# ASSESSING THE BARRIERS FACING THE IMPLEMENTATION OF NATIONAL PARTICIPATION IN OIL AND GAS SECTOR IN UGANDA.

## A CASE OF ALBERTINE GRABEN REGION.

**GEOFFREY MASOZI**

**M21M47/001**

**A DISSERTATION**

**SUBMITTED TO THE SCHOOL OF BUSINESS IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF A MASTER OF BUSINESS ADMINISTRATION OIL AND GAS MANAGEMENT AT THE INSTITUTE OF PETROLEUM STUDIES KAMPALA IN AFFILIATION TO UCU.**

**AUGUST 2022**

## DECLARATION

I **Geoffrey Masozi** hereby declare that this dissertation is my work, and it has not been submitted before to any other institution of higher learning for fulfillment of any academic award.

Name: Geoffrey Masozi

Signature: …….

Date: …….……

## APPROVAL

This is to certify that this dissertation entitled **"Assessing the barriers facing the implementation of National Participation in Oil and Gas sector in Uganda: A case study of the Albertine Graben Region"** has been done under my supervision and now it is ready for submission.

Signature: ……

Name of Supervisor: Prof. Bruno L. Yawe

Date: ……

## DEDICATION

This dissertation is dedicated to my family, in particular my wife Olivia Nambasa, my children (Tricia Eseza Masozi, Trevor Elijah Masozi and Travis Ethan Masozi) for the social support encouragement rendered to me during the course of my studies. I would also like to dedicate it to my mother who encouraged me to go back and add on my academic knowledge.

**ACKNOWLEDGEMENT**

With heartfelt appreciation, I acknowledge the contribution of my supervisor; Professor Bruno L. Yawe of Uganda Christian University, for his academic guidance, commitment, and readiness to help, including the professional listening skills rendered to me towards the completion of this work, may the Almighty God bless him abundantly.

I acknowledge with gratitude the contributions and co-operation made by officials of Hoima District, Residents, PAU, MEMD, TEPU, and CNOOC Uganda Ltd for their willingness to provide the necessary information when I visited their offices during the research process. Without their cooperation, I would not be able to accomplish this study.

I would like to deeply thank all my lecturers at UCU, and in particular those at the Muyenga Campus (IPSK). They adequately guided and equipped me with both theoretical and practical skills. I would also like to acknowledge the contribution of my classmates with whom I enjoyed fruitful discussions on challenging topics. Finally, for those not mentioned here, I greatly appreciate their contribution.

Most appreciations go to the Petroleum Authority of Uganda (PAU) for the financial support that enabled me go back to school and acquire more knowledge and skills that has equipped me with the relevant information required in the Oil and Gas business environment.

MAY GOD BLESS YOU ALL ABUNDANTLY

TABLE OF CONTENTS

## LIST OF TABLES

## LIST OF FIGURES

## LIST OF ACRONYMS /ABBREVIATIONS

| | |
|---|---|
| ACODE | Advocates Coalition for Development and Environment |
| CAO | Chief Administrative Officer |
| CNOOC | China National Offshore Oil Corporation |
| CSOs | Civil Society Organizations |
| CVI | Content Validity Index |
| DRC | Democratic Republic of Congo |
| GDP | Gross Domestic Product |
| GoU | Government of Uganda |
| IOCs | International Oil Producing Companies |
| MEMD | Ministry of Energy and Mineral Development |
| NDP | National Development Plan |
| NGO | Non-Governmental Organization |
| NOGTR | National Oil and Gas Talent Register |
| NSD | National Supplier Database |
| PAU | Petroleum Authority of Uganda |
| SME | Small and Medium Enterprises |
| SPSS | Statistical Package for Social Scientists |
| TEPU | TotalEnergies EP Uganda B.V |
| UCU | Uganda Christian University. |

## ABSTRACT

The study assessed the barriers facing the implementation of national participation in oil and gas sector in Uganda using Albertine Graben Region. The study focused on three objectives, which included investigating micro-level barriers; meso-level barriers and macro-level barriers facing implementation of national participation in Albertine Graben Region. This was conducted as a cross-sectional survey design, utilizing a mixed methods approach. The study comprised of 290 participants who were selected using purposive and simple random sampling. Data was collected using questionnaire survey, interview, and document review. Findings revealed that Micro, Meso, and Macro level barriers strongly, positively, and significantly affect the implementation of national participation in oil and gas sector in Albertine Graben Region. The study concluded that the higher the micro, meso and macro barriers are addressed, the higher the implementation of national participation in oil and gas sector in Uganda. The study therefore recommended that in dealing with micro level barriers, a national Oil Bank/Fund should be created to lend out money on relatively low interest rate to enable locals compete financially with foreign companies. In addition, training and orientation activities should be done in oil producing countries and capacity building needs to be reviewed. For meso level barriers, it is vital that host communities are sensitized and trained to widen the value chain and addition in the sector. Additionally, it is vital to follow up on integration of local companies. This will facilitate knowledge and skills transfer to locals. For macro level barriers, there is need for a favorable business regulatory environment. Taxes on local companies need to be below those charged from foreign firms and leaders need to be sensitized on Uganda's oil sector.

# CHAPTER ONE

# INTRODUCTION

## 1.0 General Introduction

This chapter presents background to the study, statement of the problem, purpose of the study, specific objectives of the study, research questions, justification, scope, and significance of the study. The conceptual framework is also presented. Conceptually, the study focused on the barriers facing the implementation of national participation in oil and gas sector in Uganda using a Case of Albertine Graben Region.

## 1.1 Background of the study

Globally, the issue of national participation in exploration of oil and gas has been on forefront in a number of oil and gas producing countries (Pidgeon, Thomas, Partridge, Evensen, & Harthorn, 2017). This has been because, earlier countries to explore oil and gas have presented mixed experiences related to oil and gas becoming a curse and affecting national GDP. This was partly associated with the level at which citizens were made to participate in the overall process of exploration (Asiago, 2017). Countries which are enjoying a relatively higher GDP growth like Norway, Brazil, Malaysia and Mexico have demonstrated a high level of ensuring that their nationals participate, or local content takes a center stage in the overall process of exploration more than in countries where oil and gas has not brought about an impressive GDP growth like Indonesia and Nigeria (Murray, Skene, & Haynes, 2017). The most successful story is Norway where national content resulted into industrial capacity growth. Norwegians performed almost 85% role. This was attributed to the training and leverage in local contracting offered to local people (Kolstad & Kinyondo, 2016). In Malaysia, they managed to register GDP growth due to an increase in local participation since Petronas (their national oil firm) played a major part. Both Brazil and Mexico have strong national oil companies, Petrobras, and Pemex respectively hence local content has been quite high in both countries. Until the early 2010s, they had not succeeded in building an industrial capacity that could compete on international level. The growth in GDP was also low from 1980 to 1999 (Owusu & Vaaland, 2016). In Indonesia however, national participation was as low as 12% due to extensive corruption within the oil and gas sector

(Afriyanti, Kroeze, & Saad, 2016). Majority of oil activities are undertaken by foreign investors in disguise to be local companies. Generally, it is clear that the participation of nationals is critical for GDP growth, however, it is facing a number of barriers exhibited at micro, meso, and macro environments (Afriyanti, Kroeze, & Saad, 2016).

For Africa, the idea of national participation has been abused in most of the oil and gas countries. In Nigeria, the GDP per capita did not register any rise in the last four decades of the previous century (Ovadia, 2016). The negative contribution to the economic development of Nigeria was attributed to local industries being outplayed and substantial share of the earnings were transferred to savings and consumption out of the Nigeria (Acheampong, Ashong, & Svanikier, 2016). In South Sudan, about 97% of companies employed and contracted in oil and gas exploration activities are foreign (Owusu & Vaaland, 2016). This has been attributed to technological challenges, low competence of nationals, supply side constraints, poor institutional support network and political will (Nwapi, 2016).

This study was anchored on the resource-based view/theory. The resource-based view was adopted due to its strengths in identifying resources which are key in successful implementation of any program or project. In this case, this theory qualified the selection of micro, meso and macro level barriers as primary enablers and disablers of implementation of national participation.

In Uganda, the discovery of oil in Uganda began in 1925 (Asasira, 2020). The report recognized the presence of oil seepages along the shores of Lake Albert in both DRC and Uganda. Later on, shallow, and deep wells were drilled (Kayizzi-Mugerwa, 2020). Between 1945-1980, there were limited activities due to the Second World War (Petroleum Authority of Uganda, 2022). All these explorations were done without considering national participation which ended up not affecting the GDP of the country positively. In 2006, commercial oil discovery was made in Uganda by Tullow Oil in Uganda (Petroleum Authority of Uganda, 2022). The commercial petroleum reserves breakthrough raised high expectations from the nationals related to achieving higher

economic transformation (Byaruhanga & Langer, 2020). This discovery was perceived to have the potential to positively and significantly impact on the national budget (Tom, 2020). This propelled the idea of national participation.

In 2008, the GoU began the designing and execution of a good legal framework with the aim of creating a leveled ground for the nationals to take part in the sector (Byaruhanga & Langer, 2020). According to (Ministry of Energy and Mineral Development, 2008) objectives 5.3.7 and 5.3.8 of the National Oil and Gas Policy, 2008 requires optimum national participation of Ugandans in the oil and gas activities and provides for the development and maintenance of the national skills and expertise (Olanya, 2014). In addition, regulation 17 (4) of the Upstream national content regulations suggests that the IOCs ought to aim at "recruiting at least 30% of the management staff from the start of the petroleum activities and the percentage shall increase to at least 70% within 5 years after the start of the petroleum activities (Byaruhanga & Langer, 2020). 40% of the technical staff must be Uganda citizens at the start of the petroleum activities and the percentage should increase to at least 60% within five years after the start of the petroleum activities and 90% within 10 years from the start of the petroleum activities. At least 95% of the support staff and middle level staff should be Uganda citizens from the start of the petroleum activities" (Ministry of Energy and Mineral Development, 2016).

To monitor the participation of nationals in the petroleum sector, the PAU created a NSD and a NOGTR as the Human Capacity Register to address Regulation 11 of the Petroleum (Exploration, Development and Production) (National content regulations, 2016) (Petroleum Authority of Uganda, 2019). By 2021, over 3,169 Ugandan companies and 4,682 individuals as well as 120 companies were registered on the NSD and NOGTR respectively (Strategic Friends International, 2021). However, despite the regulations and policies put up, participation of nationals is still low (Rwengabo, 2017). For example, according to (Office of the Auditor General, 2021), some of the employees in the sector reported to be nationals are not Ugandans. In addition, (Office of the Auditor General, 2021) confirmed that the skill gaps between Ugandan and foreign employees

remains above 15%. The reason for the failure to attain the required standards could be attached to a number of barriers at micro, meso, and macro level.

Several studies and reports have been attributing this challenge to several barriers at micro, meso and macro levels (Byakagaba, Mugagga, & Nnakayima, 2019). This study thus made an assessment of the barriers facing the implementation of local content in oil and gas sector in Uganda while using Albertine Graben Region.

**1.2 Problem Statement**

The government of Uganda drafted and implemented a sound legal framework like the Petroleum Act, 2013, Local Content Regulation (2016), objectives 5.3.7 and 5.3.8 of the National Oil and Gas Policy (2008) to enable optimum national participation in the oil and gas activities and support the development and maintenance of the national skills and expertise (Byaruhanga & Langer, 2020). Despite a sound legal framework, the participation of nationals in oil and gas activities remains minimal. For instance, according to (Office of the Auditor General, 2021), although the number of Ugandans directly employed by oil companies has increased to 81%, with 49% at management, 55% technical and 80% of their support staff, part of these are reportedly not Ugandansand receiving a relatively low pay when compared to non-nationals. Further, the number remains below 95% of the support staff and middle level staff who are requiredto be Uganda citizens from the start of the petroleum activities as indicated by Ministryof Energy and Mineral Development (MEMD). In addition, (Office of the Auditor General, 2021) confirmed that the skill gaps remain above 15% between Ugandan employees and foreign employees. This measures below the required. The utilization of Uganda's good and services has also remained at 28% measuring below at least 40% of the required as per the MEMD (Office of the Auditor General, 2021). The procurement from host communities remains at only one of the three companies. Majority of the companies obtain 95% of their foods and drinks away from host communities (Office of the Auditor General, 2021). Records (invoices & orders), however, showed that local farmers who were over 1000 on average still only supply food worth UGX 2,000,000 (less than USD 1,000) a month, which is still low compared to the efforts and investments by the licensee (as of September 2021). This is attributed to unsafe, unreliable, and ill-healthy food conditions in the area. In addition, only 2% of employees are obtained from host

communities performing largely sub-contracting and support roles. Lastly, up to now, one company (CNOOC) had been issued a production license in Uganda for which the government of Uganda had exercised the option of taking up a participating interest of 15%. The failure to achieve the required standards could be attributed to a number of barriers at micro, meso, and macro level.

Hence, the need for a current study to ascertain the barriers associated with implementation of national participation scheme.

### 1.3 Purpose of the Study

To assess the barriers facing the implementation of national participation in oil and gas sector in Uganda while using a case of Albertine Graben Region.

### 1.4 Objectives of the study

**i)** To assess the micro-level barriers facing the implementation of national participation in oil and gas sector in Albertine Graben Region

**ii)** To assess the meso-level barriers facing the implementation of national participation in oil and gas sector in Albertine Graben Region

**iii)** To assess the macro-level barriers facing the implementation of national participation in oil and gas sector in Albertine Graben Region

### 1.5 Research Questions

i. What are micro-level barriers facing the implementation of national participation in oil and gas sector in Albertine Graben Region?

ii. What are meso-level barriers facing the implementation of national participation in oil and gas sector in Albertine Graben Region?

iii. What are the macro-level barriers facing the implementation of national participation in oil and gas sector in Albertine Graben Region?

### 1.6 Rationale/Justification of the Research

The rationale for undertaking this study originate from the fact that a number of existing studies (i.e., (Byaruhanga & Langer, 2020) (Murray, Skene, & Haynes, 2017) (Acheampong, Ashong, & Svanikier, 2016)) related to participation of nationals in oil and gas exploration activities were limited to either micro or macro level barriers. This meant that they ignored the inter-linkage of all barriers at micro, meso and macro level

which can be a basis for understanding the whole concept of national participation in oil production and processing. It was, therefore, significant that this study is undertaken to explore the micro, meso, and macro level barriers associated with implementation of national participation in oil and gas sector in Uganda. Secondly, there exists knowledge, conceptual and theoretical gaps in operationalization of the study variables. This study was conducted to ensure that such gaps are closed.

### 1.7 Significance of the study

The findings of this study are expected to be of particular value to a number of players in the various sectors in Uganda notably;

#### 1.7.1 Academicians

For academicians and other researchers wishing to carry out further research as it may contribute to the existing literature in the field of oil and gas management. In other terms, the study may be a source of reference material for future researchers on other related topics since it may also help other academicians who undertake the same topic in their studies. From a theoretical perspective, linking contrasting but complementary theoretical frameworks to give a holistic insight into an enquiry contributes to the clarion call for multi-framework analysis.

#### 1.7.2 Policy makers

The study may contribute to raising awareness among policy makers at all levels in understanding the micro, meso, and macro barriers that impend the success of national participation in oil and gas sector. The micro level barriers were well spelt out and the suggestions related to dealing with them were provided by the study. This was also done on the remaining meso and macro level barriers. This may enable policy makers to build on such recommendations for improvement.

#### 1.7.3 Stakeholders

The study may be significant in the generation of information that is to be fed into the current advocacy for equal participation of all stakeholders or nationals in oil and gas exploration and processing in Uganda.

### 1.8 Scope of the study

#### 1.8.1 Geographical Scope

This study was conducted in Albertine Graben Region located in Western part of Uganda. This region consists of many districts, including Nwoya, Buliisa, Kikuube, Hoima, among others. The study was restricted to local people and companies found in Hoima City to represent other districts found in Albertine Graben Region.

### 1.8.2 Content Scope

The study assessed the barriers facing with implementation of national participation in oil and gas sector in Uganda while using a case of Albertine Graben Region. In this study, barriers were limited to micro, meso and macro level barriers. On the other hand, national participation was limited to skill gap, employment creation for nationals and host communities, procurement from host communities, utilization of Uganda goods and services and training offered to local employees.

### 1.8.3 Time scope

The study focused on the period of 2016-2022. This was selected because it is when the Local Content Regulation (2016) came into play to enable national participation in oil and gas in Uganda. The study took four months that is from the proposal writing and approval, data collection, analysis, writing of the findings and submission to the university.

## 1.9 Theoretical framework

This study is guided by Resource Based View or theory. This theory is a managerial framework which is used in determining the strategic resources a firm can exploit to achieve sustainable competitive advantage. The RBV focuses managerial attention on the firm's internal resources in an effort to identify those assets, capabilities, and competencies with the potential to deliver superior competitive advantages. The resource-based view offers strategists a means of evaluating potential factors that can be deployed to confer a competitive edge. A key insight arising from the resource-based view is that not all resources are of equal importance, nor do they possess the potential to become a source of sustainable competitive advantage. The sustainability of any competitive advantage depends on the extent to which resources can be imitated or substituted. (Barney, 1991) pointed out that understanding the causal relationship between the sources of advantage and successful strategies can be very difficult in practice. Thus, a great deal of managerial effort must be invested in identifying,

understanding, and classifying core competencies. In addition, management must invest in organizational learning to develop, nurture, and maintain key resources and competencies. In the resource-based view, strategists select the strategy or competitive position that best exploits the internal resources and capabilities relative to external opportunities. Given that strategic resources represent a complex network of inter-related assets and capabilities, organizations can adopt many possible competitive positions.

Therefore, the resource-based view became relevant to this study since the researcher vied to determine the barriers to implementation of national participation in achieving competitive advantage and lead to GDP growth. In this case therefore, it becomes important to assess the micro, meso and macro level barriers that may be impacting on the competitive advantage of nationals in relation to foreign individuals and companies, who are more resourceful and strategic.

**1.10 Conceptual framework**

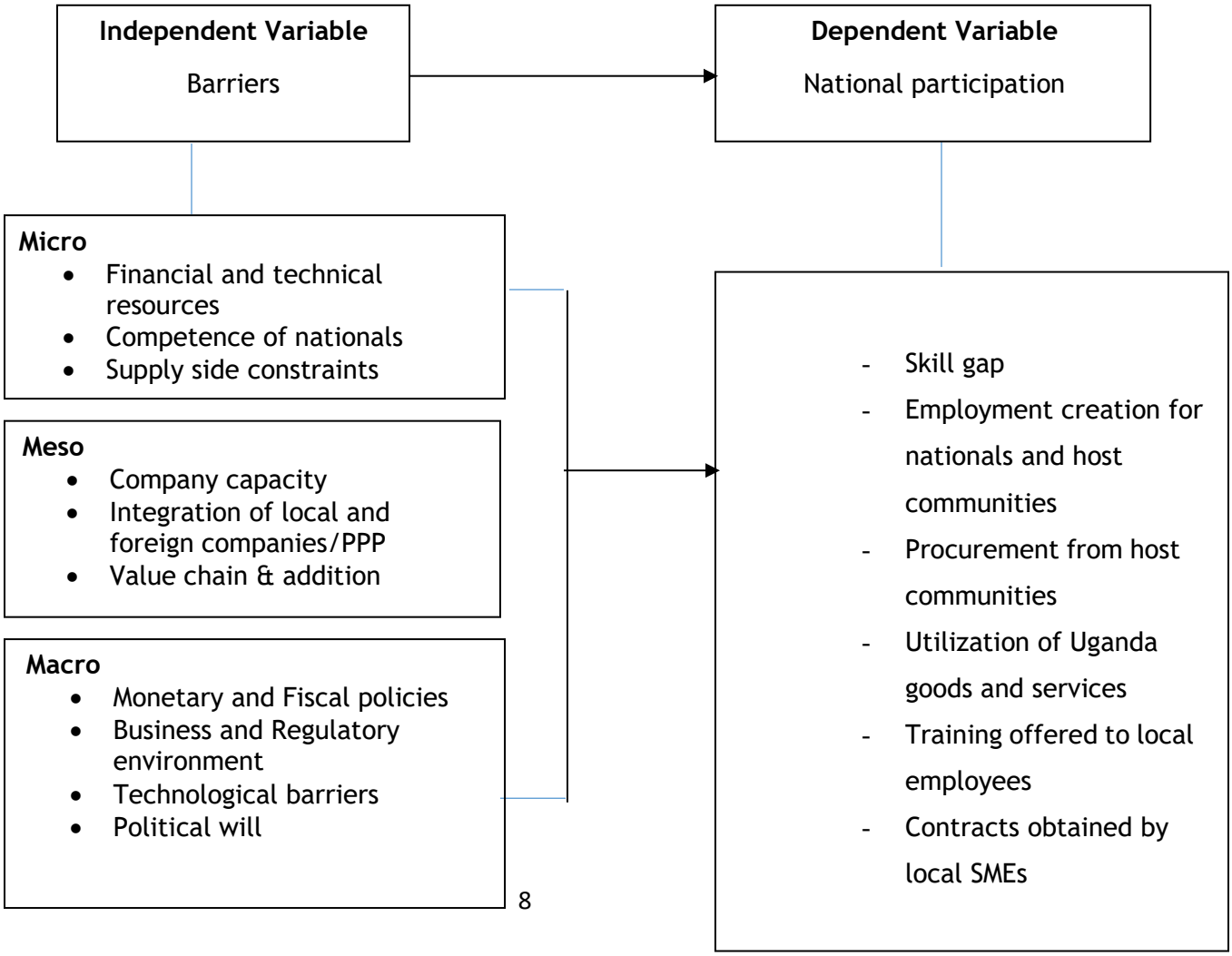


**Figure 1: Conceptual framework**

***Source:*** *Adopted and Modified by the Researcher from* (Djeflat, & Lundvail, 2016)

The conceptual framework above describes that the presence of micro, meso, and macro barriers were major roadblocks to implementation of national participation in oil and gas sector. For instance, micro level barriers like lack of financial and technical resources among people and companies, national or citizen competence to do the job in relation to foreigners and supply side constraints associated with possession of quality skills, supplies and goods can be primary barriers to implementation of national participation in oil and gas sector. Secondly, at meso level, the absence of company capacity to do work, absence of integration of efforts to team up foreign and local companies as well as absence of national companies in the value chain and innovation efforts can also suppress the implementation of national participation. Lastly, the macro related barriers including, absence of political will, technological barriers (science, technology and innovation capabilities), unfavorable business and regulatory environment, and monetary and fiscal policies related to access to credit, interest rates etc., do affect the implementation of national participation in oil and gas sector in terms of filling skill gap between the foreign experts and local experts, employment creation for host communities and nationals, procurement from host communities, contracting of national SMEs, and utilization of goods and services from Uganda. This is what this study endeavored to ascertain.

### 1.11 Definition of Key Terms

These are the major terms in the study whose meanings are elaborated further;

Micro Level Barriers. These are environmental barriers which are in direct contact with an organization and affect the routine activities of an individual or company. These influence day to day activities. They affect performance and decision-making.

Meso level barriers. Refer to the setting between the macro and micro-opportunities. It shapes the framework of a business or organization and can be considered as its infrastructure: policies, standard operating procedures, rules, and guidelines. These factors cannot be responded too directly or indirectly.

Macro Level Barriers. These are environmental barriers associated with major external and uncontrollable factors that influence the decision making of an organization. A company does not operate alone in its business environment but operates in a larger context. It comprises of forces that provide opportunities, but at the same time also pose threats to company.

National Participation: This meant the extent by which national citizens benefit from given employments, contracts, training or procurement of local goods and services.

### 1.12 Chapter Summary

This chapter has highlighted the background to the study, statement of the problem, purpose of the study, specific objectives of the study, research questions, justification, scope, and significance of the study. The conceptual framework was also presented.

# CHAPTER TWO

# LITERATURE REVIEW

## 2.1 Introduction

This Section endeavors to discuss and analyze other similar studies, who studied and where it was conducted, what results were found, helps analyze the problem using theoretical insight and concepts, as well as case studies in different regions which shows how the problem manifested itself in different socio-cultural regions. It clarifies on issues through comparison and answering certain research questions.

## 2.2 Conceptual Review

### 2.2.1 Barriers

There are several studies showing that implementation of national participation is affected by several barriers. For instance, (Djeflat, & Lundvail, 2016) studied about resource curse and the limited transformative capacity of natural resource-based economies in Algeria. They found out that barriers tend to originate from micro environment factors. For instance, they pointed out that lack of financial and technical resources is primary failure to national participation. This is because many SMEs in Uganda lack the required capital to bid and manage a contract once given. However, (Djeflat, & Lundvail, 2016) argued that some do have capital but they have no one to stand surety for them hence affecting national participation. (Asiago, 2017) underscored the meso factors related to the absence of company capacity to do work, lack of initiatives to enable local companies work with foreign companies. They also pointed out the lack of necessary skills among staff. Other barriers are related to macro level, and these consist of technology and political willingness.

### 2.2.2 National Participation

In Uganda, the discovery of oil began in 1925 as documented by a Government Geologist E. J. Wayland, in the publication “Petroleum in Uganda” (Asasira, 2020). The report documented existence of oil seepages along the shores of Lake Albert in both Uganda and the Democratic Republic of Congo (DRC). Between 1936 and 1956, the first shallow

stratigraphic wells were drilled by the African–European Investment Company. The first

deep well, Waki B-1 well was drilled in Butiaba (Kayizzi-Mugerwa, 2020). Twenty shallow wells were also drilled in Kibiro and Kibuku areas for geological correlation. The period 1945-1980 is referred to as a period of limited activity because of the Second World War, change in policies of colonial masters where East Africa was zoned for Agriculture (Petroleum Authority of Uganda, 2022). All these explorations were done without considering national participation which ended up not affecting the GDP of the country positively. Hardman Petroleum Pty currently known as Tullow Oil made the first commercial discovery well in Uganda with the acquisition of 2-D seismic data over Kayiso Tonya area in 2006 (Petroleum Authority of Uganda, 2022). The discovery of commercial petroleum reserves raised high expectations from the nationals related to achieving higher economic transformation (Byaruhanga & Langer, 2020).

The discovery of commercial quantities of oil and the revenues expected from the production of oil and gas in Uganda has the potential to positively, and significantly impact on the national budget and bring about enormous opportunities for Uganda including the following: improved physical infrastructure, reduction in poverty, increased export earnings, increased opportunities for Uganda nationals as well as companies (Tom, 2020). This propelled the idea of national participation so as both Ugandan citizens and Ugandan companies take a lead role and participate effectively through acquiring jobs and winning contracts respectively. In 2008, the Government of Uganda started the drafting and implementation of a sound legal framework that aims at creating a leveled ground for Ugandans and Uganda companies to participate in the oil and gas sector (Byaruhanga & Langer, 2020). In 2016 more local content regulations were enacted with the aim of ensuring that Ugandans maximize their participation in the oil and gas sector. The Government enacted several policies, laws, and regulations to promote national participation in the Uganda's oil and gas sector. According to (Ministry of Energy and Mineral Development, 2008) objectives 5.3.7 and 5.3.8 of the National Oil and Gas Policy, 2008 requires optimum national participation in the oil and gas activities and support the development and maintenance of the national skills and expertise (Olanya, 2015). In addition, regulation 17 (4) of the Upstream national content regulations suggests that the International Oil Companies (IOCs) should aim at

“recruiting at least 30% of the management staff from the start of the petroleum activities and the percentage shall increase to at least 70% within 5 years after the start of the petroleum activities (Byaruhanga & Langer, 2020). 40% of the technical staff must be Uganda citizens at the start of the petroleum activities and the percentage should increase to at least 60% within five years after the start of the petroleum activities and 90% within 10 years from the start of the petroleum activities. At least 95% of the support staff and middle level staff should be Uganda citizens from the start of the petroleum activities” (Ministry of Energy and Mineral Development, 2016).

In its effort to monitor the participation of Ugandans in the oil and gas sector, the Petroleum Authority of Uganda created the National Supplier Database (NSD) and the National Oil and Gas Talent Register (NOGTR) as the Human Capacity Register in regard to the Regulation 11 of the Petroleum (Exploration, Development and Production) (National content regulations, 2016) (Petroleum Authority of Uganda, 2019). By 2021, over 3,169 Ugandan companies were qualified and registered on the NSD and over 4,682 individuals and 120 companies were registered on the NOGTR (Strategic Friends International, 2021). However, despite the regulations and policies in place, the national participation in oil and gas sector in Uganda remains low (Rwengabo, 2017). Several studies and reports have been attributing this challenge to several barriers at micro, meso and macro levels (Byakagaba, Mugagga, & Nnakayima, 2019). This study thus made an assessment of the barriers facing the implementation of national participation scheme or local content in oil and gas sector in Uganda while using Albertine Graben Region.

## 2.3 Empirical Literature Review

### 2.3.1 Micro level barriers to the implementation of national participation in oil and gas sector

The influence of micro level barriers in implementation of national participation or local content schemes in oil and gas sector has been reflected in a number of studies. For instance, (Akhtar & Sushil, 2018) conducted a study on Indian oil industry while assessing the participation of local national in the exploration of oil and gas. The study established that majority of well positioned firms were excluded to participate in the

whole exploration, and this had affected the growth of its GDP. The study established that financial and technical resources were lacking among locally based firms and host-based communities. They found out that over 70% of the companies which would qualify to undertake some exploration activities had no required capital to do the job which excluded them right away even if the policy of local content was in place. The study suggested that there was a need to financially support or make contracts friendly to local companies which have no required financial resources.

On the other hand, (Wibowo & Alfen, 2015) added that individual employees lacked the technical skills to undertake the jobs since much of the work called for a lot of knowledge. Much of the work which was being done by nationals were unskilled and semi-skilled constituting only 56% of the work being done and earning below 35% of the salaries spent. This meant that the lack of adequate financial and technical resources renders several people and companies less able to participate in oil and gas exploration activities. This current study was undertaken as a way of confirming whether financial and technical resources are part of the micro barriers to national participation in oil and gas sector.

(Türkes, et al., 2019) also studied about the drivers and barriers to national participation in oil and gas sector in Romania. They found out that the increase in national participation in oil and gas activities rides on presence of competent nationals who are highly educated and skilled. They found out that the government of Romania started from a smooth ground whereby majority of its people were educated. These were provided with capacity building and skills by both the government through its higher institutions of learning and within the companies who had been contracted to undertake the job. The competence of nationals in oil and gas exploration and processing widened the scope of work that they would do at managerial, middle level management and supportive roles. About 95% were found to occupy the technical and top management roles, 100% did supportive and clerical work. It was also established that the goods and services consumed by companies contracted to undertake work were obtained largely (90%) from host communities since they had food and other merchandise meeting the healthy, and safety standards required. (Kolstad & Kinyondo,

2016) on contrary, however, established that the participation of nationals in Norway was highly affected by lack of expertise required in exploration of oil and gas. This thus informed this current study that there was a need to determine the extent by which competence is an enabler or barrier to participation of nationals in Uganda's oil and gas sector while using Albertine Graben Region.

(Papamichail, Rosiello, & Wield, 2018) investigated the capacity building barriers and supply-side constraints which stand in a way to participation of nationals in oil exploration in Brazil and Mexico. They ascertained that many companies lacked the required access to credit even though they had the access to supplies required. The lack of access to credit was also accompanied with lack of expertise to undertake the job. The lack of necessary technical skills renders majority of people and firms not to participate in oil exploration. This thus informed this current study that there was a need to determine the extent by which competence is an enabler or barrier to participation of nationals in Uganda's oil and gas sector while using Albertine Graben Region.

### 2.3.2 Meso level barriers to the implementation of national participation in oil and gas sector

The influence of meso level barriers in implementation of national participation or local content schemes in oil and gas sector has been reflected in a number of studies. For instance, (Ayanoore, 2020) studied about the politics of local content implementation in Ghana's oil and gas sector. He found out that the policy of local content implementation fell between hard rock and stone because a number of companies had no required capacity or human resource to undertake the job. By capacity, it related to size, finances, human resource, and experience to undertake majority of the sensitive exploration activities. The lack of capacity to under the job rendered many of them to be excluded from the bids. (Ayanoore, 2020) added that on the prequalified firms, locally owned companies did not constitute above 20%. This made them vulnerable not to compete with other prequalified firms from abroad. He ascertained that contracted companies in oil and gas sector required to work with experienced firms and individuals and majority of these were found inexperienced. Experience at

individual and firm level largely affected them from getting employed, contracted, and sell their goods and services to these oil and gas contracted firms. This thus informed this current study that there was a need to determine the extent by which company or individual capacity is an enabler or barrier to participation of nationals in Uganda's oil and gas sector while using Albertine Graben Region.

(Gokhberg & Roud, 2015) studied the structural changes in the national innovation system in Russia's oil and gas industry. It was established that the increase in national participation of local firms in oil and gas sector originated from the presence of 100% of national company in the value chain and addition. The network of supply chain network was largely dominated by national companies. The level of innovation capabilities was also demonstratively higher hence rendering these companies competent and compliant to the requirement of the job. The enablers to participation of nationals in oil and gas sector was because of the willingness and readiness of these local companies to add value of their oil products. They also had the required network or supply chain across Russia and outside Russia. This thus informed this current study that there was a need to determine the extent by which value chain and addition of a firm is an enabler or barrier to participation of nationals in Uganda's oil and gas sector while using Albertine Graben Region.

The issue of integrating local and foreign companies was also reported by several studies as a basis for increasing on national participation in oil and gas sector. (Pegram, Falcone, & Kolios, 2018) investigated job role localization in the oil and gas industry. They found out that the underlying failure to build a sustainable local oil and gas industry was due to failure to develop private public partnership and integration of local companies with foreign companies. The integration of both firms was found to improve on the transfer of knowledge and skills, enabling capacity building and training, widen job creation, and improved value creation through utilizing appropriate technology. (Mirimoghadam & Ghazinoory, 2017) additionally ascertained that teamwork is critical since both foreign and local firms as well as individuals can work in concert to achieve national participation. This thus informed this current study that

there was a need to determine the extent by which local and foreign companies had integrated to achieve national participation agenda in Uganda.

### 2.3.3 Macro level barriers to the implementation of national participation in oil and gas sector

The influence of macro level barriers in implementation of national participation or local content schemes in oil and gas sector has been reflected in a number of studies. For instance, (Acheampong, Ashong, & Svanikier, 2016) undertook an assessment of local-content policies in oil and gas producing countries while looking at the barriers to implementation of local content policies in Ghana. They found out that the business and regulatory environment of operation was not favorable for realizing the implementation of local content policies. For instance, even though the regulations were in place, the amount of capital and technical knowhow required were far higher than the limits or in possession of local firms and individuals. This would automatically exclude many of these firms from contracts offered in exploration activities. Further, a number of companies which were regarded as local or national companies belong to foreigners, the only difference with directly owned foreign companies, they were registered under the laws of Ghana, and this qualified them to be Ghana based. In the end, the GDP of Ghana remained stunted and less growing since genuine Ghanaians were not on forefront jobs and contracts in oil and gas sector. The views of (Acheampong, Ashong, & Svanikier, 2016) were further qualified by (Nwapi, 2016). (Nwapi, 2016) ascertained that without a favorable business and regulatory environment, national participation remains lacking in oil and gas sector since corruption perception index remains high, whereby obtaining or qualifying for rich opportunities like those found in oil and gas sector calls for paying a huge sum of money. This in many times affect the implementation of local content policies.

(Ablo, 2017) explains poor institutional support network with a challenge to have the institutions that are supposed to support industrial development, to provide basic services and inputs into the enterprise technological activity. Whereas the National Oil and Gas Policy clearly articulates the roles of the private sector, central government, local government traditional and cultural institutions, and civil society, the study found

out that local government, traditional and cultural institutions, and civil society, have so far been largely kept out of the oil and gas industry development processes. This problem is further exacerbated by lack of streamlined and adequate coordination between government ministries, agencies, and the private sector. The result is an absence of an effective and well managed private public sector partnership (PPP) framework to promote local content in the petroleum industry. For example, (Fontaine, Sánchez, Córdova, & Velasco, 2016) indicate that a largely redundant, underfunded Development Corporation should be the major investment arm of government in a PPP framework. Difficulties with access to credit are explained by the fact that even if there is access, lending interest rates are prohibitively high. As for lack of necessary skills, they argue that enterprises still suffer shortage of critical skills; financial, production, material, and project management, as well as technical capability. Furthermore, the low level of technology and technological mastery implies that Uganda is grossly deficient in technology and lacks indigenous capacity to copy, adapt and develop technology. Poor infrastructure renders the industrial sector in general inefficient, while low STI capabilities may not be considered a major obstacle given thecurrent stage of industrial development in a number of developing countries like Uganda.

(Ahmad, Rezaei, Sadaghiani, & Tavasszy, 2017) mentioned that another input to constraints at the institutional or macro level, is to consider the World Economic Forum's Executive Opinion Survey (2015). From a list of 15 factors the respondents were asked to select the five most problematic factors for doing business in their country and to rank them from 1 (most problematic) to 5. These responses have been weighted according to their ranking in order to identify the most problematic factors for doing business in each country. The higher score a factor gets, the more problematic it is. The score for the 15 factors adds to 100 for all countries. 37 As for Uganda, the respondents really highlight obstacles in three areas: Corruption, Access to financing, and inadequate supply of infrastructure. Tax rates, Poor work ethics, inefficient government, Inflation, and Inadequate educated workforce are also perceived as problematic when doing business in Uganda, but by far not as severe as the first three

areas mentioned. There seem to be rather broad consensus that Uganda's challenges are in the areas spelt out in the National Development Plan and the World Economic forum's Executive Opinion Survey. At least Private Sector Foundation Uganda (2015) identifies a combination of the two as key challenges for private sector growth.

(Owusu & Vaaland, 2016) surveyed 55 firms, which have either supplied the petroleum activities in Uganda with goods and services or which potentially will do so in the future. Even among these firms, industrial activities to a large extent take place in the informal sector of the economy. Only 35% were registered with Uganda Revenue Authority. The informal character of industrial activities also affects the governance of firms. The vast majority of the firms surveyed (85%) did not have accounts with formal auditing. (Byaruhanga & Langer, 2020) explain that this is due to poor records and booking culture and/or unwillingness to disclose economic results. This practice will not comply with what is required to work with the oil industry. Formal requirements are quite strict when working with the oil industry, which also means that capabilities have to be documented. Thus, it is of concern that (Byaruhanga & Langer, 2020) find that two of three firms they surveyed did not have one full time employee with formal training in HSE (Health, Security and Environment). Three of four did not have any professional engineers in their staff, and only a few had some certification of their business of relevance for the oil industry. In their survey (Byaruhanga & Langer, 2020) asked the companies to list qualifications that were needed to do business with the oil industry, which they experienced not to be available. The companies listed engineering skills for the oil and gas industry, skills in ICT, in mechanical engineering and fittings, as well as quality chefs, qualified hospitality staff and environmental skills. Skills in these areas can be improved and strengthened through training programs of people and in firms. Such skills are essential for industrial capacity building. To the extent there is shortage of such skills, national content development will suffer. This thus informed this current study that there was a need to determine the extent by which macro level barriers affect local national participation agenda in Uganda's oil and gas sector.

## 2.4 Conclusion

In the study reviewed, it is clear that majority of studies acknowledge the enablers and barriers at macro, meso and micro level affecting national participation in oil and gas sector. However, the underlying gaps were limited to geography, time, and methodology. Specifically, by geography, majority of the studies reviewed were conducted outside Uganda which makes them incomplete and unconfirmed as far as the current study is concerned. This current study was conducted in Uganda and particularly in Albertine Graben Region to confirm those earlier findings. Secondly, majority of the studies were conducted in the last five years. This called for a current study to verify whether what had been done earlier remains right in the current days of 2022. Lastly, majority of these reviewed studies were conducted as research papers based on either qualitative or quantitative approach. This current study was conducted as both qualitative and quantitative study. This meant that there is a possibility of reaching different conclusions.

# CHAPTER THREE

# RESEARCH METHODOLOGY

## 3.0 Introduction

This chapter covers the research design, study population, sample size, sampling design and procedure, research instruments, validity and reliability of the instruments, research procedure, data analysis, measurement of variables, and ethical consideration the researcher was likely to consider while carrying out this study.

## 3.1 Research design

This study adopted a cross-sectional survey design; it involved data being collected at a single point in time from a cross section of respondents. The cross- sectional design is cheap and simple to use, since data is collected from a cross-section of respondents at a single point in time (Creswell J. W., A Concise Introduction to Mixed Methods Research., 2015). The study also applied the quantitative and qualitative approaches. The mixed approach was applied in sample selection, data collection, data quality control and data analysis. (Cox & Hassard, 2010) Support the use of mixed approaches because multiple methods help to research a problem from all sides. Usage of different approaches also helps to focus on a single process and confirms the accuracy of the data. Qualitative research enables us to explore new areas, deal with value-laden questions, build theories, and to do in-depth examination of phenomena. Quantitative research allows the researcher to measure and analyze data. The relationship between the independent variable (barriers) and dependent variable (national participation) was studied in detail. Quantitative research was also used in testing research questions in experiments because of its ability to measure data using statistics.

## 3.2 Area of study

This study was conducted in Albertine Graben Region located in Western Part of Uganda. This region consists of many districts, including Nwoya, Buliisa, Kikuube, Hoima, among others. The study was restricted to local people and companies found in Hoima City to represent other districts found in Albertine Graben Region.

### 3.3 Sources of Information

The study collected from both primary and secondary data sources. Primary data was obtained while using interviews, and questionnaires whereas secondary data was obtained while using document review.

### 3.4 Population and sampling techniques

The study population was made up of 30,340 residents and employees staying within Hoima City (UBOS Statistical Abstract, 2021). Although the target population was 630 residents who are direct stakeholders and staying close to oil activities in Hoima City (MEMD Statistical Abstract, 2020). The researcher based his study on the study population of 700 respondents who included 630 Residents of Hoima, 44 District Employees, 14 Oil Company Officials and 12 Officials from PAU and the MEMD. These categories of people are selected since they played a central role in ensuring that national participation is achieved in oil and gas sector. For instance, residents have information related to whether they had been integrated in oil and gas exploration process. The district employees have required knowledge on barriers envisaged in the process of national participation in oil and gas. The IOC officials are also aware of the readiness of national participation campaigns and MEMD officials are also significant in determining the barriers they had witnessed in implementing local content policies.

Morgan and Krejcie Formula 1970 was used in determining the sample size as demonstrated in Table 1 below.

**Table 1: Sample Size of Respondents and Sampling Technique**

| Category of Population | Population Size | Sample Size | Sampling Technique |
|---|---|---|---|
| Hoima Residents | 630 | 234 | Simple Random sampling |
| Oil company officials | 14 | 10 | Purposive sampling |
| PAU and MEMD officials | 12 | 10 | Purposive sampling |
| Hoima district employees | 44 | 36 | Simple Random sampling |
| **Total** | **700** | **290** | |

*Source: PAU, 2021*

The study utilized probabilistic and non-probabilistic sampling techniques. From the present probabilistic sampling techniques, the study utilized simple random sampling

technique in choosing Hoima residents and district employees. This technique was chosen because these constituted a large population size and will as such permit simple random sampling to minimize sampling bias (Creswell, Mapping the Field of Mixed Methods Research, 2009). On the other hand, purposive sampling was used to choose PAU, MEMD and IOC officials that were targeted due to their supposed knowledge. This technique was employed following the postulate that if sampling had to be done from smaller groups of key informants, there was need to collect very informative data, and thus the researcher needed to select the sample purposively (Sufian, 2015).

### 3.5 Variables definitions and measurements

In this study, barrier is operationalized to mean, micro, meso and macro barriers as earlier adopted by (Djeflat, & Lundvail, 2016). National participation was measured to mean skill gap, employment creation for nationals and host communities, procurement from host communities, utilization of Uganda goods and services, training offered to local employees and contracts obtained by local SMEs as measured by (Hilson & Ovadia, 2020). (Sekaran, 2003) supports the use of nominal, ordinal, and Likert type rating scales during questionnaire design and measurement of variables. The nominal scale was used to measure variables such as gender, and level of education. The ordinal scale was used to measure aspects such as age. The five-point Likert type scale (1- strongly disagree, 2-disagree, 3-not sure, 4- agree and 5-Strongly agree) was used to measure the independent variables and the dependent variable. The choice of this scale of measurement is that each point on the scale carries a numerical score, which was used to measure the respondent's attitude.

| Likert scale | Rate by mean | Interpretation |
|---|---|---|
| Strongly disagreed | 1-1.44 | Very ineffective/very low |
| Disagreed | 1.45-2.44 | Ineffective/low |
| Neutral | 2.45-3.44 | Moderate/Average |
| Agree | 3.45-4.44 | Effective/High |
| Strongly Agree | 4.45-5.0 | Very effective/Very High |

### 3.6 Procedure for data collection

Before setting off to field study, the researcher requested for a letter from the PAU. This letter granted permission to the researcher to access and interact with information and officials in Uganda's oil and gas sector as required by the law. The letter introduced the researcher to the Permanent Secretary MEMD, PAU-National Content Department, The President - CNOOC (U) Ltd, The General Manager-TEPU, and CAO - Hoima district who then gave permission to their officials to interact and coordinate with the researcher in order for the study to be carried out. The researcher then appointed three research assistants to help him in data collection. After introducing the research assistants to the respective staff, formal lists of staffs were obtained and the researcher together with research assistants visited respondents and randomly and purposively select the required numbers. Since the questionnaires were close ended, all respondents found them easier and managed to fill in all the sections. After data collection, the researcher started organizing the instruments, tallying the information provided by respondents and then begun presenting and analyzing the information using Statistical Package for Social Scientists. The researcher then edited the data to make sure that fair findings were presented for academic purpose.

### 3.7 Data collection instruments

The study used both qualitative and quantitative methods of data collection, and these include personal in-depth interviews using an interview guide, questionnaires, extracting information from documents and finally observations.

#### 3.7.1 Document Review

The researcher also obtained some of the necessary secondary data and information through documentary review. Information on national participation was obtained from documents like; The Second National Development Plan (NDP II) 2015/16-2019/20, PAU annual Reports, Oil company status reports, MEMD reports, OAG annual reports and oil and gas monitoring and evaluation reports among other documents.

#### 3.7.3 Key Informant Interviews

The personal interviews using an interview guide were the main source of data and although the interviews were time consuming and rather expensive, they were advantageous in many aspects as they generally helped to minimize non-responses and

rephrasing of questions. During the course of interviews also, clarification was sought on different issues. The interviews also focused on barriers facing national participation in oil and gas sector in Uganda and questions we asked in the sequence developed (see appendices). Interviews were used in collecting data purposively.

### 3.7.4 Questionnaire

The questionnaire contained both closed and open-ended questions. The closed questions were restrictive so as to facilitate the coding exercise while the open ended was sought for considered answers and opinions and gave freedom to the respondents. This was used to gather data from Hoima residents and district employees.

## 3.8 Quality/Error Control

To ensure validity and reliability of the study, unobtrusive methods of data collection were used like informal visits to Buliisa and Kikuube districts prior to formal data collection, and interaction with the sample selected.

### 3.8.1 Validity

The validity of study instruments was established using expert judgments like professional advice with supervisors and peers (Kothari, 2004). Three experts were contacted to assess and evaluate the validity of the instruments. The experts were requested to rate questions depending on their relevance. The Content Validity Index (C.V.I) was determined by dividing the number of items rated relevant and total number of items. As depicted in the Table 2 below, it is clear that CVI was 0.782 which was above 0.7 which is considered valid.

**Table 1: Content Validity Indices for the tools**

| Variable | Description | No. of items | Item content validity index (CVI) | Mean CVI |
|---|---|---|---|---|
| Independent | Micro level barriers | 7 | .857 | |
| | Meso level barriers | 7 | .714 | |
| | Macro level barriers | 9 | .889 | |
| | | | | *0.782>0.7 Very valid tool* |
| Dependent | National participation | 3 | .667 | |
| | CVI | | .782 | |

**Source:** *Primary data, 2022*

### 3.8.2 Reliability

In establishing the reliability of the tools, the researcher pretested study instruments twice. Two pilot studies were conducted in Kikuube and Buliisa. The first and second test were conducted in two weeks' time. After, the results obtained from each test correlated when they were compared. Since the results were consistency, the researcher went ahead to conduct the research. A Cronbach's Alpha Reliability Coefficient of 0.933 was obtained which is above 0.7 and the tool was considered applicable (Kothari, 2010) as demonstrated in Table 3. The results from the pilot study were used to modify the items in the instruments.

**Table.2: Cronbach alpha(s) for the tool(s)**

| Variable | Description | No. of Items | Item Cronbach Alpha Coefficient | Mean Alpha (*a*) |
|---|---|---|---|---|
| Independent | Micro level barriers | 7 | .975 | |
| | Meso level barriers | 7 | .979 | |
| | Macro level barriers | 9 | .978 | *[a: 0.933 > 0.7] Very reliable instrument* |
| Dependent | National participation | 3 | .799 | |
| | *a* | | *0.933* | |

**Source:** *Primary data, 2022*

### 3.9 Data processing and analysis

After data collection, quantitative data was first entered and coded into Statistical Package for Social Scientists (SPSS), a computer software package. This computer software package was preferred for this study because it was good for keeping variables separated by category. Further still, SPSS came with more techniques of screening or cleaning the information in preparation for further analysis. In this regard, a database adapted from the SPSS sheet was created according to the way the pre-coded questionnaires appear on the hard copy. Codes were assigned to each response to the question and the corresponding numbers were used to develop a coding sheet. The sheets with codes corresponding to different questions in the questionnaire wasreferred to when feeding data into the database.

### 3.9.1 Quantitative data analysis

Quantitative data analysis involved use of both descriptive and inferential statistics in the Statistical Package for Social Scientists (SPSS). Descriptive statistics entailed determination of measures of central tendency such as mean; measures of dispersion such as standard deviation; frequency distributions; and percentages. Data was processed by editing, coding, entering, and then presented in comprehensive tables showing the responses of each category of variables. Inferential statistics included correlation analysis using a Pearson correlation coefficient and regression analysis using a linear multivariant regression. A correlation analysis was used to answer the research objectives whereas the regression analysis was used to answer the research questions (Oso & Onen, 2008).

### 3.9.2 Qualitative data analysis

Qualitative data analysis involved both thematic and content analysis and was built on how the research finding tied it to the research questions. Content analysis was utilized to edit qualitative data and reorganized it into meaningful shorter sentences. Thematic analysis was utilized to establish data into themes, and codes were identified (Sekaran, 2003). After data collection, information of same category was assembled together and their similarity with the quantitative data created after which a report was written. Qualitative data was interpreted by composing explanations or descriptions from the information. The qualitative data was illustrated and substantiated by quotation or descriptions.

### 3.11 Ethical considerations

The researcher made an effort to adhere to ethical standards. Permission to conduct the study was obtained from UCU. Furthermore, permission was obtained from the PS MEMD, district CAO, the President CNOOC (U) Ltd, and the General Manager TEPU before interviewing their employees. (Kothari, 2004) Indicates that every researcher should be ethically sound in order to protect the participants from any physical or psychological harm and treat participants with respect and dignity. (Creswell J. W., A Concise Introduction to Mixed Methods Research., 2015) Stipulate that a critical issue in every research is that the participants should be granted informed consent before they participate in the study. Prior to the research, the researcher clarified the nature

of the research and participation in the study was voluntary and based on informed consent. The participants were informed of the right to withdraw from the study at any desired moment, respondents were assured of complete confidentiality and no names were used in this study.

### 3.12 Methodological constraints

*Extraneous variables:* The variables that were getting beyond the researcher's control such as respondents' honesty, personal biases, and uncontrolled setting of the study. To limit the error, the researcher tried to explain that the purpose of the study was purely for academic purpose only and requested respondents to be as honest and unbiased as possible.

*Instrumentation:* The research instruments were research made and some lacked validity and reliability before collection of data. To address this, validity and reliability tests were done to produce a credible measurement of the research variables.

*Testing:* The use of research assistants could bring inconsistency in the administration of the questionnaires in terms of time of administration, understanding of the items in the questionnaires and explanations given to the respondents. To minimize this threat, the research assistants were oriented and briefed on the procedures to be done in data collection.

### 3.13 Chapter Summary

Chapter three has provided the methodological basis and step by step criteria on how the study was conducted. This stems from the research design, study population, sample size, sampling design and procedure, research instruments, validity and reliability of the instruments, research procedure, data analysis, measurement of variables, ethical consideration, and the limitations the researcher was likely to face while carrying out this study.

### 3.13 Chapter Summary

Chapter three has provided the methodological basis and step by step criteria on how the study was conducted. This stems from the research design, study population, sample size, sampling design and procedure, research instruments, validity and reliability of the instruments, research procedure, data analysis, among others.

# CHAPTER FOUR
# PRESENTATION, ANALYSIS, AND INTERPRETATION OF RESULTS

## 4.1 Introduction

Findings are presented in this chapter, and these were done on the barriers facing the implementation of national participation in oil and gas sector in Uganda while using a case of Albertine Graben Region. The findings were established on socio-background of respondents, micro-level barriers facing the implementation of national participation in oil and gas sector in Albertine Graben Region, meso-level barriers facing the implementation of national participation in oil and gas sector in Albertine Graben Region and macro-level barriers facing the on implementation of national participation in oil and gas sector in Albertine Graben Region. The presentation starts with the response rate considered in this study.

## 4.2 Response rate

**Table 4: showing the response rate**

| Respondents | Sample size | Frequency | Percentage |
|---|---|---|---|
| Hoima Residents | 234 | 171 | 73.1% |
| Oil company officials | 10 | 6 | 60% |
| PAU and MEMD officials | 10 | 6 | 60% |
| Hoima district employees | 36 | 26 | 72.2% |
| **Total** | **290** | **209** | **72.1%** |

*Source: Primary data, 2022*

The study managed to reach out to 72.1%. Out of the 290 respondents which had been intended to participant in the study, 209 managed to attend. However, according to (Sufian, 2015), it is essential that beyond 70% of the response rate, the analysis is ideal to proceed. Therefore, 72.1% was ideal enough to allow data analysis for this study.

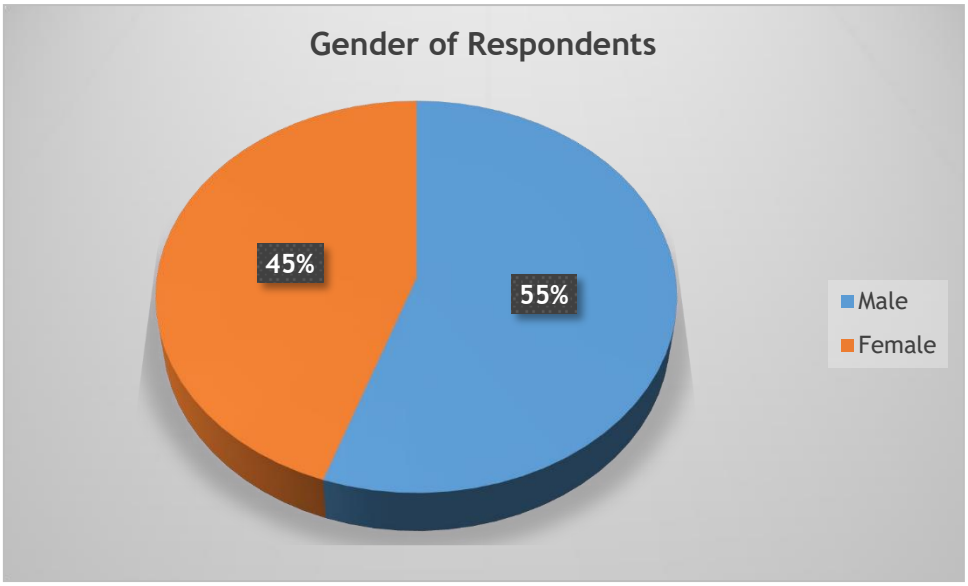
## 4.3 Background of the Respondents

The study investigated the background of respondents and was limited on gender, age and education of respondents staying in Albertine Graben Region.

### 4.3.1 Respondent' gender categories

The gender of the respondents was noted, and the pie chart below provides the details.

**Figure 2. Gender categories**



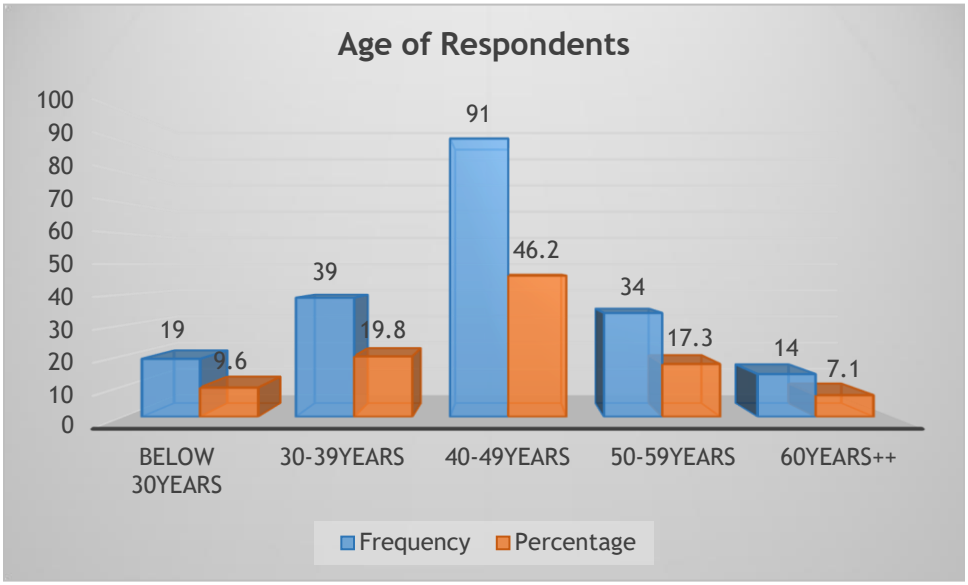

***Source: Field Data, 2022***

On the basis of gender, it was revealed that majority came from males. These took 55% whereas 45% were females. The statistic of gender implied that at least each sex category was represented in the study which makes it sensitive to gender in relation to the barriers facing the implementation of national participation in oil and gas sector in Albertine Graben Region.

### 4.3.2 Respondent's Age groups

To understand the age of the respondents, the researcher recorded their age as requested. Figure 3 has details.

**Figure 3: Respondent's Age groups**



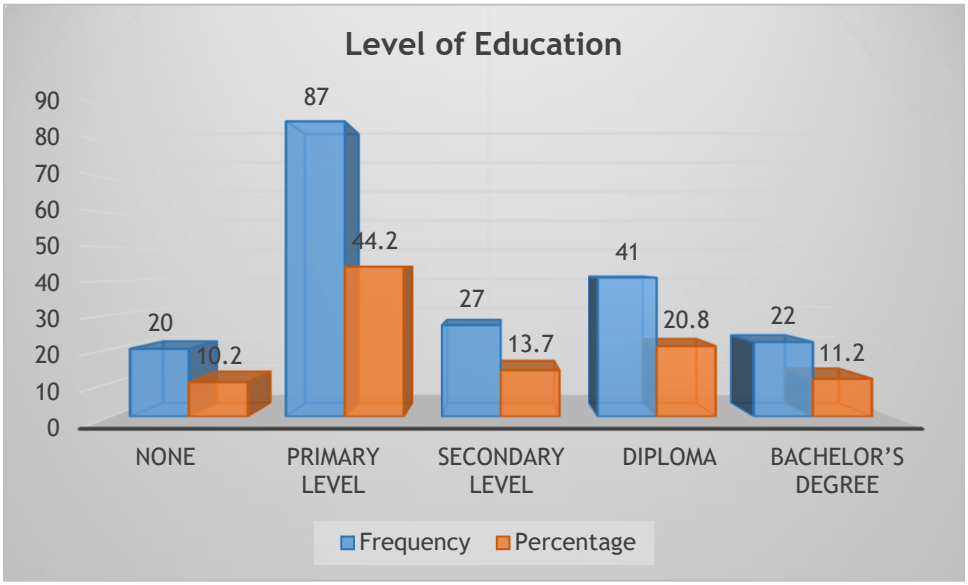

***Source: Field Data, 2022***

From Figure 3, it was found out that most of the respondents that responded to the study fell in the 40-49years age-group, constituting (46.2%). The category of 30-39years had 19.8% representation; 50-59years had a representation of 17.3%, those with 30 years and below had a presentation of 9.6%, and those of 60 years and above had a representation of 7.1%. The above representation implies that at least the study was informed by different age categories hence confirming the existence of the established barriers facing the implementation of national participation in oil and gas sector in Albertine Graben Region.

### 4.3.3 Education Qualification of Respondents

To understand the highest level of education of the respondents, the researcher recorded their education levels as requested. See figure 4 for details

**Figure 4: Education Qualification of Respondents**




***Source: Field Data, 2022***

Figure 4 indicates that most of the respondents had a primary level of education, and these constituted 44.2%. 20.8% of the respondents had a diploma level of education, 13.7% had achieved a secondary level of education. 10.2% had no education qualification while 11.2% had a bachelor's level of education. The education background implies that at least the study was informed largely by people who could read and write hence providing firsthand information in relation to existential barriers facing the implementation of national participation in oil and gas exploration in Albertine Graben Region.

**4.4. Descriptive analysis**

In this section, the research findings are presented as per the dependent and independent variables used by the study. These findings were thus obtained on micro-level barriers, meso-level barriers, macro-level barriers and implementation of national participation in oil and gas sector in Albertine Graben Region. In this case therefore, to understand the barriers facing the implementation of national participation in oil and gas sector in Albertine Graben Region, respondents were introduced to different pre-conceived statements as per each variable to listen to their views and below are the findings that were found on each dimension.

### 4.4.1 Findings on Implementation of National Participation in Oil and Gas Exploration in Albertine Graben Region

To establish the implementation of national participation in oil and gas in Albertine Graben Region, respondents were given items to have their say. Table 5 below presents the responses from respondents at Albertine Graben Region.

**Table 5: Descriptive Statistics on implementation of national participation in oil and gas in Albertine Graben Region**

| Items | SD | D | N | A | SA | Mean | Std. Dev. |
|---|---|---|---|---|---|---|---|
| Oil companies procures most of their food and other local merchandise from host communities | 22.8% | 40.1% | 12.2% | 19.8% | 5.1% | 2.44 | 1.188 |
| Local Goods and services are highly utilized by oil companies | 23.4% | 38.6% | 12.2% | 20.8% | 5.1% | 2.46 | 1.201 |
| The skill gap between national and international employees is minimal | 19.8% | 23.4% | 11.7% | 28.4% | 16.8% | 3.79 | .919 |
| **Average Mean** | | | | | | **2.89** | **1.102** |

***Source: Primary data, 2022***

Based on the study findings, it is generally indicated that implementation of national participation in Albertine Graben Region remains below average depending on average mean (2.89) and standard deviation (1.102). This is exhibited in existing skill gap, limited employment creation for nationals and host communities, absence of required procurement from host communities and under utilization of Uganda goods and services. Eventhough, required training is being offered to local employees as indicated in the latter themes.

#### *4.4.1.1* Existing skill gap

From documents reviewed, it was found out that there is still a high skill gap among local employees in comparison to foreign employees. Basing on (Auditor General Report, 2021), it was confirmed that the skill gap has been ranging between 15-25% in the last three years. The Ministry of Energy and Mineral Development (MEMD) Annual

Sector Performance Report (2021) also confirmed that the skill gap remains at 16% among foreign and local employees. Uganda National Oil Company Annual Report (UNOC) (2020/2021) showed that the skill gap has been reducing from 40% to 15% in the last five years due to training and empowerment of local employees working in oil companies in Albertine Graben Region. The report from UNOC differed from what was the Annual Performance Report from TEPU (2020), which showed that the skill gap has fundamentally reduced below 15%. However, CNOOC Annual Skilling Reports indicated that about 17% of local employees were equipped with new skills in a space of two years and this has reduced the gap to about 12%. The views from documents reviewed seemed synonymous with some of the key informants reviewed. For instance, it was noted,

> *"…not so many Ugandans have the required experience to work in the oil and gas sector. May be only those who have worked in foreign countries in oil and gas sector but much of the requirements, certifications and production licenses remains in the hands of foreigners, much of the skills owned by Ugandans put them in Tier 3, 4 and upwards which means that they are best able to be drivers, cooks, cleaners etc.…"* K.I.5

> *"the issue of expertise is still extremely high among Ugandan however much trainings have been done….it is easy to get contracts in transport, cooking but issue of exploration, oil surveys, laboratory etc.…., you rarely find one."* K.I.3

It was further added by Key informant 6 saying:-,

> *"People have been coming here to complain that they have not been employed in the sector indicating that they have the skills, when you analyze the skills they are talking about, they do not have…much of the skills owned by Ugandans fall in the category of highly competitive jobs and such jobs are fully covered by Ugandans…so the skill gaps is still highly existing in Tier 1, Tier 2 and somehow in Tier 3 and this is where you do not find many locals and companies…"*

The above quotation indicates that there is still a huge skill gap especially when it comes to skills needed in Tier 1, Tier 2 and Tier 3. It should be noted that Tier 1 is the initial contractor who obtains a contract from a licensee and in this case, TEPU is the licensee who contracted McDermott's. The skills espoused by McDermott's are extremely foreign and highly technical to be owned by Ugandans who have just come across oil and gas some few years back. Then Tier 2 comes with contracts offered by McDermott's, much of them are technological in nature. This means that if Ugandans are highly qualified, they can best fit in Tier 3 and 4 because it is just practically impossible for them to be promoted to Tier 1 and 2 or to be the main licensee.

Generally, it is agreeable that there is still a skill gap no matter the training provided. The percentage may look like reducing but much of these jobs are limited in unskilled and semiskilled scope. This implied that the implementation of the national participation in oil and gas sector in Albertine Graben Region remains wanting.

#### *4.4.1.2* Employment creation for nationals and host communities

From key informants, it was revealed that employments created for nationals and host communities have increased. It was noted,

> *"Jobs have kept increasing over time because of the mentorship and knowledge transfer programme offered to Ugandans….as CNOOC, we also send our expatriates to universities like Makerere and Kyambogo. They train students in engineering and other issues of oil and gas and this has widened the number of Ugandans we employ…"* K.1.2

> *"Jobs are advertised locally here…if we need a driver…we go to local radios and they always turn up in large numbers….we usually use a lottery system to choose the number we need. We get a box, put all their names in on folded papers, for instance we need two of the three. One of us shakes the box and another one picks two papers. This is a very transparent and trusted method….majority of our semi-skilled employees are Banyoros and Bagungus."* K.1.12

However, it was noted by some of the key informants indicating that the number of jobs done by Ugandans are still scanty and limited. It was noted,

> *"Jobs cannot be given to them on a silver Plata. As contractors, our client expects much more, he expects a better product from us, we cannot employ non-skilled labor because the most numbers which are complaining lack the skills…, however much we are willing to have them included as per the local content regulations but much of their work remain limited in catering and transportation when in fact some of them are employed, they fail to deliver to the standards set…and this is how many ended up losing jobs which had initially given to them and taken by foreign companies. It is true jobs done by locals are highly limited until when they will accept to get required qualification, accreditation, and experience…"* K.1.3

Through interviews, management from oil companies stated that they encouraged subcontractors to ensure that they recruit locals, especially the casual laborers. However, apart from TEPU which provided a list of 1382 locals who had been employed by sub-contractors between 2014 and December 2020 (wages USD 4330), the rest did not provide the actual numbers of host community employment. On the other hand, IOCs did not give any consideration to persons from host communities during the recruitment of their skilled staff. Through review of the current staff lists for each of the oil companies, it was noted that TUOP employed 12, TEPU 13 and CNOOC 3 people from the host communities. Without targets set by both government and oil companies on the participation of skilled workers from host communities, it is difficult to register an increment in their participation.

Furthermore, the study also established that the total number of persons employed by the IOCs dropped from 432 in 2014 to 217 in 2018, a 50% reduction, due to decreased activity in the sector that necessitated lay-offs. The reduction was smallest in CNOOC (27%) and greatest in Tullow (76%). Furthermore, the proportion of Nationals to Expatriates (Expats) within the three IOCs decreased overall from 80% in 2014 to 75% in 2020. A comparison of the percentage representation of Nationals in 2014 and 2020

varied among the three IOCs. In Tullow, the percentage of Nationals increased from 94% to 97%, remained constant in Total (75%), and declined in CNOOC (from 71% to 66%). PAU explained that more Expatriates were retained in CNOOC as they possessed the skills needed for planning, modeling, forecasting, and reviewing studies related to the up-coming development and production stages of the sector.

The results from documents reviewed indicated that the employment of locals or nationals in the oil and gas sector remains below average. Although the upstream national content regulations 2016 (Petroleum Authority of Uganda, 2016) suggests that the International Oil Companies (IOCs) should aim at "recruiting at least 30% of the management staff from the start of the petroleum activities and the percentage shall increase to at least 70% within 5 years after the start of the petroleum activities; 40% of the technical staff must be Uganda citizens at the start of the petroleum activities and the percentage should increase to at least 60% within five years after the start of the petroleum activities and 90% within 10 years from the start of the petroleum activities. At least 95% of the support staff and middle level staff should be Uganda citizens from the start of the petroleum activities" (The Uganda Gazette, 2013). The Local Content provision in Petroleum Act adds that "all persons to whom the Act applies are bound to employ Ugandans and can only employ non-citizens after it has been certified by the Department that there are no Ugandans capable of performing the work. Where a non-citizen has been approved for a position, the law requires that provision is made for skills transfer and the entity must submit a succession plan in respect to the role performed by the non-citizen." However, after close to eight years, according to Value for Money Audit Report (2021), although the number of Ugandans directly employed by oil companies has increased to 81%, with 49% at management, 55% technical and 80% of their support staff, part of these are reportedly not Ugandansand Ugandans receive a relatively low pay when compared to non-nationals (Ministry of Energy and Mineral Development, 2021). From the report above, it is observed that there were differences among the oil companies regarding hiring Ugandan nationals in senior and middle management positions. While TUOP had more Ugandan nationals in managerial positions by December 2020 (5 in senior management), TEPU and CNOOC

had only 1 and none in senior management, respectively. In middle management, CNOOC had only 10% compared to 66% and 91% for TEPU and TUOP, respectively. The proportional increase of nationals was also noted in each individual oil company, although with varying degrees of national employment (CNOOC ranged 63% to 71%, TEPU50% to 75% and TUOP-91% to 94%). Although CNOOC had increased the total number of employees recruited over the years from 91 to 123, TEPU and TUOP had reduced their total workforce over the years. As of December 2021, TEPU had nationalized 19 positions with only 4 positions nationalized in 2021 (The Petroleum Authority of Uganda, 2021). The number remains below 95% of the support staff and middle level staff who are required to be Uganda citizens from the start of the petroleum activities as indicated by Ministry of Energy and Mineral Development (MEMD).

The recruitment, training and promotional process of nationals remain wanting for direct and indirect employment in the sector. The Petroleum (EDP) Act Part VIII Section 126(2)19 states "The programme shall provide for the training and recruitment of Ugandans in all phases of petroleum activities and shall take into account gender, equity, and persons with disabilities" Using the number of employees (December 2021), the levels of female to male employed were CNOOC: 15%, and TEPU 17% (Office of the Auditor General, 2021). This is still contrary to affirmative action policy of at least 30%. In addition, between 2018 and 2020, the licensed oil companies (TUOP, TEPU and CNOOC) spent a total of UGX 23,015,761,082 of which only UGX 6,723,554,362 representing only 29.2 % was spent on Ugandans employed by the companies. In some cases, expatriates on average earned between 5 to 10 times more than nationals (CNOOC & TEPU) (Office of the Auditor General, 2021).

Furthermore, the Value for Money Audit Report (2021) showed that the wages and benefits for a Ugandan in CNOOC rose on average from UGX 3.64 million in 2014 to UGX 4.96 million in 2020; from UGX 5.13 million to UGX 10.86 million in TEPU; and from UGX 11.62 million to UGX 20.18 million in TUOP. This means that whereas salaries and benefits of Ugandans in TEPU and TUOP in 2020 were approximately double what they were in 2014, in CNOOC the change was only about 36%. It is also noteworthy that on

average, in 2020, a Ugandan employee in CNOOC still earned less than the average paid to a Ugandan in TEPU or TUOP in 2014. By 2020, TUOP had only one expatriate left, paid about UGX 102.4 million per month, up from the average expatriate salary and benefits of UGX 38.12 million in 2014 for 8 Expatriates in TUOP. In Total, average pay to Expatriates increased from about UGX 55.36 million in 2014 to UGX 91.06 million in 2020. In CNOOC, payment to Expatriates more than tripled from about UGX 41.75 million per month in 2014 to approximately UGX 136.19 million for each month in 2020. However the PAU National content report (The Petroleum Authority of Uganda, 2021) indicates that CNOOC had increased the Nationals salaries by an average of 80% whereas TEPU had not yet.

Generally, it is agreeable that local and nationals employed in oil and gas sector in Albertine Graben Region remains below those required no matter the percentage. Much of the jobs done are in Tier 3 and 4, which are also competed with foreigners.

#### *4.4.1.3* Procurement from host communities

Furthermore, basing on survey findings, it was established from the respondents in relation to item 1 that stated oil companies procures most of their food and other local merchandise from host communities, the majority disagreed with the item (40.1%), 22.8% strongly disagreed, 12.2% were not sure and 24.9% agreed. A mean of 2.44 and standard deviation of 1.188 indicated that a greater number of respondents were of the view that Oil companies do not largely procure most of their food and other local merchandise from host communities. This was supported by several key informants:-,

> *"Consistence of suppliers is a very big challenge. They do not have the capacity to supply requirements for oil and gas however much they group themselves. For instance, we asked one group of suppliers to supply us with 400 trays of eggs every week. They tried doing it for the first two weeks, in the third week it went down to 80 trays and after one month, they had started telling stories…"* K.1.4

> *"…there is a guy called Muzamiru which TEPU hired to supply meat on interim,….he started by supplying on a bicycle, then motorcycle, then car*

*and when the demand kept increasing from 20 Kgs to above 400 Kgs, he started adding intestines in meat…when they complained about intestines…., he adamantly said, 'why don't they also eat on beans?'…."*
K.1.9

The views from surveys and interviews were supported by what the documents reviewed indicated. For instance, the Ministry of Energy and Mineral Development (2021) shows that there remains inadequate implementation of local sourcing policies or strategies as provided in the National Local Content Policy (Ministry of Energy and Mineral Development, 2021). The policy aimed at establishing a business support center for Ugandan enterprises to enable their participation in the oil and gas industry; develop sensitization programmes on benefits of compliance with tax, social security and labor laws in regard to participation in the oil and gas sector; develop business development programmes in procurement, business counseling, management and technical assistance to build the capacities of Ugandan enterprises in the oil and gas sector; establish and regularly update the national supplier database of companies prequalified to supply goods and services to the oil and gas industry; holding regular supplier forums to promote coordination and collaboration between and among oil and gas industrial players; setting up and operationalize a fund to support supplier development and forming clusters of petroleum related companies to enhance R&D and technology transfer in the oil and gas sector. Further, the policy aimed to develop and ensure implementation of procurement and contracting regulations and procedures that promote the participation of Ugandan citizens and enterprises; require the licensed oil companies and their contractors and subcontractors to establish operational bases in Uganda; strengthen the capacity of the institutions responsible for certification, standards, and quality assurance systems for goods and services; regular update and dissemination of the required standards for goods and services by the institutions responsible for certification, standards, and quality assurance systems; ensuring that locally produced or available goods and services are exclusively provided by Ugandan citizens and enterprises. The petroleum Act provides for purchases in Uganda; maximizing use of local goods and services, where available on a competitive basis;

implementing tender procedures that give adequate opportunity for local suppliers to compete and report achievements in utilizing Ugandan goods and services (The Uganda Gazette, 2013). However, the utilization of Ugandan good and services has also remained at 28% measuring below at least 40% of the required as per the (Office of the Auditor General, 2021). The procurement from host communities remains at only one of the three companies. Majority of the companies obtain 95% of their foods and drinks away from host communities (Value for Money Audit Report, 2021). Records (invoices & orders), however, showed that local farmers who were over 1000 on average still only supply food worth UGX 2,000,000 (less than USD 1,000) a month, which is still low compared to the efforts and investments by the licensee (as of September 2021). In addition, only 2% of employees are obtained from host communities performing largely sub-contracting and support roles contrary to local content policies of having 70% of locals (Office of the Auditor General, 2021).

The implication of the above finding is that implementation of national participation in oil and gas sector is still limited by limited sourcing of materials from host communities.

#### *4.4.1.4* Utilization of Ugandan goods and services

On whether local goods and services are highly utilized by oil companies, the majority disagreed with the item (38.6%), 23.4% strongly disagreed, 12.2% were not sure and 25.9% agreed and strongly agreed with the item. A mean of 2.46 and standard deviation of 1.201 indicated that a greater number of respondents were of the view that local goods and services are lowly utilized by oil companies. It was quoted from one of the key informants saying:-,

> *"The confusion of what is local goods still remains prevalent among all IOCs because they are not clearly defined and understood. Much of the so called local goods are not necessarily made in Uganda though they aresold locally."* K.1.3

The above results were confirmed by documents reviewed. For instance, (Office of the Auditor General, 2021) indicated that the procurement from host communities remains at only one of the three companies. Majority of the companies obtain 95% of their foods

and drinks away from host communities. Records (invoices & orders), however, showed that local farmers who were over 1000 on average still only supply food worth UGX 2,000,000 (less than USD 1,000) a month, which is still low compared to the efforts and investments by the licensee. In addition, only 2% of employees are obtained from host communities performing largely sub-contracting and support roles contrary to local content policies of having 70% of locals employed. The utilization of Uganda's good and services has also remained at 28% measuring below at least 40% of the required as per the (Office of the Auditor General, 2021). Lastly, up to now, two companies (TEPU and CNOOC) had been issued a production license in Uganda for which the government of Uganda had exercised the option of taking up a participating interest of 15%.

From the above finding, it is evident that the implementation of national participation in oil and gas sector is still lacking by the low industrialization levels in Uganda as most goods sold locally are imported from out.

#### *4.4.1.5* The skill gap between national and international employees is minimal

Respondents were asked whether the skill gap between national and international employees is minimal, the majority agreed with the item (28.4%), 16.8% strongly agreed, 11.7% were not sure, 23.4% and 19.8% disagreed and strongly disagreed respectively with the item. A mean of 3.79 and standard deviation of 1.102 indicated that a greater number of respondents were of the view that the skill gap between national and international employees has been reducing over time. This was supported by several key informants:-,

> *"Training people in driving, training teachers in vocation institutions and universities to be able to train students is ongoing and many of them have been certified. We are now working very closely with those institutions…"*K.I.2.

> *"We do have a number of trainings like driver training, welders and many others with a view of equipping locals with the knowledge to participate in the sector."* K.1.4

> *"…oil companies especially CNOOC have invested hugely in livelihood empowerment programmes where locals are trained in production of standard vegetables and this has been successful in long run to some extent."* K.1.3

From interviews, it was noted that the oil companies have continued to provide scholarships to locals for training both abroad and locally. The training interventions provided by the oil companies to nationals as part of their Corporate Social Responsibility (CSR), from 2012-2020 include for instance, TUOP has sponsored 251 nationals for Master's degrees in the UK between 2014 and 2020; a quarter is provided for students from the host communities. The two lots have returned from studies. The first lot is already working with the company, while the second lot will be absorbed once operations pick up again. In TEPU, 9 nationals have been sponsored for Master's degrees; best students from the host communities are sponsored to study in top schools, such as Namilyango College, St. Mary's College Kisubi, and King's College Buddo. For now, 5 of them have been recruited to work as casual laborers with CNOOC, while one is employed by one of the oil companies. For CNOOC, it has sponsored 3 students for Masters, and 2 at undergraduate level; sponsored 70 students from Hoima and Buliisa districts to undertake vocational training at Nile Vocational Institute, Hoima district. 69 have managed to graduate. It has given prize money to the best students in Hoima District at Primary, O- and A-levels. In 2018, UGX 48 million was awarded to a total of 60 best-performing students. In 2020, UGX 91 million was awarded to a total of 90 best-performing students. CNOOC tops up the salaries of 9 teachers at Buhuuka Primary School (Bugoma, Hoima District), at a cost of about USD 2,000 per month.

Through a survey administered to 2027 beneficiaries of the TUOP Group scholarship scheme, the following was noted: all the respondents felt that the studies undertaken were relevant for the government, oil companies and other employment. 4 out of 20 beneficiaries were directly employed in the oil and gas sector. 4 were working indirectly with the oil and gas sector. 8 were doing work completely unrelated to the oil and gas sector and 4 were unemployed.

It was also noted from interviews that the utilization of training funds from TEPU increased consistently over the years, from 24% in 2012 to 98% in 2020. However, the absorption of funds from TUOP and CNOOC fluctuated over the same period. In 2012, utilization for TUOP was 91%. In 2016, it fell to 83% and shot to 104% in 2018. The excess expenditure by TUOP in 2018 was because some training, which had been planned for 2017 were postponed to 2018, and so the money allocated was carried over. However a declining trend in actual amounts TUOP spent on training was noted (from USD 987m in 2014 to USD 487m in 2020). For CNOOC, no expenditure was incurred on training of government officials in 2014. It rose to 99% in 2015, only to fall to 89% in 2018.

In line with interviews, documents reviewed continually confirmed. For instance, the 2020 audit reported that there was limited support from government and the IOCs to develop the capacity of Ugandan companies/ suppliers - including from Host communities - to meet the standards and demands of the oil and gas sector. In the years 2017 and 2018, both PAU and the IOCs had implemented several interventions aimed at supplier development (Petroleum Authority of Uganda, 2019). Furthermore, figures availed by PAU indicated that the local institutions trained over 2000 talent in numerous fields most of which were awarded international certifications. It was evident that 768 Ugandans have so far been trained and awarded certification in disciplines like in scaffolding, plumbing pipefitting, welding, HGV driving among others.

Further analysis showed that TEPU and CNOOC provided 15 and 3 scholarships, 200 and 120 welder certifications, 90 and 70 HGV training, 0 and 84 training of trainers respectively as of December 2021. Additionally TEPU and CNOOC funded the training of 19 and 3 government officials respectively as of December 2021 (The Petroleum Authority of Uganda, 2021). Further still the PAU in collaboration with GIZ commissioned a Capacity Needs Assessment through a consultant namely Ultimate Partners International (UPI) with the intention to align the skills required and the employment opportunities expected in Uganda's oil and gas sector.

It is therefore clear that the skill gap between the nationals and the expatriates is reducing, and this is observed as an enabler to national participation. However more funding is required both from the IOCs and the Government of Uganda.

#### *4.4.1.6* Contracts obtained by local SMEs

From the documents reviewed, the Office of the Auditor General Report (2021) confirms that there are still few contracts obtained by local SMEs. For instance, at the time of the 2020 audit, the team noted that there was no clear definition of a Ugandan company, or of Ugandan goods and services. It was also noted that over 70% of procurements by the IOCs was from international companies, or international companies registered in Uganda. During the follow-up, the audit team noted that the National Content Regulations (2016) had more precisely defined a Ugandan Company as: one incorporated under the Companies Act, 2012, provides value addition to Uganda, uses available local raw materials, employs at least 70% Ugandans, and is approved by PAU. The regulations also provided for a National Suppliers Database from which all suppliers should be sourced by the IOCs. Analysis of the National Suppliers Database showed that out of 1,461 potential suppliers registered on the database, 1021 (70%) are Ugandan companies/ suppliers, 40 (3%) are International, Registered in Uganda, while 400 (27%) of potential suppliers are International. Further analysis of the information above revealed that out of the 1,021 Ugandan companies (by incorporation), 213 were purely (100%) foreign owned by shareholding, while 58 had majority (51-99%) foreign shareholding. It was particularly found out that the utilization of Uganda's good and services has remained at 28% measuring below at least 40% of the required as per the MEMD.

Generally, the implementation of national participation in oil and gas in Albertine Graben Region remains below average. Much of the implementation attests in training and general improvement in employment creation for nationals, however, much is lacking in closing the skill gap, provision of juicy contracts to local companies, procurement from local companies, and utilization of Uganda's goods and services.

The next themes endeavor to determine the extent by which the implementation of national participation in oil and gas in Albertine Graben Region is explained by micro, meso and macro level barriers.

### 4.4.2 Findings on micro-level barriers facing the implementation of national participation in oil and gas in Albertine Graben Region

To understand the micro-level barriers facing the implementation of national participation in oil and gas in Albertine Graben Region, the respondents were introduced to different items to have their say. Table 6 below presents the responses from respondents.

**Table 6: Descriptive Statistics on micro-level barriers facing the implementation of national participation in oil and gas in Albertine Graben Region**

| Items | SD | D | N | A | SA | Mean | Std. Dev. |
|---|---|---|---|---|---|---|---|
| Individuals and local companies have the required financial resources to undertake oil and gas related activities | 18% | 40% | 16% | 21% | 5% | 2.07 | 1.183 |
| Individuals and local companies have the required technical resources to undertake oil and gas related activities | 18.8% | 37.5% | 15.7% | 17% | 11% | 2.16 | 1.162 |
| The nationals and local companies possess the required knowledge to undertake oil and gas exploration activities | 22.5% | 36% | 12% | 19.5% | 10% | 2.38 | 1.193 |
| The nationals and local companies possess appropriate skills to undertake oil and gas exploration activities | 21% | 36% | 14% | 22.5% | 6.5% | 2.35 | 1.218 |
| The nationals and local companies possessed the required ability to undertake oil and gas explorationactivities | 20.5% | 39.5% | 14.5% | 17% | 8.5% | 2.28 | 1.167 |
| Local companies have the required manpower or human resource to perform oil and gas activities to expectations | 23% | 38% | 11.5% | 22.5% | 5% | 2.36 | 1.206 |
| Nationals and Local companies have the required experience to perform oil and gas activities to expectations | 17.5% | 41% | 15% | 20% | 6.5% | 2.33 | 1.150 |
| **Average Mean** | | | | | | **2.28** | **1.183** |

***Source: Primary data, 2022***

Based on the results in Table 6 above, micro-level barriers facing the implementation of national participation in oil and gas in Albertine Graben Region was tabulated as below average (this is because of the tabulated mean of 2.28 and a standard deviation of 1.183). This is exhibited in the following items.

#### *4.2.2.1 Limited financial resources*

Basing on survey findings, it was established from the respondents in relation to item 1 which stated that individuals and local companies have the required financial resources to undertake oil and gas related activities, the majority disagreed with the item (40%), and 18% strongly disagreed. 16% were not sure, 21% agreed and 5% strongly agreed. A mean of 2.07 and standard deviation of 1.183 indicated that a greater number of respondents were of the view that individuals and local companies have inadequate required financial resources to undertake oil and gas related activities. This concurred with key informants who noted,

> *"There are capital intensive projects which many if not all local individuals and companies do not have the capital to participate in. Thousands of dollars are required. Accessing such is also hard because commercial banks are not so many in Uganda which can extend such huge amounts of money to local individuals and companies….."* K.I. 4.

> *"….the second issue is finance, the investment required is limited among our local companies….especially in running the project and sustaining before real pay….which many Ugandans are not willing to risk into."* K.I. 5

Key informant 2 further confirmed that,

> *"Lack of working capital is a real barrier because many of our local companies and individuals do not have money to undertake work. They need an advance to do work which in many circumstances is hard... all contractors want to work with others on their own advantage. They do not have cash, they pay at a particular point in time and if they had cash, they can as well also do the work. But local companies want all factors to work on their sides…"* K.1.2

The above key informant is also supported by Key informant 6 saying,

> *"The issue of liquidity to undertake such projects is also an issue and these are capital intensive projects, you have to use your money and be*

*paid later and this is a serious limitation to participation of locals and companies…"*K.I. 6

An estimation of $15m was cited by one of the key informants if a local company is to compete and substantially participate in the process of exploration and exploitation of oil and gas in Albertine Graben region.

*"…the sector of oil and gas is capital intensive. It calls for above $15million if a local company is to afford the competition."* K.1.9

The issue of capital intensiveness was clearly acknowledged by survey findings and the key informants as a clear roadblock for local individuals and companies to participate in exploration and exploitation of oil and gas in Albertine Graben Region. This is also supported by ACODE Local Content Policy Briefing Paper (2020) which showed that the local companies and individuals lack the financial muscle and credit network to be fully integrated in oil and gas sector in Uganda.

#### *4.2.2.2 Inadequate technical resources*

In line with the above results, respondents were asked to state whether individuals and local companies have the required technical resources to undertake oil and gas related activities. Majority disagreed with the item (37.5%), 18.8% strongly disagreed, 17% were not sure. However, 17% and 11% of the respondents agreed and strongly agreed with the item respectively. A mean of 2.16 and standard deviation of 1.162 indicated that a greater number of respondents were of the view that individuals and local companies had no required technical resources to undertake oil and gas related activities. Almost all key informants supported the above claim. For instance,

*"The technical abilities are low for most of these companies because not any locally originated company can have the equipment required in exploration and exploitation of oil and gas…when in fact hiring such equipment is also highly capital intensive. I already informed you that these companies lack the capital needed to engage. This means that the most decent thing to do is to watch and wait to consume Tier 4 jobs which do not require much technical inputs unfortunately they involve little moneys…otherwise the sector is largely a technical resource orientation."* K.I. 5

*"I think many lack machinery and equipment in exploration…because the equipment used…. when I visited that place like a year back are too expensive and most of these local companies cannot just go and venture or buy them. This means that if they are to have such equipment, they have to hire many of them, which remains expensive and less profitable. This is a clear barrier."* K.1.7

Key informant 9 added that the industry is highly technical not merely in providing highly technical work but also when providing the so called non-technical work calls for high levels of professionalism. He noted,

*" The industry is very very technical….the only job which remains not so technical are like catering, driving and cleaning may be…but even if you are to do catering, these companies want to deal with professionals caterers because feeding too many people is costly and risky. They cannot bear with food poisoning since they are dealing with so many people. This can cost them money. This means that they will need to deal with catering service providers who have the knowhow and technical equipment which can prepare meals from Chinese, French and other nationals which many of our local catering service providers do not have."* K.1.9

Key informant 2 added,

*"…equipments remain a big hindrance. For example, even the make and age of a car used on the site is an issue. For instance, we used to limit to five years old. But we realized that most of the local companies are used outdated vehicles and we adjusted to 10years. But still few can afford this."* K.I.2

It is therefore clear that technical resources remains a big hindrance for nationals and local companies to participate in the oil and gas sector since a lot of technical requirements and considerations are needed by contractors which in most cases technically pushes out local companies. The findings from the questionnaire and interview guide were supported by documents reviewed. For instance, UNOC CSR

Scheme Survey (2020) found out that unless supported but 85% of local companies and suppliers have limited technical capacity to meet the demands in the oil and gas sector. This is the sole reason why IOCs remain opting for foreign registered locally based firms.

#### *4.2.2.3 Limited knowledge*

Respondents were asked to state whether the nationals and local companies possess the required knowledge to undertake oil and gas exploration activities. Majority disagreed with the item (36%), 22.5% strongly disagreed. 12% remained neutral, 29.5% were in agreement. A mean of 2.38 and 1.193 standard deviation indicated that a greater number of respondents were of the view that nationals and local companies did not possess the required knowledge to undertake oil and gas exploration activities. This was also evident in interviews conducted. For instance,

> *"We all did not have the knowledge, we have just learnt something and still learning on job…we have to generally admit that this is a new field for us in Uganda…this field is technologically intensive and keep changes every now and then yet in fact nationals and local companies are not willing to keep learning. This puts us down in competition. It is the sole reason why Ministry of Energy and Mineral Development find it important to advocate for PPP to create knowledge transfer and build capacity along…"* K.I.2

> *"Much is required in mindset change among nationals, they are ignorant and worst of all they are not willing to seek for knowledge. Their mindset has remained in the Uganda where people get into positions because someone knows you. The industry of oil and gas cannot practically take unknowledgeable people and companies because it is internationally regulated and Uganda certified to a number of international oil and gas regulations.* K.1.3

Furthermore, it was acknowledged by key informants that nationals lack knowledge in the process of bidding and contracting particularly in oil and gas. It was quoted that,

*"…our locals lack knowledge to understand the contracting process especially at Tier 3 and T4. Many cannot promote from Tier 1 and Tier 2. For your information, the whole contract may call for over 5,000 workers. If I use a case of TEPU. This is the licensee….McDermott is at Tier 1. Kamod is at Tier 2. Companies supplying cement and roofing is at Tier 3. The transportation contracts are at Tier 4. The food and fuel suppliers are at tier 5 etc....but how many Ugandans have this kind of knowledge??"* K.I.9

*"Understanding the sector is not easy for locals because they are used to easy bidding and winning contract with government ministries but not stringent requirements of oil gas which comes with heavy penalties."* K.I.12

*"Ugandans do not know about standard bidding process required to go through in the oil and gas sector."* K.8 added.

However, Key informant 2 seemed to sound indifferent from others while indicating that the knowledge gap has largely been reduced currently. In his verbatim, he said,

*"…in the beginning, there was high levels of knowledge gap…however, this has been largely dealt with through quarterly supplier development, capacity building campaigns and vocational/university courses offered to locals…"* K.1.2

The findings from interviewees were synonymous with what UNOC CSR Scheme Survey (2020) found out. It had indicated that local companies lack the knowledge needed to utilize and exploits most of the jobs and contracts available in the oil and gas sector in Uganda.

#### *4.2.2.4 Limited appropriate skills*

Furthermore, respondents were asked to state whether the nationals and local companies possess appropriate skills to undertake oil and gas exploration activities. Majority disagreed with the item (36%), 21% strongly disagreed whereas 14% were not sure, 22.5%

and 6.5% were in agreement. A mean of 2.35 and standard deviation of 1.218 indicated that a greater number of respondents were of the view that the nationals and local companies did not possess appropriate skills to undertake oil and gas exploration activities. This was in line with what key informants indicated. For instance, key informant 6 said,

> "*Locally, lack of capacity to execute tasks is high and this is why PAU has been advising contractors to break contracts into smaller packages for easy utilization on the side of local SMEs, for instance, a contract can be broken into driving, fuel suppliers, food suppliers, printing services, land surveying, etc. These can be done by several local companies…*"
>
> *"the issue of expertise is still extremely high among Ugandan however much trainings have been done….it is easy to get contracts in transport, cooking but issue of exploration, oil surveys, laboratory etc…, you rarely find one."* K.I.3

In addition, it was ascertained from key informants that there is huge lack of appropriate skills among Ugandans to undertake even the semiskilled tasks in the sector because of lack of required institutions. In their verbatim,

> "*There are no sufficient institutions to train certified welders…much of these important skills and certifications that would provide jobs to several Ugandans are left in the hands of oil companies and …. to certify and accredit nationals which is not fair. It is important that the government is directly engaged."* K.I.2
>
> "*There is no national university providing knowledge related to oil and gas sector, what is happening is affiliation with Makerere University and Kyambogo University and some institutes in Kigumba, Sheema and Kichwamba."* K.I.2 added.
>
> "*There is still a capacity gap….welders etc. trained do not have real experience and finance to undertake the contracts. You cannot simply*

*enroll people without experience and some certification. No one is willing to trust them with such a big project they have not done before.*" K.I. 11

Key informant 3 further indicated that the number of technical personnel has been increasing, however, these people remain with limited appropriate skills needed.

"*We do have many technicians but with the skills remain below the belt…passing out in most of these universities and technical institutes does not necessarily mean that you have the skills required…much of the skills are transferred through job training and this limits several locals because it is costly on the side of oil companies…*" K.I.3

*"…the ground is not leveled for local companies in comparison with foreign companies….foreigners have skills, capital, qualification and experience. But over 90% of local do have all the above or even one of them."* K.I.7

Based on Auditor General Value Audit Report (2020), it was found out that about 50% of registered and licensed firms had no skills and knowledge required to undertake the oil and gas sector related activities but rather needed capacity building. This is also supported by CSR scheme reports from TUOP, TEPU and CNOOC (2017/2018).

#### *4.2.2.5 Lack of ability*

Respondents were asked to state whether the nationals and local companies possessed the required ability to undertake oil and gas exploration activities. Majority disagreed with the item (39.5%), 20.5% strongly disagreed whereas 14.5% were not sure, 17% and 8.5% were in agreement. A mean of 2.28 indicated that a greater number of respondents were of the view that the nationals and local companies do not possessed the required ability to undertake oil and gas exploration activities. This is also supported by key informants saying,

*"As you are aware, most of our businesses in Uganda are largely informal…yes they may have the general skills and knowledge but do they have prior skills and knowledge from oil and gas? The answer is no. This is the exact reason why they are left out in most cases."* K.I.8

*"…not so many Ugandans have the required ability to work in the oil and gas sector. May be only those who have worked in foreign countries in oil and gas sector but much of the requirements, certifications and production licenses remains in the hands of foreigners, much of the skills owned by Ugandans put them in Tier 3, 4 and upwards which means that they are best able to be drivers, cooks, cleaners etc., at the moment…"* K.I.5

#### *4.2.2.6 Supply-side constraints*

Respondents were asked to state whether local companies have the required manpower or human resource to perform oil and gas activities to expectations. Majority disagreed with the item (38%), 23% strongly disagreed whereas 11.5% were not sure, 27.5% were in agreement. A mean of 2.36 and standard deviation of 1.206 indicated that a greater number of respondents were of the view that local companies have no required manpower or human resource to perform oil and gas activities to expectations. This was emphasized by what key informants indicated. For instance, key informant 4 said,

*"I think they lack the required human resource and skills. For instance, I have seen many companies with required finances to do the job but they have no manpower needed. This is why we recommend many of these companies to group or integrate with others. Some have the human resource, but they lack enough skilled human resource. The beauty or worst thing with Ugandans, even if they see that they have no qualifications, they go ahead to apply or bid, they expect us to be merciful just like it is in the other sectors. This culture does not work in oil and gas because it is internationally regulated and standard."*

*"…the truth is that the manpower is there but most Ugandans do not have the required academic qualification, certifications such as NEBOSH, and even those who have the qualifications do not have the required experience and this cuts us short..."* K.I.5

It was revealed from some of the key informants that high expectations and sense of entitlements have expanded on supply side constraints toward national participation implementation in Albertine Graben region. For instance, it was quoted,

> "*Unrealistic expectations from individuals, whereby some people think that they automatically qualify to have a job in oil and gas sector because they think that oil and gas is theirs and it's in their region…no matter whether they have skills or not, they think they qualify. This is a high sense of entitlement*." K.I.6

> "*Sense of entitlements at both individual and community level is high, which limits their readiness to compete and participation in oil and gas sector, for example, people are not willing to compete for some of the jobs, they want to have jobs without competing because oil belongs to them which is hard…. competition cannot be avoided in any sector*." K.1.7

However, Key informant 11 showed that manpower is adequate in Albertine Graben Region. It was noted,

> *"The manpower is there if you are looking for people in non-technical and semi-technical field because TEPU, we recruit in three ways, direct skills, semi-skilled and unskilled etc. basing on minimal requirements…but this does not mean that we recruit drunkards or undisciplined people. We ask for Local Council approval letters. 100% of our unskilled manpower is obtained locally."* K.I.11

The quotations thus can be interpreted to mean that supply side constraints affect the implementation of the national participation in oil and gas sector in Albertine Graben Region.

#### *4.2.2.7 Lack of required experience in oil and gas sector*

Lastly, respondents were asked to state whether nationals and local companies have the required experience to perform oil and gas activities to expectations. Majority disagreed with the item (41%), 17.5% strongly disagreed whereas 15% were not sure, 26.5% were in

agreement. A mean of 2.33 and standard deviation of 1.150 indicated that a greater number of respondents were of the view that Nationals and Local companies have no required experience to perform oil and gas activities to expectations. This was confirmed by what key informants indicated. For instance, key informant 6 said,

> *"The experience and competence of the nationals to do the work also affects their participation because even if you get the work, and you have no one to undertake that work becomes difficult."*

> *"We have trained several geologists in Makerere University, but they lack the practical knowledge required in direct exploration of oil apart from those who had worked TUOP….exploration therefore remains a very technical area for many individuals and local companies."* K.I. 1

> *"Certification requirements makes it hard for companies and individuals to participate in oil and gas because certification alone comes with experience and an annual fee…this must be paid even if you have not got the contract or not. Many are not willing to keep paying something they are not earning from which is not the case with foreign companies."* K.I.8

> *"…on the side of Ugandans, many have had informal training like in welding, carpentry, etc. but they lack certification like coded welding certification, NEBOSH for the Environment, Health and Safety, almost zero Ugandans had this kind of certification but because interventions done by PAU, CNOOC, TEPU and GIZ like capacity enhancement programme, some have managed to get but a big number remainshanging.* K.I.2

It was also reported from key informants that many local companies have not done similar tasks. They require companies to partner with from abroad to simply manage. It was quoted,

"*Local companies lack the experience of similar tasks…they are doing small ventures. They need to be trained on job because companies like Samuka, Katto Contractors Ltd and Excel Construction Company Ltd, local based companies have now emerged because of on job training and partnership.*" K.1.9

"*lack of certification for both individuals and companies is very prevalent for many who would love to participate in working in oil and gas sector…..for instance, local companies need DEBOSH (safety certification), quality control (NDT-nondestructive testing certification) for pipe management, Linkpass certification etc."* K.1.5

The quotations thus can be interpreted to mean that lack of experience remain key in hindering the implementation of the national participation in oil and gas sector in Albertine Graben Region.

Generally, it is evident from the study that lack of adequate technical and financial resources, incompetence of nationals and supply side constraints hinder the implementation of the national participation in oil and gas sector in Albertine Graben Region. The next theme endeavours to determine the extent of this hindrance.

### 4.4.2.8 Correlation results for micro-level barriers and implementation of national participation in oil and gas sector in Uganda

To determine the extent by which micro-level barriers affect the implementation of national participation in Albertine Graben Region, a Pearson correlation coefficient (r) was used. Table 7 presents the test results.

**Table 7: Correlation results**

| | | Micro level barriers | National Participation |
|---|---|---|---|
| Micro level barriers | Pearson Correlation | 1 | .806** |
| | Sig. (2-tailed) | | .000 |
| | N | 197 | 197 |
| National Participation | Pearson Correlation | .806** | 1 |

| | | | |
|---|---|---|---|
| | Sig. (2-tailed) | .000 | |
| | N | 197 | 197 |

**. Correlation is significant at the 0.01 level (2-tailed).

***Source: Primary data, 2022***

The results show that the correlation coefficient was 0.806(**) and p = 0.000. Therefore according to the results micro-level barriers strongly, positively and significantly affect the implementation of national participation in oil and gas exploration in Albertine Graben Region. This implied that micro-level barriers and implementation of national participation of Albertine Graben Region is statistically significant. This means that the higher the micro-level barriers are addressed, the better the implementation of national participation in oil and gas exploration in Albertine Graben Region.

### 4.4.2.9 Regression results for micro-level barriers and implementation of national participation in oil and gas sector in Uganda

A further analysis was conducted using a regression to answer the research question on the level of effect of micro-level barriers towards the implementation of national participation in oil and gas sector in Albertine Graben Region. Findings are presented in Table 8, accompanied by analysis and interpretation.

**Table 8: Model summary**

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | .806[a] | .650 | .648 | .49479 |

a. Predictors: (Constant), Micro level barriers

***Source: Primary data, 2022***

Findings in Table 8 show a moderate linear relationship (Multiple R = .806) between micro-level barriers and implementation of national participation in oil and gas sector in Uganda. The adjusted R Square shows that micro-level barriers accounts for 64.8% change on implementation of national participation in oil and gas sector in Uganda. Hence, the barriers established were accepted. The findings further imply that micro-level barriers are highly facing the implementation of national participation in oil and gas sector in Uganda.

### 4.4.3 Findings on meso-level barriers facing implementation of national participation in oil and gas sector in Albertine Graben Region

To establish whether meso-level barriers facing the implementation of national participation in oil and gas sector in Albertine Graben Region, Table 9 below presents the responses from respondents.

**Table 9: Descriptive Statistics on Meso-level barriers facing the implementation of national participation in oil and gas sector in Albertine Graben Region**

| Items | SD | D | N | A | SA | Mean | Std. Dev. |
|---|---|---|---|---|---|---|---|
| The technical capacity of local companies and individuals is low in relation to kind of work available | 11.7% | 20.3% | 9.6% | 38.1% | 20.3% | 4.31 | .780 |
| The mechanical capacity of local companies and individuals is low in relation to kind of work available | 12.2% | 25.4% | 5.1% | 38.6% | 18.8% | 4.19 | .898 |
| There is limited integration of local and foreign companies to undertake oil and gas exploration activities | 18.3% | 38.6% | 17.3% | 20.8% | 5.1% | 2.16 | 1.157 |
| There is less observation of Private public partnership in undertaking oil and gas exploration activities | 11.2% | 20.3% | 4.6% | 26.9% | 37.1% | 4.39 | .809 |
| Local companies have a reliable value chain | 45.2% | 18.3% | 11.2% | 20.8% | 4.6% | 2.18 | 1.146 |
| Local companies demonstrates ability of value addition | 19.3% | 39.6% | 11.7% | 24.9% | 4.6% | 2.16 | 1.188 |
| The physical infrastructure of undertaking oil and gas activities is available for local companies and individuals | 21.3% | 42.6% | 12.2% | 19.3% | 4.6% | 2.43 | 1.157 |
| **Average Mean** | | | | | | **3.12** | **1.019** |

***Source: Primary Data, 2022***

Based on the results in Table 9 above, meso-level barriers facing the implementation of national participation in oil and gas in Albertine Graben Region was tabulated as moderate (this is because of the tabulated mean of 3.12 and a standard deviation of 1.019). This is exhibited in the following items.

#### *4.4.3.1 Low Technical capacity*

Basing on study findings, it was established from the respondents in relation to item 1 that stated that the technical capacity of local companies and individuals is low in relation to kind of work available, the majority agreed with the item (38.1%), 20.3% were in strong agreement, 9.6% were not sure, 20.3% disagreed and 11.7% strongly disagreed. A mean of 4.31 and standard deviation of 0.780 indicated that a greater number of respondents were of the view that the technical capacity of local companies and individuals is low in relation to kind of work available. This resonates with what Key Informants said,

> *"The experience and competence of the nationals to do the work also affects their participation because even if you get the work, and you have no one to undertake that work becomes difficult."* K.I.6

> *"The community is illiterate or lack education not only oil and gas knowledge but majority did not reach on certain levels of education. The lack of qualification fundamentally affects training efforts done by oil companies."* K.I.12

> *"Individuals and local companies cannot invest in information acquisition compared to foreign companies…foreign companies are willing to invest in acquiring any form of knowledge at any expense and this puts them ahead."* K.I.1

It was also reported from key informants that the sense of entitlements affects many Ugandans to obtain the required technical capacity while wasting time in expecting favors and acquiring work without following the technical requirements. For instance,

> *"…we have received several complaints from community members where people claim that they are supposed to be employed when in fact they do not have the technical capacity to undertake the jobs… this is sense of entitlement and misinformation."* K.I.3

*"…not so many community based individuals and companies have the required experience to work in the oil and gas sector. May be only those who have worked in foreign countries in oil and gas sector but much of the requirements, certifications and licenses remains in the hands of foreigners, much of the skills owned by Ugandans put them in Tier 3, 4 and upwards which means that they are best able to be drivers, security guards, administrators, etc.…"* K.I.5

The extracts thus implied that the level of technical capacity among local companies and individual is low and this affects their integration in the exploration and exploitation of oil and gas in Albertine Graben Region.

#### *4.4.3.2 Adequate mechanical capacity*

Respondents were asked to state whether the mechanical capacity of local companies and individuals is low in relation to kind of work available. Majority agreed with the item (38.6%), 18.8% strongly agreed. However, 5.1% were not sure, 12.2% strongly disagreed ad 25.4% disagreed. A mean of 4.19 and standard deviation of 0.898 indicated that a greater number of respondents were of the view that the mechanical capacity of local companies and individuals is low in relation to kind of work available. This was congruent to what some of the key informants largely indicated,

"A big number of community members are able and willing to work in oil and gas sector however, their capacity is cut short by lack of technical equipment. So, they are highly seen in causal work activities. In fact, I believe that 95% of causal work is done by locals and local companies." K.I.11

"As a company we randomly receive requests from the community in relation to giving them jobs of any type…but as you know we cannot take in everyone. I told you we use our lottery scheme to choose in different causal field." K.I.8

However, it was also established among interviewees that the mechanical ability remains low and limited. For instance, it was noted that,

"…the attitude in the community still impend implementation of national participation in oil and gas because many people have not styled up to think that they are competing with foreign human resource who have skills, knowledge, experience and right attitude towards work, to them, they think that foreigners are just favored to take up juicy jobs and contracts when in fact they are the most ready and prepared." K.I.9

"…local companies are required to have vehicles in sound mechanical state, technical tools for G&G activities, ….on paper work, many local companies qualify but on ground, they lack mechanical capacity. K.I. 2

#### *4.4.3.3 Limited integration of local companies*

Respondents were also asked to state whether there is limited integration of local and foreign companies to undertake oil and gas exploration activities. Majority disagreed with the item (38.6%), 18.3% strongly disagreed whereas 17.3% were neutral, 20.8% and 5.1% agreed and strongly agreed with the item. A mean of 2.16 indicated that a greater number of respondents were of the view that to a higher extent, there is integration of local and foreign companies to undertake oil and gas exploration activities. This is not supported by findings from most of the interviews even though a few were in agreement. For instance, it was found out from some key informants saying,

"*Local companies such as Kato Contractors Limited and Excel construction Limited have been able to join with foreign firms, this has enabled them to acquire the resources required to bid and win contracts. They are among the local companies who won contracts in Kingfisher Development area…*" K.I.15

*"The trend local companies are taking in making joint partnerships is promising, and those that have made the joint partnerships have already started benefiting, for instance a Uganda Company Beta Projects made a joint venture with Karmod ( Kenyan company) for the construction of the camp for McDermott. Also Luwero industries a Ugandan company made a*

*merger with a Chinese company, and they were awarded a contract of managing drilling wastes in Kingfisher Development Area."* K.I.17

However, several key informants contradicted the survey findings while indicating that,

"*Many foreign companies fronting Ugandans as shareholders or owners are puppets as Ugandans actually do not participate in the running of those companies..., it helps integration to some extent though it limits competition and national participation in oil and gas sector….these are allowed to compete but they do have an edge over locals.*" K.1.6

*"Lack of making joint ventures at local levels due to lack of information and knowledge on the benefits of integrating with foreigners, at times this is caused by lack of contacts since most local companies do not have foreign based companies they are affiliated with. The only challenge is that our communities we were and have not been prepared enough."* K.I.18

*"The local councils and governments have failed to organize the community, for instance, if associations have been organized among locals on level of farmers, carpentry, welders etc. every company would come to buy from them but you find that everyone is scattered hence failing to integrate with foreign companies."* K.1.9

*"…many have refused to come together, but those who have come together have managed to win contracts. For instance, the insurance companies which formed a consortium have won a contract. Waste management companies have come together and won contract for KFDA."* K.1.2

Additionally, it was established that the nature of the industry is also making it hard for most companies to cope up with due to strange working cultures and operating standards amongst foreign companies. Key informant 6 said,

> *"The nature of the industry is hard to cope up with for community members because you have to meet standard requirements, even keeping time is hard for some of these community employees…many community members have never worked in this. They are used to absenting themselves. The cultural change remains hard for the community members which cannot be withheld by foreign firms."*
>
> *"The cultural set up of our communities is also a very big challenge…women are not allowed to work every day by men and this impinges the process of integration and training community members."* K.I.12

Other key informants indicated that foreign companies are just reluctant to hire and integrate with local companies because they do not trust that they can meet their expectations. Key informant 4 said,

> "…foreign companies have been reluctant to hire local companies because they think they cannot provide what is required as per their requirements in civil works. Because even if the local company has the finances, they lose out on sensitivity analysis. The contracted work is so sensitive to simply work with any one below the standards and most of the local companies tend to fall below the requirements."
>
> "*The willingness of the community to give in their cultural heritages and work with foreigners is a big challenge because there has been high levels of displacements….this has caused some resistance to the changes required and have affected their participation*." K.I.5

#### *4.4.3.4 Less Observation of Private public partnership*

In addition to the above, respondents were also asked to state whether there is less observation of Private public partnership in undertaking oil and gas exploration

activities. Majority strongly agreed with the item (37.1%) and 26.9% were in agreement. A mean of 4.39 and standard deviation of 0.809 indicated that a greater number of respondents were of the view that there is less observation of Private public partnership in undertaking oil and gas exploration activities.

> *"I think even PPP has highly been affected…because foreign owned companies register here as local companies and chose to partner with fellow foreign companies as if they are not the same. For instance, JCC Iraq partners with JCC Uganda."* K.1.3

> *"…foreign companies have been reluctant to hire local companies because they think they cannot provide what is required as per their requirements in civil works. Because even if the local company has the finances, they lose out on sensitivity analysis. The contracted work is so sensitive to simply work with any one below the standards and most of the local companies tend to follow below the requirements."* K.I.4

#### *4.4.3.5 Unreliable value chain*

Respondents revealed that local companies have unreliable value chain. This is because majority strongly disagreed with the item (45.2%) and 18.3% were in disagreement. 25.4% of the respondents tended towards agreement with the item. A mean of 2.18 and standard deviation of 1.146 indicated that a greater number of respondents were of the view that local companies have no reliable value chain. This was similar to item 6 which stated that local companies demonstrates ability of value addition. Over 58.9% showed disagreement and 29.5% agreed. This meant that local companies lack the ability to add value to exploration being done. This was synonymous with what was reported by majority of key informants. For instance,

> *"…the community cannot meet the standard or quality of food oil companies want. For instance, there are quality of tomatoes needed….the community cannot meet those standards. They advise them on how to spray tomatoes, they do the opposite, when time comes to supply, they take their tomatoes to these companies and almost the whole sack is thrown out. Because after tomatoes are tested….only a*

*third of the basket may qualify and the rest is full of contamination... so this forces many farmers to give-up and remain planting for the usual market which do not have technicalities though they remain complaining that they are excluded when in fact they did not grasp the quality of agricultural supplies required and this is the case in most of the goods and services required and supplied to these oil companies…"*K.1.10

Another interviewee cited the issue of suppliers obtained from community. One was contracted to supply meat after failing to meet the required trends, he added intestines and later vowed out.

*"…there is a guy called Muzamiru which TEPU hired to supply meat on interim,….he started by supplying on a bicycle, then motorcycle, then car and when the demand keeps increasing from 20Kgs to above 400Kgs, he started adding intestines in meat…when they complained about intestines…., he adamantly said, 'why don't they also eat on beans?'…."* K.1.9

*"Consistence of suppliers from the community is a very big challenge. They do not have the capacity to supply requirements for oil and gas however much they group themselves. For instance, we asked one group of suppliers to supply us with 400 trays of eggs every week. They tried doing it for the first two weeks, in the third week it went down to 80 trays and after one month, they had started telling stories…"* K.1.4

#### *4.4.3.6 Poor physical infrastructure*

Lastly, on whether the physical infrastructure of undertaking oil and gas activities is available for local companies and individuals. Majority disagreed with the item (42.6%), 21.3% strongly disagreed whilst 19.3% agreed and 4.6% strongly agreed. A mean of 2.43 and standard deviation of 1.157 indicated that a greater number of respondents were of the view that the physical infrastructure of undertaking oil and gas activities is not available for local companies and individuals. This concurred with key informant 2. For instance, he noted,

*"…the feeder roads to Kikuube are terribly bad…you find that accessing some areas like for example Kingfisher has remained a hassle up to now especially through …."*

*"…even some roads have been delayed by UNRA like the Kabwoya to Luuka where the escarpment starts from is too bad, this affects us and our own suppliers, …even our visitors like you, I guess you saw it. This means that everyone needs expensive cars like four-wheel drive to access it which is hard, and it is worse when it rains."* K.I.2 added.

Basing on the findings from key informants and questionnaire, meso level factors facing the implementation of national participation in oil and gas sector in Uganda include; company capacity, integration of local and foreign companies/PPP and value chain & addition as well as infrastructure. The next theme endeavours to determine the extent of these barriers.

### *4.4.3.7* Correlation results for Meso-level barriers and Implementation of national participation in oil and gas sector in Uganda

To determine the significance of the meso-level barriers towards the implementation of national participation in oil and gas sector in Uganda, a Pearson correlation coefficient was done and the results are shown in Table 10 below.

**Table 10: Correlation results**

| | | Meso level barriers | National Participation |
|---|---|---|---|
| Meso level barriers | Pearson Correlation | 1 | .815** |
| | Sig. (2-tailed) | | .000 |
| | N | 197 | 197 |
| National Participation | Pearson Correlation | .815** | 1 |
| | Sig. (2-tailed) | .000 | |
| | N | 197 | 197 |

**. Correlation is significant at the 0.01 level (2-tailed).

***Source: Primary Data, 2022***

The results show that the correlation coefficient was 0.815(**) and p = 0.000. Therefore according to the results, meso-level barriers strongly, positively, and significantly affect the implementation of national participation in oil and gas sector in Albertine Graben Region. This implied that meso-level barriers and implementation of national participation in oil and gas sector in Albertine Graben Region are statistically significant. This means that the higher the meso-level barriers are addressed, the better the implementation of national participation in oil and gas sector in Uganda.

#### *4.4.3.8* Regression results for Meso-level barriers and implementation of national participation in oil and gas sector in Uganda

Further analysis was conducted using a regression to determine the extent to which meso-level barriers predict implementation of national participation in oil and gas sector in Uganda. Findings are presented in Table 11, accompanied with an analysis and interpretation.

**Table 11: Model summary**

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | .815[a] | .665 | .663 | .48402 |

a. Predictors: (Constant), Meso level barriers

***Source: Primary data, 2022***

Findings in Table 11 show a strong linear relationship (Multiple R=.815) between meso-level barriers and implementation of national participation in oil and gas sector in Uganda. Going by the adjusted R Square, it is shown that meso-level barriers account for 66.3% on the implementation of national participation in oil and gas sector in Uganda. The findings further imply that addressing meso-level barriers positively can contributing to the progress of implementation of national participation in oil and gas sector in Uganda in Albertine Graben Region by 66.3% and the remaining percentage can be contributed by other barriers outside this study.

### 4.4.4 Findings on macro-level barriers facing the implementation of national participation in oil and gas sector in Albertine Graben Region

To find out available macro-level barriers facing the implementation of national participation in oil and gas sector in Albertine Graben Region. Table 12 below presents the responses from respondents.

**Table 12: Descriptive Statistics on macro-level barriers in Albertine Graben Region**

| Items | SD | D | N | A | SA | Mean | Std. Dev. |
|---|---|---|---|---|---|---|---|
| The institutional support network is poor to facilitate the integration of local companies in oil and gas exploration activities | 13.2% | 22.8% | 4.6% | 18% | 40.6% | 4.34 | .767 |
| Local companies are hindered by lack of access to credit favorably participate in oil and gas exploration activities | 11.2% | 20.8% | 7.1% | 18.8% | 42.1% | 4.60 | .614 |
| Local companies are hindered by high interest rates associated with loans required | 13.2% | 21.3% | 4.6% | 19.3% | 41.6% | 4.30 | .759 |
| Corruption remains a huge roadblock for local companies and individuals to participate in oil and gas exploration activities | 12.7% | 22.3% | 7.1% | 20.3% | 37.6% | 4.48 | .637 |
| Weak rules and regulations affect local companies to favorably compete for oil and gas exploration activities | 11.7% | 21.8% | 4.6% | 23.9% | 38.1% | 4.55 | .601 |
| Less observation of laws and regulation also hinders local companies and individuals to participate in oil and gas exploration activities | 19.8% | 19.3% | 4.6% | 43.7% | 12.7% | 4.35 | .745 |
| The technological capacity required hinders local companies and individuals to participate in oil and gas exploration activities | 12.7% | 19.8% | 7.6% | 22.3% | 37.6% | 4.63 | .548 |
| Low innovation capabilities among local companies and individuals hinders them to participate in oil and gas exploration activities | 12.7% | 4.6% | 19.8% | 39.1% | 23.9% | 4.24 | .784 |
| The political will among leaders to implement the local content policy is lacking | 14.7% | 22.8% | 4.6% | 20.8% | 37.1% | 4.53 | .685 |
| **Average Mean** | | | | | | **4.47** | **0.682** |

***Source: Primary data, 2022***

Based on the results in Table 12 above, macro-level barriers facing the implementation of national participation in oil and gas in Albertine Graben Region was tabulated as above

average (this is because of the mean of 4.47 and a standard deviation of 0.682). This is exhibited in the following items.

#### *4.4.4.1 Poor institutional support network*

Results revealed that majority of the items were strongly agreed on by majority of respondents. For instance, it was strongly agreed by 40.6% of the respondents that the institutional support network is poor to facilitate the integration of local companies in oil and gas exploration activities. 18% agreed. However, 22.8% of the respondents disagreed and 13.2% strongly disagreed. This was further confirmed by the mean of 4.34 and standard deviation of 0.767. This was also supported by key informants. For instance, it is noted that,

> "Institutional weakness especially educational institutions which should train local experts in both skilled and semiskilled jobs like electrical and welding are concentrating on producing degree graduates and the government has not endeavored to stop them... the government should prioritize certificate and diploma courses which are required by the oil sector….it is important that the government gets engaged in bringing out its expertise." K.I.5

> "…the willingness is there but they are not empowered…for instance, the local councils are willing to do the job of sensitizing people but they do not have money and also lack the required knowledge. For instance, we have tried to help some of the local councils by providing them with resources and they have done the job very well…" K.1.7

> "Another national barriers is related to delayed payments of community members who lost their land to oil and gas activities….we have seen people struggling to get their benefits after so many years and others choose to give up. Because if the father was the one leading and unfortunately he dies, remember u need letter of administration and this

is obtained from Kampala. And many have no idea on the whole process…many get stifled and give up." K.I.10

"We have airport plan and physical plan…but the complaint we have, those people would put a fence and lock out other people. This means that people are fenced off and cannot access their gardens, firewood, hospital, etc. We need a continuous livelihood support like how it is in Entebbe. Katabi people remain doing their other businesses without being distracted." K.I.10 added.

"Civil society are major barriers especially those who advocate for stopping explorations not improving…anyone who is informed and has looked at this issue clearly would only provide actions to be undertake or mitigate potential problems to environment and people. Many people have hidden agendas like NGOs which are doing smear campaigns impending projects, misinformation of the public which is largely uncalled for. K.I.2

However, some of the interviewees indicated that the institutional support network has been vibrant which has enhanced on implementation of national participation. For instance, it was quoted from K.10 saying,

"At least the issue of livelihood has been attended too by Security and Ministry of Energy and Mineral Development…such livelihood support and compensation have been important for national participation." K.10

"There is no specific sector in Uganda with national content laws may be only PPDA. Its only oil and gas and this has been a good enabler. In addition, there is a very active specific authority (PAU) and department which overlooks oil and gas…the CSO network is also very active including the oil and gas policies and laws. Very few sectors in Uganda have a full-fledged institutional network like this." K.I.9

TEPU have gone far with CSR to an extent of preparing in livelihood support production especially when it comes to training farmers in

different things like vegetables. This has widened their food production and supply. K .11

"We also have stakeholder engagements at all levels of leadership….who have yielded good results for us as CNOOC. We usually finance the local councils' budgets whenever they approach us for support." K.I.2

#### *4.4.4.2 Lack of access to credit*

In the second item, it was strongly agreed by 42.1% of the respondents that local companies are hindered by lack of access to credit favorably participate in oil and gas exploration activities. 18.8% agreed with the item. However, 20.8% of the respondents disagreed and 11.2% strongly disagreed. This was further confirmed by the mean of 4.60 and standard deviation of 0.614. This was also supported by key informants. For instance, it was recorded that,

"…these are capital intensive projects which call for hundreds of dollars…accessing such is hard because commercial banks are not so many in Uganda which can extend such huge amounts of money to local companies and if they are to extend it, it comes with huge interests. K.1.4

"High cost of finance is a barrier…many resort to quick bank loans which come with exorbitant interests. These banks take too much which reduces largely on the profits that would be saved by these companies hence making it hard for them to participate." K.1.2

An estimation of $15m was cited by one of the key informants if a local company is to compete and substantially participate in the process of exploration and exploitation of oil and gas in Albertine Graben region.

*"…the sector of oil and gas is capital intensive. It calls for above $15million, if a local company is to afford the competition…and this comes with huge risks because if a company hits a dry oil well, it is not prone to seek for a refund. This becomes a challenge for most of our local companies to even dare to borrow and few banks can borrow money on such huge risks."* K.1.9

#### *4.4.4.3 High interest rate*

In line with the above item, it was strongly agreed by 41.6% of the respondents that local companies are hindered by high interest rates associated with loans required. 19.3% agreed with the item. However, 21.3% of the respondents disagreed and 13.2% strongly disagreed. This was further confirmed by the mean of 4.30 and standard deviation of 0.759.

Basing on the interviewees quoted above, they all agreed that the high interest rates are a barrier to national participation.

#### *4.4.4.4 Prevalence of Corruption*

On the fourth item, it was strongly agreed by 37.6% of the respondents that corruption remains a huge roadblock for local companies and individuals to participate in oil and gas exploration activities. 20.3% agreed with the item. However, 22.3% of the respondents disagreed and 12.7% strongly disagreed. This was further confirmed by the mean of 4.48 and standard deviation of 0.637. The issue of corruption was supported by some key informants saying,

> *"…because corruption is highly entrenched in all sectors in Uganda, you cannot rule out oil and gas because it does not operate in oblivion….many foreign companies have been registered as local companies while using nationals…this means that some strategic nationals are used to register such companies under the influence of some bribes. They remain there while operating in shadows….these are termed as "Mr. fix it." They always find away."* K.I.6

However, some of the key informant did not support the above claims while indicating that corruption is non-prevalent in oil and gas sector. They noted,

> *"Requirements are too high for locals when compared to foreign companies…some people or local companies fail to qualify, they think foreign companies are corrupt and buying their way out. Yet in fact foreign companies understood what is required."* K.I.2

> *"Corruption exists but it does not interface so much in oil and gas. CNOOC only interacts with the Ministry of Energy and Mineral Development and*

*PAU, and this leaves limited room for money changing hands*. In addition, I have never heard of any scandal involving a government official exchanging money for a contract award in oil or anything related." K.I.8

#### *4.4.4.5 Weak rules and regulations*

Furthermore, respondents (38.1%) strongly agreed that weak rules and regulations affect local companies to favorably compete for oil and gas exploration activities. 23.9% strongly agreed with the item. However, 21.8% of the respondents disagreed and 11.7% strongly disagreed. This was further confirmed by the mean of 4.55 and standard deviation of 0.601. This was also supported by key informants. For instance,

"*The rules and regulations in place are not necessarily weak but the willingness of these companies to follow the regulations has been a challenge because sometimes you cannot force them…even if you want to enforce, you find that they have valid points, we do not have required local expertise…so they end up breaking the laws technically."* K.I.5

*"Laws and regulations still hold some loopholes because they have been good in protecting Ugandans but somehow they tie them out. 30% participating interests should not be limited. Ugandans need to have 100% participating interests and let them be pushed out by other reasons but not the law."* K.I.2

*"I think the laws also remains weak because the issue of exploration is very risky, it is easy to invest in huge amount of money and come out empty-handed especially if you hit a dry well and these are some of the reasons why some local companies shy away from such, and this long run reduces the level of participation."* K.I.6

However, some of the key informants remained strong and sure that the laws and regulations are not weak. One said,

"*Ring-fencing some of the services has been a good move to ensure that local companies obtain jobs in the oil and gas activities…even the percentages of people working in the sector has been largely a*

*contribution of local content regulations and policies, otherwise if it was not such policies, there was no room."* K.I.5

#### *4.4.4.6 Less observation of existing laws and regulations*

It was further established that respondents (43.7%) agreed that less observation of laws and regulation also hinders local companies and individuals to participate in oil and gas exploration activities. 12.7% agreed with the item. However, 19.3% of the respondents disagreed and 19.8% strongly disagreed. This was further confirmed by the mean of 4.35 and standard deviation of 0.745. This was also supported by key informants. For instance, key informant 11 said,

> "The legal framework limits local companies to engage because it is not an open business that anyone can just go and venture in…on side of suppliers, it is also the same, you must have certifications required." K.I.6.

> "…the issue of certified international oil standards affects local companies and many need certifications which they do not have to participate…I think it was important that some of the international Oil standards were reviewed in line with the situation of Uganda."K.I.3.

> "…there is less observation of such laws because oil companies remain influencing the process because they can easily see the president more than the local individuals and companies. This means that what they want remains working…" K.1.10

However, some of the key informants did not believe that it was about the less observation of the laws and regulations, but rather the incompetence of Ugandans. For instance, one interviewee acknowledged that,

> "I was in Norway, there are no laws like the ones we have here…Norwegians are not protected because they are competent…there are no local content laws and policies, and Norwegians end up outcompeting with foreigners in oil and gas exploitation and exploration

activities. To me, it is not about the laws, it is about empowering the nationals to be ready and take up the jobs just like Norwegians did it." K.I.9

"….there is optimization of value within, but it does not suffice when such value goes to one company….this causes social unrest. There are just few companies which are profiting, and others do not qualify. Those which do not qualify feel they are left out and these end up sabotaging. The issue is not discrimination, the companies left out are not ready and competent, but it remains hard to explain to the general public." K.1.4

#### *4.4.4.7 Low technological capacity*

It was also ascertained that respondents (37.6%) strongly agreed that the technological capacity required hinders local companies and individuals to participate in oil and gas exploration activities. 22.3% agreed with the item. However, 19.8% of the respondents disagreed and 12.7% strongly disagreed. This was further confirmed by the mean of 4.63 and standard deviation of 0.548. Some key informants supported this. For instance,

*"Lack of information, most people do not get the information related to oil and gas but we are trying to enforce local content community awareness….otherwise the information gap remains high especially on how to get a job in oil and gas…"* K.I.5

"If you put a Ugandan, the quality and schedule remains poor compared to foreign based. If it is from Uganda and it is doing well, it is just a proxy. Its 51% owned locally and 49% owned by foreign individuals and Chinese. *For instance, Equator catering services are doing well as a Ugandan firm. It is registered on the NSD 100% local origin but coming from United Kingdom. They do catering and they have been here for years. They have ISO certification."* K.1.12

*"Most local individuals are unable to get jobs because they are advertised online….even many local companies from host communities find it hard to get registered on NSD, they do not have computers…"* K.I.16

However, some of the key informants indicated that the government has tried to intervene and empower the technical capacity of Ugandans and local companies. For instance, K.1.9 noted that,

> "The government undertook a capacity needs analysis study to determine the skills required in undertaking oil and gas and the study identified many gaps, skills absent were identified and these are being addressed by several institutes like Uganda Petroleum Institute - Kigumba, Kichwamba, and Sheema…"

#### *4.4.4.8 Low innovation capabilities*

In addition, respondents (39.1%) agreed that low innovation capabilities among local companies and individuals hinders them to participate in oil and gas exploration activities. 23.9% strongly agreed with the item. However, 19.8% remained neutral and 17.3% of the respondents were in disagreement. This was further confirmed by the mean of 4.24 and standard deviation of 0.784. This was also supported by key informants. For instance, key informant 5 said,

> *"High standards required, most of these local companies fail to meet such standards when compared to foreign companies which are innovative and up to date…local companies look at Research and Development as a waste of resources unlike foreign firms, this deters growth of innovation levels among local companies."* K.I.5

#### *4.4.4.9 Political will*

Lastly, 37.1% of respondents strongly agreed that the political will among leaders to implement the local content policy is lacking. 20.8% strongly agreed with the item. However, 4.6% remained neutral and 37.5% of the respondents were in disagreement. This was further confirmed by the mean of 4.53 and standard deviation of 0.685. This was also supported by key informants in the following verbatim,

> "The level of understanding of MPs towards oil and gas issues is very low. They tend to assume that companies are only stealing Ugandan oil which

is not the case. Many MPs and other locals think oil has already been exploited and sold." K.I.9

"…information gap is still high and this is exacerbated by politicians who have promised wrong optimisms to voters but the whole issue lies in being prepared and ready to engage in exploration and exploitation…for instance, there is a perception that oil and gas is already sold when this is practically false." K.I.6

"…general sensitization is lacking….much of the sensitization lies in the areas where oil exploration is being done…" K.I.8

However, some of the key informants differed from what was obtained from surveys. They acknowledged that,

*"The willingness is there but they are not empowered…for instance, the local councils are willing to do the job of sensitizing people but they do not have money and also lack the required knowledge. For instance, we have tried to help some of the local council, when we provide them with resources, they do the job."* K.I.1

*"Local leaders have been largely enablers especially in developing systems of bringing on board causal laborers transparently and fairly."* K.1.2

*"Political will is there especially at the top according to me. Because CNOOC management sat with government and resolved all differences which used to exist before."* K.I.12

*"The will is there but highly enforced by national content because some of the activities have been reinforced by the government."* K.1.10

Basing on the findings from key informants, questionnaire and documents reviewed, macro level factors facing the implementation of national participation in oil and gas sector in Uganda include; monetary and fiscal policies, business and Regulatory

environment, technological barriers and political will. The next theme endeavours to determine the extent of these barriers.

### *4.4.4.10* Correlation results on macro-level barriers and implementation of national participation in oil and gas sector in Uganda

To ascertain the strength and significance of macro-level barriers towards the implementation of national participation in oil and gas sector in Albertine Graben Region in Uganda, a Pearson Correlation analysis was done and Table 13 provides details on the results below

**Table 13: Correlation results**

| | | Macro level factors | National Participation |
|---|---|---|---|
| Macro level factors | Pearson Correlation | 1 | .818** |
| | Sig. (2-tailed) | | .000 |
| | N | 197 | 197 |
| National Participation | Pearson Correlation | .818** | 1 |
| | Sig. (2-tailed) | .000 | |
| | N | 197 | 197 |

**. Correlation is significant at the 0.01 level (2-tailed).

***Source: Primary Data, 2022***

The results show that the correlation coefficient was 0.818(**) and p = 0.000. Therefore according to the results macro-level barriers strongly, positively and significantly affect the implementation of national participation in oil and gas sector in Albertine Graben Region. This implied that macro-level barriers facing the implementation of national participation of Albertine Graben Region are statistically significant. This means that the higher macro-level barriers are addressed, the higher the implementation of national participation in oil and gas sector in Albertine Graben Region.

### *4.4.4.11* Regression results for macro-level barriers and implementation of national participation in oil and gas sector in Albertine Graben Region

Further analysis was conducted using a regression to determine the effect of macro-level barriers on the implementation of national participation in oil and gas sector in

Albertine Graben Region. Findings are presented in Table 14, accompanied with an analysis and interpretation.

**Table 14: Model summary**

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | .818[a] | .670 | .668 | .48045 |

a. Predictors: (Constant), Macro level barriers

***Source: Primary Data, 2022***

Findings in Table 14 show a strong linear relationship (Multiple R =.818) between macro-level barriers and implementation of national participation of Albertine Graben Region. Going by the adjusted R Square, it is shown that macro-level barriers account for 66.8% effect on the implementation of national participation in oil and gas sector in Albertine Graben Region. The findings further imply that addressing macro-level barriers can improve the implementation of national participation in oil and gas sector by 66.8% and the remaining percentage can be contributed by other factors outside this study.

**4.5 Multiple Regression Analysis**

The relationship between macro, micro and meso level factors and the implementation of national participation in oil and gas sector in Albertine Graben Region was determined while undertaking a multivariate regression analysis. Table 15 has the illustration below.

**Table 15: Multivariate regression analysis of predictor variables.**

**Model Summary**

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | .824[a] | .679 | .674 | .47613 |

a. Predictors: (Constant), Macro level factors, Micro level factors, Meso level factors

**ANOVA[a]**

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 92.524 | 3 | 30.841 | 136.048 | .000[b] |

| | | | | | | |
|---|---|---|---|---|---|---|
| | Residual | 43.752 | 193 | .227 | | |
| | Total | 136.276 | 196 | | | |

a. Dependent Variable: National Participation

b. Predictors: (Constant), Macro level factors, Micro level factors, Meso level factors

**Coefficients[a]**

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | .977 | .086 | | 11.331 | .000 |
| | Micro level factors | .191 | .133 | .253 | 1.442 | .000 |
| | Meso level factors | .073 | .191 | .098 | .384 | .001 |
| | Macro level factors | .365 | .142 | .483 | 2.572 | .001 |

a. Dependent Variable: National Participation

**Source: Primary data, 2022**

The results as indicated above in Table 15 demonstrates that all variables as investigated in the model above predicted 67.4% (Adjusted R Square =0.674) on the implementation of national participation in oil and gas sector in Albertine Graben Region. Particularly, it was found out that macro level factors made a more significant contribution on the implementation of national participation in oil and gas sector in Albertine Graben Region with a Beta Value of 0.483 p<.01. This was followed by micro level factors contributing on the implementation of national participation in oil and gas sector in Albertine Graben Region with a Beta Value of 0.253. Meso level factors had a beta value of 0. 098 p<.01.

The model for the implementation of national participation in oil and gas sector in Albertine Graben Region was significant with an F-statistic of 136.048 which meant that the model was well specified. This implied that macro, micro and meso level factors were appropriate predictors of on the implementation of national participation in oil and gas sector in Albertine Graben Region. Particularly, if the implementation of national participation in oil and gas sector in Albertine Graben Region is to further

improve, efforts must begin by putting primary efforts on macro level, then micro and meso level barriers.

### 4.6 Chapter Conclusion

In summary, the study was largely conducted among males constituting 55% who were aged between 40-49years (46.2%) and largely educated up to primary level (44.2%). Micro-level barriers strongly, positively, and significantly affect the implementation of national participation in oil and gas sector in Albertine Graben Region (0.806**). This implied that the higher macro-level barriers are addressed, the higher the implementation of national participation in oil and gas sector in Albertine Graben Region. On overall, micro-level barriers explained 64.8% on implementation of national participation in oil and gas sector in Uganda. Meso-level barriers strongly, positively, and significantly affect the implementation of national participation in oil and gas sector in Albertine Graben Region (0.815**). This implied that the higher meso-level barriers are addressed, the higher the implementation of national participation in oil and gas sector in Albertine Graben Region. On overall, meso-level barriers explained 66.3% on implementation of national participation in oil and gas sector in Uganda. Macro-level barriers strongly, positively and significantly affect the implementation of national participation in oil and gas sector in Albertine Graben Region (0.818**). This implied that the higher macro-level barriers are addressed, the higher the implementation of national participation in oil and gas sector in Albertine Graben Region. On overall, macro-level barriers explained 66.8% on implementation of national participation in oil and gas sector in Uganda.

# CHAPTER FIVE

# DISCUSSION OF FINDINGS

## 5.1 Introduction

This chapter presents the summary and the discussion of the results obtained from the study on the subject of barriers threatening the implementation of national participation in oil and gas sector in Uganda.

## 5.2 Summary

### 5.2.1 Micro-level barriers facing the implementation of national participation in oil and gas sector of Albertine Graben Region

Micro-level barriers strongly, positively, and significantly affect the implementation of national participation in oil and gas sector in Albertine Graben Region (0.806**). This implied that the higher micro-level barriers are addressed, the higher the implementation of national participation in oil and gas sector in Albertine Graben Region. On overall, micro-level barriers explained 64.8% on implementation of national participation in oil and gas sector in Uganda.

### 5.2.2 Meso-level barriers facing the implementation of national participation in oil and gas sector of Albertine Graben Region

Meso-level barriers strongly, positively, and significantly affect the implementation of national participation in oil and gas sector in Albertine Graben Region (0.815**). This implied that the higher meso-level barriers are addressed, the higher the implementation of national participation in oil and gas sector in Albertine Graben Region. On overall, meso-level barriers explained 66.3% on implementation of national participation in oil and gas sector in Uganda.

### 5.2.3 Macro-level barriers facing the implementation of national participation in oil and gas sector of Albertine Graben Region

Macro-level barriers strongly, positively, and significantly affect the implementation of national participation in oil and gas sector in Albertine Graben Region (0.818**). This

implied that the higher macro-level barriers are addressed, the higher the implementation of national participation in oil and gas sector in Albertine Graben Region. On overall, macro-level barriers explained 66.8% on implementation of national participation in oil and gas sector in Uganda.

## 5.3 Discussion of findings

### 5.3.1 Micro-level barriers facing the implementation of national participation in oil and gas sector of Albertine Graben Region

The study findings revealed that micro-level barriers strongly, positively and significantly affect the implementation of national participation in oil and gas sector in Albertine Graben Region. Specifically, it was established that individuals and local companies have inadequate required financial resources to undertake oil and gas related activities. This concurs with what (Akhtar & Sushil, 2018) found out in a study they conducted in Indian oil industry while assessing the participation of nationals in the exploration of oil and gas. The study established that majority of well positioned firms were excluded to participate in the whole exploration, because of limited financial and technical resources. They found out that over 70% of the companies which would qualify to undertake some exploration activities had no required capital to do the job which excluded them right away even if the policy of local content was in place. This implied that financial resources are central in the process of promoting national participation in oil and gas sector.

The study findings further showed that individuals and local companies had no required technical resources to undertake oil and gas related activities in Albertine Graben Region. (Kolstad & Kinyondo, 2016) in support of the findings had earlier established that the participation of nationals in Norway was not about local content regulations but rather their possession of technical resources to outcompete foreign firms. This implied that however much laws and regulations may be primary in enabling participation in exploration and exploitation, the most important thing is to make sure that locals and domestic companies are ready with required access to technical resources.

The study findings revealed that nationals and local companies did not possess the required knowledge to undertake oil and gas exploration activities in Albertine Graben Region. (Türkes, et al., 2019) in incongruence with the above study had studied about the drivers and barriers to national participation in oil and gas sector in Romania. They had found out that the increase in national participation in oil and gas activities rides on presence of competent nationals who are highly educated and skilled. They found out that the government of Romania started from a smooth ground whereby majority of its people were educated. These were provided capacity building and skills by both the government through its higher institutions of learning and within the companies who had been contracted to undertake the job. The competence of nationals in oil and gas exploration and processing widened the scope of work that they would do at managerial, middle level management and supportive roles. About 95% were found to occupy the technical and top management roles, 100% did supportive and clerical work. It was also established that the goods and services consumed by companies contracted to undertake work were obtained largely (90%) from host communities since they had food and other merchandise meeting the healthy, and safety standards required.

Furthermore, it was ascertained that the nationals and local companies did not possess appropriate skills to undertake oil and gas exploration activities. This is qualified by the earlier findings by (Wibowo & Alfen, 2015) who had studied about individual employees that lacked the technical skills to undertake the jobs since much of the workcalled for a lot of knowledge. Much of the work which was being done by nationals wereunskilled and semi-skilled constituting only 56% of the work being done and earning below 35% of the salaries spent. This meant that the lack of adequate skills renders several people and companies less able to participate in oil and gas exploration activities.

In addition, it was found out that nationals and local companies did not possess the required ability to undertake oil and gas exploration activities. Furthermore, the study found out that local companies have no required manpower or human resource to perform oil and gas activities to expectations. In support of the findings, (Türkes, et

al., 2019) had also found out that the increase in national participation in oil and gas activities rides on presence of competent nationals who are highly educated, able-bodied and skilled. The competence of nationals in oil and gas exploration and processing widened the scope of work that they would do at managerial, middle level management and supportive roles.

Lastly, it was found out that a greater number of respondents were of the view that Nationals and Local companies have no required experience to perform oil and gas activities to expectations in Albertine Graben Region since this is a new sector. In support of the findings, (Papamichail, Rosiello, & Wield, 2018) had earlier investigated the capacity building barriers and supply-side constraints which stand in a way to participation of nationals in oil exploration in Brazil and Mexico. They ascertained that many companies lacked the required access to credit even though they had the access to supplies required. The lack of access to credit was also accompanied with lack of expertise to undertake the job. The lack of necessary experience renders majority of people and firms not to participate in oil exploration.

### 5.3.2 Meso-level barriers facing the implementation of national participation in oil and gas sector of Albertine Graben Region

The study findings revealed that meso-level barriers strongly, positively, and significantly affect the implementation of national participation in oil and gas sector in Albertine Graben Region. Particularly, the study showed that technical capacity of local companies and individuals is low in relation to kind of work available for oil companies in Albertine Graben Region. (Ayanoore, 2020) in line with the findings studied about the politics of local content implementation in Ghana's oil and gas sector. He found out that the policy of local content implementation fell between hard rock and stone because a number of companies had no required capacity or human resource to undertake the job. By capacity, it related to size, finances, human resource, and experience to undertake majority of the sensitive exploration activities. The lack of capacity to under the job rendered many of them to be excluded from the bids.

Secondly, the study established that mechanical capacity of local companies and individuals is low in relation to kind of work available. This was found synonymous with (Ayanoore, 2020) who had found out that on the prequalified firms, locally owned companies did not constitute above 20%. This made them vulnerable not to compete with other prequalified firms from abroad. He ascertained that contracted companies in oil and gas sector required to work with experienced firms and individuals and majority of these were found inexperienced. Experience at individual and firm level largely affected them from getting employed, contracted, and sell their goods and services to these oil and gas contracted firms. This implies that mechanical capacity is primary in the process of improving the implementation of national participation in oil and gas sector in Uganda.

Furthermore, it was revealed that there is integration of local and foreign companies to undertake oil and gas exploration activities. The issue of integrating local and foreign companies was also reported by several studies as a basis for increasing on national participation in oil and gas sector. (Pegram, Falcone, & Kolios, 2018) investigated job role localization in the oil and gas industry. They found out that the underlying failure to build a sustainable local oil and gas industry was due to failure to develop private public partnership and integration of local companies with foreign companies. The integration of both firms was found to improve on the transfer of knowledge and skills, enabling capacity building and training, widen job creation, and improved value creation through utilizing appropriate technology.

The study findings indicated that there is less observation of Private public partnership in undertaking oil and gas exploration activities. Still more, the study findings established that local companies have no reliable value chain. (Gokhberg & Roud, 2015) studied the structural changes in the national innovation system in Russia's oil and gas industry. It was established that the increase in national participation of local firms in oil and gas sector originated from the presence of 100% of national company in the value chain and addition. The network of supply chain network was largely dominated by national companies. The level of innovation capabilities was also demonstratively

higher hence rendering these companies competent and compliant to the requirement of the job. The enablers to participation of nationals in oil and gas sector was because of the willingness and readiness of these local companies to add value of their oil products. They also had the required network or supply chain across Russia and outside Russia. This thus informs us that lack of adequate value chain and addition of a firm is a barrier to participation of nationals in Uganda's oil and gas sector particularly in Albertine Graben Region.

Lastly, the study findings established that the physical infrastructure of undertaking oil and gas activities is available for local companies and individuals. This was found synonymous with what (Mirimoghadam & Ghazinoory, 2017) had earlier ascertained in Brazil. They had found out that for successful national participation in oil and gas sector, it is key for the government to ensure that the accessible road network is in place to enable local suppliers to supply their goods and services affordably. They also added that airport services need to be in place to allow easy flow in and out of firms that are integrated with local firms to undertake oil and gas activities.

### 5.3.3 Macro-level barriers facing the implementation of national participation in oil and gas sector of Albertine Graben Region

The study findings revealed that macro-level barriers strongly, positively, and significantly affect the implementation of national participation in oil and gas sector in Albertine Graben Region. Specifically, it was found out that institutional support network is poor to facilitate the integration of local companies in oil and gas exploration activities. This is supported by (Ablo, 2017) who had earlier explained that poor institutional support network with a challenge to have the institutions that are supposed to support industrial development, to provide basic services and inputs into the enterprise technological activity. Whereas the National Oil and Gas Policy clearly articulates the roles of the private sector, central government, local government traditional and cultural institutions, and civil society, the study found out that local government, traditional and cultural institutions, and civil society, have so far been largely kept out of the oil and gas industry development processes. This problem is

further exacerbated by lack of streamlined and adequate coordination between government ministries, agencies, and the private sector.

In addition, the study established that local companies are hindered by lack of access to credit favorably participate in oil and gas exploration activities. Furthermore, local companies were found out to be hindered by high interest rates associated with loans required. This is in line with (Fontaine, Sánchez, Córdova, & Velasco, 2016) who had indicated that local companies are largely redundant, underfunded, Corporation Development should be the major investment arm of government in a PPP framework. Difficulties with access to credit are explained by the fact that even if there is access, lending interest rates are prohibitively high. As for lack of necessary skills, they argue that enterprises still suffer shortage of critical skills; financial, production, material, and project management, as well as technical capability. Furthermore, the low level of technology and technological mastery implies that Uganda is grossly deficient in technology and lacks indigenous capacity to copy, adapt and develop technology. Poor infrastructure renders the industrial sector in general inefficient, while low Science Technology and Innovation capabilities may not be considered a major obstacle given the current stage of industrial development in a number of developing countries.

The study also found out that corruption remains a huge roadblock for local companies and individuals to participate in oil and gas exploration activities. (Ahmad, Rezaei, Sadaghiani, & Tavasszy, 2017) in support of the findings mentioned that another input to constraints at the institutional or macro level, is to consider the World Economic Forum's Executive Opinion Survey (2015). From a list of 15 factors the respondents were asked to select the five most problematic factors for doing business in their country and to rank them from 1 (most problematic) to 5. These responses have been weighted according to their ranking in order to identify the most problematic factors for doing business in each country. The higher score a factor gets, the more problematic it is. The score for the 15 factors adds to 100 for all countries. 37 As for Uganda, the respondents really highlighted obstacles in three areas: Corruption, Access to financing, and inadequate supply of infrastructure. Tax rates, Poor work ethics, inefficient

government, Inflation, and Inadequate educated workforce are also perceived as problematic when doing business in Uganda, but by far not as severe as the first three areas mentioned. There seem to be rather broad consensus that Uganda's challenges are in the areas spelt out in the National Development Plan and the World Economic forum's Executive Opinion Survey.

Furthermore, weak rules and regulations were found to have a negative effect on local companies to favorably compete for oil and gas exploration activities. This is in line with the views of (Acheampong, Ashong, & Svanikier, 2016) who had ascertained that without a favorable business and regulatory environment, national participation remains lacking in oil and gas sector since corruption perception index remains high, whereby obtaining or qualifying for rich opportunities like those found in oil and gas sector calls for paying a huge sum of money. This in many times affect the implementation of local content policies. This means that even if the local content policies are good and in place, there is a need to ensure that business regulatory environment is favorable for all individuals and companies. Further, a number of companies which were regarded as local or national companies belong to foreigners, the only difference with directly owned foreign companies, they were registered under the laws of Ghana, and this qualified them to be Ghana based. In the end, the GDP of Ghana remained stunted and less growing since genuine Ghanaians were not on forefront jobs and contracts in oil and gas sector.

It was further established that less observation of laws and regulation also hinders local companies and individuals to participate in oil and gas exploration activities. (Acheampong, Ashong, & Svanikier, 2016) in line with the study findings found out that an assessment of local-content policies in oil and gas producing countries while looking at the barriers to implementation of local content policies in Ghana. They found out that the business and regulatory environment of operation was not favorable for realizing local content policies being implemented. For instance, even though the regulations were in place, the amount of capital and technical knowhow required were far higher than the limits or in possession of local firms and individuals. This would

automatically exclude many of these firms from contracts offered in exploration activities. This means that there is a need to have vibrant institutions to oversee the inclusion of nationals in the process of exploiting and exploration of oil and gas in Albertine Graben region in Uganda.

It was also ascertained that technological capacity required hinders local companies and individuals to participate in oil and gas exploration activities. In addition, the study established that low innovation capabilities among local companies and individuals hinders them to participate in oil and gas exploration activities. (Owusu & Vaaland, 2016) in support of the findings had surveyed 55 firms, which have either supplied the petroleum activities in Uganda with goods and services or which potentially will do so in the future. Even among these firms, industrial activities to a large extent take place in the informal sector of the economy. Only 35% were registered with Uganda Revenue Authority. The informal character of industrial activities also affects the governance of firms. The vast majority of the firms surveyed (85%) did not have accounts with formal auditing. (Byaruhanga & Langer, 2020) explain that this is due to poor records and booking culture and/or unwillingness to disclose economic results. This practice will not comply with what is required to work with the oil industry. Formal requirements are quite strict when working with the oil industry, which also means that capabilities have to be documented. Thus, it is of concern that (Byaruhanga & Langer, 2020) found that two of three firms they surveyed did not have one full time employee with formal training in HSE (Health, Security and Environment). Three of four did not have any professional engineers in their staff, and only a few had some certification of their business of relevance for the oil industry. In their survey (Byaruhanga & Langer, 2020) asked the companies to list qualifications that were needed to do business with the oil industry, which they experienced not to be available. The companies listed engineering skills for the oil and gas industry, skills in ICT, in mechanical engineering and fittings, as well as quality chefs, qualified hospitality staff and environmental skills. Skills in these areas can be improved and strengthened through training programs of people and in firms. Such skills are essential for industrial capacity building. To the extent there is shortage of such skills, national content development will suffer.

Lastly, the political will among leaders to implement the local content policy was found lacking. (Ahmad, Rezaei, Sadaghiani, & Tavasszy, 2017) in support of the findings had demonstrated that the fish begins to rot from the top which meant that the moment the political will is inadequate, it is like fuel that has to start and end the engine. It totally affects the inclusion of locals in the whole process of oil exploitation and exploration. This means that the absence of required political will in oil and gas sector had a fundamental effect on implementation of national participation in oil and gas in Albertine Graben region in Uganda.

# CHAPTER SIX

# CONCLUSIONS AND RECOMMENDATIONS

## 6.1 Introduction

This chapter presents the study conclusions and recommendations. It further proposes future studies on the subject of barriers threatening the implementation of national participation in oil and gas sector in Uganda.

## 6.2 Conclusions

### 6.2.1 Micro-level barriers facing the implementation of national participation in oil and gas sector of Albertine Graben Region

In the first objective, it was learnt that lack of adequate technical and financial resources, incompetence of nationals and supply side constraints hinder the implementation of the national participation in oil and gas sector in Albertine Graben Region. This implied that addressing lack of adequate technical and financial resources, incompetence of nationals and supply side constraints is fundamental in realizing improvement in implementation of national participation in oil and gas sector in Uganda.

### 6.2.2 Meso-level barriers facing the implementation of national participation in oil and gas sector of Albertine Graben Region

In the second objective, it was learnt that company capacity, integration of local and foreign companies/PPP and weak value chain & addition as well as physical infrastructure are among the primary meso level barriers facing the implementation of national participation in oil and gas sector in Albertine Graben Region. This implied that addressing company capacity, integration of local and foreign companies/PPP, weak value chain & addition and infrastructure is fundamental in realizing improvement in implementation of national participation in oil and gas sector in Uganda

### 6.2.3 Macro-level barriers facing the implementation of national participation in oil and gas sector in Albertine Graben Region

In the third objective, it was learnt that monetary and fiscal policies, business and regulatory environment, technological barriers and political will are among the primary macro level barriers facing the implementation of national participation in oil and gas sector in Albertine Graben Region. This implied that addressing monetary and fiscal policies, business and regulatory environment, technological barriers and political will is fundamental in realizing improvement in implementation of national participation in oil and gas sector in Uganda.

## 6.3 Recommendations

### 6.3.1 Micro-level barriers facing the implementation of national participation in oil and gas sector in Uganda

Based on the findings, to deal with the barrier of financial resources, it is recommended that a national Oil Bank or Fund needs to be created to ensure that it lends out money at relatively low interest rate to allow local companies and individuals favourably compete financially with foreign companies. This can be done by ensuring that money is given to well-prepared companies and the principal and interests be obtained automatically during the time of meeting their payments by the oil companies. In addition, it is recommended that benchmarking training and orientation be done in oil producing countries for accredited individuals and companies. This will enable local individuals and companies to understand the machinery and equipments required in exploiting and exploration of oil and gas. This will also enable these companies to make required networks with foreign companies in oil and gas sector globally to facilitate them in the overall process. The benchmarking will also widen the knowledge of local individuals and companies in all issues related to oil and gas. Furthermore, the idea of capacity building needs to be reviewed and more money be invested in technical courses. This can be done by ensuring that the government becomes the number one owner and investor in the university and vocational institutes, which train and accredit employees required in oil and gas sector in Uganda. This can continually be realized by working closely with oil and gas contractors to oversee the overall process of skills and

knowledge development. This means that internships and practical trainings can be done in the premises and oil fields. This will solve the issue of passing out graduates who have limited idea in the practicability and experience of what they have studied.

### 6.3.2 Meso-level barriers facing the implementation of national participation in oil and gas sector in Uganda

Secondly, it is significant that the community members in Albertine Graben Region is further sensitized and trained to be made fully ready and prepared for all stages of exploration and exploitation of oil. This means that local government officials need to engage locals into different associations dealing in different activities. For instance, vegetable growers' associations, drivers' associations, carpentry, and woodworks association, repairing and maintenance associations and other forms of associations need to be invoked in the community working hand in hand with the standard operating qualities required by oil and gas companies. This can be realized by ensuring that oil and gas companies before they obtain licenses to operate in a given area, they are required to promise that they will get all their goods and services from such associations. This is perceived to be an enhancement to the NSD. It will make it easy for oil and gas companies to have somewhere to complain in case they want any form of improvement. Secondly, it will widen the value chain and addition in oil and gas sector. Another recommendation lies in ensuring that integration of local companies by use of PPPs is followed up keenly. This has the ability to facilitate knowledge, skills and experience transfer to community-based service providers. This can be done byensuring that local companies and owners are recalled to screen through and determinewhether they are indeed Ugandans legally and in practice. Further still the screening must aim at ensuring that the Ugandan shareholders are active, to exclude the Mr. Fixit from sector. This will help in making the integration more serious rather than havingsame companies integrating in a proxy.

### 6.3.3 Macro-level barriers facing the implementation of national participation in oil and gas sector in Uganda

Lastly, there is a need to create a favourable business regulatory environment by the GoU. This can be realized by following toe-to-toe the issue of corruption tendencies which are sensed or heard within other sectors in the country. Contract awarding should

only have limited barriers such structural limitations or bureaucracies rather than corruption. Furthermore, taxes imposed on local companies needs to be levelled below those charged from foreign firms. This protectionism will emancipate several local firms to gain muscles to compete. Furthermore, the political will of our leaders right from the ministerial level to the bottom (local councils) needs to be checked and continually checked. This can be done by observing their commitment towards supporting the oil and gas projects in the country. Thirdly, leaders in different spheres also need some sensitization and awareness programme to understand the issues related on oil and gas. This will enable these leaders to spread rightful information to those they lead.

### 6.4 Limitations of the study

The study was successful, though some limitations were encountered.

**i)** Some potential respondents who were considered to hold key policy information could not be reached for interview despite several reschedules. Time was lost as the researcher offered explanations that the study was purely for academic purposes.

**ii)** Some respondents failed to return the questionnaires issued to them, which was a limitation on the researcher's progress as timelines, had to be revised and in some cases extra costs were incurred in transportation, airtime, and stationery.

**iii)** The issue of coronavirus remains a key limitation in accessing some respondents. This was mitigated to a high extent by ensuring that SOPs are adhered to while engaging respondents.

### 6.5 Areas for Further Research

- The study was limited to barriers and implementation of national participation in oil and gas sector in Albertine Graben Region. A further study is required to take into consideration other factors that may be affecting implementation of national participation in oil and gas sector because it may not be limited to only covered micro-level barriers, meso-level barriers, and macro-level barriers.
- This study was limited to Albertine Graben Region when in fact oil and gas sector covers several stakeholders in Uganda. This makes the study limited to Albertine Graben Region and may not give a comprehensive overview of oil and gas sector in Uganda. A study covering other areas say Karamoja will give a wider context.

## 5.8 Chapter Conclusion

It has been learnt that lack of adequate technical and financial resources, incompetence of nationals and supply side constraints hinder the implementation of the national participation in oil and gas sector in Albertine Graben Region. Secondly, it has also been learnt that company capacity, integration of local and foreign companies/PPP and weak value chain & addition as well as physical infrastructure are among the primary meso level barriers facing the implementation of national participation in oil and gas sector in Albertine Graben Region. Lastly, it has been learnt that monetary and fiscal policies, business and regulatory environment, technological barriers and political will are among the primary macro level barriers facing the implementation of national participation in oil and gas sector in Albertine Graben Region.

# References


Ablo, A. D. (2017, March 15). The micro-mechanisms of power in local content requirements and their constraints on Ghanaian SMEs in the oil and gas sector. *Norsk Geografisk Tidsskrift - Norwegian Journal of Geography, 71*(4), 1-12. doi:10.1080/00291951.2017.1299213

Acheampong, T., Ashong, M., & Svanikier, ,. V. (2016). An assessment of local-content policies in oil and gas producing countries. *The Journal of World Energy Law & Business, 9*(4), 282-302. doi:https://doi.org/10.1093/jwelb/jww019

Afriyanti, D., Kroeze, C., & Saad, A. (2016). Indonesia palm oil production without deforestation and peat conversion by 2050. *Science of the Total Environment*, 562-570. doi:10.1016/j.scitotenv.2016.03.032

Ahmad, W. N., Rezaei, J., Sadaghiani, S., & Tavasszy, L. A. (2017). Evaluation of the external forces affecting the sustainability of oil and gas supply chain using Best Worst Method. *Journal of Cleaner Production, 153*, 242-252. doi:10.1016/j.jclepro.2017.03.166

Akhtar, M., & Sushil, S. (2018, May). Strategic performance management system in uncertain business environment: An empirical study of the Indian oil industry. *Business Process Management Journal, 24*(4), 923-942. doi:10.1108/BPMJ-05-2017-0102

Asasira, A. (2020). *The Impact of Oil and Gas Exploration on National Security in Uganda.* Retrieved from apps.dtic.mil: https://apps.dtic.mil/sti/pdfs/AD1124441.pdf

Asiago, B. C. (2017). Rules of Engagement: A Review of Regulatory Instruments Designed to Promote and Secure Local Content Requirements in the Oil and Gas Sector. *Resources*, 1-19. doi:10.3390/resources6030046

Auditor General Report. (2021). *Assessment of the performance of Oil and Gas sector in Uganda.* Kampala. Retrieved June 2, 2022

Ayanoore, I. (2020). The politics of local content implementation in Ghana's oil and gas sector. *The Extractive Industries and Society, 7*(2), 283-291. Retrieved March 15, 2022, from https://doi.org/10.1016/j.exis.2019.11.004

Barney, J. (1991, March 1). Firm Resources and Sustained Competitive Advantage. *Resource Based View of Firm, 17*(1), 99-120. doi:https://doi.org/10.1177/014920639101700108

Bategeka, L., Kiiza, J., & Ssewanyana, S. (2008). Oil Discovery in Uganda: Managing Expectations. *Economic Policy Research Centre and Makerere University*, 1-29. Retrieved February 27, 2022, from www.mak.ac.ug: https://www.mak.ac.ug/documents/EPRCUDICPaper.pdf

Byakagaba, P., Mugagga, F., & Nnakayima, D. (2019, April). The socio-economic and environmental implications of oil and gas exploration: Perspectives at the micro-level in the Albertine region of Uganda. *The Extractive Industries abd Society, 6*(2), 358-366. doi:https://doi.org/10.1016/j.exis.2019.01.006

Byaruhanga, J., & Langer, A. (2020). On the right track? An analysis of the implementation of oil and gas sector local content policies in Uganda. *The Extractive Industries and Society, 7*(2), 302-309. doi:https://doi.org/10.1016/j.exis.2019.07.006

Cox, J. W., & Hassard, J. (2010, March 31). Discursive Recontextualization in a Public Health Setting. *Research Article, 46*(1), 119-145. Retrieved March 16, 2022, from https://doi.org/10.1177/0021886309357443

Creswell, J. W. (2009, April). Mapping the Field of Mixed Methods Research. *Journal of Mixed Method Reasearch, 3*(2), 95-108. doi:10.1177/1558689808330883

Creswell, J. W. (2015). *A Concise Introduction to Mixed Methods Research.* London: Sage Publications. Inc. Retrieved March 16, 2022, from https://books.google.co.ug/books?hl=en&lr=&id=51UXBAAAQBAJ&oi=fnd&pg=PR1&dq=Creswell,+2014.+pdf&ots=6aGvJ5UtPw&sig=lvQXogJ2XoM41eZXGS_u7zyONxs&redir_esc=y#v=onepage&q&f=false

Djeflat,, A., & Lundvail, B.-A. (2016, January). The resource curse and the limited transformative capacity of natural resource-based economies in Africa: evidence from the oil and gas sector in Algeria and implications for innovation policy. *Innovation and Dvelopment*, 1-19. doi:10.1080/2157930X.2015.1121564

Fontaine, G., Sánchez, E., Córdova, M., & Velasco, S. (2016, January 1). The politics of accountability: Indigenous participation in Colombian and Ecuadorian oil and gas policies. *Colombia Internacional*(86), 17-50. Retrieved March 15, 2022, from https://doi.org/10.7440/colombiaint86.2016.01

Gokhberg, L., & Roud, V. (2015, June). Structural changes in the national innovation system: longitudinal study of innovation modes in the Russian industry. *Economic Change and Restructuring*, 1-23. doi:10.1007/s10644-015-9164-8

Kayizzi-Mugerwa, S. (2020, January). *Uganda's nascent oil sector: Revenue generation, investor-stakeholder alignment, and public policy.* doi:10.35188/UNU-WIDER/2020/932-7

Kolstad, I., & Kinyondo, A. A. (2016). Alternatives to local content requirements in resource-rich countries. *Oxford Development Studies*, 1-15. doi:10.1080/13600818.2016.1262836

Kothari, C. R. (2004). *Research Methodology-Methods and Techniques.* New Delhi: New Age International (P) Ltd., Publishers.

Magelah, P. G. (2014). *Local content in oil and gas sector - An assessment of Uganda's legal and policy regimes.* Kampala: ACODE. doi:978 9970 34 031 6

Ministry of Energy and Mineral Development. (2008, February). *Policy Documents for Oil and Gas Sector.* Retrieved February 25, 2022, from Petroleum Authority of Uganda Web site: https://www.pau.go.ug/policies/

Ministry of Energy and Mineral Development. (2016, June 24). *Petroleum Regulations.* Retrieved February 25, 2022, from Petroleum Authority of Uganda Web site: https://www.pau.go.ug/regulations/

Ministry of Energy and Mineral Development. (2021). *National Content Policy for Petroleum Subsector in Uganda.* Kampala. Retrieved June 3, 2022, from MEMD Web site: https://energyandminerals.go.ug/

Mirimoghadam, M., & Ghazinoory, S. (2017). An institutional analysis of technological learning in Iran's oil and gas industry: Case study of south Pars gas field development. *Technological Forecasting and Social Change, 122*, 262-274. doi:10.1016/j.techfore.2015.12.004

Murray, A., Skene, K., & Haynes, K. (2017). The circular economy: An interdisciplinary exploration of the concept and application in a global context. *Journal of business ethics*, 369-380. doi:10.1007/s10551-015-2693-2

Nwapi, C. (2016). A survey of the literature on local content policies in the oil and gas industry in East Africa. *SPP Technical Paper, 9*(16), 1-30.

Office of the Auditor General. (2015). *Assessment of the performance of Oil and Gas sector in Uganda.* Kampala: OAG. Retrieved June 4, 2022

Office of the Auditor General. (2021). *Assessment of the performance of Oil and Gas setor in Uganda.* Kampala: OAG.

Office of the Auditor General. (2021). *Value for Money Audit Report*. Retrieved from OAG website: http://www.oag.go.ug/vfm-individual-audit-reports/

Olanya, D. R. (2014, November). Will Uganda succumb to the resource curse? Critical reflections. *The Extractive Industries and Society*, 46-55. doi:10.1016/j.exis.2014.09.002

Oso, W. Y., & Onen, D. (2008). *Writing Research Proposal and Report: A Handbook for Beginning Researchers.* Nairobi : Jomo Kenyatta Foundation.

Ovadia, J. S. (2016). Local content policies and petro-development in Sub-Saharan Africa: A comparative analysis. *Resources Policy*, 20-30. doi:10.1016/j.resourpol.2016.04.003

Owusu, R. A., & Vaaland, T. I. (2016). A business network perspective on local content in emerging African petroleum nations. *International Journal of Energy Sector Management*, 594-616. doi:10.1108/IJESM-06-2014-0006

Papamichail, G., Rosiello, A., & Wield, D. (2018, October 26). Capacity-building barriers to S3 implementation: An empirical framework for catch-up regions. *The European Journal of Social Science Research, 1*(32), 1-19. doi:10.1080/13511610.2018.1537844

Pegram, J., Falcone, G., & Kolios, A. (2018, October 16). A review of job role localization in the oil and gas industry. *Extractive industries*, 1-18. doi:10.3390/en11102779

Petroleum Authority of Uganda. (2016, June 24). *Upstream National Content Regulations.* Retrieved June 3, 2022, from PAU web site: https://www.pau.go.ug/uploads/Upstream_National_Content_2016.pdf

Petroleum Authority of Uganda. (2019). *National Content Annual Report.* Technical Support Services. Kampala: Petroleum Authority of Uganda. Retrieved February 25, 2022

Petroleum Authority of Uganda. (2022). *Histrory of Petroleum Exploration in Uganda.* Retrieved February 26, 2022, from Petroleum Authority of Uganda Web site: https://www.pau.go.ug/history/

Pidgeon, N., Thomas, M., Partridge, T., Evensen, D., & Harthorn, B. H. (2017). Hydraulic fracturing, A risk for environment, energy security, and affordability? In R. E. Kasperson, *Risk Conundrums - Solving unsolved problems* (pp. 177-188). London: Routledge Taylor & Francis Group. doi:https://doi.org/10.4324/9781315665894

Rwengabo, S. (2017, March). Efficiency, sustainability and exit strategy in the oil and gas sector: lessons from Ecuador for Uganda. *ACODE Policy Research Paper Series No.81*, 1-57. Retrieved March 6, 2022, from https://www.researchgate.net/publication/319480839_Efficiency_Sustainability_and_Exit_Strategy_in_the_Oil_and_Gas_Sector_Lessons_from_Ecuador_for_Uganda/link/59ae41ffaca272f8a16556d8/download

Sekaran, U. (2003). *Research methods for business: A skill building approach* (4th ed.). New York, Southern Illinois University at Carbondale: John Wiley & Sons, Inc. Retrieved March 17, 2022

Strategic Friends International. (2021, August 11). *PAU assesses sector readiness for petroleum development phase.* Retrieved February 27, 2022, from sfi.co.ug: https://sfi.co.ug/pau-assesses-sector-readiness-for-petroleum-development-phase/

Sufian, A. J. (2015). Methods and Techniques of Social Research. *International Journal of Business and Statistical Analysis, 2*(2), 85-90. doi:http://dx.doi.org/10.12785/IJBSA/020204

The Petroleum Authority of Uganda. (2021). *The National Content Report.* Kampala: PAU. Retrieved June 15, 2022

The Uganda Gazette. (2013, April 4). *Petroleum (Exploration, Development, and Production) Act.* Retrieved June 3, 2022, from PAU Web site: https://www.pau.go.ug/uploads/Petroleum_EDP_Act_2013.pdf

Tom, A. R. (2020, October 13). *A Critical Intertemporal Analysis of Uganda's Fiscal Regime in the Energy Transition Era: Are Uganda's Upstream Projects Still Viable?* doi:10.1007/978-3-030-56849-8_13

Türkes, M. C., Oncioiu, I., Aslam, H. D., Marin-Pantelescu, A., Topor, D. I., & Capus,neanu, S. (2019). Drivers and barriers in using industry 4.0: a perspective of SMEs in Romania. *Processes, 7*(3), 1-20. doi:10.3390/pr7030153

Wibowo, A., & Alfen, H. W. (2015). Government-led critical success factors in PPP infrastructure development. *Built Environment Project and Asset Management*, 121-134. doi:10.1108/BEPAM-03-2014-0016

## APPENDICES

## APPENDIX I:

## QUESTIONNAIRE FOR HOIMA RESIDENTS AND EMPLOYEES

**Introduction**

*Dear respondent,*

You have been selected to participate in a study that seeks to assess the barriers facing with implementation of national participation in oil and gas sector in Uganda while using a case of Albertine Graben Region. The study is being undertaken as a partial fulfillment of the requirements of The Degree of Masters of Business Administration (Oil and Gas). The purpose of the research is purely academic and all information will be treated as confidential.

**SECTION A: Background Characteristics**

Choose and tick the most appropriate description of your bio data from the objectives below

1. Your gender a) Male b) Female

2. What is your age group?

a) Below 30 b) 30-39, c) 40-49, d) 50-59, e) 60 and above

3. What is your highest level of education?

a) None b) Primary c) Secondary d) Certificate e) Diploma f) Degree g)others (specify) ---------

**SECTION B: BARRIERS**

In this section please tick in the box that corresponds to your opinion/view according to a scale of 1 = Strongly Disagree, 2 = Disagree, 3 = Not Sure, 4 = Agree, 5 = Strongly Agree

**i. Micro-level barriers**

| No | Statement | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|
| 1 | Individuals and local companies have the required financial resources to undertake oil and gas related activities | | | | | |
| 2 | Individuals and local companies have the required technical resources to undertake oil and gas related activities | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 3 | The nationals and local companies posses the required knowldge to undertake oil and gas exploration activities | | | | | |
| 4. | The nationals and local companies posses appropriate skills to undertake oil and gas exploration activities | | | | | |
| 5 | The nationals and local companies possesed the required ability to undertake oil and gas exploration activities | | | | | |
| 6 | Local companies have the required manpower or human resource to perform oil and gas activities to expectations | | | | | |
| 7 | Nationals and Local companies have the required experience to perform oil and gas activities to expectations | | | | | |

**ii. Meso-Level Barriers**

| No. | Statement | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|
| 1 | The technical capacity of local companies and individuals is low in relation to kind of work available | | | | | |
| 2 | The mechanical capacity of local companies and individuals is low in relation to kind of work available | | | | | |
| 3 | There is limited integration of local and foreign companies to undertake oil and gas exploration activities | | | | | |
| 4 | There is less observation of Private public partnership in undertaking oil and gas exploration activities | | | | | |
| 5 | Local companies have a reliable value chain | | | | | |
| 6 | Local companies demonstrates ability of value addition | | | | | |
| 7 | The physical infrastructure of undertaking oil and gas activities is available for local companies and individuals | | | | | |

**iii. Macro-Level Barriers**

| No | Statement | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|
| 1 | The institutional support network is poor to facilitate the integration of local companies in oil and gas exploration activities | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 2 | Local companies are hindered by lack of access to credit favorably participate in oil and gas exploration activities | | | | | |
| 3 | Local companies are hindered by high interest rates associated with loans required | | | | | |
| 4. | Corruption remains a huge roadblock for local companies and individuals to participate in oil and gas exploration activities | | | | | |
| 5 | Weak rules and regulations affect local companies to favorably compete for oil and gas exploration activities | | | | | |
| 6 | Less observation of laws and regulation also hinders local companies and individuals to participate in oil and gas exploration activities | | | | | |
| 7 | The technological capacity requried hinders local companies and individuals to participate in oil and gas exploration activities | | | | | |
| 8 | Low innovation capabilities among local companies and individuals hinders them to participate in oil and gas exploration activities | | | | | |
| 9 | The political will among leaders to implement the local content policy is lacking | | | | | |

## SECTION F: NATIONAL PARTICIPATION IN OIL AND GAS SECTOR

In this section please tick in the box that corresponds to your opinion/view according to a scale of 1 = Strongly Disagree, 2 = Disagree, 3 = Not Sure, 4 = Agree, 5 = Strongly Agree

| No | Statement | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|
| 1 | Oil companies procures most of their food and other local merchandise from host communities | | | | | |
| 2 | Local Goods and services are highly utilized by oil companies | | | | | |
| 3 | The skill gap between national and international employees is minimal | | | | | |

**THANK YOU FOR YOUR PARTICIPATION!**

## APPENDIX II:

## INTERVIEW SCHEDULE FOR MEMD AND OIL COMPANY OFFICIALS

### 1. Micro level barriers and national participation in oil and gas sector

a) Identify some of the individual related factors (micro-level barriers) which may be affecting the participation of nationals in the process of exploitation of oil and gas in Albertine Graben Region in Uganda

b) Identify some of the individual related factors (micro-level barriers) which may be affecting the participation of local companies in the process of exploitation of oil and gas in Albertine Graben Region in Uganda

c) How has individual related factors affected participation of nationals in exploration activities of oil and gas in Uganda

d) How has individual related factors affected participation of local companies in exploration activities of oil and gas in Uganda

### 2. Meso level barriers and national participation in oil and gas sector

e) Identify some of the community related factors (meso-level barriers) which may be affecting the participation of nationals in the process of exploitation of oil and gas in Albertine Graben Region in Uganda

f) Identify some of the community related factors (meso-level barriers) which may be affecting the participation of local companies in the process of exploitation of oil and gas in Albertine Graben Region in Uganda

g) How has community related factors (meso-level barriers) affected participation of nationals in exploration activities of oil and gas in Uganda

h) How has community related factors (meso-level barriers) affected participation of local companies in exploration activities of oil and gas in Uganda

### 3. Macro level barriers and national participation in oil and gas sector

i) Identify some of the societal related factors (macro-level barriers) which may be affecting the participation of nationals in the process of exploitation of oil and gas in Albertine Graben Region in Uganda

j) Identify some of the societal related factors (macro-level barriers) which may be affecting the participation of local companies in the process of exploitation of oil and gas in Albertine Graben Region in Uganda

k) How has societal related factors (macro-level barriers) affected participation of nationals in exploration activities of oil and gas in Uganda

l) How has societal related factors (macro-level barriers) affected participation of local companies in exploration activities of oil and gas in Uganda

**THANK YOU SO MUCH**

## APPENDIX III: DOCUMENTARY REVIEW CHECKLIST

| Document | Variable being investigated |
|---|---|
| Auditor General Report. Assessment of the performance of Oil and Gas sector in Uganda. 2021<br>Oil and gas Company Annual Reports | The number of nationals working in oil and gas sector |
| Auditor General Report. Assessment of the performance of Oil and Gas sector in Uganda. 2021<br>Oil and gas Company Annual Reports | The number of employees from host communities |
| Ministry of Energy and Mineral Development (MEMD). Annual Sector Performance Report. 2021.<br>Oil and gas Company Annual Reports | Sub contracts provided to local SMEs |
| Oil and gas Company Annual Reports | The skill gap between national and international employees |
| Ministry of Energy and Mineral Development (MEMD). Annual Sector Performance Report. 2021.<br>PAU Annual National Content Reports | Training/capacity building among Ugandan employees by oil companies |
| CSO reports | Micro, meso and macro barriers<br>National Participation in oil and gas exploration activities |
| PAU Annual National Content Reports<br>Oil company annual reports | National Participation in oil and gas exploration activities<br>Training statistics done<br>Job employment statistics<br>Procurement from host communities done<br>Utilization of local goods and services |
| PAU & MEMD Annual Reports | Local content policies implemented<br>National Participation in oil and gas exploration activities |

## APPENDIX IV:

### TABLE FOR DETERMINING SAMPLE SIZE FROM A GIVEN POPULATION

| N | S | N | S | N | S |
|---|---|---|---|---|---|
| 10 | 10 | 220 | 140 | 1200 | 291 |
| 15 | 14 | 230 | 144 | 1300 | 297 |
| 20 | 19 | 240 | 148 | 1400 | 302 |
| 25 | 24 | 250 | 152 | 1500 | 306 |
| 30 | 28 | 260 | 155 | 1600 | 310 |
| 35 | 32 | 270 | 159 | 1700 | 313 |
| 40 | 36 | 280 | 162 | 1800 | 317 |
| 45 | 40 | 290 | 165 | 1900 | 320 |
| 50 | 44 | 300 | 169 | 2000 | 322 |
| 55 | 48 | 320 | 175 | 2200 | 327 |
| 60 | 52 | 340 | 181 | 2400 | 331 |
| 65 | 56 | 360 | 186 | 2600 | 335 |
| 70 | 59 | 380 | 191 | 2800 | 338 |
| 75 | 63 | 400 | 196 | 3000 | 341 |
| 80 | 66 | 420 | 201 | 3500 | 346 |
| 85 | 70 | 440 | 205 | 4000 | 351 |
| 90 | 73 | 460 | 210 | 4500 | 354 |
| 95 | 76 | 480 | 214 | 5000 | 357 |
| 100 | 80 | 500 | 217 | 6000 | 361 |
| 110 | 86 | 550 | 226 | 7000 | 364 |
| 120 | 92 | 600 | 234 | 8000 | 367 |
| 130 | 97 | 650 | 242 | 9000 | 368 |
| 140 | 103 | 700 | 248 | 10000 | 370 |
| 150 | 108 | 750 | 254 | 15000 | 375 |
| 160 | 113 | 800 | 260 | 20000 | 377 |
| 170 | 118 | 850 | 265 | 30000 | 379 |
| 180 | 123 | 900 | 269 | 40000 | 380 |
| 190 | 127 | 950 | 274 | 50000 | 381 |
| 200 | 132 | 1000 | 278 | 75000 | 382 |

| N | S | N | S | N | S |
|---|---|---|---|---|---|
| 210 | 136 | 1100 | 285 | 1000000 | 3273 |

Source: Krejcie & Morgan (1970, as cited by Amin, 2005)

Note.—*N* is population size.

*S* is sample size.