC is between 55-60 percent while the rest is

[128]Bukurura, S.H. and Mmari, D.E (2014), *Ibid*, at p.3.

[129] See General Assembly Resolution 1803 (XVII) on Permanent Sovereignty over Natural Resources dated 14th December 1962.

[130]Bukurura, S.H and Mmari, D.E (2014), *Op. cit*. p. 1.

owned by the MNCs. The government contributes proportionately to the cost of carrying out the oil operations and receives a share of the production in the same proportion.[131] The serious problems encountered in Nigeria since then emphasize the importance of ensuring that reforms to policy, legal and regulatory frameworks are carefully considered and properly implemented.

Tanzania is no exception to the desire to maximize the benefits from its large discoveries of natural gas onshore and offshore, meaning that reforms to the petroleum sector were essential. Bukurura and Mmari rightly point out that "reforms are partly political since they are strategic, social, and geo-political decision-making process. For these reasons, hard choices with long term consequences have to be made by policy makers. Since these choices are critical to the country's economy as well as the welfare of its people, decisions have to be informed by an articulation of various competing interests."[132]

Asserting more control over the natural resources depends on the policy and legislative framework available in that particular state. In order for Tanzania to have more control over the oil and gas value chain so as to increase benefits accruing on the extraction of petroleum resources, reforms in policy, legal and regulatory framework are beyond question. This desire to accumulate more benefits from the natural gas sector prompted the Government to spearhead reforms in order to take more benefits for the development of the country and the wellbeing of the citizens of Tanzania.

[131]Amao, O. O (2008), Corporate Social Responsibility, Multinational Corporations and the Law in Nigeria: Controlling Multinationals in Host States", *Journal of African Law*, Vol. 52, No. 1, pp. 94-97.

[132]Bukurura, S.H andMmari, D.E (2014), *'Hydrocarbon resources in Tanzania: Achieving benefits with robust protection'* Special Paper 14/3, Dar es Salaam, REPOA, p.11.

4. General Observations on Policy Aspirations

The policy aspirations for reforms in the oil and gas sector in Tanzania can be attributed to diverse issues, both internal and external. There was a strong desire on the part of both the government and the people to ensure economic development; improve the wellbeing of the citizens through provision of a high quality standard of living; ensure effective and adequate participation of Tanzanian individuals and firms in the sector; achieve equitable benefit sharing mechanisms on the revenues from natural gas sector; develop and strengthen institutional frameworks, transparency and accountability, and increase government control over the country's natural resources. This desire prompted and necessitated policy, legal and regulatory reforms in oil and gas sector in Tanzania.

These reforms were necessary due to the fact that the then existing policy, legal, and regulatory frameworks related to the extractive industry sector in Tanzania were manifestly inadequate to the task.

5. Main Sources of Oil and Gas Law for Tanzania

5.1 The Constitution of the United Republic of Tanzania

The Constitution of the United Republic of Tanzania implicitly makes reference to oil and gas where it places a duty on citizens to protect the country's natural resources.

Article 27 of the Constitution provides:-

> (1) Every person has the duty to protect the natural resources of the United Republic, the property of the state authority, all property collectively owned by the people, and also to respect another person's property.
>
> (2) All persons shall be required by law to safeguard the property of the State authority and all property collectively owned by the people, to combat all forms of waste and squander, and to manage the national economy assiduously with the attitude of people who are masters of the destiny of their nation.

Broadly construed this provision caters for oil and gas resources as natural resources have been defined to include mineral and fossil fuels.[133] In this regard, this constitutional provision provides for the underlying basis for the legal framework for oil and gas in Tanzania.

5.2 International Legal Instruments

Besides the Constitution, it should be pointed out at the outset that international legal instruments ratified by the United Republic of Tanzania form part of the law of the country insofar as obligations under the international law. Tanzania follows the dualist approach in relation to treaties and other international legal instruments. Accordingly, the government is required by the Constitution to submit any international legal instrument to the Parliament for ratification.[134] Once the treaty has been ratified, it does not become part of the law until it is domesticated by principal or subsidiary legislation. Such international treaty can only be enforced by citizens in courts of Tanzania when domesticated.

The international legal instruments that have a bearing on the gas and oil industry that should be taken into account in the body of laws governing the oil and gas industry in the country fall into various categories. There are those that make specific reference to oil. Others have an indirect bearing to oil as they relate to safety, solid and liquid waste, toxic substances, air pollution and conservation of fauna and flora. These place duties and obligations relating to oil spills causing destruction to the environment on companies and investors. They also reflect the Principle of national sovereignty over natural resources discussed above.

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[133] http://dictionary.reference.com/browse/natural resources. (accessed on 25 October 2014).

[134] This is provided for by Article 63 (3) (e.) of the Constitution of the United Republic of Tanzania.

International legal instruments that are closely related to the oil and gas industry in Tanzania include the United Nations Convention on the Law of the Sea 1982 (UNCLOS),[135] the Convention on the International Regulation for Preventing Collision at Sea, 1972,[136] the International Convention for the Safety of Life at Sea, 1974,[137] the International Convention for the Prevention of Pollution from Ships (MARPOL),[138] and the International Convention on Oil Pollution Preparedness, Response and Co-operation of 1990 (OPRC).[139]

Additionally, on this list are the International Convention on Civil Liability for Oil Pollution Damage (CLC) 1969,[140] the International Convention on Civil Liability for Bunker Oil Pollution Damage (Bunkers Convention) 2001,[141] and the London Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, 1972.[142] Others are the International Convention for the Prevention of Pollution from Ships (MARPOL), 1973[143] and its related protocols, the Nairobi International Convention on the removal of Wrecks, 2007,[144] the Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships, 2009,[145] the Basel Convention on the Control of Trans-boundary Movements of Hazardous Wastes and their Disposal,

[135] 183 UNTS 3.
[136] See Lloyd's Register Rule Finder, 2005 version 9.4.
[137] 1184 UNTS 2.
[138] 12 ILM 1319 (1873).
[139] 1891 UNTS 51.
[140] 93 UNTS 3.
[141] UKTS No. 8 (2005).
[142] 1046 UNTS 120.
[143] 12 ILM 1319)1973).
[144] Available at: *https://www.gov.uk/government/uploads/system/...data/.../8243.pdf (accessed 20 June 2016).*
[145] Available at: *www.basel.int/.../Basel%20Convention/.../ships/HongKongConventi...(accessed on 20 June 2016).*

1989[146] and related Protocols. Also in this category are the International Convention on the Control of Harmful Anti-fouling Systems on Ships, 2001 (AFS),[147] the Montreal Protocol on Substances that Deplete the Ozone Layer, 1987 (Montreal Protocol) under the 1985 Vienna Convention for the Protection of the Ozone Layer,[148] and the International Convention for the Control and Management of Ships' Ballast Water and Sediments, 2004.[149]

Conventions whose provisions focus on protecting flora and fauna in relation to the oil and gas sub-sector are found in the Convention on Wetlands of International Importance, 1971,[150] the World Heritage Convention, 1972,[151] the Convention on International Trade in Endangered Species of Wild Fauna and Flora 1973 (CITES),[152] the Convention on the Conservation of Migratory Species of Wild Animals, 1979 (CMS),[153] the Convention on Biological Diversity, 1992[154] and the Convention on the Protection of the Underwater Cultural Heritage, 2001.[155]

[146] 1673 UNTS 57.
[147] Available at: https://www.gov.uk/government/uploads/system/...data/.../8284.pdf *(accessed on 20 June 2016).*
[148] 1155 UNTS 331.
[149] Available at: www.imo.org/.../Conventions/ListOfConventions/... (accessed *on 20 June 2016).*
[150] 996 UNTS 245.
[151] 1037 UNTS 151.
[152] 993 UNTS 243.
[153] 1651 UNTS 338.
[154] 1760 UNTS 79.
[155] 41 ILM 37.

5.3 National Laws

5.3.1 Petroleum Act, 2015

The Petroleum Act[156] 2015 repealed and replaced the Petroleum (Exploration and Production) Act of 1980 and the Petroleum Act of 2008. It contains 261 sections, 12 Parts and Three Schedules. The preamble to the Act, which is part of the law, provides for the reasons for its establishment.[157] Accordingly, the Act was established to make provision for the regulation of petroleum activities being carried out in the upstream, downstream, and midstream.

Section 4 of the Petroleum Act vests rights over petroleum property and control in the United Republic and exclusive management of petroleum on the Government on behalf and as trustee of the people of Tanzania. The Act vests the administration of issues related to oil and gas in the Minister, the Oil and Gas Advisory Bureau, and the National Oil Company (Tanzania Petroleum Development Corporation – TPDC). The Regulatory authorities established by the Act are the Petroleum Upstream Regulatory Authority (PURA), and the Energy and Water Utilities Regulatory Authority (EWURA) to address, *inter alia*, petroleum rights issues relating to licensing, exploration and development licenses and surface rights issues relating to grazing, compensation and rights over alienated land. PURA and EWURA are also vested with powers to regulate and control petroleum rights.

The fiscal regime on the oil and gas sub-sector is provided for under sub-part VII which addresses issues of royalties, fees, and taxes. Issues related to downstream and midstream activities in the oil and gas sector are regulated under Part IV which, among other issues, establishes the National Petroleum and Gas Information System, approval of construction of petroleum infrastructure, processing,

[156] No. 21 of 2015.

[157] Section 25 (1) of the Interpretation of Laws Act, Cap. 1 [R.E. 2002] provides that a Preamble to an Act forms part of the law.

transportation and storage of petroleum. Matters relating to liquefaction, shipping, imports, transit, access to land for installation of infrastructure and way-leaves and pricing are also to be regulated under this Part.

The regulation and control of health, safety and environmental issues relating to oil and gas are covered under Parts V, VI and VII. Part VI sets out the requirements for occupational health and safety, explicitly recognising that these will change in step with technological developments. Part VII sets out the environmental law principles to be observed while enforcing the Act, focused especially on issues relating to general environmental management, pollution, gas leakage and oil spills. Part V deals with decommissioning.

Countries in which oil and gas discoveries are found often experience discontent from local community members who suspect that they are not benefiting from the industry – or at least to the extent that they feel they ought to, given that their communities bear the burden of the extraction of the hydrocarbons in terms of disruption, competition for land, noise, pollution, and the like. Their sentiments are sometimes expressed in demonstrations and refusal to cooperate with investors and the government in exploration, development and production activities. Such communities are frequently concerned that Government's role in the sector is peripheral, leaving them at the mercy of the private sector. The drafters of the Petroleum Act, therefore, inserted Part VII (sections 218 – 223) dealing with government participation, local content, corporate social responsibility and the "integrity pledge" to address these concerns. The "integrity pledge" is essentially a promise on the part of a licensee to conduct activities with the utmost integrity, in particular in relation to payments and taxation. It is noteworthy that this Part of the Act also makes specific mention of the obligation to pay capital gains tax "in respect of any corporate reorganization

undertaken within or outside" the country, and makes a failure in this regard a breach also of the integrity pledge.

International legal obligations relating to the oil and gas sector, which are outlined in the related multilateral treaties and conventions, some of which Tanzania has committed to, are reflected in the Petroleum Act. Section 3 of the Act makes reference to best international petroleum industry practices which take into account issues of safety, economic considerations, technology and environmental aspects. The requirement to make cross-reference to the Environmental Management Act in the provisions of the Petroleum Act re-echo the need to comply with international obligations to which Tanzania has committed itself.

Financial provisions relating to the Petroleum Upstream Regulatory Authority, including the duty to act on sound financial principles, tax exemptions and the auditing of accounts, are addressed in Parts IX of the Act, whilst PURA's powers to settle disputes are covered in Part XI. These are discussed later below in the analysis of related principal laws.

Concerns for the use of funds derived from the oil and gas sub-sector, in order to avoid among other catastrophes the 'Dutch Disease' and ensure sustainable use of the funds, are addressed in the Part of the Act on General Provisions where there is provision for establishment of an Oil and Gas Revenue Fund. The issue of natural disaster management is also provided for in this Part.

5.4 Oil and Gas Revenues Management Act, No. 22 of 2015

This Act was passed primarily to establish the Oil and Gas Fund envisaged in the Petroleum Act 2015 discussed above and to set out the framework for the fiscal rules and management of oil and gas revenues. The provisions of the Oil and Gas Revenue Management Act are thus also to be read with Part III, sub-Part VII of the

Petroleum Act which also sets out key aspects of the petroleum fiscal regime in relation to, *inter alia*, royalties, fees, taxes and ring fencing on to recoverable costs.

The Act address issues of collection and auditing of revenue derived from the oil and gas sector. Section 6 of the Act places the task of collecting revenue due to the Government in the hands of the Tanzania Revenue Authority (TRA) and the TPDC (the National Oil Company). Accordingly, TRA is tasked with the duty of assessing, collecting and accounting for taxes and levies. TPDC, on the other hand, is charged with the task of collecting and accounting for non-tax revenue derived from oil and gas.

The administration of revenue management (which includes issues of policy and investment) is placed in the hands of the Minister responsible for Finance. The Bank of Tanzania (BOT), the other branch of government with responsibilities for the administration of revenue from the oil and gas sector, is tasked with overseeing operations of accounts of the Oil and Gas Fund and devising strategies relating to investing of money of the Fund. BOT is required to report the performance of the Fund to the Minister.

The Oil and Gas Fund, established by section 8 of the Oil and Gas Revenues Management Act is that which was contemplated by section 251(b) the Petroleum Act which directed the Government to enact a law to establish such a Fund. Such Funds are a common feature in jurisdictions that have huge deposits of oil and gas resources. These are necessary to ensure that when the resources are depleted, there would be no set-backs in terms of economic development.

The objectives of the Fund established by the Oil and Gas Revenue Management Act are to ensure fiscal and macroeconomic stability, enhance social economic development, finance investment in the oil

and gas sub-sector and safeguard the interest of future generations. The sources of the Fund are revenue derived from royalties, Government profits share, taxes, and returns on investments. Its management has been vested in the BOT by virtue of section 10(2) of the Act.

Experience from some countries which once made significant gains from revenue derived from the oil and gas sectors shows that mismanagement of such Funds is very likely where mechanisms to regulate potential abuse of revenue of the Funds are not provided for by the law. Experience from other jurisdictions reveal that there is a need to ring-fence the Fund to ensure benefits are maximized for the entire economy of a country. It is in this regard that section 11 the Oil and Gas Revenues Management Act places restrictions on the use of revenue of the Fund. The section prohibits use of the Fund for issuance of credit to the Government, the public or private sectors or any other entity. Also, revenue of this Fund cannot be used as collateral or guarantee or for commitment of any entity or rent seeking or be used for purposes of corruption or embezzlement or theft. The Portfolio Investment Advisory Board established by section 12 of the Act is another important organ which is necessary for ensuring sustainability and wise use of the revenue of the Fund. This Board is required to advise the Minister on issues relating to investing revenue of the Fund in investment markets.

Discipline in ensuring compliance with fiscal rules in relation to the Fund is provided for by section 16 of the Act which lays down the objectives for those rules and principles upon which they are based. The main objectives of the rules are to finance Government budget, finance investment by the TPDC, for fiscal stabilization and saving for future generations. The fundamental principles upon which the rules are based are provided for in section 16 (3). The underlying theme of these principles is premised on ring-fencing the Fund to ensure that the economy of the country can sustain itself across a

diverse spectrum for the present and future generations. Changes of the fiscal rules can only be done after a period of five years and requires approval of not less than a third of all Members of Parliament. The fiscal rules applicable under the Act are provided for in section 17.

The importance and obligation of transparency and accountability in collecting, depositing, disbursements and operating and managing the revenue of the Fund are provided for in section 18 of the Act. All records (including the Report by the BOT on the Fund) on revenue and expenditure are required to be published in the Government Gazette and all information required to be made public are to be published online on the government web-site and that of the Ministry of Finance. The record of the oil and gas revenue and expenditure is to be scrutinized by Parliament. The requirement of auditing the books of accounts of the Fund by the Controller and Auditor General is also another effort of the Act to ensure transparency and accountability in the operation and management of the Funds derived from the oil and gas sub-sector.

Another aspect of transparency and accountability that is contained in the Petroleum Act relates to the integrity pledge required to be taken by license holders and contractors undertaking activities regulated by the Act. Accordingly, section 223 of the Act which provides for the integrity pledge requires them to conduct their activities with utmost integrity in financial dealings, complying with the tax systems and not to compromise the security of the State.

5.5. Tanzania Extractive Industries (Transparency and Accountability) Act

The enactment of the Tanzania Extractive Industries (Transparency and Accountability) Act of 2010 reflects and complements the comparable provisions of the Oil and Gas Revenues Management Act, 2015 and of the Petroleum Act 2015. This Act was established

primarily to put in place a Committee for ensuring transparency and accountability in the extractive industries sector, that is, the multi-stakeholder group envisaged by the EITI. It defines extractive industries to include any industry dealing with natural resources. Although it does not define "natural resources", the Act covers a wide range of resources. Its definition of "extractive industry company" includes a company engaged in exploration for minerals, oil, natural gas and includes "natural resources extraction"

Section 4 of this Act establishes the Extractive Industries (Transparency and Accountability) Committee as an independent entity of Government for promoting and enhancing transparency and accountability in the extractive sector. Its primary function is to act as an oversight body to ensure revenues are managed and controlled in a manner that is transparent and that those who violate the law are held accountable. The Act provides for consequential amendments to a number of pieces of ancillary legislation relating to the extractive sector in order to include in them provisions to ensure transparency and accountability.

6. Lessons from Other Jurisdictions

The above analysis of the legislative framework for oil and gas in Tanzania has revealed that there are 3 main legislative enactments for regulating the oil and gas sub-sector in Tanzania. These are the Petroleum Act, the Oil and Gas Revenues Management Act and The Extractive Industries (Transparency and Accountability). These laws are to be read together as their provisions make cross-reference to each other in the elements that have been the focus of this Part. The key elements that have been focused on by this analysis relate to best practices relating to ownership rights, licensing regimes, and institutional and administrative frameworks. Environmental concerns, local content, fiscal regimes, transparency and availability of information have also been considered. These elements ought to be reflected in similar manner in other legislative enactments in a

number of countries. This is mainly because these countries have promulgated their laws in compliance with the Natural Resources Charter which has universal application in the extractive industry.

A rapid comparison of other legal regimes for regulating oil and gas operations in other jurisdictions reveals that the legislative framework for Tanzania has taken the lead. Its provisions are comprehensive in the elements considered reflect the aspirations of the Natural Resources Charter. The provisions separate down-stream, mid-stream and upstream operations, creating distinct but coordinated organs to deal with these. This is not the case with some of the legislation for Kenya and Uganda which do not make a clear distinction in the regulation and control of these important areas.[158] That of Trinidad and Tobago also does not distinguished between the two. The legislation of Nigeria makes a vivid attempt to do so.

Some of the common features among the legislation of Tanzania and that of the other jurisdictions are found in provisions relating to ownership of oil and gas resources which are vested in the State and to some extent the licensing procedures which must be sanctioned by the Minister. The framework law dealing with oil and gas in Uganda is the Petroleum (Exploration and Production) Act, of 1985 (Chapter 150). This legislation sets out broad issues with very little focus on the elements of this analysis. This is equally true for the case of Kenya where the Petroleum (Exploration and Production) Act Cap. 308 of 1986 which focuses primarily on negotiations and agreements entered into by government. The Regulations that appear on the Schedules are also based on the negotiations and agreements. Trinidad and Tobago's framework law for oil and gas (Petroleum Act, Cap. 62:01) has covered some aspects of environmental and

[158] See Kasimbazi, E. B, *"Environmental Regulations of Oil and Gas Exploration and Production in Uganda,* " (2012) *Journal of Energy and Natural Resources Law*, Vol. 30, No. 2: 21-230 and Osiemo, E. K, (2015) *"Tightening Multinational Corporate Environmental Responsibility in East Africa's Oil and Gas Sector,'* Master of Laws (LL.M) Thesis, University of Dar-es-Salaam..

health safety in oil and gas operations and issues of compensation in the numerous Regulations appended to it in the form of Schedules.

7. Conclusion and Recommendations

The analysis reveals that the coverage and scope of the provisions of the framework legislation governing oil and gas is provided for in detail by three main laws: The Petroleum Act, the Oil and Gas Revenues Management Act and the Tanzania Extractive Industries (Accountability and Transparency) Act. These laws ought to be read together as there are a number of cross-cutting issues addressed in them. Unlike Kenya and Uganda's current legislative framework, Tanzania's legislation reflects international best practices by providing for very clear and detailed provisions on local content, the fiscal regime, environmental and health and safety issues. Institutions and individuals charged with the administration of the Act are subjected to transparency and accountability requirements which equally ensure that citizens are informed of the activities of the industry and Government through Parliament and periodic reporting. Insofar as the promise of Tanzania's legislation is fulfilled in its implementation and enforcement, it has the potential to act as an example for other jurisdictions, especially to the extent that it reflects the guidance of the Natural Resources Charter regarding the regulation of the extractive industries, especially for developing countries.

The Petroleum Act, being the framework legislation governing the oil and gas sub-sector in Tanzania, is still at a very embryonic stage. In order to become fully operational, Regulations contemplated in it must be promulgated. The process of having these in place will certainly take time, but they will need to be adequate to the task of steering the evolution of a complex sector. The Trinidad and Tobago approach to the Regulations would provide useful lessons for

Tanzania.[159] Even after completion of the Regulations, it is recommended that the process of implementation of the Act should be gradual and should also leave room for amendment to ensure that other ancillary laws do not conflict.

[159] See Ninane, F, *et al*, (2011) Getting the Deal Through Gas Regulation, Law Business Research Ltd, London

CHAPTER 5

POLICY CHALLENGES FOR OIL AND GAS: ECONOMIC PERSPECTIVES

Pantaleo and E. Kisanga

1.Introduction

Tanzania is at the initial stage of exploiting the sector of oil and gas and, as noted in the preceding Chapter, it has developed sector policies. Despite the existence of the policies, it is clear that these developments are still at an infant stage in terms of sector operation. It is thus critical to make an analysis of the existing sector synergies and policy challenges from an economic angle in order to inform policy makers on issues that may call for further attention and reconsideration. This Chapter explores existing policy challenges in the oil and gas sector with specific emphasis on the economic dimensions. It provides an analysis of the theories underlying the social economic impacts of the policies making some comparisons with the experiences in other jurisdictions.

The discoveries of natural gas and oil and its commercialization in Tanzania may have significant potentials for transforming further the patterns of the economy if sectors are well managed. Experience from countries that are oil and gas dependent or rich on these resources, has revealed that a country benefits from the sector if there is proper and careful planning and citizens act as stewards for the next generation and work together for a better future of the country. Resource rich countries such as Canada, Russia, Iran, Congo and Angola have shown that oil and gas as well as other types of natural resources have massive contribution to the economy. Despite coming with prosperity, some countries have experienced persistent poverty and conflicts, partly due to giving little priority to economic

considerations in the policy making process that provide strategies for utilization of the resources.

It is critical to analyze the policy framework for the extractive sector in Tanzania by focusing on, among other issues, the underlying theories for managing these resources especially on aspects of extraction, revenue sharing and government and local community participation. These need to be analyzed in the entire value chain of the extractive sector.

2. The Fiscal Regime

As noted above, the fiscal regime of the oil and gas involves two major elements namely Tax or Royalty and Production Sharing System (Contractual Regimes). All the license holders including contractors and subcontractors in the country are required to pay, among other taxes, corporate tax, capital gains tax and other applicable taxes in accordance with the law. Profits derived from direct/indirect assignments, transfers or any other disposal of rights under a petroleum agreement regardless of the beneficiary, type of transaction are also subject to taxes at rates prescribed in the *Income Tax Act*. The party financing the respective operations is considered a subcontractor and is subjected to withholding tax on the interest paid. Such interest may not exceed the lowest market rates and is only deductible for tax purposes if approved by Petroleum Regulatory Authority (PURA).

The Oil and Gas Fund envisaged under the *Oil and Gas Revenues Management Act 2015*, the Oil and Gas Fund is to be established with the responsibility for maintaining fiscal and macroeconomic stability, enhancing social and economic development, and safeguarding resources for future generations. This has been established and TPDC have been mandated to ensure that it channels the revenue to the fund.

3.Economic Theories on Oil and Gas

There exist a number of theories relating on oil and gas that provides guidelines on proper extraction of resources without leaving a country with the "Natural Resource Curse."Our focus here will on those related to revenue management and government involvement in the extraction processes and its value chain.

4. Economic Rent on Oil and Gas

Oil is one among the highly valued non-renewable natural resource which countries enjoy its benefits through a concept referred to as "Economic Rent." Economic rent is the difference between the prices paid for a commodity and how much a producer would need to be paid to cover the costs of supplying it. The associated costs to oil include costs of exploration, development production costs and minimum return (including risk premium) required for an investor to undertake the project. So the important policy question here is about the distribution or the sharing of the accrued economic rent. This requires focusing on how the government and investors divide the resulting rents and what dictates the taxation decisions. There are a number of factors that determine such rent. The notable ones are the following:

i. The oil projects can take more than ten years to start generating revenue and production periods takes several years;
ii. Upfront investment in exploration and development of oil fields are huge and cannot be recovered if not successful;
iii. There are uncertainties about the size of the oil stock, its accessibility, the political environment, future oil prices making it impossible to quantify the aggregate returns to be obtained over the life of a Project hence difficult to ascertain profitability;

These call for:

i. The government to balance its desire for early revenues against any deterrent effect this may have on investment—budget constraints, and political pressure can compromise these;
ii. The government to have critical assessment on the associated revenue risks in the long term tax decisions (e.g. fixed budget). The issue of "Time Consistency" where without safeguard on tax regime changes investors may hedge their risks by adjusting the size of their investment, their development, production timeline, risk premium and decision on when to shut down. Also, progressivity is likely to be unappealing for many low-income countries in the presence of uncertainty related to the politics of time consistency and associated costs of risk- bearing;
iii. Preserving on ring-fencing to avoid investors to reduce taxes with losses from its other activities inside or outside the country. In most cases with poor monitoring mechanism tax authorities cannot easily monitor resource revenue and associated costs;
iv. Looking at whether when dealing with International Oil Companies there is existence of double taxation arrangements, the personal tax treatment of final returns to shareholders and availability (or absence) of credits to offset tax payments made to host countries and later tax avoidance.

On the other hand, although gas has many economic properties in common with oil, and is frequently produced in association with oil, the problems of bringing gas to the market and of pricing it are significantly different. As noted in Chapter 1, commercialization of gas requires a chain of operations "from drill bit to burner tip" that includes upstream production, pipeline transportation, processing or liquefaction, transportation again (for example, on LNG (liquefied natural gas) tankers), distribution or re-gasification (if liquid), and final sale to end user as fuel, electric power, or an industrial input. At

each of these stages, there may be arm's length prices or transfer prices, and rents may arise. Fiscal regime design for gas is therefore complex, and may have to be adapted to the commercial structure of individual projects. Commercial structure of different project types makes a key distinction between "segmented" projects where transfer prices must be established at each stage of the chain, and "integrated" projects where only the final price of gas (usually LNG) matters.

5. Tax Design and Approaches in Oil and Gas

The key theoretical challenges discussed above manifest themselves in the tax design of most countries especially those with the following key distinctive features:

i. Less robust institutions, so the credibility of government commitments is impaired;
ii. Scarcity of both consumption and capital, with the rate of return on scarce capital likely to be high; and,
iii. Severe information asymmetry vis- à-vis resource companies on governments sides. With these it is recommended for a wider separation of exploration from extraction, more frequent use of auctions, royalties geared to observable variables (such as prices), and adjustment of exploration to the pace of absorption of investment.

Thus, for tax design under the above features, two families of fiscal regime have always been proposed:

i. Tax or Royalty; and
ii. Production Sharing System (Contractual Regimes)

In designing of the petroleum taxation regime, it is argued that since petroleum fiscal regimes usually apply to upstream production in a segmented structure, and normal corporate income taxation will apply to other stages, the transfer price from the field delivery point is critical to the fiscal outcome. On the other hand, it is argued that government policies on gas pricing, equity participation and on fiscal

terms must be developed simultaneously if governments are to extract a significant share of rents from the production of natural gas. Lastly, authorities have argued for the subdivision of contractual regimes into two. One the one hand, there are those of a production-sharing type (where produced oil and gas are shared) and on the other those of a service contract type (where a cash fee is paid, even if geared to project results).

Royalties will often have an important role in a resource tax regime, but theoretically sole reliance on them risks creating costly distortions. It is also found that it is not appropriate to rely on a single tax instrument. This is due to the range of challenges that governments face in designing their resource tax regimes. These challenges include the preferred time path of revenues(i.e. market instability increases uncertainty, makes it difficult to measure revenues from the natural resource sector, and hampers effective planning for economic development), problems of time consistency and asymmetric information, administrative capacity and political economy pressures.

Tax and royalty systems prevail in OECD countries, service contracts dominate where there are national restrictions on private participation in petroleum production, while production sharing has spread into much of the developing world – especially to Africa and south East Asia, but not to Latin America.

6. Role of State Institutions in the Oil and Gas Management

The extent to which the Government/State participates in extraction and management processes of oil and gas depends on a number of issues including:

i. Governance and related challenges for macroeconomic management;
ii. Funding of developments;
iii. Commercial efficiency;

iv. Conflicts of interest;
v. Sector responsibilities; and
vi. Institutional capacity.

Globally, there have been mixed practice with a view to taking care of the associated challenges and avoiding the resource curse. However, in Tanzania there is currently improved clarity on roles and responsibilities of government agencies and institutions as noted in the analysis of the relevant laws and policies discussed above. As pointed out earlier, the oil and gas sector is one of the relatively new sectors in the country in terms of operationalization of sector activities when compared with other sectors in the country as well as to other country's experience. The institutional set-up of the sector is structured based on the complexities of sector's activities which is structured into the oil and gas production cycle namely, the upstream, mid-stream and downstream. The challenge posed in the existence of the multiple institutions is ensuring that each play its role without overstepping on the roles of the other. This requires a coordinated legal and policy framework which will quickly and effectively respond to conflicting mandates to ensure economic stability.

7. Policy and economic challenges

Exploring the experience of most of the countries with abundant reserves of petroleum and gas, these countries are claimed to have lower economic growth, less democracy, more social unrest, and an erosion of institutional quality elements that has prompted policy solutions to deal with these possible adverse effects. As noted in the review of the Oil and Gas Revenues Management Act 2015, the established Oil and Gas Fund is one of the examples of institutional design, which has been adopted by a number of petroleum producing countries in the world. The first petroleum fund established was the Kuwait Investment Authority in 1953, with other notable funds including the Alberta Heritage Savings Trust Fund in Canada in

1976, the Alaska Permanent Fund of 1976, the Norwegian Government Pension Fund Global established in 1990. In some countries such as Chad, Angola and Nigeria, this Fund has been referred to as the Sovereign Wealth Fund. These Funds have faced a multitude of challenges which mainly evolved on how much of the petroleum income shall be channeled into them, their management and decision-making on payments from them.

In the case of Tanzania, the envisaged Fund, seeks to serve as a vehicle for long-term management of petroleum revenues and at the same time acting as a stabilization tool for preventing short-term fluctuations in revenues to turn into short-term fluctuations in government spending. The challenge will remain on determining how the Fund will be protected from the political influence, as was the case in Chad where political tensions erupted and the President ordered the money to be spent on the military. In the case of Angola, after the establishment of the Fund in 2008, the son of President Dos Santos became the head of its board of directors in 2013. Currently, in Tanzania, there are unclear spending rules in place for the Decommissioning Fund and the Oil and Gas Fund, and local government spending rules are also lacking.

Theories on approaches to engaging local community members have led to the putting in place Local Content Policies (LCP). These have economic implications as they seek to make oil and gas resources beneficial to all citizens and contribute to the development of the country. The main objectives of the LCP are to ensure that more Tanzanians are employed in the petroleum sector and that local companies become suppliers to this industry. The policy challenge from an economic point of view is that it affects a redistribution of benefits that in long-run may trigger rent seeking, corruption and non-productive lobbying (Kolstad and Kinyondo 2015). Also, some measures of the LCPs, require investors to purchase local products, an action that contradicts the requirements under the current World

Trade Organization (WTO) Agreement on Trade-Related Investment Measures (TRIMS). Difficulties are also on the labor force requirements especially on transferring high level of skills, knowledge and technology. Implementing fully the aspirations of the LCP would encounter challenges due to the shortage of experts to assimilate the required high tech knowledge.

The issue of transparency on issues of access to information may have adverse economic implications. It is clear that the policies, laws and model PSAs have conflicting conclusions on transparency issues with PURA having options to provide information through the information system while the model PSA insisting that some of the information would remain confidential.

Finally, there has been increasing interests in auctions as a means of allocating exploration and extraction rights for natural resources. Theory has it that auctions allocate and price scarce resources in settings of uncertainty. They are a competitive, formal, and transparent method of assignment. A primary advantage of an auction is its tendency to assign lots (of rights to explore and extract) to those best able to use them. A well- designed auction can perform well with respect to both efficiency and revenues – although there are subtleties in auction design which can affect their efficiency. To have a successful auction the following initial steps need to be considered: (i) establish the objectives of the auction (this will usually be revenue maximization, but in any case stresses there must be a clear and unambiguous way to translate bids into winners and terms); (ii) define the product – specify what is being sold; for oil and gas, this means the terms of the license or contract, including the biddable terms, and the geographic scope of the lots; and (iii) specify the auction process well in advance of the tender – the bottleneck is usually the administrative process, rather than technical auction design and implementation.

8. Conclusions

This Chapter has analyzed policy challenges in managing natural resources in Tanzania from an economic perspective and argues that policies (and related laws) that have been put in place in Tanzania seem to have set a good foundation for addressing a number of challenges. However, there still exists uncertainly in some areas, especially in ensuring that there will be no political interference to erode all the intended benefits. It has also been noted that institutional capacity and quality of human resources is still an issue. This could lead to conflicting mandates within the institutional structure with resultant repercussion to the economic gains that would be achieved. It is critical to consider options available to address the challenges in order to ensure maximize use of the economic benefits flow across the entire value chain.

CHAPTER 6:

SOCIO-ECONOMIC IMPACTS OF OIL AND GAS ON LOCAL COMMUNITIES

O. Kweka, F. Namkesa, Z. Jane Morrison and P. Silvano

1. Introduction

This Chapter presents an analysis of the socio-economic impacts and likely conflicts on communities living in proximity to areas where oil and gas explorations have been undertaken or are about to be undertaken. The focus of this analysis is on the coastal communities in Mtwara and Lindi Regions in southern Tanzania. Local communities in these areas have expressed concerns on the impact of oil and gas operations and the impact these may have on their economic, social, and cultural lifestyles, leading to the Government of Tanzania paying particular attention to raise their awareness prior to embarking on oil and gas operations in the regions. The experience of the government's approach in its effort to reduce perceived conflicts in these areas requires a critical analysis. Such analysis will provide insights that would help to understand the dynamics underlying government interventions to ensure effective participation of local communities in the operations, and avoid potential conflicts over resources pitting the government and its citizens on the one hand, and citizens and developers of the oil and gas sector on the other hand.

The Chapter is based on a study which was conducted in 4 villages and two streets where natural gas is extracted or processed, and the general impact measured as positive or negative on the basis of social, economic, political and environmental factors. These are: Msimbait, Madimba, Hiari, and Songosongo, the streets in Kilwa town area are Miembe miwili and Mnazi mmoja It is informed by

research conducted in 2017 in Mtwara and Lindi by the authors who had the goal of mapping the activities of oil and gas in the coastal zone of Tanzania. The need to study sub-national resource curse was, according to the authors, necessitated by the fact that the development plans and decision-making is decentralized to regions and districts, and therefore it was deemed important to probe on the impact of the wealth on such localities (Cust and Viale, 2016). It is clear from the foregoing Chapters that the oil and gas sector has both direct and indirect negative and positive impacts on local communities in general and coastal communities in particular.

Studies on oil and gas have demonstrated impact on the national development where oil rich countries have been associated with conflicts and dictatorial regimes, a phenomenon referred to as "resource curse", or what Ross (2013) has called the "oil curse." Economists have gone beyond the correlation of resource and national development variable and made reference to the 'Dutch Disease' (Di John, 2011), a phenomenon which describes how resource or oil curse occurs through overdependency of exportation of one valuable resource and the lack of linkages to other productive sectors of the economy in a nation. Most of the literature in this regard has focused on the impact of oil and gas at the national and global scales. Lately, however, the focus has shifted to issues of the "sub-national resource curse", emphasizing the need to study the localities where gas is extracted, and the economic development of these regions. Cust and Viale (2016) found out that although the nations received, revenue, rents and taxes, it is important to understand how the oil and gas economy impacts other sectors of the economy, thus the need to study both forward, backward linkages and spillover effects.

Unlike other resources, oil and gas are energy resources and are therefore considered as an engine of development as they can drive other sectors leading to industrialization. They can lead to

infrastructure development and changes in the landscape of a place. However, oil and gas can have a negative impact on the local economies for they can lead to the displacement of people for investment, impact on the environment, society, and culture, all of which need to be given attention by policy makers.

In Tanzania, the regions of Mtwara and Lindi, where gas is extracted, were for a long time considered the poorest regions, with low levels of education which led to outmigration. The development of oil and gas reserves in the regions has not only led to increase in migration of people from all over Tanzania and outside the country, but it has raised the expectations of the local communities that the sector will increase employment and income, and therefore bring development. Oil, , and coastal resources combined, have great contribution on economic growth of a nation if the sector employing most of the people in a country is linked to the oil or gas sector. In the case of Tanzania, this sector is agriculture, and in the coastal region fishing is the second largest economic activity. Addressing the sub-national resource curse also helps policy makers to address the regional inequalities and accountability at the local level (Cust and Viale, 2016).

Oil and gas operations may have negative impacts on the coastal communities. These include accidental oil spills, impact on air, water and land. At the upstream level, the impact is usually evidenced in changes in land use patterns, overexploitation of natural resources, vegetation loss (for on shore activities), soil erosion, accidents, soil and air pollution, and ecological disturbances, including loss of habitat/displacement of people. Other impacts in this category have also been seen through migration of populations due to employment and other opportunities, increase in traffic in road, air, and sea infrastructure, oil spills, and disposal of waste materials in the environment.

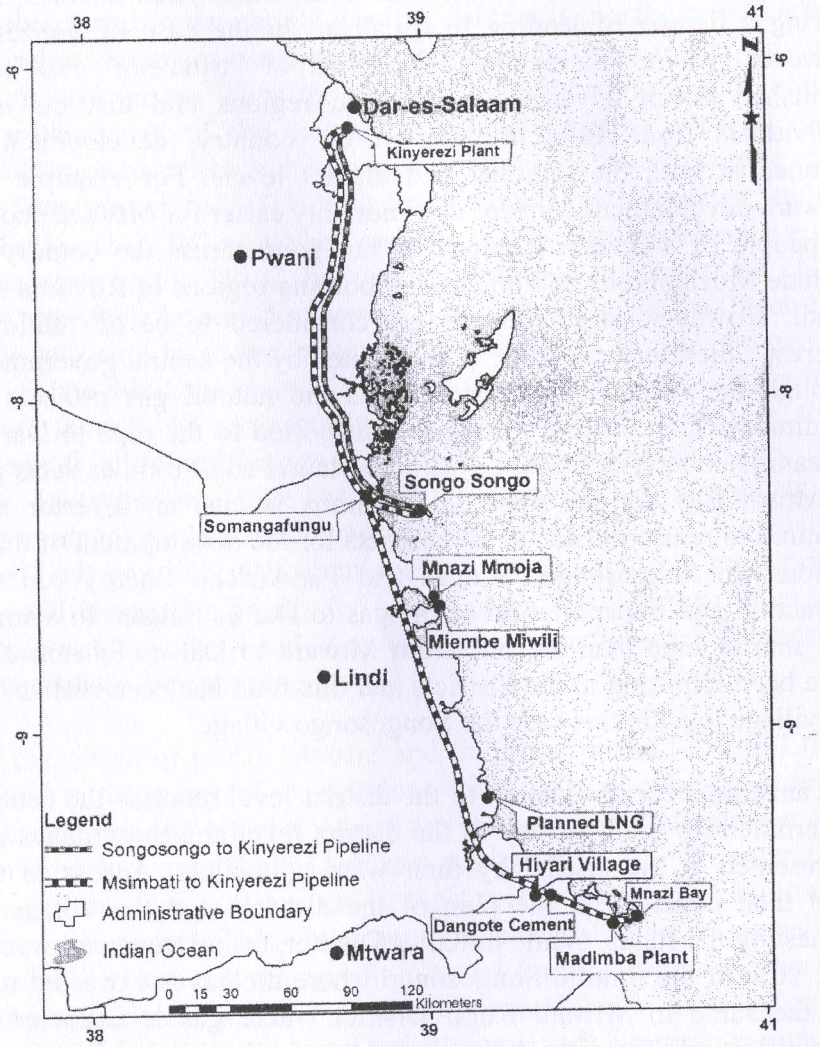
At the mainstream level, the impact can be flaring for condensate burning, safety cases, venting of gases and well testing, water and air pollution, increased risks of accidents, noise, soil erosion, habitat loss/degradation, displacement of people and ecological disturbance in the environment. At the downstream level, the impact is often seen in the lens of loss of habitat, social conflicts, deforestation, displacement of people/animals, especially in pipeline way leaves, and chemical contamination. Impairment of cultural values and heritages, oil/gas leakages/spills, waste oil, ground water, soil and air pollution are other indicators that have been noted. As noted earlier, legislation, policies and institutions have been established to deal with environmental problems, health and safety standards.

The choice of the study area was informed by a number of factors. Data was collected in Mtwara Rural and Kilwa Districts. In Mtwara Rural data was collected in Msimbati and Madimba, and Hiari villages, in Kilwa, KilwaMasoko, Somanga and SongoSongo. Msimbati was included because this is where gas is extracted at Mnazi Bay by Maurel and Prom (M&P) a company. TPDC owns a gas purification plant in Madimba which then transport gas to Dar es Salaam in a pipe. The pipe passes through a number of villages. However, Hiariwas selected since this is where the Dangote cement industry is located and expected to use gas in the future. In Kilwa the pipe meets at SomangaFungu with the pipe from Songosongo gas and connects to Kinyerezi in Dar es Salaam. Kilwa District has been benefiting from the gas economy since the development of the Songosongo gas in 2004. A survey was conducted in Kilwa Town Council in two subvillages of Miembemiwili and Mnazimmoja which are affected by a recent plan to establish a fertilizer company by the Ferostaal, TPDC and other stakeholders intending to use products from the gas from Songosongo. The gas from Songosongo was economically extracted in 2004 with PanAfrican Energy, Songas and now some wells are developed by the TPDC which has also built

another pipe which runs parallel to the old pipe from Songosongo to SomangaFungu.

The households that were included in the study were randomly selected. The aim was to get 30 households in each village, and balance gender and different categories of occupation in the households. Six Focus Groups Discussions (FGDs) were held in six villages, one in each. The composition of the FGDs was informed by the survey in which different groups were included. FGDs were done in order to get more information on the nature of impact on economics groups, economic sector and population groups which were generalized in the survey as economic, social, political, environmental impacts and not yielding much of the qualitative information. The data was analyzed using content analysis. The FGDs were used to conform to the impact on the economic groups, sector, population and geographical areas. Additional interviews were conducted with select government officers at the regional and district levels on the impact on the community. Early gas projects in the regions are to do with extraction and processing in the case of Maurel and Prom extraction in Msimbati and Pan African and Songas in Songosongo, and Somanga villages. The latest are TPDC in Madimba and Songosongo processing and transportation using pipes. Mpa 1 shows the study area.

Map 1: The study area



Source: Kweka, 2018

2. The Early impact

The argument of subnationalism has often times been dismissed as having a danger of leading to tribalism. In the case of Tanzania, however, where "nationalism" in terms of "tribalism" has been abolished during Nyerere's reign, and regions and districts host individuals from different parts of the country, development is planned at both the regional and district levels. For example the Mtwara development corridor does not only carter for Mtwara people or people of a certain ethnic tribe but goes across the country to include Mozambique and other neighbouring regions of Ruvuma and Lindi. However, large projects are considered to be of "national interest"; therefore, these are implemented by the central government through the respective ministry. Thus the natural gas projects of Madimba which process gas to be transported to the pipe to Dar es Salaam is under TDC. TPDC, just like Maurel and Prom, extracts gas at Mnazi Bay for the plant in Madimba is also an investor and required to remit revenue to the districts for the development of these regions. In Songosongo, Songas and PanAfrican Energy run the extraction and transportation of the gas to Dar es Salaam in a small and shorter pipe than the one from Mtwara to Dar es Salaam also have been remitting to the districts and this fund has been realized at the village level in this case the Songosongo village.

In Tanzania, decentralization to the district level requires the central government to remit money to the district level and the villages are represented at the district by their ward councilors. Access to the fund then depends on the plan of the districts and the village in requesting the funds. While in Kilwa District, the arrangement was to give 20% of the fund to Songosongo where the gas is extracted it is not the same in Mtwara Rural District where gas is extracted at Mnazi Bay, and the district distributed this fund to all districts. It can be in terms of projects in most cases earmarked for supporting women and youths. It should be noted that Songosongo is a village

and a ward at the same time, and therefore has representation at the Council meeting.

The investment in the natural gas in Tanzania is mostly spearheaded by foreign direct investments that have capital and technology to explore and extract. Thus the control of the upstreams operations. The involvement of the country is through signing a production sharing agreement which the country gets loyalty, taxed, revenue and rents from the activities. The four leading company have been Statoil and Exonmobill, BG now Shell and Ophir. These companies have an agreement with the TPDC that they will proceed to construct a LNG Plant after their largest discoveries. The first challenge had been on where to locate it, as the investors preferred to locate in the ocean because the discoveries are in the deep sea the government preferred the off shore LNG for security and easy monitoring. This is also strategic to allow for the growth of petrochemical industries near the plant. The other challenge has been that most of the gas companies want to export as their argument is that the off shore gas is expensive to drill and requires an international market to capture a good price for good returns or profit. As noted above, the Energy Policy of Tanzania on the other hand has promoted satisfaction of the domestic market before exporting.

The extraction of gas in Mtwara and the plan for the LNG in Lindi had led to a number of expectations from the community. Some of these expectations are real others are exaggeration and some result from promises from the leaders and the investors. The communities expected that gas will remain in their regions, industries built and create employment. Those in agriculture expected to be able to sell to the working class and reap profit. Coastal communities also practice fishing as a second main economic activity and fishers expected to be supported especially in the early phases of exploration where investors closed down some fishing grounds for some times to allow for exploration to take place. The fishers were promised modern

fishing gears as the exploration started but no fisher was supported with a gear as our study found. There was no compensation for the income lost from not going to fish but only for any damaged done e.g. if the exploration boat destroy the net. The companies giving back to the community is through the community liaison officers who record the needs of the community and align with the Corporate Social Responsibility (CSR) plans of a company. In our study however, we did not find a good match between what the community expected and what has been offered as part of the CSR in the exploration stages.

Members of the communities complained that some of them abandoned their main economic activities to pursue the expected gas economy and were told to organize themselves into groups and some investors provided fund for supporting different groups including youths and women to either raise chicken or farm vegetables. At the end the youths complained about the procurement process which did not guarantee them to sell their chicken. Therefore there was no connection between the support of livelihood of the community and linkages to the growing gas economy even though the youths and women were staged to do so. Part of the challenge came from the way the tender was provided but also corrupt leaders who took the opportunity and information for their own benefit. In one case, a youth explained that the companies will give the tenders out on Friday evening and require goods to be delivered on Monday with specification on standards and quality which the community members could not attain and were therefore disqualified. We also noted that some of the locally owned companies are small and informal therefore not registered. Some of the products needed could not be obtained locally and or the amount needed was too big. The tendering process also required some investors with large capital for they require the supplies to be made in advance and can a take long time to pay. For those with small capital they thought that was not favouring them. Therefore many went back to their normal farming

activities and they were losing in the "new" activities for not having the market.

The early and expected impacts were measured in terms of changes experienced in the lives of the respondents. Respondents' attribute some of the changes they see in their lives has to do with the natural gas and think there were more positive than negative changes. The positive change is experienced more in terms of provision of social services by the natural gas companies through CSR but not so much in terms of economic benefits.

The communities expected industries to be built so they could obtain employment, increase income and remove poverty, expectations which were cultivated in the beginning of the investments by different leaders. These expectations today are gone and they live in despair knowing that they have lost. They still hope for the revenue distribution once the investment has stabilized as they were promised.

The positive experiences were more pronounced among the adults while the young experienced most of the negative impacts. This is mainly due to the fact that youth needed employment. The difference in the impact could not be separated by gender. Gas led to more positive change in social than economic factors. The study also probed on the impact of the gas economy on different economic groups. The elderly, especially women did not have much expectation on the gas economy as compared to the youth. There was no difference between the farmers and business groups and the rural dwellers expect the urban ones to benefit more than them.

3. Impact on coastal communities

3.1 Impact on Land

One of the impacts on the local communities was on land. Findings reveal that some of those who had given their land to pave way for

construction of pipes or Plants have experienced positive impact while others negative impact. The positive impact was associated with those who were able to build houses and improve their farms. The negative impact was associated with those who have given their farms and were neither able to establish other forms of livelihood activities with the money they received nor did they receive any form of employment from the investment. Those with family farms and small farms did not benefit much. Poverty is likely to have increased to those who gave land. Some of the improvements mentioned are associated with the increase in price of the cashew nuts.

3.2 Impact on Employment

One the main expectation of the community members was access to employment. However, they were disappointed by the fact that very few were able to secure employment opportunities. These few talk about having access to low payments, marginal jobs such as cleaning and cooking and those who are able to get decent jobs complained about lack of job security as they are given contracts. The other problem associated with employment is the rise of xenophobia as a result of in-migrants from other regions who are able to secure jobs in the areas. The local communities referred to the migrants as 'people from the North' who are coming to get their jobs. The villagers complained the fact that leaders and investors have promised that they will give them priorities but they see that people from other parts are taking "their jobs" of which they have capacity to do them. There is a need to lay emphasis on the Local Content Policy and its aim to communities living adjacent to the investments. In Songosongo, where operations started much earlier and are managed by private investors, local community members were able to secure permanent and skilled jobs were relatively satisfied.

3.3 Infrastructure development

The rural communities where gas is extracted have access to electricity. However, unlike in Songosongo where they have free electricity those in Madimba and Msimbati complained they have to

pay contrary to the promises of leaders. There is, however, no connection charge. They also show high expectations to have access to gas for cooking, as the electricity was reported to have benefited fish traders mostly who are storing their fish in refrigerators and sell in bulky. There were complaints that there are frequent power outrages which destroy the fish forcing them to sell the fish at a cheaper price for fear they will rot. There are some improvements on the road but not to the tarmac level in Msimbati through Madimba to Mtwara urban.

3.4Impact on social services

In terms of social services, the communities agreed that there is better provision of health and education support. In Msimbati they have been provided with modern health equipment and education support. A maternity ward has been built in Msimbati, wheel chairs provided, classrooms for primary and secondary schools, and they expect more social services dormitories and health facility. In Madimba they complained about the poor infrastructure of the water service that is provided by the investor who is the government. They have water tank which according to the villagers is not sustainable. They think they should be provided with a permanent structure. In Songosongo, the communities have seen positive benefits in terms of provision of water, education and health. In Songosongo and Msimbati they reported to be getting support in social services from the investors.

3.5Impact on Different Economic Groups

Fishers benefit more as they depend on electricity. Electricity has played a positive role to the fishermen who use freezers to store the fish and sell in large quantity at a higher price. They have reported a decline in production and need for fishing vessels. They lack fishing boats. Those engaged in fish farms noted that weeds were causing damage to the farms. Fish farmers in Songosongo are compensated for the loss. There is an increase in food prices and fish in particular.

Farmers are the last to benefit since they depend on crops not fishing and they claimed that they received low compensation for having vacated their farms to pave way for Projects. There has been business expansion, increase business opportunity and employment in business for those who can sell, but these are few. Overall, community members pointed out that the increase in population has increased business.

3.5Impact on Different Social Groups

Elders received land compensation though they lost their resources and were expecting that their children (youths) will get employment and support them. Other unintended consequences are that, youths are more engaged and aware of politics and expect more employment. There are expecting that their life will change through businesses. There is a general complain of lack of industries in the rural areas and lack of clarity in the employment sector. Employment to the youth has been commended in Msimbati, however, in Hiari, uneducated youth (with no standard seven) or any skills have not benefited and face competition from educated in-migrants. This means that those who have not attained primary education, who are the majority in the region, are likely to be excluded throughout in the chain. They think there should be an arrangement to have them included in some of the jobs e.g. gardening which can be done without a certificate. Most women in the rural areas expect to be employed in the sector to cook and clean, and those with houses, business and food, but complained that it is the women from the urban (Mtwara) who are getting the tenders. Older women have no access to jobs as compared to young women who expect to get cooking tenders. These need to be given support in social services while the youth need to be trained so they can engage in the gas economy. There is no strategy set aside to the help the different groups. Social services have been improved but communities do consider their livelihoods have improved. Individuals might have benefited but not the community.

3.6Impact on Environmental and Health

Health concerns in terms of increasing heat were also mentioned by some respondents. However, there has been support in terms of CSR in health. There is pollution and no compensation for pollution. Fear of environmental disaster has been reported in Msimbati where some of the gas wells were about to sink. Pollution from blasting and increase in temperature and chest problems were reported. In Songosongo pollution was reported to make people vomit sometimes, there is a reduction of fish and sea weeds production and the locals have associated it with the pollution from gas production and processing. A study by Msoka (2017) shows that the decline in mangrove and destruction of corals in the MBREMP. This decline could be attributed to two factors, extraction of gas and dynamite fishing but it is yet to be established. The villagers also report an increase in HIV cases associated with changes in culture resulting from in-migrants and modern way of life.

3.8Impact on the Political Sphere

In 2013, the people of Mtwara rioted complaining of the construction of the gas pipe to Dar es Salam. The reasons for rioting, according to them was that they were promised that industries will be built in Mtwara by several leaders who visited the places prior to the building of the pipe. The construction of the pipe came as a surprise to them and obviously different from their expectations. The villagers expected an oil and gas boom. However, due to information asymmetry, they were kept in the dark. The local NGOs working in Mtwarawho seek to raise awareness on issues of oil and gas also are not receiving information. In the absence of this information rumors and manipulating politics prevail. There is a general need for openness and transparency in the oil and gas issues and the benefits and opportunities. Communities indicated they need to know more about employment, the companies, training opportunities, and to be involved in decision making, especially in the revenue sent to the

district and in the village budget, plans and processes and revenue information.

3.9 Impact on Geographical Areas

The urban areas are said to benefit more that the rural area as they have the hotels and also get electricity and some take up the employment in the rural areas they are likely to have the needed training. The urban residents are the ones who are mostly accessing the jobs such as driving, machine repairs despite the fact that the gas is produced in the rural areas. The rural dwellers are the ones who have given their land and lost their crops but only get temporary jobs during construction. It is also the rural environment that is destroyed and they experience livelihood changes with no much positive changes in their life.

4Conclusions and Recommendations

Studies on impact of natural resource have examined aggregate data. This Chapter has presented findings of the impact of natural gas extraction at the subnational and the regional levels. While there is positive social impact, high expectation of economic benefits remains. One of the main expectations is employment which has not been fully realized. This is not a realistic expectation as the natural gas sector utilized highly skilled personnel which are rare in Tanzania. The positive and realistic impact is on access to electricity which is linked to the fishing industry and allow for storage to sell in the market at a large quantity and good price. However, the fishers still use old traditional tools and do not have modern fish gears required for deep seas where they can get good catches and increase their income. Since not all members of the communities will be employed in the gas economy use of energy from gas and linking to agriculture will increase positive economic benefits. A fertilizer industry will be important if farmers will access fertilizer at a

cheaper price. There are also environment, health and cultural impacts which needs to be studied thoroughly and addressed.

There is a need to set aside strategies to help the different groups. The design of the local content policy in Tanzania seems to target only the business group and not small scale business in the communities. Support must be given to the local business groups to expand and formalize their business to be integrated into the gas economy. There are a number of complaints from the local communities that are not addressed on time. Such complaints include dissatisfaction with the process of land acquisition, and lack of transparency in the support given as corporate social responsibility by the investors.

The impact to the communities is differentiated by occupation, and population group. While business people and youths may benefit, it is not the same with the farmers who are the majority. This is mainly because there is no integration of the cashew nut farmers and fishers into the sector. There are no alternative livelihood projects for those affected directly. An independent study of those who have given land will show the costs and benefit and whether the current land compensation policy is fair. The rise of a modern economy is clearly seen in Mtwara but this should not be confused with development which is lacking in the rural areas.

CHAPTER 7 :

ASSESSMENT OF LOCAL CONTENT AND LOCAL COMMUNITY PARTICIPATION POLICIES

S.Kirama, A. Kemp and R. Taylor

1.Introduction

The increasing wave of adopting and applying local content rules is noticeable among governments of many resource-rich developing countries (Rabiu, A. 2013). The main concern of these governments is premised on efforts to extend potential benefits of these resources to citizens and across all sectors of their economies. In this regard, governments have developed schemes to boostparticipation of local community members in the domestic firms in every stage of the resource development. Local content schemes have been applied with the aim of creating local employment, domestic market growth, develop local industrial base to help eradicate the current resource trap facing these countries.

This Chapter provides an analysis of the local content approaches adopted by the government of Tanzania in ensuring that communities in areas around oil and gas operations are not left at the periphery in terms of accessing benefits to improve their livelihoods. The analysis is based on a case study of Songosongo and Mnazi Bay gas discoveries areas in Southern Tanzania.

A word on the genesis of local content schemes would suffice at this juncture. The first and most important foundation for literatures in the field of local content was the work of Grossman (1981) which is considered among the authorities on original formal 'local content protection schemes' (Richardson, 1993; Veloso, 2006). Albeit it is

a relatively new concept, local content development has become a renowned contribution in the oil and gas industry and has attracted more governments and academic attention, and global popularity (Richardson, 1993; Kazzazi and Nouri, 2012).

There are wide-ranging definitions of local content. However according to Natural Resource Governance Institute, 2015 local content is simply the value that an extraction project brings to the local, regional or national economy beyond the resource revenues. Tordo et al, 2013 provide varying definitions of local content. One is that local content can refer to value added that is created anywhere in the domestic economy as a result of actions of an oil and gas company. Secondly, the concept may more narrowed down to refer to jobs created in the neighborhood of an oil production plant or even provision of infrastructure such as schools and medical facilities that is not input in the plant production structure. It has also been pointed out that the scheme should not be concerned with only immediate increase in local content but also with actions that would lead to its longer-term increase (Tordo et al, 2013).

Local content has also been broadly defined to refer to the incidence of domestic inputs at each stage of the oil and gas production value chain thus the increasing local participation in foreign direct investments by encouraging the use of indigenous companies in the supply chain of goods and services and use of local expertise. (Khayoza, 2013; Kolstad and Kinyondo, 2015; Nwapi, 2016; Tordo et al, 2013).

With rising global popularity of local content and its related goal of maximizing benefit to the local economy, resource rich developing countries have increasing adopted local content in their policy and legislative frameworks with prospects of escaping the resource curse phenomenon. The rationale of growing local content adoption is to create links that enable the profit of the resources to flow to other

sectors through forward, backward and financial linkages (Senoo and Armah, 2015; Tordo et al, 2013). Other arguments for local content adoption include protection of infant industries and value-added, to correct market failures, to support social objectives such as employment and to ensure social and political harmony (Senoo and ARmah, 2015; Tordo et al, 2013; Nwapi, 2016). With increasing adoption and properly structured documents of local content in these developing nations, effective implementation of local content is yet to be realized. This failure has been accounted in most papers as a result of distortion, inefficiency, corruption, week institutional capacity and lack of local capacity in local content implementation (Nwapi, 2016).

This Chapter analyzes the ways in which local communities can benefit from the opportunity offered by their natural resources with specific emphasis on oil and gas. It focuses on the extent to which the country's local content policy is designed to effectively achieve its objectives in terms of awareness, participation of locals in terms of ownership, control and finance.

A review of empirical literature indicates contradictory results. While some seem to suggest elements of success in the initiatives to implement the local component policy, others suggest ineffectiveness of the local content component and its implementation in developing nations compared to developed nations. (Heum et al. 2013, Mushemeza and Okiira, 2016, Senoo and Armah 2015, Ihua 2010, Bakare 2011). Given inclusion and implementation of local content component in Tanzania, there is a need to conduct intensive assessment to ensure proper implementation and produce practical policy implications in order to achieve maximum benefits and other intended outcomes.

2. Background

Despite the fact that Tanzania is overwhelmingly endowed with natural resources, from minerals to wildlife, vast forest to natural gas; the limited ability to use the resource wealth as a means for national development, poverty reduction, and importantly an instrument for solving income inequality has perhaps been the greatest challenge facing successive administrations. These challenges have their expression in how Tanzania can derive maximum benefits from oil and gas operations through optimal use of local competences and resources as practiced in Indonesia, Brazil, and Norway, for example. Although these countries started oil exploration and production activities after Tanzania they have largely recorded remarkable success in their efforts to apply the local content scheme in this strategic industry (Resource Government Index, 2013).

Increasingly, success in business has been proven to depend on the ability of companies to develop local talents, build a competitive local suppliers base, and deliver lasting socio-economic benefits to the areas where they operate.

Tanzania's Natural Gas Policy, 2013 defines local content in the Tanzanian context as "value added brought to Tanzanians through activities of natural gas industry. These may be measured and undertaken through employment and training of local workforce; investments in developing supplies and services locally; and procuring supplies of services locally." The Petroleum Act, 2015 and National Energy Policy 2015, have also provided a more specific definition of local content as "the quantum of composite value added to, or created in, the economy of Tanzania through deliberate utilization of Tanzanian human and material resources and services in the petroleum operations in order to stimulate the development of capabilities indigenous of Tanzania and encourage local investments and participation".

The country's Petroleum Act also makes reference to government participation, local content and corporate social responsibility in Petroleum and gas activities. If designed and implemented effectively, managing Local Communities which can be fostered by the understanding of the local content offers an opportunity for companies and governments to unlock mutual benefit from resource extraction by focusing on companies core competencies and supporting long term economic growth prospects.

The Tanzania Local Content Policy 2014 predicts rapid growth in oil and gas industry due to exploration activities in large part of the country, discovery of remarkable amount of natural gas both on and off – shore which are anticipated to significantly contribute to the socio – economic development of the country and certainly raise the living standards of Tanzanians.

For Tanzania to attain middle income status by 2025, it has to increase its GDP per capital about $600 in 2014 to around $3000 in 2025. This can be archived by, among others, rationalizing the exploitation of its oil and gas industry resource and increase local participation in the value chain. The local content Policy is intended to provide guiding principles for the participation and transformation of Tanzanians in the development of the oil and gas industry to insure optimal benefit to Tanzanians and attain sustainable national economic development in the short, medium and long term perspectives.

Most of the current developmental projects in Tanzania on natural resources have been established basing on their national/macro-economic impacts and environmental impacts with little attention to the understanding of the nature/ways of lives of the local community. Lately there has been a movement of resource rich countries to incorporate local content component in their policies so that local

people can really benefit from the sector. Tanzania is not an exception following its local content policy of 2014 which put forward that; a maximum engagement of local content and local participation in the development of the oil and gas industry is important to ensure optimum benefits to Tanzanians (Local Content Policy, 2014)

Major natural gas discoveries in rapid succession have placed Tanzania's hydrocarbons potential firmly in the spotlight of international investors. The country's ability to herald a natural gas future will hinge on its capacity to develop the necessary infrastructure. However, Tanzania might still find itself at the mercy of unpredictable global markets. (TOGY, 2014)

As noted earlier, the production of gas sector in Tanzania is currently managed by Production Sharing Agreements (PSAs). Under the current process, if a discovery is developed to production and sale under PSA, then the investor is allocated a portion of the revenue (cost oil/ gas) to recover own costs. The remaining portion of revenues (profit oil/gas) is shared between the investor and the government. The agreements also provide for the government to participate in the development of the resources (state participation) through the TPDC once commercial quantities are confirmed.The current production of gas is based on small discoveries at SongoSongo Island in Kilwa, Lindi and Mnazi Bay in Mtwara Region. Other small discoveries in Mkuranga, Coast Region and Kiliwani North (2.5 km South East of SongoSongo Island) have also been relied upon. Taken together, SongoSongo, Mnazi Bay, Mkuranga and Kiliwani North have a total of approximately 8 TCF (Lokina & Leiman, 2014).

3. Review of Local Content and Related Policies

The Tanzania Natural Gas Policy (2013) also emphasizes CSR where there will be commitment by the businesses to share benefits with the

community in which they operate. Beyond the 'feel good' outcome of such practice, CSR is instrumental in developing and maintaining sound and trustworthy relations between business and the community. To achieve harmony, both parties must demonstrate respect for each other, and cooperate in addressing the needs of each other. It is in the interest of both parties to address or mitigate the negative perceptions and maximize the positive effects. The economically stronger companies implementing projects and activities in the natural gas industry are therefore expected to contribute positively to the development process of the local communities. (URT, 2013)

The Tanzania Petroleum Act (2015) also places an obligation on the TPDC to promote local content, including the participation of Tanzanians in the natural gas chain. The Act also clearly states that the Petroleum Upstream Regulatory Authority (PURA) and EWURA should promote local content including supporting national enterprises and Tanzanians to participate in petroleum upstream industry. It calls for promoting the use of local goods and services produced and provides in Tanzania and maximum participation of Tanzanians in every part of petroleum value chain (URT, 2015). The mining sector is regulated by the Mining (Local Content) Regulations (2018).

In order for a company to conduct exploration activities, it is required to have in place a plan which should include local content on training and employment of citizens of Tanzania. A section on the local content plan is also required for submission of proposals for construction of petroleum infrastructure.

The Act is also very clear on the issue of training, employment, technological transfer and CSR. Accordingly, a license holder and a contractor shall, within twelve months after the grant of each license, and on each subsequent anniversary of that grant, submit to PURA

for approval, a detailed Programme for recruitment and training of Tanzanians in accordance with an approved local content plan. Such Programme ought to provide for training and recruitment of Tanzanians in all phases of petroleum operations and gas activities and take into account gender, equity, persons with disabilities, host communities and succession plan in accordance with the Employment and Labour Relation Act.

In addition, the Act requires a clearly defined training programme for the Tanzanian employees of the licensee, which may be carried out within or outside Tanzania and may include scholarships and other financial support for education. On CSR, the law requires a license holder and a contractor prepare a CSR Plan jointly agreed by the relevant local government authority or local government authorities on an annual basis. Such Plan must take into account environmental, social, economic and cultural activities based on local government priorities of host community. Local authorities are also required to prepare, oversee and educate the public on CSR.

The basis for the local content for the oil and gas industry of Tanzania is stipulated in National Energy Policy (2015), Natural Gas Policy (2013) and Petroleum Act (2015). As the principal pillar, local content is outlined in the petroleum act of 2015 that there should be the use of local goods and services produced and provided in Tanzania; and maximum participation of Tanzanians in every part of the petroleum and natural gas value chain. Moreover, Petroleum Act promotes local content through supporting participation of national enterprises in gas industry, training and employment of citizens of Tanzania as well as transfer of knowledge and skills to Tanzanians. Natural gas policy also explores and addresses the needs of local community with the objective of substantially improving Corporate Social Responsibility in communities neighboring natural gas facilities and operations. In this, the government shall:

Ensure there is a contractual obligation to all investors and contractors in the natural gas activities to undertake locally prioritized community development programs.

Ensure companies in the natural gas industry submit credible Corporate Social Responsibility action plans to the appropriate authority.

Complementarily the National Energy Policy 2015, clearly stipulate local content in petroleum and gas subsector. Thus, the National Energy Policy aims at improving the participation of local businesses and Tanzanians, ensuring acquisition of relevant technologies, increasing employment opportunities for Tanzanians in oil and gas industry, facilitating the establishment of fabrication, manufacturing and maintenance services, enabling local business and Tanzanians to access funding for supply of standard goods and services required, ensuring government and Tanzanians have sufficient capacity to participate effectively in the petroleum Value chain as well as optimizing benefits of petroleum industry to the social and economic development of the Tanzanian communities.

The formulation of the policy and related legislation is aligned with existing strategies, policies and legislation, including the National Development Vision 2025, the Empowerment Policy and Act 2004 , the Five Year Development Plan (2011/12 -2015/16) and the Second National Strategy for Growth and Reduction of Poverty 2010/11 - 2014/15 (NSGRP/MKUKUTA II). Basing on the National Gas Policy 2013, Petroleum Act 2015 and National Energy Policy 2015, there are five key focus areas that have been addressed, namely;

- Capacity Building and technology transfer;
- Participation of Tanzanians and Tanzanian owned entities;
- Procurement and usage of locally produced goods and services;
- Fabrication and manufacturing in country; and

- Socio-economic responsibilities.

4. Practical Aspects of the Local Content

Findings from the case study of the selected two regions reveal that fishing and agriculture are the dominant economic activity in the regions where gas is extracted. However, very few are involved in the gas economy. The relationship between the company and the communities is only through the corporate social responsibility. This has been mostly in the building of classrooms and health facilities, supply of water and in some events, like in SongoSongo, scholarships to pursue secondary and higher learning education.

However, it has been noted that the level and extent of social corporate responsibilities differs diversely between Mnazi Bay and SongoSongo discoveries sites. In addition, TPDC has been supplying funds, at the rate of Tshs 250,000 per month for all the villages which are normally used for cleaning, maintaining and providing security where the gas pipeline passes. This is in compliance with the contractual undertaking between TPDC and the Villages. There are complaints regarding the amount paid by TPDC for these villages including the amount being insufficient, delays in payment and the same amount being paid to villages without considering proximity to the pipeline. Most of the villagers are ignorant on how this amount, paid for each village, has been reached. Most were aware of the amount that is paid, but they do not knowhow the amount was arrived at. There is more outmigration than in migration to the region which indicates that the impact of the discovery of natural gas in the region is not as significant as it was anticipated. In addition, it could also be the fact that most of the household members are not involved in the employment in the natural gas discoveries.

There is higher expectation on the gas economy ranging from employment both direct and indirect in the oil and gas industry; distribution of free or highly subsidized electricity; improvement of

education and health facilities in the villages; support to youth and women group on small business investment; supply of water and compensation to acquired lands and other property to give a room for the building of the pipeline. These perceptions and expectations have not been met despite the commencement of production and distribution of gas. Local people participation in terms of ownership, control and finance when it comes to the oil and gas investment in the regions is low and minimal. Most of the ongoing businesses are self-financed and not linked to the natural gas economy.

While majority of the people in the project area are aware of the ongoing oil and gas activities, surprisingly very few are taking part in these activities. There was a great expectation that commitment to CSR by the oil and gas companies would have increased the local capability in terms of development in education, training, transfer of technology and know-how, but this is low. Only some social services from the oil and gas companies in terms of hospitals, dispensaries, primary and secondary schools were accounted for. It was expected that the Gas Project investors would offer training to the villages, especially on the safety and operations.

However, throughout the study areas, very few have acknowledged to have received such training from the gas projects. Information obtained from the district and village administration, however, suggest that there has been some training conducted by the oil and gas companies. For example, BG and Stat oil provided scholarships for gas studies while Africare provided entrepreneurship skills on poultry, vegetables (DAS, Mtwara 2017). There has been not training on issues directly impacting on the oil and gas sector by companies operating in the areas as anticipated. In a few villages, less that 5 percent of the interviewed sample had attended the training offered by the oil and gas companies.

The direct employment for the villagers on the oil and gas surveyed areas is also very minimum. It is only about 20 percent of the sample that has participated in the oil and gas industry as direct employees of the sector. The findings of our study do not signify the involvement of the villages with the local content spirit that was envisaged earlier. The constraints to more participation have been identified as ranging from lack of the required expertise to non-awareness of the announced vacancies. In addition, most of the involvement has been on clerical duties. However, even participation on these, leaves much to be desired.

5. Conclusions and Recommendations

The findings of the study can be summarized from interviews with the household heads, village executive officers, focal group discussions with the selected industries, companies and public institutions and from the reviewed documentation. The main ones are as follows:-

i) The household head has been predominantly male with most of the household heads emanating from the villages. Migration and emigration seems to be insignificant in the study area with acceptance to both seems to be 30 and 10 percent respectively. This indicates the stability of the population composition.

ii) Fishing and agriculture are still and by far the dominant economic activities in the oil and gas discoveries sites. Both agriculture and fishing are for subsistence (50.7 percent) and for sale (49.3 percent).

iii) Local participation on average is only about 17 percent, with over 80 percent who do not participate on oil and gas activities. The potential and significant local participation is impeded by lack of qualification. Most of the villagers are involved in the casual employment. While the primary school enrolment is on the rise, very few proceeded with the secondary

education. Majority seems to remain in the street, working as casual laborers or household chores for the girls (VEO, Mtawanya Village). Most of the villagers do not possess the required qualification to be directly employed in the oil and gas project.

iv) There is SCR schemes by oil and gas companies. However, these differ diversely between Mnazi Bay and Songosongo discoveries sites, leading to complaints between these two major gas discovery areas.

v) The perceptions and expectation of the local people was very high at the onset of the discoveries. However, the study found that they have been met only by 8 percent.

vi) The promotion of local capability by the oil and gas companies is also very low. While many reasons could explain this, but significantly, it is due to the initial conditions in which the oil and gas companies found it difficult to promote ownership, participation, financing etc. It is only about 2.4 percent who have received training of any form by the oil and gas companies.

vii) There have been some steps taken by villages to promote entrepreneurship for the villages. In some villages groups were formed, and proposals were written to TPDC to solicit funds, but none of these have been funded (VEO, Mangamba Chini).

viii) The amount given to support the villages on the maintenance of the pipeline is small given the work that is involved.

In view of the above, the following recommendations are advanced:

(a) There is a need for the training on the administration of funds given to the villages for the maintenance of the pipeline by TPDC.

(b) There is also a need for intervention on training on possible supporting activities such as mechanics, plumbing for the villagers in order to be assured on direct employment at the oil and gas industries as supporting staff.

(c) There are some unfulfilled promises. Example, in Msimbati they were told electricity would be free like in SongoSongo, but currently they are paying for electricity.

(d) There is need to provide training of oil and gas required skills in Mtwara to enable locals take advantage of the jobs advertised in the oil and gas industries and the related industries.

It has been observed that most of the current developmental projects in Tanzania on natural resources has been established basing on their national/macro-economic impacts and environmental impacts with little attention to the understanding of the nature/ways of lives of the local community.The main motivation of the study was the desire to come up with baseline information on local communities around the gas discovery areas for the local content provisions under the Petroleum Act 2015, the Energy Policy 2015 and the Natural Gas Policy 2013 among others to be achieved.

Other critical recommendations that are advanced are the following:-

i. There are several key areas in which TPDC and other oil and gas companies can invest in the study area. Amongst these are the small industries, invest in entrepreneurial skills which can generate direct employment and generation of income.

ii. The royalty fund is paid to the Councils which decided on how to use the funds. It is suggested that the villages in

which the resource is exploited have a fixed percent of the royalty.

iii. The compensation should not be paid at once. For many villages, their farms were a source of income throughout the year and over generation. Lumpsum payments of the compensation have left most of the families poor and much more deprived.

iv. There is a need to improve communication between the oil and gas companies and villages.

v. There are a number of pending promises made to the villages which are not yet implemented.

vi. The local participation should be enhanced through ownership and employment since it has found to be very low. Furthermore, awareness on oil and gas activities along the sites, vacancies and the like should be enhanced as a way to facilitate local people participation

vii. Local people should be empowered financially to be able to own businesses and supply local goods and services along the sites.

CHAPTER 8
OVERALL CONCLUSIONS AND RECOMMENDATIONS

H.I. Majamba

The Chapters in the book have provided critical insights into various issues relating to the oil and gas sector in Tanzania. It has been noted that Tanzania is a relatively under-explored frontier region in Africa where oil and gas exploration activities, and relatively few discoveries have been made. Geologically, the sedimentary basin types and settings in the country, including rift basins, coastal basins, onshore basins, shallow and deep offshore basins reveal all the prerequisites for the active petroleum system in place, hence increasing their potentiality for further discoveries of petroleum resources.

In the review of the science of oil and gas sector, it has been observed that the country's natural gas reserve is sufficient for the domestic market as well as for export to capture international gas prices and can be utilized in maximizing government revenues and improve socio-economic welfare of Tanzanians. Equally, evidence has been submitted, pointing out that oil and gas are finite resources, and in this regard, their development and use should be as wise as possible to ensure that the benefits are invested in developing sustainable environment and motivation to the growth of other economic sectors to avoid resource curse and 'Dutch disease.'

It has been pointed out further that the future of oil may look uncertain as more alternative energies are prioritized as fuel and confrontation of economic downturns and geopolitics with time. Nevertheless, the demand for products made from oil and gas as a

feedstock such as fertilizers and petrochemical industries coupled with global population will keep increasing and more oil will be demanded in return.

Due to the fact that the business of petroleum exploration is a high risk investment and statistically the chance of getting oil and gas is normally low, there is a need for the government to ensure high expertise and specialized skills towards data acquisition, interpretation and risk assessment for successful exploration. It is in this regard that it has been pointed out that virtually every oil field decision is founded on discovery and profitability and without continued discovery of new oil and gas fields the petroleum industry will eventually come to a halt. Therefore, continuous exploration coupled with employment of technology and economic gate as the main enablers are essential if the industry is to remain in business.

The analysis of the policy, legal and regulatory framework reveals that this regime is at an infantry stage since it was not tailored for natural gas as exploration until sometime in 2015, where new policies and laws were introduced, the major one being the 2015 Petroleum Act following the largest discoveries in the offshore. This was followed by a number of institutions dealing with natural gas in Tanzania from the Ministry of Energy, the TPDC, Energy, water and utilities regulatory authority, Petroleum Upstream Regulatory Authority, Gas supply company (GASCO), and TANESCO. The Act also makes provision for the involvement of local communities and the handling of the gas fund which brings into the play other institution such as the TRA and BOT as the sector is expected to generate huge revenue. To a great extent the exposition reveals that there is increase State involvement in the management of natural gas which marks the resurgence of the State in the economy giving rise to a "nationalistic" approach in the gas economy.

In terms of the policy framework, it has been shown that prior to 2015, the policy framework on oil and gas in Tanzania comprised only two specific policies, namely those relating to energy and gas. However, there are other policies, mainly those relating to land and environment, which were (and still are) relevant, even though they do not specifically or directly regulate issues relating to oil and gas. What is clear is that the policies directly applicable to oil and gas were adopted more than three decades subsequent to the first discovery of natural gas in Mainland Tanzania. Given that no huge discoveries had been made at the time of its adoption, the Natural Gas Policy of 2013 clearly stated that the natural gas then available was intended to first cater for the needs of the domestic market. It did not envisage external markets. Later, due to the huge discoveries of natural gas which were made subsequent to the adoption of the Policy, it appears that the domestic market by itself may no longer be large enough to consume all the gas when full exploitation is achieved, or even to justify the investments envisioned in the oil sub-sector.

On the legal framework, three points come out clearly. First, the oil and gas legal regime before 2015 focused on two main undertakings, that is, export, import and distribution, on one hand; and exploration, extraction, transmission and distribution, on the other. Second, some of the laws had a direct bearing on the sector while others were indirectly related to it. Third, some of the statutes which were applicable under the former regime are still relevant to the current legal framework.

The analysis reveals further that the coverage and scope of the provisions of the framework legislation governing oil and gas is provided for in detail by three main laws: These are the Petroleum Act, the Oil and Gas Revenues Management Act and the Tanzania Extractive Industries (Accountability and Transparency) Act. It has emphasized that these laws ought to be read together as there are a

number of cross-cutting issues addressed in them. The legislative framework to a great extent reflects international best practices by providing for very clear and detailed provisions on local content, the fiscal regime, environmental and health and safety issues. Institutions and individuals charged with the administration of the Act are subjected to transparency and accountability requirements which equally ensure that citizens are informed of the activities of the industry and Government through Parliament and periodic reporting. It has been noted that the Petroleum Act, being the framework legislation governing the oil and gas sub-sector in Tanzania, is still at a very embryonic stage. In order to become fully operational, Regulations contemplated in it must be promulgated. The process of having these in place will certainly take time, but they will need to be adequate to the task of steering the evolution of a complex sector. It has been recommended that even after the completion of the regulations, the process of implementation of the Act should be gradual, leaving room for amendment to address potential conflicts with ancillary laws.

The review on the economic aspects of oil and gas in the country points out that experience from many developing countries including those of Africa has been associated with a number of wealth and rents from investments in the oil and gas sector. This has come along what has been referred to as "resource curse" and the "Dutch disease," where resource rich countries do not benefit from the resources but experience perennial conflicts and undemocratic regimes.

A word of caution has been advanced for those in decision-making processes to take on board fluctuations in the oil and gas sector to avoid economic crises. This can be done by among other things ensuring direct and indirect linkages derived from the sector are enhanced in distribution of benefits. The review on the theories on economic rents, revenue and taxes associated with the oil and gas

regime and the role of institutions in ensuring that the benefits are well managed have been aptly addressed in the context of the key policy challenges for managing natural resources in country. It has been emphasized that the nature of investment in the country which is led by Multinational Corporations requires highly skilled personnel which is rare and needs to be nurtured though ensuring that benefits derived reach out to all in the value chain.

The analysis of the socio-economic impacts and the likely conflicts on communities living in proximity to areas, where oil and gas explorations have been undertaken or are about to be undertaken, has interesting findings. It has been noted that communities living in proximity to oil and gas exploration activities have expressed concerns on the impact of oil and gas operations and the impact these may have on their economic, social and cultural lifestyles. To some extent, the government has focused its attention on raising their awareness prior to embarking on oil and gas operations. The impacts of natural gas extraction at the subnational and the regional levels reveal a mixed grill. While there is positive social impact, high expectation of economic benefits remains. Employment, one of the main expectations among members of the community has not been fully realized. This is most likely due to the fact that the natural gas sector utilizes highly skilled personnel which are rare in Tanzania.

The positive and realistic impact is on access to electricity which is linked to the fishing industry which provides an opportunity to store the fish and sell at the market in larger quantities and at a relatively higher price. However, communities in het fish industry still use old traditional tools and do not have modern fishing gears required for deep seas where they can get good catches and increase their income. Since not all members of the communities will be employed in the gas economy the use of energy from gas and linking to agriculture will increase positive economic benefits. For example, a fertilizer Plant would be important if farmers will access fertilizer at a cheaper

price. There are also environment, health and cultural impacts which need to be studied thoroughly and addressed.

The recommendation put forward is for the government to set aside strategies to help the different groups. The design of the local content policy in Tanzania seems to target only the business group and not small scale business in the communities. Support must be given to the local business groups to expand and formalize their business to be integrated into the gas economy. There are a number of complaints from the local communities that are not addressed on time. These include dissatisfaction with the process of land acquisition, and lack of transparency in the support provided as CSR by investors.

It has observed that the impact to the communities is differentiated by occupation and population groups. While business people and youths may benefit, it is not the same with the farmers who are the majority. This is mainly because there is no integration of cashew nut farmers and those in the fishing industry into the sector. There are no alternative livelihood projects for those affected directly. An independent study of those who gave up their land to pave way for oil and gas activities would show the costs and benefits and whether the current land compensation policy applied in this area is fair. It has also been noted that there are certainly indicators of improved livelihoods in areas where operations have began but these are evident only in urban areas with little trickle-down effect in the rural areas.

The current chapter focuses primarily on local content, and provides an analysis of the local content approaches adopted by the government of Tanzania in ensuring that communities in areas around oil and gas operations are not left at the periphery in terms of access to the benefits to improve their livelihoods. The analysis is based on a case study of Songosongo and Mnazi Bay areas in

southern Tanzania. In terms of composition on the basis of gender, the study reveals that most village households are predominantly headed by males, which has implications for policy strategies for local content.

In applying the local content in this part of the country, it has been noted that a factor to consider is that fishing and agriculture are still and by far the dominant economic activities in the oil and gas discoveries sites. Both agriculture and fishing are for subsistence (50.7 percent) and for sale (49.3 percent). Also, local participation on average is only about 17 percent, with over 80 percent who do not participate on oil and gas activities. The potential and significant local participation is also impeded by lack of qualification. Most of the villagers are involved in the most casual duties. While the primary school enrolment is on the rise, very few proceeded to secondary education. Majority of the population still lingers on the streets, employed as casual labourers or engaged in household chores, particularly for the girls. It must also be borne in mind that majority of the villages do not possess the required qualifications to be directly employed in the oil and gas project.

The study has revealed that the oil and gas companies have been implementing the SCR scheme in the area. However, these differ diversely between Mnazi Bay and SongoSongo discoveries sites. In terms of perceptions and expectation of the local people, it has been revealed that initially, there were high at the onset of the discoveries. The promotion of local capability by the oil and gas companies is also very low. While many reasons could explain this, but significantly, it is due to the initial conditions in which the oil and gas companies found it difficult to promote ownership, participation, financing etc. It is only about 2.4 percent of the population who have received training of any form by the oil and gas companies.
Findings also reveal that there have been some steps taken by villages to promote entrepreneurship for the villages. In some

villages groups were formed, and proposals were written to TPDC to solicit funds, but none of these have been funded. The amount of money given to support the villages on the maintenance of the pipeline is also little compared to the work they undertake. It has also been established that there is a need for the training on the administration of funds given to the villages for the maintenance of the pipeline by TPDC. There is also a need for intervention in training on possible support activities such as mechanics and plumbing for the villagers in order to be assured of direct employment in the oil and gas industries as supporting staff.

A number of recommendations have been made to improve the application of the local content policy in the context of its application in the oil and gas sector in the country. The key recommendations are the following:

i) There are several key areas in which TPDC and other oil and gas companies can invest in the study area. Amongst these are the small industries, invest in entrepreneurial skills which can generate direct employment and generation of income.

ii) The royalty fund is paid to the Councils which makes decisions on the use of the funds. It is suggested that the villages should be more involved and should have a shared, a fixed percent of the royalty.

iii) Compensation to villagers should not be paid as a lump sum in one installment as lump sum payments have left most families poorer and much more deprived.

iv) There is a need to improve lines of communication between the oil and gas companies and villages.

v) The local participation should be enhanced through ownership and employment. Furthermore, awareness on oil and gas activities along the sites, vacancies and available opportunities should be brought to the attention off locals to enable them participate effectively.

vi) Local people should be empowered financially to be able to own businesses and supply local goods and services in the sites.

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