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Development of Specialized Skills in the Upstream Oil and Gas Industry in Kenya

Josephine Cherotich and Kevin Goga

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Development of Specialized Skills in the Upstream Oil and Gas Industry in Kenya

Josephine Cherotich and Kevin Goga

Kenya Institute for Public Policy
Research and Analysis

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Abstract

The discovery of commercially viable oil and gas deposits in Kenya in 2012 was an opportune moment for Kenya to position itself as an economic hub. While the oil and gas sector is expected to drive economic transformation in Kenya, a number of challenges emerged, including shortage of specialized technical human capacity, which is the focus of this case study. Specifically, the study identifies the initiatives proposed in the policy, legal and institutional frameworks to promote skills in the oil and gas industry in Kenya; examines the type and scope of trainings being offered locally to support in building specialised skills; and draws lessons from international best practices on improving Kenya's local content. The findings show that despite Kenya having policies in place that promote local capacity, the provisions are not specific on the thresholds, making their implementation and enforceability a challenge. Additionally, only a few Technical Vocational Education and Training (TVETs) institutes and other learning institutions offer disparate courses in the oil and gas industry, most of which are focused on the midstream and downstream segments. Further, on monitoring and enforcement of the local content provisions, there is risk of an overlap of the roles played by Energy and Petroleum Regulatory Authority (EPRA) and the proposed committee envisioned in the Local Content Bill, 2018. This is because both EPRA and the Committee are tasked with the mandate of overseeing, coordinating and managing local content. There is also no provision for collaboration between international oil companies and local research institutions in conducting research and development (R&D) in the oil and gas industry. This paper recommends an amendment of legislation or enactment of regulations that are specific on the minimum thresholds to ensure easy implementation and enforceability. There is need for development of training curricula that incorporates inputs from key industry players and diversification of oil and gas courses by TVETs and other learning institutions. To avoid overlap, the study recommends a clarity of roles and responsibilities by monitoring agencies. The paper also recommends the establishment of a centre of excellence for research and development, where international oil companies collaborate with local research institutions in carrying out R&D activities. There is need to fast-track the enactment of the draft Local Content Bill to give life to the research and development benefits necessary to promote technology transfer, better enforcement of local content, and build a specialized local skill base for Kenya's upstream oil and gas industry.

Abbreviations and Acronyms

BMZ	The German Ministry for Economic Cooperation and Development
EEA	European Economic Area
EOPS	Early Oil Pilot Scheme
EPRA	Energy and Petroleum Regulatory Authority
GDP	Gross Domestic Product
HCT	Human Capital Theory
ILO	International Labour Organization
IOCs	International Oil Companies
JQS	Joint Qualification System
KNBS	Kenya National Bureau of Statistics
NCDF	Nigerian Content Development Fund
NCEI	Nigerian Content Employment Initiative
NCS	Norwegian Continental Shelf
NOCK	National Oil Corporation of Kenya
R&D	Research and Development
PSC	Production Sharing Contract
SMEs	Small and Micro Enterprises
SOGA	Skills for Oil and Gas Africa
TVETs	Technical and Vocational Education and Training
USD	United States Dollar

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1. Introduction

A country stands to gain more if it invests in upstream activities of the oil and gas industry relative to the midstream and downstream investments. The upstream activities involve exploration, development and production of crude oil and natural gas while midstream deals with storage, refining of crude oil into consumable petroleum products and transportation. The downstream is where refined products are supplied and distributed to the consumers through registered petroleum retail stations.

The upstream segment is characterized by specialised services that require highly specialized skills, unlike its midstream and downstream counterparts. As a result, the skills required for the upstream operations are not locally available in Kenya, and therefore necessitating outsourcing of labour from international companies, the bulk of which is offered by expatriates and at a higher position, such as managerial services and technical support (Peek et al., 2008; Wasuna, 2018; Muspratt, 2021; Odhiambo, 2021).

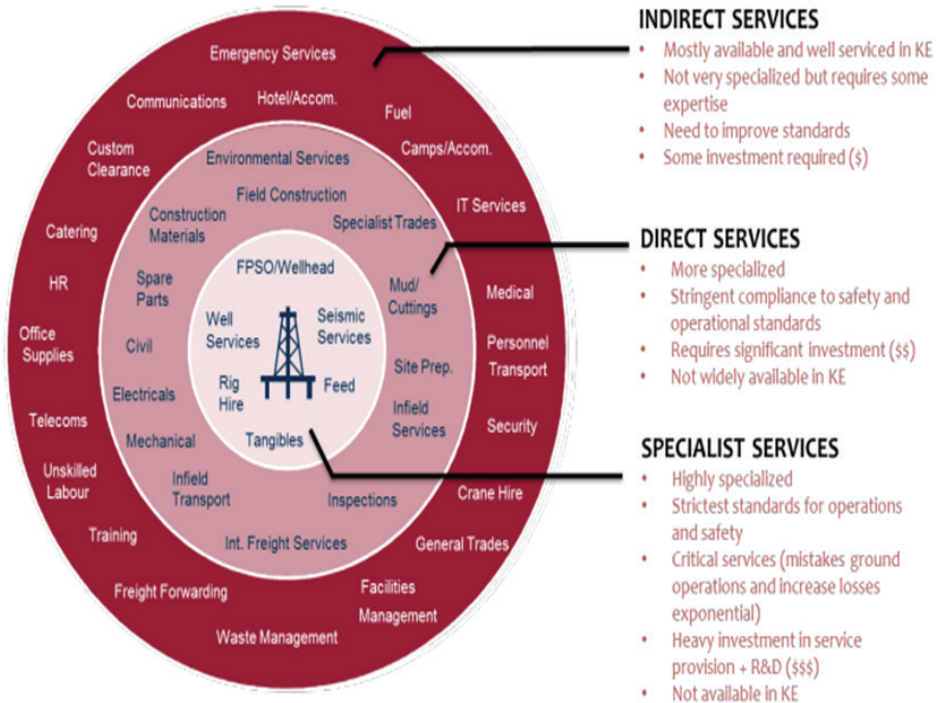
In 2019, Kenya made a milestone by exporting its first ever crude oil shipment of 250,000 barrels worth Ksh 12 billion to the international market (KNBS, 2020). This was a culmination of the long exploration activities since the 1950s and the Early Oil Pilot Scheme (EOPS) unveiled in 2018.

Kenya's Vision 2030 envisions that the extractives sector will contribute 10 per cent to GDP by 2030. However, the contribution of the sector was approximately 1 per cent of GDP by 2021 (KNBS, 2022). The contribution of oil and gas sub-sectors into the one per cent is dismal, besides its potential as evidenced with the breakthrough in oil discovery in the South Lokichar Basin, Turkana region. This has been partly attributed to limited local specialized skills, especially in upstream oil and gas activities (Kigwiru, 2020), besides the nature of upstream activities being capital intensive. For example, the Auditor General's report on the industry revealed that within government, the upstream department only has eighteen (18) technical upstream positions filled, leaving a deficit of over one hundred and eighteen (118) (Office of the Auditor General, 2021).

A 2015 report on the challenges affecting the extractives sector in Kenya revealed that international oil companies provide the bulk of specialized services required, leaving the local workforce and companies to provide direct and indirect services, which require less specialized competence. Figure one depicts the three sectors of the oil and gas value chain and the availability of the services in these segments locally. From the diagram, one deduces that the oil and gas' upstream segment is in demand of specialist services that are not available in Kenya. A possible explanation could be the sector being a fledgling industry that is yet to

stimulate interest as commercial oil production is still in view. Also, labour in this segment is driven by long-term experience in the oil and gas industry, forcing the international oil companies to source these skills externally.

Figure 1: Analysis of service types in oil and gas industry



Source: ASI (2015)

Kuria (2016) argues that lack of local skills and capacity modelled on global standards denies Kenyans an opportunity to work on mega and lucrative projects such as oil and gas, and instead confines them to menial labour. He, however, recommends collaboration between the government and private sector to establish centres of excellence that will prioritize locals to avoid over-reliance on experts.

An oft-proposed solution has been the need to leverage on vocational training to improve local skills. Most higher learning institutions with courses in vocational or technical subjects only offer artisanal welding courses. In the petroleum sector, the welding is even more complex owing to the technical expertise needed. Kenya boasts a capacity of over 2000 accredited technical and vocational education and training institutions (TVETs). However, the courses offered are not aligned with

global standards to get its labour market to compete internationally. As a result, there is skilled labour, the skills are not the right ones, or inadequate (Wasuna, 2018).

There have been initiatives to research on the link between specialised skills and oil and gas activities in Kenya. A report by the Ministry of Labour and Social Protection attempted to do a skills profile on the energy sector. However, the report only confined itself to skills in the mining sector and did not specifically interrogate the specific skills in the oil and gas. This paper therefore seeks to fill this gap by examining the kind of training available in the market to close the gap in the sector.

The objective of this paper is to analyse ongoing efforts in Kenya to build specialized skills in the oil and gas upstream sector to promote economic transformation; and more specifically to identify the initiatives proposed in the policy, legal and institutional frameworks to promote skills in the oil and gas industry in Kenya; examine the type and scope of trainings being offered in the country to support in building specialized skills; draw lessons from international best practice on improving Kenya's local content; and recommend policy areas that require further attention in building the required specialized skills.

The oil discovery in Kenya and other basins has the potential to spur its development and contribution to the region. This will promote its economic diversity and gains from oil exports and foreign exchange. However, the upstream sector being dominated by the expatriates especially in the upstream sector portends a shortage of specialized skills locally and weak implementation of the policies that would promote skills in the oil and gas industry delay this vision if not addressed promptly. By focusing on the type and scope of education and training by TVETs, oil companies and other skills development institutions, the paper offers new insights on the mechanisms that will promote local skills development for the upstream sector. In addition, the study identifies the policy gaps to inform the stakeholders on how the policies around the skills in the oil and gas industry can be implemented effectively.

This paper confines itself to the supply side of the oil and gas industry's upstream segment with particular focus on local specialized skills. This is because the upstream sector is at the heart of the value chain, yet nearly all its services are outsourced as they are not available in Kenya.

This paper is organized as follows: Section two reflects on developments in the industry, including institutional arrangements; section three appraises relevant contributions on skills development in literature to crystallize the key themes that

guide the study. Section four describes the empirical methodology deployed and the data sources. Section five provides the results and analyses the findings and finally, section six presents the conclusion and policy recommendations.

2. Industry Development

Kenya has four petroleum exploration basins: Anza, Mandera, Lamu and the Tertiary Rift basins. A total of ninety-four (94) wells have been drilled to date, majority of these situated along the Tertiary Rift. Though fifty-two (52) wells have turned up dry, the remaining forty-two (42) had hydrocarbon discoveries. There are 63 gazetted petroleum exploration blocks in Kenya, 23 of which are licensed to 11 oil exploration companies and 40 are open for bidding. Only one block out of these is licensed to a local company, the National Oil Corporation of Kenya (NOCK). There is currently no commercial production in Kenya, and therefore the players within this segment are primarily involved in exploration.

Mining activities are at production stage compared to the incipient oil and gas that is still at the exploration stage. Services in oil and gas are akin to both mining, the point of departure being the technology required to extract minerals. For example, mining has services such as quarrying, blasting and coring, which are not commonly found in oil and gas (Adam Smith International). Curiously, the mining players in Kenya are more homegrown, unlike the oil and gas industry which is dominated by international players.

Kenya's Ministry of Petroleum and Mining provides leadership in the management of the extractives sector. The Cabinet Secretary is the chief authorised officer who oversees policy and legal functions and licensing and monitoring of operations. The National Oil Corporation of Kenya (NOCK) in addition to managing exploration activities on its licensed block also assists in the negotiation of exploration licences and maintains the National Data Centre for all exploration data. The company is also expected to be the holder of government participation share in development of oil and gas fields when that time comes. The Energy Petroleum Regulatory Authority (formerly the Energy Regulatory Commission) has an exclusive mandate to regulate, monitor and supervise upstream petroleum operations in Kenya.

During the implementation of the aforesaid EOPS project, the IOCs faced protests from locals who demanded jobs and benefits because of the oil find in their regions. Tullow committed to offer short-term training for welders, electricians, and pipefitters to ensure the locals met the qualifications to work in oil and gas exploration. However, the conglomerate conceded that integrating locals in advanced roles would take time as it requires specialized training. A 2016 World Bank report acknowledging the domination of foreign labour in the upstream proposed key reforms among them, a local content strategy to reverse the over-dependence of the sector on international specialized technical skills and supply of goods and services for the sector.

In summary, the upstream segment is the most complex in the entire oil and gas value chain, and is highly capital-intensive, risky, and regulated. Consequently, the services including drilling services, well services, rig hire, seismic acquisition among others, are not available in Kenya, therefore necessitating international service companies to provide them leading to foreign expertise domination in this segment that leads to leakages in the circular flow of Kenya's economy.

3. Literature Review

3.1 Theory of Supply and Demand

The principles of supply and demand have proven effective in predicting market behaviour. Coordinating the supply and demand of skills is necessary in spurring the smooth transition and contributing to decrease in skills gap and unemployment (Quintini, 2014; Valiente et al., 2020). In the labour market, the supply and demand side may be depicted as skill formation and skill utilization, respectively (Buchanan et al., 2010). The interaction of the two markets leads to the decisions in one market being affected by dynamics in the other and vice versa (Dalziel, 2015).

The assumptions of skills supply and demand can be broken into two groups: skills formation and skills utilization (Green, 2013). In the skills utilization market, employers identify skilled workforce using education qualification to know what skills fit the demand. Investment in education and training is efficient as the employer responds to a better educated and trained workforce by investing in new technology to capitalize on their production potential (Lauder et al., 2017). The employer, therefore, will hire a skilled workforce to reduce in-house training costs (Zancajo et al., 2014; Lauder et al., 2017).

The supply demand theory assumes that a well-trained and educated workforce causes an increase in the demand for labour. Skills formation (that is explicitly pronounced in the human capital theory we will discuss shortly) states that a more educated and trained person is likely to be more productive, translating to higher income (Becker, 1964; Valiente et al., 2020).

It therefore follows that if education and training are more responsive to the market needs, there will be a reduction in the skills gap between the supply and demand (Almeida et al., 2012). Zancajo (2019) argues that the most successful training providers will be those that better align their training/education to the skills requirement. Skill equilibrium will be achieved when both supply and demand in the two markets are in equilibrium.

3.2 Human Capital Theory

Human capital theory (HCT) formulated by Becker in 1964 presumes that human capacities are of comparable value with other resources involved in the production of goods and services. The author acknowledges that education and training consistently emerge as the paramount human capital investment, translating into not only economic returns in form of increased wage but also effective work. The value of human capital theory has been widely accepted in contributing to

organizations' positive performance. An educated and trained workforce is capable of supplying a larger amount of useful productive effort (Mc Connell et al., 2009; Wuttaphan, 2017). Despite the importance of investing in education and training to spur employee skills, the type of training also matters (Becker, 1964; Becker, 1993).

The logic behind these theoretical assumptions is that organizations can only invest in developing specific skills and therefore there is need for skills providers to tailor their training to the specific demand.

3.3 Empirical Foundations of Local Capacity in the Oil and Gas Industry

This study appraises several works to identify the salient themes on oil and gas that would promote local skills development.

3.3.1 Specialized local capacity

Extractive industries have the potential to bring about economic growth and structural transformation. The sector involves capital intensive activities that require expensive equipment and highly skilled labour to function effectively and maximize the potential development benefits (Wise and Shtylla, 2007; Sigma and Garcia, 2012; Tordo et al., 2013).

Adam Smith International's 2015 study alluded to earlier underscored the lack of specialized skills and expertise as a major bottleneck obstructing the potential of local labour to be integrated in the oil and gas value chain. This situation persists as evidenced by the International Labour Organization (ILO) 2019 report, which highlighted that the oil and gas industry experiences shortage of skills globally and the efforts to decrease reliance on the skilled expatriates are difficult to implement, especially where the skills are not locally available. Barigaba (2022), commenting on a recent tender award by Tanzania and Uganda to a French conglomerate in the construction of an oil pipeline, notes that local firms will always be engaged as sub-contractors since, in the extractives sector, the contracts always favour multinationals as they have sufficient capital, advanced technology, and capacity to mobilize necessary resources.

3.3.2 Policy, legal and institutional framework

In efforts to build local skill capacity, there is consensus that local content policies are the way to go for most developing countries. Such policies require international

oil companies (IOCs) to prioritize the development and use of local suppliers and workers when sourcing labour, and goods and services for petroleum production (Ngoasong, 2014). For example, Nigeria's in-country engineering capacity owes its growth to regulations formulated on local content (Nwankwo and Iyeke, 2022). When assessing the impact of the local content regime in Malaysia's petroleum sector, Lebdioui (2022) argues that sustainable local content policies require capacity building programmes (through intra-industry dialogue to share key information on quality requirements, research and development and specialized human capital accumulation to gradually build long-term competitiveness. Ablo (2018) in his study on the impact of local content policies on employment in Ghana, found that locals dominate onshore administrative positions and low skill positions offshore with a significant salary disparity between them and expatriates. The author attributed this to poor regulation by the Petroleum Commission, low levels of training, capacity development, skills, and knowledge. These studies demonstrate that whole local content policies may be enacted. Another issue that arises is that of enforcement, which is a crucial lesson for Kenya. The country introduced the local content requirements in the oil and gas sector through the recently enacted Petroleum Act 2019 and Local Content Bill 2018. The import of these legal instruments is to promote the capacity and the creation of employment and training opportunities in the extractive industry value chain through the prioritization of local expertise, yet their implementation is a challenge (Mwangoma, 2019) just like her counterpart Ghana.

The work by Peek et al. (2008) revealed that the oil and gas industry is increasingly facing shortages of skilled personnel, and that the upstream sector is the most affected sector facing skills shortages. The study noted that despite the governments' emphasis on local content quotas to ensure a significant number of locals are employed, the same has not been effectively implemented owing to shortage of local workers, with skills modelled on global standards. A question then arises, what will remedy the situation?

3.3.3 Training

Mwangoma (2019) posits that local content enforcement has an impact on local capacity building by encouraging and promoting training and employment of locals. A report by Brunel International (2021) underscored education and training as one of the key drivers of skills development in the oil and gas industry. In addition, the report cites inadequate succession plans for knowledge transfer and skills retention and education and training system. This situation is perhaps what has made most oil companies neglect the aspect of human development and rather prefer outsourcing specialized skills.

Literature suggests that most occupations in the upstream oil and gas industry are technical in nature, thus require vocational and technical training (Rajbhandaria et al., 2022). However, TVETs and other skills development institutions have realized the importance of developing capacities of employees to meet increasing demands in the market (Austin, 2008; Anyim, 2015). A study on the skills profile in Kenya’s energy sector revealed that there are a few TVETs and universities that offer courses in the oil and gas industry, and thus specialized skills in the oil and gas industry have been largely outsourced due to lack of enough specialized training programmes in the energy sector. Most of the TVETs and institutions of higher learning with courses in technical and vocational careers are not equipped with modern tools and equipment to ensure shift from theoretical to practical training (Wasuna, 2018). Wasuna concedes that tailored training is necessary to address skills shortage and build competence in the extractives sector.

In summary, three themes stand out when you appraise empirical literature around the oil and gas industry that would help in building local skills. These are specialized local capacity; policy, legal and institutional framework; and training. The key ideas under these themes are summarized in Table 1.

Table 1: Summary of the empirical literature review

Thematic Areas	Discussion Summary	Sources
Specialized local capacity in the oil and gas industry	<ul style="list-style-type: none"> • Extractive sector is capital-intensive sector and requires highly skilled labour and advanced technology • The oil and gas industry experience skills shortage, where the upstream sector is the most affected segment facing skills shortage owing to its technical and specialized services. • Education and training system is among the key causes of skills shortage • Local companies in the extractive sector perceive these services are outside their realm of expertise thus this leaves the locals doing only the menial jobs 	Wise and Shtylla, 2007 Peek et al., 2008 Sigma and Garcia, 2012 Morris et al., 2013 Tordo et al., 2013 Adam Smith International, 2015 Muspratt, 2021 Barigaba, 2022

Policy, legal and institutional framework	<ul style="list-style-type: none"> • Most developing countries have embraced the local content framework by including local content as a mechanism to promote the local capacity • The local content prioritizes utilization of local expertise, goods, and services and training of locals by oil companies • However, implementation of local content is still a challenge as most oil companies neglect the aspect of human development and prefer outsourcing expatriates' capacity 	Ngoasong, 2014 Mwangoma, 2019 Brunel International, 2021 Lebdioui, 2022
Training	<ul style="list-style-type: none"> • Most TVETs and other skills development institutions have realized the importance of developing capacities of employees to meet increasing demands in the market • Specialized skills in the oil and gas industry have been largely outsourced due to lack of adequate specialized training programmes in the energy sector • Courses offered are mostly focused on the midstream and downstream sector • TVETs lack quality vocational training since they are not equipped with modern tools and materials to ensure a shift from theoretical to more practical training • Tailored training is necessary to address skills shortage and build competence in the extractive sector 	Anyim, 2015 Kuria, 2016 Wasuna, 2018

4. Methodology

This paper adopted a comparative analysis of local content policies, legislation and regulations supporting skills development in Kenya's oil and gas; training institutions including TVETs offering skills in the sector; and the impact of local content policies in Angola, Nigeria, and Norway. The use of a qualitative comparative analysis in the context of this paper enabled us to examine the inter-linkages between the three variables emerging from literature; i.e., specialized local capacity; policy, legal and institutional framework, and education and training. The overall picture drawn by the comparison between various policy artefacts and three countries in this paper is relevant and useful to inform debate on the role of policy, legal and institutional frameworks to promote local content in extractive sectors.

The paper is based on a qualitative indepth desk review reflected in existing legal, policy and institutional framework. Analysis was undertaken to uncover the constraints and potential for local labour force integration in the value chain of Kenya's oil and gas industry by building local capacity. We also interrogated gaps existing in the policy, legal and institutional framework that hinders the full participation of local labour force in the oil and gas industry, particularly in the technical and managerial positions in the upstream sector. Furthermore, the study employed a case study of comparator countries, including Nigeria, Angola, and Norway to examine whether Kenya's existing local content regime is in line with the international best practices. This involves analysis of comparators' local content with the aim of benchmarking and drawing lessons for implementation in Kenya.

To address objective one, the study conducted a thorough indepth desktop review of literature on the existing policy, legal and institutional framework documents underlying the local capacity also referred to as local content in Kenya's oil and gas industry. It then analyzed and identified what gaps exist in the policy, legal and institutional framework that hinder the full integration of the local labour force in the oil and gas industry, particularly in the upstream sector. The study analyzed the documents to identify whether there exists any gap in the various provisions among the documents and provide recommendations on how best to promote the local capacity to compete internationally.

To address objective two, the study analyzed the trainings offered by oil companies and courses offered by TVETs and universities. The paper identified the skills transferred from oil companies to the locals. This was to find out whether there exists any skills transfer that has taken place so far and its outcome. In addition,

the study identified TVETs and universities that offer courses in oil and gas and analyzed the courses offered and whether they are tailored to the upstream sector.

To address objective three, the study employed a case study of two comparator countries including Nigeria, Angola, and an aspirator country which in our case is Norway to examine whether Kenya's existing local content is in line with the international best practices. This involves analysis of comparators and aspirator's local content framework with the aim of benchmarking and drawing lessons that will help in building the local capacity in Kenya. The choice of Angola and Nigeria was because they have a more specific well-developed and structured local content framework besides being the first and second exporter of oil in Africa respectively. Norway, labelled as an "icon of stability" has a highly advanced and working legal system in matters of oil and gas in addition to being among the top oil producers globally, thus informs our choice as an aspirator country. Finally, the study concluded with the policy recommendations on areas that require further attention in building the required specialized skills.

5, Results and Discussion

5.1 Legal, Policy and Institutional Framework Governing Local Skills

To build the local capacity in the oil and gas industry, majorly the upstream sector, the Government of Kenya through the various policy, legal and institutional framework has made a stride in providing for capacity building of locals. This is through the various provisions in the legal and policy framework, including the Petroleum Act of 2019, the Energy Act of 2019, the Mining Act of 2016, and the Local Content Bill of 2018 which aims at building the capacity of locals in the oil and gas industry. However, the legal and policy framework depicts some gaps that hinder the full implementation of the provisions to ensure that the skills of locals are developed to be able to compete internationally. The study therefore analyses and identifies the gaps in the policy, legal and institutional framework focusing on four thematic areas: employment, training, enforceability and research and development

5.2 Employment of Locals in Oil and Gas Industry

The proposed Local Content Bill of 2018 has recently been legislated through part VI section 50, 51 and 52 of the recently enacted Petroleum Act 2019. Section 18 of the Act tasks the Cabinet Secretary to negotiate, award and execute the petroleum agreement on behalf of the national government. Section 50(1)(c) of the Act stipulates that a person carrying out any undertaking or works under this Act shall ensure that priority is given for the employment of qualified and skilled Kenyans at all levels of the value chain. Before engaging in petroleum operations, Section 50(2)(3) mandates the contractor to prepare and submit a long term and annual local content plan that addresses: employment and training; research and development; technology transfer; industrial attachment and apprenticeship; and succession plans for positions not held by Kenyans.

The proposed Local Content Bill for the extractives sector is guided by principles set out in Article 69 of the Constitution, that the principle of ownership of natural resources and that of equity in sharing of benefits accruing from exploitation of natural resources. The purpose of the bill is to promote the maximization of value-addition and the creation of employment opportunities in the extractive industry value chain through the use of local expertise, goods, services, businesses and financing and their retention in the country. The bill states that an operator shall, in order to develop the skills and capacity of local persons and enterprises to participate effectively in its extractive industry operations, prepare and implement

strategies and plans that prioritizes the utilization of local expertise, goods and services.

According to section 28 (a) of the bill the IOC is required to give the first priority to the employment of local persons who have the requisite expertise or qualification in various levels of the extractive operations. The Mining Act 2016 seeks to ensure employment opportunities are created for Kenyans. It requires the Mineral Rights Holder to submit detailed programmes on recruitment and training of Kenyans whereby the approval of this program will be a condition for granting of a mineral right. The Act provides for the holder of the Mineral to develop a comprehensive community development agreement that secures socially responsible investment and provides for employment preference for those living in communities around mining operations.

Despite the provision for the prioritization of locals in matters of employment, the provisions are silent on the minimum thresholds of locals to be employed. A remedy to this situation was the Energy (local content) Regulations of 2014, which gave a roadmap on recruitment of locals in the sector. For example at the beginning of the project it required 30 per cent of management staff, 20 per cent of technical and 70 per cent of other staff being locals. These thresholds are to increase progressively to 60 per cent when the project implementation is half complete and at about 80 per cent at the end of it. However, when the Energy Act came into force, these provisions were left out. Since Acts take precedence, as it stands, Kenya's legal and policy framework do not provide thresholds for employment. Further, the provisions do not speak to inclusion of the host community but rather employment of Kenyans in general.

5.3 Training of Locals in Oil and Gas Operations

Section 52 of the Petroleum Act 2019 provides that any institution wishing to provide human capital development, build knowledge and technical capacity in upstream petroleum operations must be accredited in accordance with section 127. The Petroleum Act provides for the establishment of a training fund for the purpose of training Kenyan nationals in upstream petroleum operations. This resonates with section 47 of the bill where IOCs are required to annually remit a non-tax-deductible training amount of a certain percentage of its net revenue to the Local Content Training and Development Fund as may be proposed by the Cabinet Secretary in consultation with the Committee. In addition, section 27 of the bill provides that the IOCs are required to make every reasonable effort within a reasonable time to supply training locally where locals are not employed due to lack of skills.

The policy and legal framework provide for training and skills development for the locals and tasks the oil companies to contribute to the training fund. However, the framework is not specific on how much the IOCs should contribute to the training fund. In addition, most of the proposed training has not been implemented.

5.4 Implementation and Enforcement Strategy of Policy and Legal Framework

Section 9 of the Local Content Bill provides for establishment of a Local Content Development Committee whose function is to oversee, coordinate and manage the development of local content. Under the Petroleum Act 2019 and the Energy Act 2019, the Energy and Petroleum Regulatory Authority (EPRA) is tasked with the role of supervising, coordinating, and managing the development of the local content in the petroleum sector. In addition, to enhance compliance, the Petroleum Act imposes a penalty for the non-compliance of the provisions, whereby in the Petroleum Act, EPRA is tasked with the role of enforcing a penalty of not less than Ksh 5 million for non-compliance of the Act in general.

Contrary to the provisions on compliance and enforceability, there is overlap in the roles tasked to EPRA and the Committee. The bill establishes the content development committee to monitor and enforce local content in the extractive industry. However, upon passing of the local content bill into a law, the role of the committee will mirror that of EPRA under the Petroleum Act of 2019. Further, the policy and legal framework does not provide a specific yardstick for measurement and implementation of the local content in the oil and gas industry, since the penalty is rather general to the violation of the Petroleum Act.

5.5 Research and Development

The Petroleum Act 2019 (part IX section 206(4)) and Energy Act 2019 (part VI section 50(3)) states that the local content plan shall address research and development. According to section 35(1) of the Local Content Bill of 2018, the IOCs are required to prepare and submit a research and development plan to the Committee and that the R&D plan shall contain a five-year plan of research initiatives to be undertaken by the IOCs as per section 35(2). To facilitate R&D, the IOCs are required to set aside a certain percentage of funds to be used in carrying out R&D activities as stated in section 37 of the bill. From the fund, 50 per cent of the funds shall be allocated to R&D programmes in Kenyan universities and the other 50 per cent to be applied to R&D activities within the facilities of IOCs established in Kenya. The committee is in charge of promotion of R&D in the extractives sector.

Despite the provision for R&D and contribution to the R&D fund, the framework is not specific on how much the oil companies are required to contribute to the R&D fund.

5.6 Training by TVETS and Other Skills Development Institutions

In matters of institutional framework, a proposed effective solution has been the need to leverage on vocational training to improve the skills set through the TVETS and other learning institutions. In a bid to build the local capacity in the oil and gas industry, the government proposed training for the locals in Turkana by Tullow Oil on short term skills in welding, electricity fitting and pipe fitting. The proposed training was in hope that it will enable hiring more workers from local people and end a standoff where exploration was stopped after a row between the locals and Tullow Oil in demand for jobs for the locals and supply contracts for the communities. However, the proposed training has not started yet. In addition, the oil company said that using locals in more advanced roles may take some time because it requires specialized training before employment.

Other initiatives taken by the government to boost skills for extractive workforce include the agreement signed between the National Oil Corporation of Kenya and Strathmore University to introduce executive short courses on oil and gas. This is one of the national oil strategies to develop adequate local expertise in the sector to bridge the skills gap and enhancing participation of the locals in oil and gas resource development. In addition, the UK's Department for International Development (DFID-Kenya) and the German Ministry for Economic Cooperation and Development (BMZ) designed a five-year (2015-2019) initiative dubbed Skills for Oil and Gas Africa (SOGA). The initiative was intended to equip local populations with skills needed to seize job opportunities in the oil and gas sector in East Africa. The initiative was to focus on Kenya, Uganda, Tanzania and Mozambique and work closely with the private sector and government to deliver support to training institutions, establish business enterprise development centres and assist local people to win contracts to supply goods and services to the oil and gas industry. However, the programme only went through the inception phase of identifying common areas for partnership and collaboration with the private sector and government, which would be integrated in implementation of the programme and national system.

Recently, Morendat Institute of Gas and Oil signed a memorandum of understanding with Turkana University College, which paves way for the introduction of a diploma course in oil and gas economics. The Institute has started receiving applications from students and there is optimism that it will

attract a substantial number of applicants. Further to the partnership between the government and the oil companies, only a few TVETs and universities in the country offer courses in oil and gas industry as shown in Table 2.

With most proposed skills transfer and training programmes not having taken shape, most of the courses proposed are only limited to the midstream and downstream operations. This is even more pronounced by the statement by the oil companies that transferring advanced skills to the locals may take a while. Further, only a few TVETs and universities offer the courses in the oil and gas industry, most of which are tailored to the midstream and downstream segment, with a few focused on the upstream segment.

Table 2: Courses offered by TVETs and other training institutions in oil and gas industry

Courses	Institutions
Petroleum management	Keiway Mining and Technology College
	Eldoret Technical Training Institute
	East Africa College of Commerce and Development Studies
	Technical University of Kenya
	Nairobi Technical Training Institute
	School of Petroleum Studies
Petroleum operations	Kikuyu Commercial College
	Keiway Mining and Technology College
	Turkana University College
Petroleum geoscience	Pioneer International University
	Keiway Mining and Technology College
	Turkana University College
	Kapcherop Technical and Vocational College
	Baringo Technical College
	Rift Valley Institute of Science and Technology
	Eldoret National Polytechnic
Eldoret Technical Training Institute	
Pioneer International University	
Rift Valley Technical Training Institute	

	The Institute of Energy Studies and Research
	East Africa Vision Institute
	Ol' Lessos Technical Training Institute
Oil and gas management	Pioneer International University
Oil and gas safety	Keiway Mining and Technology College
Oil pipeline fire officer	Morendat Institute of Oil and Gas
Oil pipeline instrumentation and control management	
Oil pipeline mechanical maintenance	
Perform jet A1 quality tests	
Maintain control system uninterruptible power supply system	
Petroleum engineering	Kisii University
	University of Nairobi
	Kenyatta University
	South Eastern Kenya University

Table 3: Summary of gaps in Kenya's policy, legal and institutional framework

Thematic areas	Provisions	Gaps
Employment	<ul style="list-style-type: none"> • Provides that the IOCs shall prepare and submit a long term and annual local content plan, which shall address the employment of locals • The provisions are silent on the minimum thresholds of locals to be employed 	<ul style="list-style-type: none"> • In the plan the IOCs are required to give the priority to the employment of local persons who have the requisite expertise or qualification in various levels of the extractive operations • The legal and policy framework do not provide for employment of the host community but rather employment of Kenyans
Training	<ul style="list-style-type: none"> • Provides that the IOCs are required to make every reasonable effort within a reasonable time to supply training locally where locals are not employed due to lack of skills • Establishment of a fund to be known as the Local Content Training and Development Fund to be used in training the locals. IOCs shall annually remit a non-tax-deductible training amount of a certain percentage of its net revenue as may be proposed by Cabinet Secretary, in consultation with the Committee • The proposed trainings between the oil companies and locals including training by Tullow Oil company to Turkana locals, National oil company to Strathmore University and the SOGA training that is underway by the UK's Department for International Development and the German Ministry for Economic Cooperation and Development (BMZ) • A few TVETs and universities offer courses in extractive sector 	<p>It is not specific on how much the IOCs should contribute to the training fund</p> <p>Most of the proposed training did not take shape. Case of training by Tullow Oil company to Turkana locals</p> <p>The courses offered by TVETs and universities are focused on the midstream and downstream segments</p>

<p>Implementation and enforcement strategy</p>	<ul style="list-style-type: none"> • The bill provides for establishment of a local content development committee whose function is to oversee, coordinate and manage the development of the local content in the extractive sector • The Petroleum and Energy Act 2019 tasks the Energy and Petroleum Regulatory Authority (EPRA) with the role of supervising, coordinating and managing the development of local content in the petroleum sector • The Act imposes a penalty for the non-compliance of the provisions where EPRA is tasked with the role of enforcing a penalty of not less than Ksh 5 million for non-compliance of the Act 	<ul style="list-style-type: none"> • The bill establishes the content development committee to monitor and enforce local content in the extractives industry. However, the role of the committee mirrors that of EPRA under the Petroleum Act of 2019, therefore may lead to overlap of roles of both institutions upon passing of the local content bill into a law • It does not provide a specific yardstick for measurement and implementation of the local content since the penalty is general for the Act • The penalty is not specific to the non-compliance of the local content in the oil and gas industry but rather general to the violation of the Petroleum Act
<p>Research and development</p>	<ul style="list-style-type: none"> • IOCs to prepare and submit a research and development plan to the committee, which shall contain a five-year plan of research initiatives to be undertaken by the IOCs • According to section 37 of the bill, the IOCs are required to set aside a certain percentage of funds to be used in carrying out R&D activities where 50% of the funds shall be allocated to R&D programmes in Kenyan universities and the other 50% to be applied to R&D activities within the facilities of IOCs established in Kenya 	<p>No minimum threshold of how much the IOCs are required to contribute for R&D</p>

6. Local Content Paradigm in the Oil and Gas Industry: Lessons from Nigeria, Angola, and Norway

The study analyses the local content framework in countries with international best practices to draw lessons on how to improve the implementation of Kenya's local content to boost the local capacity as in the case of comparator countries including Nigeria , Angola and Norway .

Why local content? Local content policies and legislation in the oil and gas producing countries have become key priorities for both the industry players and host countries. Resource rich developing countries are increasingly enacting local content as a means to increasing local participation and the need to model the local skills into international standards through research and development and knowledge and skills transfer from international oil companies. The implementation of local content frameworks in these countries has resulted in positive outcomes. The study therefore looked into the key thematic areas including employment, training, implementation, and enforceability and research and development to draw lessons that can be used to build Kenya's local capacity.

Notably, the local content policy in Norway was in place until Norway's entry into the European Economic Area (EEA) agreement in 1994, the World Trade Organization and entry into Bilateral Investment Treaties (BITs). This restrained Norway's ability to include the local content and, therefore, currently there are no local content requirements in Norway that are applicable to the petroleum industry. However, the competencies acquired by the Norwegian industry and authorities during the phase of implementation of local content regulations have enabled the emergence of an internationally competitive Norwegian petroleum sector, which today competes without a national local content policy.

6.1 Employment

The local content framework aims at increasing locals' participation in the oil and gas industry. The framework gives exclusive priority to local workforce and local companies that have capacity to provide standard goods and services. In this case, the operator is required to submit a content plan with a provision to ensure that the first consideration for employment and training in any project executed by any operator in the oil and gas industry shall be prioritized for locals.

In terms of the targeted number of local workforce to be employed by the oil companies, Nigeria's framework targets at least 70 per cent of the local workforce. In addition to prioritizing the locals, the Nigerian framework ensures maintenance of a reasonable number of personnel from areas of significant operation. Angola

and Norway focus on Angolanization and Norwegianization of their petroleum sectors, respectively. Angolanization of the workforce provides for the minimum thresholds where the workforce targets are based on specific requirements for different categories of workers in the sector. The target of local workforce in the downstream segment (less specialized) is 100 per cent, midstream (more specialized) is 80 per cent and upstream (highly specialized) is 70 per cent. Angolanization decree also provides that both Angolan and foreigners employed in the oil company in the same position and similar job descriptions shall enjoy the same benefits.

The principle of Norwegianization gave preference to the Norwegian companies through licensing of the blocks where Norwegian companies such as Statoil were awarded more blocks. The preference given to the local companies was because the local companies were more likely to employ locals than the international oil companies. In addition, the Ministry of Petroleum was given discretionary powers and had the authority to force oil companies to enter into joint venture agreements with the Norwegian companies as an effective tool to ensure building of competence of the Norwegian companies. More so, IOCs entered into a gentlemen's agreement with the Norwegian authorities and committed to carry out the operations in a base in Norway using Norwegian workforce and using the Norwegians goods and services.

In matters of employment of expatriates, Angola only allows employment of foreigners under the condition that there is a shortage of qualified locals. Nigeria's framework provides for locals to understudy each incumbent expatriate for a maximum of four years, after which the positions become Nigerianized and that only a maximum of 5 per cent of management positions can be retained as expatriate positions to take care of investor interests as may be approved by the board.

Kenya's local content, just like the comparator countries, gives first consideration to the employment of the locals. However, Kenya needs to consider being specific by stating the minimum thresholds in matters of the number of locals to be employed, as in the case of Nigeria and Angola. In addition, Kenya needs to allow employment of expatriates only on condition that there is a skills shortage locally and upon a commitment by the oil companies to transfer the same skills to the locals. Further, there is need to give preference to local oil companies such as the National Oil Corporation of Kenya. This is through a licensing award preference thus getting more blocks with the most promising profiles. The award will ease locals' access to the oil and gas sector, thus leading to more integration of the locals who will undergo training in the oil and gas industry as was in case in Norway.

6.1.1 Training

The IOCs are required to submit a training plan with a provision to train the locals for them to gain skills to compete internationally. The Nigerian board established a Nigerian Content Employment Initiative (NCEI), which requires all IOCs to identify new potential Nigerian employees for training. Also, to build capacity for indigenous SMEs to participate in the oil and gas value chain, the Government of Nigeria spearheaded establishment of the Enterprise Development Centre in 2003. The Angolan framework provides for capacity building of locals by mandating that all the contracts to the IOCs include the local content clause. In addition, all technical assistance and foreign management agreements shall include a detailed programme on training, transfer of knowledge and technology and evidence of improvement of the skills for the Angolan workforce. For Norway, training of the locals was through skills transfer, where Norway attracted a diverse group of companies with high competencies and innovative solutions to allow transfer of competencies from the IOCs to local workforce and companies. Therefore, the IOCs were required to share industrial knowledge by training officials from the Ministry of Petroleum and Energy and the Norwegian Directorate. They were also requested to train teachers in school for them to transfer the same knowledge to students on petroleum related fields.

The IOCs are required to contribute to the training fund to facilitate the training of locals. In Nigeria, the IOCs are required to pay 1 per cent of the total contract sum awarded in the upstream sector to the Nigerian Content development fund (NCDF). The fund is then used by the IOCs to train locals so that they can be hired for future projects and opportunities. To facilitate the training in Angola, Article 12 of Decree law No. 17/09 sets up the fund for the training and development of Angolans in the petroleum sector. The IOCs are mandated to contribute 15 cents for every dollar per barrel produced to a training fund, which then is used to fund training and research. Norway, however, has a Norwegian petroleum fund that is used to address matters pertaining to the petroleum sector.

Kenya, just like the comparator countries, provides for the training of the locals by the oil companies. In addition, Kenya provides for the contribution to a training fund by the oil companies. However, Kenya needs to consider establishing skills development centres where the oil companies identify new employees and train. Also, Kenya needs to specify the minimum amount that the oil companies ought to contribute to the training fund. This is in addition to ensuring that the contributed amount is used efficiently in training the locals in oil and gas operations. There is need to increase the joint venture between the local oil companies and international oil companies as an effective tool to ensure building of competence of the local companies. This can be done through attracting a diverse group of oil companies

with high competencies and innovative solutions to transfer competencies to the local workforce and companies. Further, there is a need for a provision or agreement for the oil companies to transfer skills to officials and agencies in the oil and gas industry and the lecturers in TVETs and universities for them to transfer the same knowledge to students.

6.2 Local Content Implementation and Enforcement

To guarantee compliance efficiency of the provisions, strict implementation and enforcement mechanisms must be put in place. Nigeria, for instance, has the Nigerian Content Development and Monitoring Board (NCDMB) that oversees, monitors and control all oil and gas projects and activities. The board guarantees uninterrupted development of Nigerians local content by ensuring there is full compliance in award and execution of oil and gas projects. In addition, to keep track of the skilled locals in the oil and gas industry, the Nigerian board established a joint qualification system (JQS) as an industry databank of available capabilities in the oil and gas industry. This gave information on the skills available locally and ensured that all the local skills were used before considering employment of the locals. Angola does not have an independent agency dedicated to monitoring and implementation of the policies. However, two major agencies including the Ministry of Petroleum and Sonangol, which is a state-owned oil company, oversee implementing the Angolanization plan. The Ministry of Petroleum oversees regulation of the oil and gas industry while Sonangol acts as the implementation agency for the Ministry. Norway has experienced success in monitoring and implementation of the local content primarily through reporting obligations where IOCs were required to submit annual reports to the Ministry of Petroleum and Energy on their activities and the amount of local participation in the petroleum industry. In addition, Norway established a Goods and Services Office within the Ministry of Petroleum Industry in 1972 tasked with the mandate of controlling and monitoring the contracting and procurement procedures by IOCs to ensure qualified Norwegian companies were included in the bidders list. Also, the office was to ensure that the targets for local participation were adhered to.

Besides the bodies in charge of monitoring and implementing the local content, penalties were imposed for non-compliance. Nigeria imposed a fine of 5 per cent of the project sum or cancellation of the project for non-compliance of the provisions of the act by the operator. For the case of Angola, the fines ranged from US\$ 50,000 to US\$ 300,000 for the non-inclusion of local content clause in the contract and could even further lead to suspension/prohibition to enter into new contracts.

To ensure sufficient compliance, Kenya needs to explicitly distinguish the body in charge of monitoring and implementation to avoid overlap of roles. Kenya has currently provided penalties for non-compliance of the extractives sector. However, there is need to provide punitive penalties specifically for the local content in the oil and gas industry. Kenya could consider adopting the reporting mechanism where the oil companies report annually to the Ministry of Petroleum and Energy on the progress of the local capacity development in the oil and gas industry.

6.3 Research and Development

On matters pertaining to research and development, the operator is required to submit a R&D plan committing to carry out research and development locally. Nigeria's R&D plan outlines a revolving three-to-five-year plan for oil and gas related research and development initiatives to be undertaken in Nigeria. In addition, the operator is required to make expenditures to the satisfaction of the board for the promotion of education, attachments, training, research, and development in Nigeria. Norway mandates that at least 50 per cent of R&D efforts on Norwegian Continental Shelf (NCS) should occur in Norway. The licensing terms in Norway contained an agreement that IOCs were to cooperate with Norwegian research institutions within defined areas as a condition to getting a licence. Further, Norway used non-binding goodwill agreements where the IOCs declared their intent to carry out petroleum related R&D in Norway.

In Kenya, the IOCs need to cooperate with local research institutions within defined areas as a condition to getting a licence. This will be fundamental in modelling local oil and gas operations to the global standards. Kenya needs to consider cooperation between the local research institutions and the oil companies and ensure that all research and development programmes are conducted within the country. In addition, contributions to the R&D should be specific in terms of the amount that the oil companies are required to contribute.

Table 4: Summary of lessons drawn from international best practices

Themes	Comparator countries		Aspirator country
	Nigeria	Angola	Norway
Employment	<ul style="list-style-type: none"> At least 70% of indigenous workforce shall be employed Only a maximum of 5% of management positions to be retained as expatriate position board approval 	<ul style="list-style-type: none"> Angolanization stipulates 100% requirement for unskilled workers, 80% for middle level workers and 70% for higher level workers in the industry Employment of expatriates is only allowed under the condition that there is a shortage of qualified locals and clearance from the Ministries of Petroleum and employment 	<ul style="list-style-type: none"> Norwegianization gave preference to local companies such as Statoil, including state-owned companies when awarding licences as they are likely to employ locals than IOCs Production licence to IOCs was conditional that they fully set up operating subsidiaries in Norway and recruit the Norwegian employees
Training/skills development	<ul style="list-style-type: none"> Nigeria's enterprise development centre (NEDC) develops skills and capacity for locals to ensure participation in the industry IOCs are required to pay 1% of total contract sum awarded in the upstream sector to Nigerian Content development fund (NCDF). The fund is used in training of locals by the IOCS for future projects and opportunities 	<ul style="list-style-type: none"> Angola's enterprise Support Centre (Centro de Apoio Empresarial, CAE) was established in 200 to train locals for employment in the oil and gas industry IOCs contribute to a tune of 15 cents for every dollar per barrel produced to a training fund used to facilitate training and development of Angolan skills in the petroleum sector 	<ul style="list-style-type: none"> IOCs were required to train officials from the government dealing with petroleum issues. In addition, they were requested to train teachers in school for them to transfer the same knowledge to students in petroleum-related fields

<p>Enforcement and implementation</p>	<ul style="list-style-type: none"> Nigerian content development and monitoring board (NCDMB) is to ensure there is full compliance in award and execution of oil and gas projects Imposes a fine of 5% of the project sum, or cancellation of project for non-compliance 	<ul style="list-style-type: none"> The Ministry of Petroleum and Sonangol, a state-owned oil company, implement the Angolanization plan Fines up to US\$ 300,000 for non-inclusion of local content clause in a contract may lead to suspension/prohibition to enter new contracts 	<ul style="list-style-type: none"> Monitoring implementation of local content provisions is primarily done through reporting obligations where IOCs submit annual reports to the Ministry of Petroleum and Energy about their activities, including the amount of Norwegian local content utilised
<p>Research and Development</p>	<ul style="list-style-type: none"> IOCs to prepare and submit a R&D plan outlining a revolving three-to-five-year plan for oil and gas related research and development initiatives to be undertaken in Nigeria 		<ul style="list-style-type: none"> At least 50 per cent of R&D efforts on Norwegian Continental Shelf (NCS) should occur in Norway As a condition to getting a licence, the IOCs were to cooperate with Norwegian research institutions within defined areas Norway used non-binding goodwill agreements where the IOCs declared their intent to carry out petroleum related R&D in Norway

7 Conclusion and Recommendations

7.1 Conclusion

Despite the Local Content Bill 2018 yet to be enacted, Kenya has a local content framework legislated through sections 50, 51 and 52 of the Petroleum Act, 2019. However, the framework is silent on key provisions that would radically transform skills within the upstream oil and gas sector. For instance, the provision on the threshold of employment of locals is not specified, including the amount to be contributed into the training and R&D fund.

Secondly, the country has a vibrant TVETs and other learning institutions environment to support the sector yet only a paltry 20 per cent of these offer courses on oil and gas. Curiously, these institutions' courses are more focused towards midstream and downstream segments and less on specialized skills specific to the upstream oil and gas industry.

Kenya has insufficient mechanisms to monitor and enforce local content in the oil and gas industry. Section 10 (1) (a) of the Local Content Bill proposed the constitution of a local content development committee to oversee, coordinate and manage the development of local content. Section 51 of the Petroleum Act 2019 tasks EPRA, commonly known as the Authority, with the same role of overseeing, coordinating and managing the development of local content. As it stands, this may lead to overlap and duplication of roles of both the Committee and EPRA if the Local Content Bill became law.

Another opportunity of local content enforcement is the provision for IOCs to carry out R&D in Kenya, where IOCs are required to set aside a R&D fund where 50 per cent of the funds shall be allocated to R&D programmes in Kenyan Universities and the other 50 per cent to be applied to R&D activities within the facilities of IOCs established in Kenya. This has been successful as seen in the case of Norway. However, there is no provision for collaboration between the IOCs and local research institutions. Moreover, implementation is a challenge because the bill has not been enacted into law.

7.2 Recommendations

Review Acts: Kenya to review the current Petroleum and/or Energy Act to stipulate the minimum thresholds on the local content provisions to avoid the minimum requirements being left to negotiation between the government and the IOCs. This ensures easy monitoring and enforcement. In pursuing this, the government may be guided by the Energy (Local Content) Regulations of 2014 that had stipulated

these thresholds but may have been overlooked when the two Acts came into force and superseded the provisions.

Training curricula: Develop training curricula that includes input from key industry players, mostly drawn from the private sector players. This ensures that the curricula, training, and standards match the sectors demand, hence posing easy transition from training to employment. The curricula could be modelled on best practices, and TVETs and other oil and gas institutions equipped with modern tools and materials to ensure there is a more practical approach to training than the current theoretical learning. Further, the curricula could include expansive courses in oil and gas, majorly in the upstream segment to ignite interest in the sector.

Training of IOCs: In addition to conducting training courses and programmes that will progressively increase employment of locals to take up upstream employment opportunities in compliance with Section 20 of the Petroleum Act and Section 27 of the Local Content Bill, there is need for IOCs to be roped in to extend the training to local agencies and officials in the extractive sector, and teachers in accredited institutions offering or intending to offer training in the upstream oil and gas operation to be able to transfer the same to students. This can be achieved by including such provisions in the Production Sharing Contracts (PSC) that international oil companies sign with the government. This will boost local content enforcement as there will be knowledge transfer of the sector.

R&D funding: In addition to specified contribution towards R&D fund by IOCs, there is need for IOCs to collaborate with the local research institutions, Kenyan universities and TVETs in matters R&D. This could be achieved by the ministry in charge of petroleum establishing a centre of excellence for upstream oil and gas skills where the R&D funds contributed by IOCs are used in collaboration with the local research institutions, universities and TVETs in conducting R&D. In addition, all R&D activities must be encouraged to take place in Kenya. This will be key in modelling local oil and gas operations to global standards. To this end, it is prudent to fast-track the pending Local Content Bill as it will give life to the provisions, including that of research and development in the oil and gas industry.

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