AN INVESTIGATION OF THE EFFECTS OF THE CORONAVIRUS PANDEMIC IN THE OIL AND GAS SECTOR: A CASE STUDY OF THE ALBERTINE REGION.

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A DISSERTATION SUBMITTED TO THE FACULTY OF BUSINESS AND ADMINISTRATION IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF BACHELOR OF SCIENCE IN OIL AND GAS MANAGEMENT INSITITUTE OF PETROLEUM STUDIES KAMPALA IN AFFILIATION TO UCU.

AUGUST 2022

DECLARATION

I NAHEBWA LINCOLIN**,** declare that this is my research dissertation and has not been presented in any Institution of higher learning for any academic award.

SIGNATURE…….…… DATE……..…

NAHEBWA LINCOLIN

Reg No: S19B44/047

APPROVAL

This is to certify that this research dissertation titled **An investigation of the effects of Corona virus pandemic on the oil and gas sector: A Case Study of the Albertine Region** has been conducted under my supervision and is now ready for submission.

SIGNATURE…… DATE……

Ms. Kasiko. I. Isabella

(Academic Supervisor)

DEDICATION

I dedicate this work to my dear parents Mr. Biziirah Benon & Mrs. Arinanye Judith. I am very grateful for their infinite love and tireless emotional and financial support they have provided me. I will always love and treasure you and may the Sovereign Lord shower you with divine blessings.

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Special thanks go to my friends, class members and siblings whose patience has always been tested during my academic years. Your love, support and understanding are a vital part of every challenge in my life.

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LIST OF ACRONYMS

COVID-19	Coronavirus Disease
MEMD	Ministry of Energy and Mineral Development
IEA	International Energy Agency
MoH	Ministry of Health
UNICEF	United Nation International Children's Emergency Fund
PAU	Petroleum Authority Uganda
SARS	Severe Acute Respiratory Syndrome
UBOS	Uganda Bureau of Statistics
UNECA	UN Economic Commission for Africa GDP
WHO	World Health Organization

ABSTRACT

The purpose of this study was to examine the effects of Coronavirus pandemic on the oil and gas sector in the Albertine Graben. The study was guided by three objectives to examine the impact of Coronavirus disease on oil and gas activities and its stakeholders; to examine the effects of Coronavirus on the communities in the Albertine region and to determine the various measures taken to combat against Coronavirus effects in the Albertine Graben.

Chapter two of the research dissertation consists of the literature review clearly explaining key terms of the research study. In reference to the methodology that was used, the research was conducted using both quantitative and qualitative approaches. The study applied a cross-sectional survey design where both open closed ended questionnaires were utilized to collect data and analyzed using spss in form of tables and graphs where conclusions were drawn from.

Chapter for consists of the presentation, analysis and interpretation of data that is presented in tables and graphs based on primary data collected by the researcher in the field. According to chapter five of the research study, conclusions of the study revealed that Coronavirus pandemic had far reached effects, short term and long term on the social and economic aspects in the oil and gas sector in the Albertine Graben that led to far-reaching consequences above all being the double blow of structural decline in oil prices. There was a fall in household incomes when firms closed and jobs were lost due to the harsh Coronavirus measures set, delays in oil and gas projects and the inability for managers to carryout monitoring and supervision of some work which affected the process of work. It was also revealed the various measures taken to combat the Coronavirus pandemic measures that included banning public gatherings, observing social distancing, banning travel and public transport, banning of international travels, suspension of public transport and closure of Schools.

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CHAPTER ONE

1.0 Introduction

1.1 Background of the Study

1.1.1 Historical background

The history of the viral pandemic stretches far way back to the earliest known examples of infectious disease that are believed to have originated from Ethiopia, Egypt, and Libya (Byrne, 2008). Byrne, (2008) states that in 430 to 426 B.C, the Coronavirus pandemics reached the Mediterranean region and in the city of Athens during the Peloponnesian War. Soldiers, families and lives of people during the war where roughly subjected to massive deaths that was never known in history before and consequently, one-quarter of the population who lived in the city of Athens died massively (National Centre for Immunization and Respiratory diseases (NCIRD),2018). With time, outbreaks of the Coronavirus disease spread across large geographic regions and ultimately affected large numbers of people worldwide later being termed as pandemics. Mortality was high in people younger than the age of five and those who were 60 years and older. The term pandemic is also said to have originated following the Black Death in (1346-1353) wiping out 30 to 50 percent of Europe's population like wildfire causing population devastations in world with a death toll estimated at 56 million (Centers of disease control and prevention CDC, 2018). However, since then, scientists warned for decades that such sarbecoviruses could emerge again and again, identified risk factors, argued for enhanced pandemic prevention and control efforts. Unfortunately, few of such preventive actions were taken resulting in the latest coronavirus emergence detected in late 2019 which quickly spread pandemically (WHO, 2020). According to Vilcek, (2020) a novel disease of unknown origin, causing a deadly pneumonia of human patients was reported in December 2019 in Wuhan, Hubei province of China later called Coronavirus disease (it rapidly spread across China and worldwide. According to the WHO, (2021), intensive research was done and results revealed that the etiological agent of the global Coronavirus pandemic was a novel coronavirus named severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). According to Aceng, (2020) Uganda’s history of covid-19 originated from Uganda's first confirmed case of Coronavirus which landed on a plane from Dubai on March 21, 2020. More than 100 people were aboard the same flight, and the nation acted swiftly towards curbing the spread of the corona virus through issuing of the standard operative procedures (MoH, 2020). Health surveillance teams and temperature scanners were put

on duty at all border posts, land and air on top of building capacity for sample testing of different viral diseases at the Uganda Virus Research Institute laboratory but the Coronavirus spread steady affecting many Ugandan citizens to date (Musenero, 2020).

1.1.2 COVID-19 PANDEMIC

The first official cases of Coronavirus were recorded on the 31st of December, 2019, when the World Health Organization (WHO) was informed of cases of pneumonia in Wuhan, China with no known cause. On the 7th of January, the Chinese authorities identified a novel corona virus temporally named 2019-nCoV, as the cause of these cases. Weeks later, the world health Organization (WHO) declared the rapidly spreading Coronavirus outbreak as a Public Health Emergency of International Concern on the 30th of January 2020. It wasn't until the following month, however, on the 11th of February that the novel Coronavirus got its official name. In Africa in particular, the Corona virus pandemic spread due to the massive movements of affected people into African contents with their respective importations of goods from affected countries most especially China (WHO, 2019) thus south Africa was the first African country to report the first case in Africa. However, in Uganda, the first case of Coronavirus was reported at Entebbe International Airport on March 22, 2020, eleven (11) days after the World Health Organization declared Coronavirus a global pandemic and consequently the minister of health Dr. Ruth Aceng issued measures restricting entry of people into the country on March 13th, 2020. (Public Health (Prevention of covid-19) (Requirements and conditions of entry in Uganda), 2020). These restrictions were passed out by the president of the republic of Uganda that mandated a medical officer to examine for Coronavirus for any person arriving in Uganda and if one was confirmed with the virus, the victim would to be placed under isolation. Strict measures where eventually passed out with requirement of observing the standard operative procedures for example wearing masks, washing hands with soap and social distancing (MoH, 2020).

1.1.3 ALBERTINE GRABEN

The Albertine Graben is the region that encompasses the Great Lakes of east Africa, stretching from the northern tip of Lake Albert to the southern tip of Lake Tanganyika in Tanzania. The Albertine Graben lays in the Great Rift Valley forming part of the western Great Rift Valley and

stretches over a distance of 1,000 km. It is a region where Uganda discovered commercially viable oil deposits far back in 2006 (Petroleum Authority Uganda, 2018). According to the Albertine Rift conservation society, the Albertine Graben is one of the most biodiversity regions of the African continent consisting of a variety of flora and fauna species (ARCOS, 2016). The Albertine Graben is characterized by mountains and escarpments, and their associated valleys and flanks. The Albertine region constitutes of the great Rift which harbors approximately 70% of Uganda's major protected areas including seven out of ten National parks, eight out of 15 forests, 12 wildlife reserves, 13 wildlife sanctuaries, and five wildlife community areas (Uganda Environmental Sensitivity Atlas, 2017). According to the Uganda wildlife Authority, the ecosystems that provide water, food, and climate stability are increasingly coming under heavy pressure in and within the Albertine region of Uganda. There is an unprecedented environmental crisis as a result of the emerging oil exploration and exploitation activities including refinery and pipeline developments (UWA, 2019). The Albertine Graben Region is therefore expected to become the hope of the nation and is expected to prominently feature in Uganda's development in the coming decades following the oil discovery in the region. These discoveries were mainly in Mputa Albertine region and other reserves within Nyowa, Buliisa and Hoima Districts (MEMD, 2018). An amount of 6.5 barrels of oil was confirmed in the Albertine region and out of these,1.4 billion barrels of crude oil has been confirmed recoverable and at the end of the exploration exercise, Uganda is expected to have an estimate of about 3.5billion barrels of recoverable crude oil (MEMD, 2016).

The Uganda National Oil Company (UNOC) is the statutory body mandated to manage the country's commercial interests in the oil sector (UNOC, 2017). Smith, (2022) indicates the different Initiatives which have been undertaken and signed concerning activities to take place at the Albertine region for example the signing of the final investment decision by Total Energies E&P, China National Offshore Oil Company (CNOOC), Uganda National Oil Company (UNOC), and Tanzania Petroleum Development Company (TPDC) (Total, 2020). Projects like the Tilenga and kingfisher projects are taking place managed by Total Energies, and CNOOC, and expected to start production in 2025 reaching an estimated cumulative plateau production of 230,000 b/d (Total Energies, 2021). Total Energies holds (56.67%), CNOOC (28.33%), and UNOC (15%) shares. Production from the oil fields in Uganda will be transported to the port of Tanga in Tanzania, through EACOP with an export share of Total Energies, 62%; UNOC, 15%; TPDC,

15%; and CNOOC, 8%) respectively (EACOP, 2019). However, these efforts have been frustrated by Coronavirus disease outbreak consequently affecting activities aimed at maximum production in Albertine Graben.

1.1.5 EFFECTS OF CORONAVIRUS

According to Anderson & Rebecca, (2020) the double blow of Coronavirus and its associated oil price shock hit oil-exporting developing countries particularly hard at a time when the fossil fuel industry is facing a process of structural decline many of which are resource dependent and were already grappling with high levels of debt and multifaceted economic and social fragility before the present crisis. Some countries found themselves entering a spiral of unsustainable borrowing on the back of the current turmoil, as oil-exporting developing countries experienced an increased reliance on short-term and expensive non-concessional private borrowing in recent years, a significant proportion of which is backed by oil collateral (IEA, 2019). In Uganda, Coronavirus has led to a drastic and sudden loss of demand and revenue for companies in the oil and gas sector, severely affecting funding of oil and gas projects that include the construction of Hoima international airport (MEMD, 2020).

1.2 Problem statement

According to (Bategeka. & Biklen, 2013), Uganda is on the verge of becoming an OPEC powerhouse. However, following the declaration of the Coronavirus outbreak by WHO on Jan,30th 2021(WHO, 2021), Uganda confirmed its first case on 21st march 2020 of a 36-year-old Ugandan, a resident of Kakungulu Zone, Kibuli in Kampala, who returned home from aboard by Ethiopian Airlines. On his return, he presented symptoms of high fever and poor appetite prompting the authorities to isolate him for further tests, which later proved positive (MoH, 2021). He was later isolated at Entebbe Grade B Hospital where manifestation of all his contacts was done (MoH, 2021). The declaration came just moments after President Yoweri Museveni announced that Entebbe International Airport and all Ugandan Borders to be closed stopping passengers from coming into Uganda from any part of the world. According to Ruth Aceng, (2021) the novel coronavirus hit Uganda gradually raising infections across the country and consequently Uganda registered its first death of a 34-year-old woman who died in the Mbale District, eastern Uganda (MOH, 2020).

According to Elizabeth, (2020) the oil and gas industry was one which took the biggest hit in the oil and gas sector in the world. The effects of the Coronavirus pandemic impacted biggest and more significant on the downstream oil markets with price crashes of crude oil within a short time that sharply fell on 1 January 2020, to US$30/bb from US$67/bb which was the initial price. The effects of the Coronavirus onto the oil and gas sector resultantly impacted other sectors globally most especially the transport sector with the air transport sector being most vulnerable. According to the International Energy Agency (IEA), (2020), due to the Coronavirus outbreak, the governments across the globe stopped international travelling, which resulted in less consumption of kerosene oil. This greatly impacted heavy loses onto the oil and gas sector on a large scale since the aviation sector is the second major consumer of oil with nearly 11.0% share in total oil demand in the transportation sector (IEA, 2019). According to the Organization of the Petroleum Exporting Countries, the aviation sector consumed 6 million barrels per day (OPEC, 2016). According to IEA, the global demand for oil stands at 99.9 million barrels per day, which declined nearly 90,000 barrels per day from 2019 (IEA, 2019).

However, exploration activities of drilling and land acquisition in the Albertine region evidenced by Tilenga and Kingfisher projects spare headed by Total E&P having 33.3% and CNOOC 15% shares (TOTAL, 2020) were as well affected by Coronavirus. Construction works and infrastructural developments where not speared as well. According to the Public Procurement and Disposal of Public Assets, all procurements and opening of bids which fell within the lockdown period were suspended indefinitely (PPDA, 2020).The completion of the Kibaale international airport which had progressed to an estimate of 56.6% with 3.5kilometers runway nearly complete also came to a stand hold (PAU, 2021)These activities are expected to bring an estimate of $2-3billion and create at least 10,000 jobs on peak production (MEMD, 2019).However, the containment adopted to curb the spread of the virus forexample strict social distancing, curfews and restrictions on movement affected these activities in the Albertine region(MEMD, 2021). Therefore, this study is to investigate the effects of Coronavirus in the Albertine region.

1.3 Objectives of Study.

a. To examine the impact of Coronavirus disease on oil and gas activities and its stakeholders.

b. To examine the effects of Coronavirus on the communities in the Albertine region.

c. To determine the various measures taken to combat against Coronavirus effects in the Albertine Graben.

1.4 Research Questions

a. What is the impact of Coronavirus disease on oil and gas activities?

b. What are the effects of the Coronavirus pandemic on communities in the Albertine Graben?

c. What are the various measures taken to combat the Coronavirus effects in the Albertine Graben?

1.5 Purpose of the Study

The choice of the research problem originated from my calculative observation of effects of Coronavirus onto the tireless efforts by the Government of Uganda towards venturing into full-scale production of oil in the Albertine Graben by 2020. However, all these have been affected by Coronavirus pandemic.

1.6 Scope of the study

This study shall concentrate on examining the effects of Coronavirus on the Albertine Graben.

1.6.1 Time scope

The study reviews the effects of Coronavirus in the Albertine Graben from July, 2020 to date. This period has been considered in ensuring that objectives are met since the period of time will be adequate for the researcher to acquire the needed information.

1.7 Justification of the Study

Oil and gas activities in the Albertine Graben have experienced a dramatic decline in performance following the Coronavirus disease which has led to a drastic and sudden loss of demand and revenue for companies in the oil and gas sector, severely causing liquidity shortages above all frustrating the government efforts towards oil exploration and production. The impact of the Coronavirus is further anticipated to have potential spill-overs into financial markets, with further reduced confidence and a reduction of credit Therefore the rapid spread of corona virus and the implementation of the Coronavirus restrictions in line with observing the standard operative procedures can be linked directly to the poor performances in the Albertine Graben thereby the need to address these effects.

1.8 Significance of the Study

The study shall help the student fulfill the requirements necessary to acquire a bachelor's degree as partial fulfillment of the requirements for ward of bachelor's degree of science in oil and gas management.

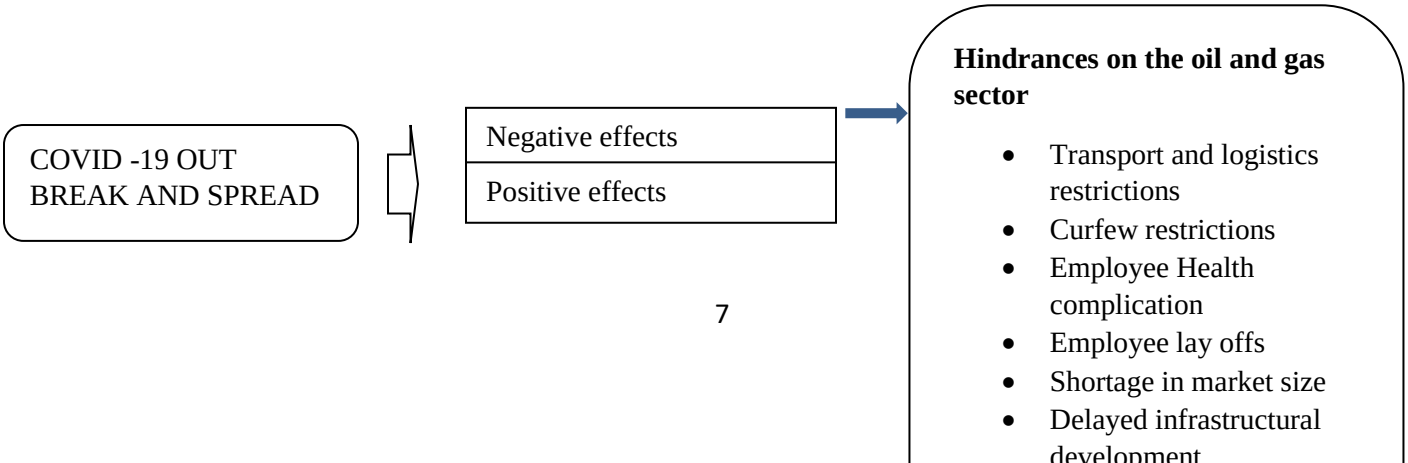
The government of Uganda in hand with the ministry of state and mineral development will be in position to draw important references and information about the unprecedented economic shock of the Coronavirus pandemic onto the oil and gas sector in the Albertine Graben and thus draw solutions.

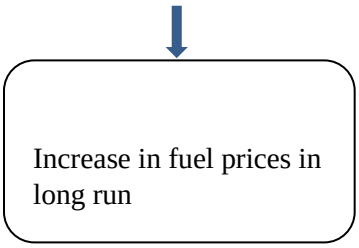
The study findings might be of great importance to policymakers and other government agencies for example the Ministry of disaster and ministry of health coming up with new policies towards creating economic recovery programs.

The study will act as an alarm towards the government, alumni and shareholders in the Albertine region about biodiversity and respecting to the lives of people living in the Albertine Graben as this will act as a household baseline survey with the goal of exploring the social and economic impacts of oil activities there and how the Coronavirus greatly affected them.

1.9 Conceptual Framework of study

This shows the conceptual underpinning of the study variables. For this case of this study, the effects of Coronavirus are the independent variable while oil and gas activities in the Albertine Graben are the dependent variable.





Source: Adopted from (Kisembo, 2009) and modified by the researcher.

CHAPTER TWO

2.0 Literature review

2.1 INTRODUCTION

This chapter shows the literature put forward by different scholars on the Coronavirus pandemic, Albertine Graben and the effects Coronavirus restrictions on oil and gas activities in the Albertine Graben.

2.2 CORONAVIRUS

Coronaviruses are a large family of viruses that cause symptoms ranging from the common cold to more serious illnesses, for example the Middle East Respiratory Syndrome (MERS) and severe acute respiratory syndrome (SARS) (WHO, 2020). This new Coronavirus disease were unknown before the outbreak in Wuhan, China, in December 2019 (MoH, 2020). Coronavirus infection remains mild in 80% of the reported cases. In order to delay spreading among the general population and to protect vulnerable and fragile groups in the population, it is important to take a certain number of precautions. The epidemic began in the Chinese city of Wuhan, capital of the Hubei province (WHO, 2019). According to Carmen, (2020), the epidemic seemed to be linked to the South China Seafood City market which hosted merchants for seafood, poultry, bats, marmots and other wild animals, which indicated a probable animal origin of the Coronavirus virus. The virus was later confirmed to also be transmitted between humans. Cases have since been discovered in other regions of China and in other countries, often linked to a previous visit of Wuhan. The health authorities of the various affected countries are currently investigating this new Coronavirus and the sources of the contamination. (WHO, 2020). Symptoms vary from moderate to severe respiratory infection, accompanied by fever, coughing and breathing difficulties (WHO, 2019). The incubation period which is the time between contamination and the appearance of the first symptoms of Coronavirus infection, is maximum 14 days (UNICEF, 2020). The Coronavirus infection is transmitted by people carrying the virus and contaminating surfaces and physical interaction. The disease can be spread from person to person through respiratory droplets expelled from the nose or mouth when a person coughs or sneezes (WHO, 2019).

2.3 ALBERTINE GRABEN

The Albertine Graben is a geological area in the East African Great Rift Valley located in western Uganda on the shores of Lake Albert covering an area of 2,498 km2. The Albertine region has got approximately 1.7 billion barrels of recoverable oil which have been discovered and evidenced with oil seepages around the shores of Lake Albert (MEMD, 2018). The Albertine region is found in the basin of lake Albert on the border between Uganda and democratic republic of Congo. The Albertine region is a region where Oil discoveries have been made mainly in Mputa region and other oil reserves in the Nyowa, Buliisa and Hoima districts (PAU, 2016). The discoveries have raised a lot of expectations with the Ugandan populace who are looking forward to opportunities that will reduce poverty levels, create jobs and generate revenue (Holterman, 2018). The potential of oil driven economic development has generated high expectations to the government of Uganda (UNOC, 2017). Peak production is expected to be 150,000-200,000 barrels per day for 10-20 years. This is expected to bring an estimate of $2-3 billion and create at least 10,000 jobs on peak production (MEMD, 2018). The government has commenced the process of upgrading roads, linking the Lake Albert shore to towns and cities through promoting infrastructural development like roads and bridges (UNRA, 2018). The Albertine region habitants' tribes like the Bagungu, Alur, Nyamasoga, Bagwere and Banyoro who are the native inhabitants of Albertine region of Buliisa and Nyowa Districts. They generally depend on agriculture, fishing, cattle grazing and farming for their livelihoods, and they historically migrated from Democratic Republic of Congo due to the civil strife and political instability in their country and settled above the Albertine escarpments (Kalisa, 2016). People living in the Albertine Graben occupy areas like Bugoigo, Somsio, Walukuba, Waaki, Bukunyu and Buseruka. However, despite the various oil and gas activities taking place, these activities have alternated the lifestyle of people in Albertine region in terms of food security and agriculture, changes in the ownership of land, pollution and displacement of people as well as influx of migrants vying for opportunities in the Albertine Graben (Fredrick, 2020).

2.4 CORONAVIRUS MEASURES; The Ministry of Health issued a Public Health Notification order describing measures as the actions taken to curb, prevent or Contain (MoH, 2020). The notification declared Coronavirus as a notifiable disease to which the prevention and suppression of the infectious disease where stipulated under the Public Health Act cap.281 (MoH, 2020). According to the public Health Act (2020), the minister of health was impowered to make rules

for control of the spread of covid-19 (MoH, 2020). Such measure included wearing of masks, social distancing and quarantines. However, despite international governments' ability all over the globe to slow the spread of Coronavirus, the severity of the response measures enforced negatively impacted the entire economy and population in the entire world and Uganda in particular which have continued to escalate affecting development in the Albertine region. These measures adopted on both global and national level were as follows;

2.4.1 Lockdowns; Lock downs refer to restriction policies for people or communities to stay where they are based on whether measures are compulsory or voluntarily (UNICEF, 2021). Globally, many countries effectively closed their nations to all but their own citizens and imposed strict controls on internal trade. Some of the first restrictions were on travel from China, but then other countries were added as virus hotspots began to emerge elsewhere. Iraq OPEC's second largest oil reserve was one of the first oil countries to declare a lockdown on its nation (OPEC, 2020)**.** United States of America was the first country to impose lockdowns and travel bans banning entry to visitors from countries of China and South Korea and later extended to other European countries like Italy, German and France (Guhadson, 2020). The European Union sealed its external borders on 18 March, 2020 for anyone outside its borders for 30days. In countries like Austria, authorities imposed a ban on trains travelling on its key international routes to and from Italy, such as the Brenner Pass (Bailey, 2020). The move followed two suspected cases of Coronavirus discovered on a train heading from Italy to southern Germany, which later tested positive thus declaration of the country's lockdown. In Uganda, the president of the country announced the first 14-day lock down national wide on 31st April 2020 (MoH, 2020).

Figure 1; U.S banned all air travels to and from China followings reports of its first case of covid-19. (Source; PHOTO, NASA, Adrian Philip, 2020)

2.4.2 Banning of public gatherings: Globally many countries put a stand hold on public meetings, including political rallies. As a measure to curb Coronavirus, countries banned public gatherings and meetings. Emergency measures to ban mass gatherings were implemented across the world including countries like Italy, France, Spain, Switzerland, Denmark, Malaysia and Thailand. According to Johnson, (2020) United States of America, banned mass gatherings for example the London Marathon to help stop the spread of the Coronavirus. Countries' parliaments for example Iran suspended parliamentary meetings indefinitely and MPs were asked to cancel all public meetings (Guhadson, 2020). In Switzerland, gatherings of more than 1,000 people were banned, forcing the cancellation of annual and public events in their country (Rosser, 2020). By 18th March 2020, the Ugandan President banned all public gatherings on hospital, markets, and social function and thus encouraged the public to observe physical social distancing failure of which led to imprisonment of up to two months on conviction. In the Albertine Graben, this restriction was a great hindrance and obstacle to the oil and gas operation of land acquisition and compensation (PAU, 2020).

2.4.3 Restrictions on border movements: This was the first step most countries in the world adhered to towards protecting their citizens from the Coronavirus. This Initial measure involved shutting down borders and halting international flights (Aytekin, 2020). On 18th March, Uganda

banned all incoming and outgoing travel to specific Coronavirus affected countries for a period of 32 days (MoH, 2020). On 22nd March, Uganda suspended all passenger planes in and out of country, with cargo exceptions only. This affected the movement of specialized personnel from entering the country and in cases where they were allowed, quarantine was imposed on them to make sure they were examined. This was done under the Public Health (Prohibition of Entry into Uganda) Order, 2020.The Order prohibited the entry of any person, animal or article into Uganda through any of its borders except vehicles or aircrafts entering for the conveyance of cargo into the country and those of the United Nations Organization or other humanitarian organization (MoH, 2021).This measure was with effect from 23 March, 2020 to 23 April 2020 (Aceng, 2020).Under this measure, mandatory examination, isolations of all persons entering Uganda for Coronavirus found to be suffering from the Coronavirus at a designated places (quarantines) was a must on top of subjection to quarantine by a medical officer of health (MoH, 2020). Offences against this measure made an individual liable to on conviction to imprisonment for a period not exceeding twelve months (Uganda Police, 2020).

Figure2; President Museveni gets screened for Coronavirus before Entebbe International Airport is closed as Dr. Ruth Aceng monitors the screening equipment. (Source; PHOTO, New Vision, Kasule Fred, 2020)

2.4.4 Schools and institutions of higher learning closed: Many countries on a global scale acted quickly towards saving the populations of school going children in their respective schools for example Italy shut its schools and universities for 10days as the government banned public conferences and cultural events to curb the spread of the Coronavirus. According to Zampano, (2020) Italy was the country that closed its schools longer than any other in Europe in a desperate bid to contain the first wave of the coronavirus pandemic. According to Shinzo, (2020), Japan

closed all elementary, middle and high schools impacting millions of students until the month of until late March, 2020. The threat posed by the virus jeopardized the Tokyo 2020 Olympic Games, education and tourism depriving the country huge sums of foreign exchange (Lodrick, 2020). In South Africa President Cyril Ramaphosa on the 23rd of July 2020 announced that school closures for another month. According to Mr. Museveni (2020), all primary and secondary schools, university and other institutions of learning were to be closed with immediate effect starting on 20th march 2020.The President explained in his public speech that it was wise for the country to temporary remove the concentration points to prevent the spread of coronavirus and deny the virus high concentration (Museveni, 2020). According to Kataha, (2021), online studying was encouraged as opposed to physical class interaction and urged all pupils in rural areas to study from home on radios and televisions.

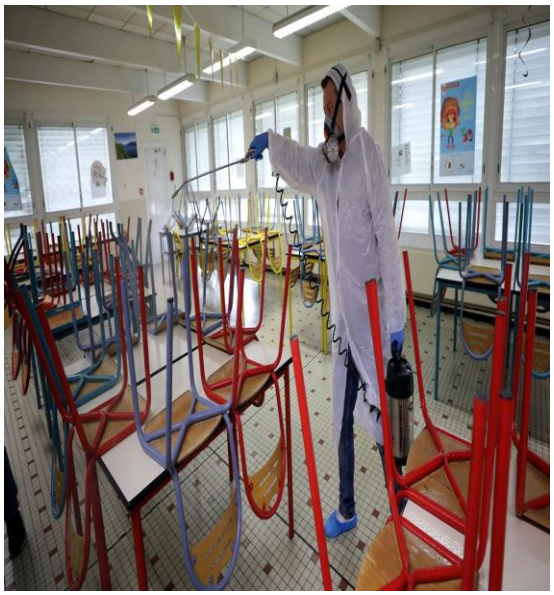


Figure3; Students leave school following the president decree of school closure with immediate effect to curb the spread of corona virus as class are being disinfested in Spain. (Source; PHOTO, WHO, 2020)

2.4.4 Curfews; Most countries in Europe and Africa embraced curfew restriction. According to Aytekin, (2020) Countries most affected by the virus adopted different policies on curfews. Italy, Spain, Russia, and India announced curfew, while the U.K., Ireland, and China preferred lighter

restrictions. Countries like Turkey imposed restrictions on those over 65 years old or below 20, and they are not allowed to leave home. Notably, a weekend curfew was adopted in 30 major cities and Zonguldak the Black Sea province where respiratory diseases are higher (Aytekin, 2020). In Uganda, curfew was announced from 19:00 to 6:30 (MOH, 2021) Such lockdowns consequently affected the lives and communities in the Albertine Graben as it highly impacted access to food, incomes of people, wages and domestic violence.

Figure4; Citizens in England protest against curfews whereas Curfews in Uganda were undertaken by the Uganda Peoples' Defence Force (UPDF) and local defence force (LDU). (Source; New Vision, Namirembe Christine, 2021)

2.4.5 Closure of places of worship: Globally millions of churches and mosques, synagogues, temples and gurdwaras are temporarily closed to guard against spreading the Coronavirus. According to Burke, (2020) for many spiritual leaders in Europe and Africa, the decision to shut their doors was very difficult. In the United States of America, Catholic dioceses and archdioceses cancelled Mass prayers and gatherings to avoid mass gatherings that were fundamental in spreading the Coronavirus (Jackford, 2020). According to Andre, (2020) the Archdiocese of Chicago suspended public Masses of over 2 million church members and closed 200 archdiocese schools. In Rome, the Vatican announced that holy week celebration events in Rome that typically drew thousands of Pilgrims from around the world were to be closed following the global health emergency (Burke, 2020). In addition, the Pope's weekly public audiences were suspended and were instead livestreamed as a way to curb the spread of covid-19 in Rome. In Uganda, prayers in

churches, mosques and open-air prayers were closed until 16 April 2020. Mosques and churches all over the country were at fast closed temporarily following president Museveni directives since prayer places were centers of gatherings and could spread the virus faster. However, with time, the Ministry of Health and the national taskforce on Coronavirus stipulated guidelines to divide church and mosques congregation to limit numbers of those who came for prayers, members were expected to pray in phases to observe the two-meter social distance among the congregation, ensure handwashing, sanitizing at every entrance, register all attendants and take temperature before accessing the premises of worship (MoH, 2020). Only adults and children aged 12 and above were allowed to pray and a service was restricted to only 200 members (MoH, 2020).

2.4.6 Closure of bars and clubs; Several countries in the world laid out directives to close bars and nightclubs. Countries like China and South Korea closed bars, cinema halls and night clubs with immediate effect flowing the sharp spread of Coronavirus in their countries and later reversed their restrictions and reopened with safety precautions like temperature checks prior to entry and regular disinfection of surfaces and dance floors (Mardly, 2020). In the United Kingdom (U.K), bars and nightclubs in New York, LosAngeles and Texas were to reopen at a speculated day on July 4th,2020 with guidelines set where venues that were designed to be crowded were to only be allowed to operate at a reduced capacity or ordered to remain closed (Barrons, 2020). In Uganda, president Museveni banned bars, nightclubs, outdoor musical performances and other entertainment activities to limit the spread of covid-19. Offenders of this directive were subjected to fines and imprisonment. According to Enanga, (2020) the Uganda Police spokesperson, cautioned the public to adhere to the health and safety protocols against bars and promised to arrest all culprits who evaded the president's protocol against closure of bars. In Kampala, over 70 bars were sealed off in an operation carried out by Kampala Capital City Authority (KCCA) and consequently the police arrested bar owners as a way to enforce the directives issued the president in fighting covid-19 (Kaujji, 2020).

2.4.7 Other measures adopted at national scale were as discussed below;

a) Marriage ceremonies, vigils and funerals closed until 18 April 2020, except if attended by not more than 10 people. President Museveni banned the hexagonal, extravagant Ugandan-style weddings. Weddings were allowed only for only a maximum of 7 people (MoH, 2020)

b) Burials where to be carried out by a maximum of 10 people who were close family members.

c) concerts and sports events closed until 16 April 2020. According to Museveni, (2020) bars, concerts, discos , music shows and cinemas were to be closed and sports events were to only continue with strict observance of standard operating procedures without spectators since these were groups for gatherings of people rendering peoples' lives vulnerable to Coronavirus contraction.

d) Banned the movement of all privately owned passenger vehicles. In order to deal with other health emergencies, permission was to be sought from the resident district commissioners to use private transport to take a sick person to a hospital. Additionally, government vehicles that belonged to UPDF, Police, Prisons or Uganda Wildlife Authority, where to be deployed at the District Health Offices towards helping health emergencies (MoH, 2021).

e) Suspended the shopping arcades, hardware shops, which gathered a lot of people to sell and buy non-food items. These were suspended for 14 days starting on the 1st of April, 2020. Physical work was limited to only 20% of employees who worked in offices while observing social distancing (MoH, 2020).

f) Factories were to remain open but on a condition that the owners would arrange for the crucial employees to camp around the factory area for the 14 days. In situations where they couldn't, production was suspended (MoH, 2020). All organizations had to rotate workers 3 months at work and 3 moth off, of which one group of workers would be off while another would be in.

g) President Museveni suspended weekly or monthly markets such as cattle auction markets(ebikomera) and food markets (obutare). However, with time food sellers in markets were allowed to work but we're not supposed to go home but instead supposed to arrange to stay nearby for the specified duration to avoid mixing between home, enroute and workplace (MoH, 2020).

Figure5; Market vendors observe social distancing in markets and Presidents' directive for Market vendors to sleep at their respective work places. (Source; PHOTO, New Vision, Kabito Martin, 2020)

h) Washing hands with water and soap or with alcohol-based sanitizers was encouraged by local community leaders, district health officers and the police in the Albertine Graben. According to Aceng, (2020) the general public was urged to avoid touching body opening like nose, mouth or eyes with unwashed hands.

2.5 EFFECTS OF CORONAVIRUS: According to Denmark, 2017 an effect is a change which is as a result of an action. Coronavirus had far reached effects, short term and long term on the social, economic and political sphere of the entire globe. The 2019-20 Coronavirus pandemic led to far-reaching consequences beyond the spread of the disease and efforts to quarantine it that included Supply shortages, disruption to factories, deaths, dropping in oil prices, trade disruptions and political instabilities among others as discussed below;

2.5.1 Reduced demand in oil and gas products; Globally many oil exporting developing countries faced a process of structural decline in oil prices (Borum, 2021). According to the IEA's data, declining demand in oil and gas in 2020 left the global oil market with a record 9 mb/d spare production capacity cushion that would be enough to keep global markets comfortable at least for the next several years (IEA, 2020). This resulted into cutting production by a number of oil producing countries since demand was no longer existing. Russia had been reluctant to cut production in the wake of falling demand due to Coronavirus, the State having relied upon oil and gas sales for some 40% of its annual revenue. Prior to January 2020, OPEC Member States had

cut their total oil production by over 2 million barrels per day with Saudi Arabia taking the main brunt of the cuts. With further evidence of falling demand, it was agreed at an OPEC meeting on March 5th, 2020 that a cut of a further 1.5 million barrels per day was required through the second quarter of 2020. OPEC called on Russia and other non-OPEC members (OPEC+) to follow suit. The oil exporting countries being resource dependent and were not speared by the decline in prices of oil making them vulnerable to grappling with high levels of debt and multifaceted economic and social fragility (IEA, 2020). In the United States crude oil turned negative for the first time in history, forcing producers to pay buyers to take the barrels that they could not store due to the oversupply of oil (Serret, 2021). In Uganda restrictions on inland travels on the boarders of the country did not spare the oil and gas sector in the Albertine Graben. There was a reduction in demand of petroleum products among fuel stations in the Albertine districts most especially in the months of the lockdown. Cars, Motorcycles where restricted from movement compared to months prior lockdown. There was decline in the importation of petroleum imports due to the ban of movement of vehicles (UNOC, 2020).

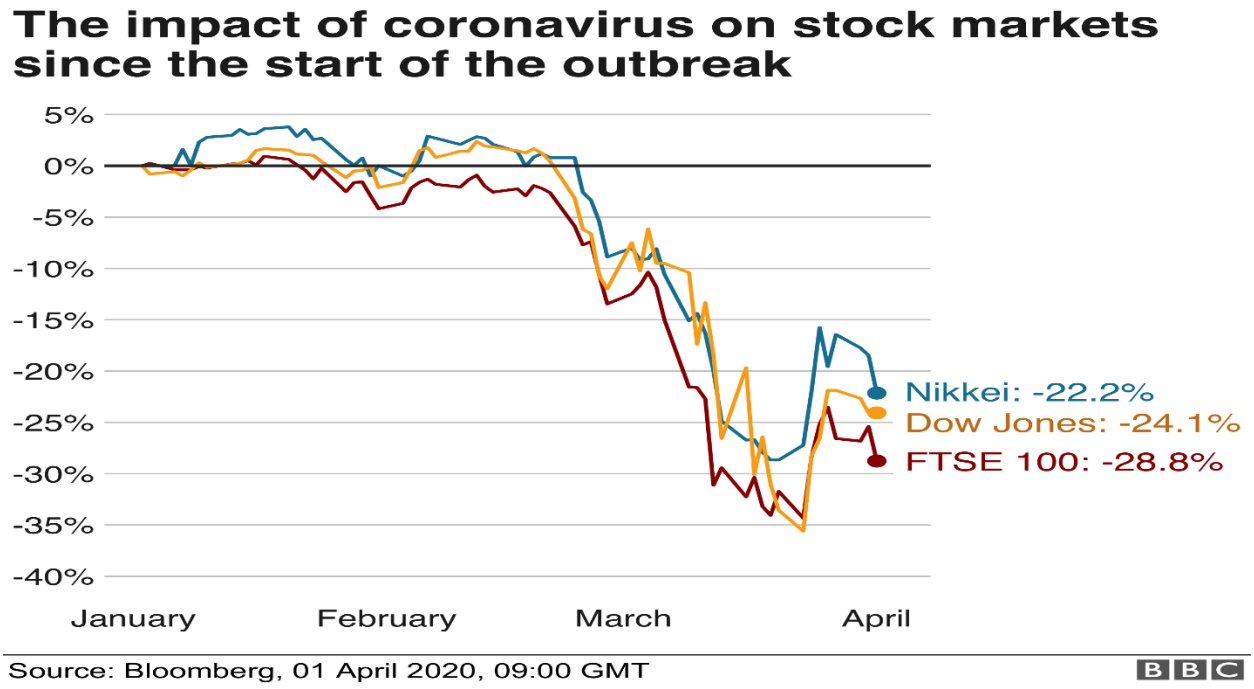


Figure 6; Graphical representation of the impact of the Coronavirus on the global stock markets ((Source; Bloomberg BBC, 2020).

2.5.2 Loss of revenue and increased operational costs: Globally countries that largely depend on oil were heavily affected by Coronavirus consequently losing large sums of revenue for their respective countries. Saudi Arabia OPEC's largest producer and one of the original members, Saudi Arabia is the faced the biggest squeeze of the energy crisis, thanks to its high dependence on oil (50% of GDP) and fiscal breakeven of $76.1 per barrel. The country had assumed an oil benchmark price of $60 per barrel in its 2020 budget (IEA, 2020). Furthermore, in Iraq, one of the first countries to get into lockdown and OPEC's second-largest oil producer and home to some of the world's largest known oil reserves. The country lost huge sums of revenue as compared to previous year where the country had been cranking up production to a record 4.88 million barrel per day at a time when OPEC was trying to lower production (IEA, 2021). In addition to the restrictions on movement increased the costs of production and operation of companies in the Albertine Graben most especially energy service providers field staff drillers and those who were responsible for rectification of faults as they had to observe social distancing as some were laid yet the practice in the oil and gas sector is to use shared transport under the umbrella of teamwork. The new restriction therefore required oil companies to use more vehicles thus increasing the costs of operation (Ministry of Energy and Mineral Development, 2021).

2.5.3 Effect on communities' lives; Globally Coronavirus infected over 82 million people and killed more than 1.8 million worldwide by 31st December, 2020 (WHO, 2021). Preliminary estimates suggested that the total number of global excess deaths were directly and indirectly attributed to Covid-19 in 2020 with the death total amounting to 3 million (WHO, 2020). Nigeria Africa's most populous country and largest economy, had 4,641 infections with 151 deaths (Jersey, 2020). In Uganda, an estimated number of 3613 deaths were confirmed in Uganda (WHO, 2021). According to the Uganda Economic Update (UEU) (2020), stated that the Coronavirus shock caused a sharp contraction of the economy to its slowest pace. Household incomes experienced a fall when firms closed and jobs were lost, particularly in the urban informal sector in the entire world. Following the job losses and closure of businesses, many people returned to agriculture and other natural resource dependent activities to manage and survive the crisis (Thompson, 2021). Mainly local people from Mpasana, Kisiita, Katikara, and Nyowa sub-counties were affected in large numbers. In addition, many local natives and communities in Albertine region contracted the

corona virus making them prone to illness, cough, flue and respiratory challenges like difficulty in breathing.

Figure7: Covid-19 deaths being buried by specialized personnel from ministry of Health in the Albertine region (Source; New Vision, 2021)

2.5.4 Effect on shake holders: Globally, different stake holders all over the world context faced a combined supply shock with an unprecedented demand drop in oil prices (Stephen, 2021). There was an unprecedented demand destruction prompting oil and gas investors to withdraw their interests in oil and gas investments. According to Arbogast, 2020 tens of millions of barrels a day of oil demand disappeared as industrial users across the globe shut down compared to the previous years where the world was consuming 100 million barrels of oil a day. The sector's financial and structural health worsened than in previous crises. Oil and gas activities the Albertine region have got a number of stake holders that include local governments, non-government organizations and gas activities, local people and ministries. According to Kitubi, (2020), regulatory bodies like UNOC were affected by Coronavirus consequently affecting their regulatory responsibilities in the Albertine graben. UNOC closed its offices on 2nd September 2020, following its register of is first case (|Kitubi, 2020). Initially Non-government organizations also played important roles in the Albertine Graben pre-covid like raising people concerns like

determination of the compensation rates on land, settling disputes, environmental concern for example the people of Buliisa district are complained of pollution of the environment from dust, noise and a stench which is affected people's health with the most vulnerable persons being pregnant women, children and older persons and improper disposal of oil wastes in River Zoria (Magret, 2019). However, Coronavirus affected the activities of such non-government organizations making communities in the Albertine region prone to conflicts and healthy illness. Furthermore, the government of Uganda banned all NGOs in the Albertine region claiming that they were sensitizing the population to riot against the government and thus labelled NGO's as Anti Government and Saboteurs of government programs (Magret, 2020).

2.5.5 Delayed projects: The Travel burn slowed down the implementation of most projects in the Albertine Graben and most contractors in Buliisa and Nyowa districts invoked the force majeure clauses in their respective contracts since they could not meet their contractual obligations. The lockdown period made it impossible to carry out Factory Acceptance Tests on imported oil and gas inventory and equipment. The restricted movement meant that oil and gas managers could not carryout monitoring and supervision of some work. This greatly affected the quality of financial works. Furthermore, there was decline in revenue collection due to reduced electricity demands and electricity sales because most business where closed and therefore exploration companies in the Albertine Graben cut down their electricity demands. Most Manufacturing industries in the districts of Hoima, Buliisa and Nyowa cut down on their production due to limited market (Electricity Regulatory Authority, 2020). In addition to delays of oil and gas projects, Coronavirus restrictions of social distancing frustrated the efforts of land acquisition of the Albertine regions of Nyowa and Buliisa. This is because as a measure to ensure safety of staff, utility companies suspended the land compensation programs so as to curb the spread of the virus and resultantly very few households where compensated leaving the majority uncompensated (MEMD, 2020). According to komakech (2020), the hoima district councilor, government remained silent to land compensation arising concerns from natives during the Coronavirus era and consequently residents from over five villages from kabwoya subcounty in hoima districts convicted Uganda National Roads Authority (UNRA) to court for over 2 billion compensation funds that wasn't done in line with construction of roads for oil production (Yosam, 2020)

Figure 8; Natives in the Albertine region protest over failure of being compensated during Coronavirus era. (Source; New Vision, Abdullah Mike, 2021)

2.6 OIL AND GAS ACTIVITIES

Petroleum Authority, (2018) defines oil and gas activities as any operations or works in an offshore area carried out under a petroleum instrument, authority or consent under the Act or the regulations. There are mainly three main activities in the oil and gas sector in the Albertine Graben which are Upstream, midstream and downstream.

2.6.1 Upstream Activities: Upstream activities are the operations undertaken as the first step towards exploration involving multiple activities, from acquiring land rights to conducting geological surveys, and digging exploratory wells to looking for reserves of oil and gas (Uganda National Oil Company, 2022). It is a high-risk activity for organizations, as it is very expensive and those costs are only truly recouped if the exploration is successful. Upstream covers the extraction of the natural resource from the ground. This covers drilling wells (either onshore of offshore), or fracking (PAU, 2022) Upstream works unsurprisingly rely heavily on technology and electronics. Modern exploration relies on surveys conducted using sophisticated electronic equipment before exploration wells are dug (Staute, 2015). Production, too, has become increasingly automated and computerized, as mechanical drilling and fracking equipment has become more advanced, autonomous, and efficient. In the Albertine Graben, UNOC was mandated to hold 15% participating interest as the Government's Nominee in the Petroleum Production

Licenses awarded for discovered oil and gas fields (UNOC, 2019). There are currently nine production licenses, covering 13 oil and gas fields in which UNOC manages the participating interest of the State. These fields are being developed through the Tilenga and Kingfisher Projects and commercialized through an in-country refinery and a crude export pipeline (UNOC, 2022).

Uganda confirmed commercial petroleum resources in 2006 and therefore efforts to find oil in Uganda started as far way back as the 1920s (MEMD, 2019). These efforts have led to the identification of surface seepages of oil and drilling of shallow wells around these seepages before 1945.One deep exploration well (Waki 1b) was also drilled near Butiaba, in Buliisa District during 1938. Consequently, exploration efforts commenced in 1980's which culminated into the confirmation of commerciality of petroleum in the Albertine Graben in 2006. The oil companies currently licensed in the country to undertake petroleum exploration, development and production in the Albertine Graben are The China National Offshore Oil Company, Total E&P Uganda Tullow Uganda.(UNOC, 2018).Total Energies E&P Uganda is working with CNOOC Uganda and the Uganda National Oil Company through a joint venture Partnership which the companies hold 56.67%,28.33% and 15% respectively in the upstream development of Uganda's Lake Albert oil resources(Total E&P, 2021). However, all these activities have consequently been affected by Coronavirus pandemic in the Albertine Graben.

2.6.2 Midstream activities; these are activities that come between upstream and downstream processes in the production of oil and gas products. Once upstream works have been completed, the exploration and extraction of the raw materials from the ground midstream works cover the initial processing, storage, and transportation of the materials to sites for further refining (Quain, 2019). Globally Pipelines are constructed and operated to meet safety and environmental standards established by regulatory agencies and industry associations for example in United States, Russia and Iraq the Department of Transportation (DOT) regulates the operation of pipelines, the Environmental Protection Agency (EPA) regulates spills and releases, the Occupational Safety and Health Administration (OSHA) promulgates standards covering worker health and safety, and the Interstate Commerce Commission (ICC) regulates common carrier pipelines (Morgan, 2017).Other mid-stream carries used on a global scale include Ultra-large and very large crude carriers, Oil tankers and Barges that operate in oceans, rivers and seas.

These processing works take the raw oil which is a mixture of oil, natural gas, liquids and separate these components out, a process which also results in water being produced. The water is either recycled or disposed of, while the natural gas and oil are stored. However, in Uganda ranging from the Albertine Graben, the East African Crude Oil Pipeline (EACOP) is under Construction and has been estimated to be 1443km and will be 24inch diameter heated and buries crude oil pipeline that will start from Kabalee in Hoima to Chongoleani, Tanga in Tanzania (PAU, 2018). The pipeline will have a manifold in Kabalee, Kakumiro, Rakai, Buliisa and Hoima district (PAU, 2021). These efforts of the midstream activities in Uganda have been evidenced far way back with the inter-government Agreement signed between Uganda and Tanzania that were signed in May 2017 (TPDC). However, all these activities have been frustrated and delayed by the Coronavirus restrictions that have laid off a number of workers in the Graben under the umbrella of social distancing to curb the spread of virus thus it has hindered the pipeline projects of geotechnical surveys, geological and geophysical surveys of oil rich areas in Albertine Graben (PAU, 2022).

These materials are then stored in preparation for transportation to refineries where the crude oil and natural gas can be refined into a variety of products which are then sold to consumers, tankers, barges and trucks. However, in the Albertine Graben, the government invited the private sector participation in the development of the refinery (MEMD, 2019). Currently there is development of a refinery in the Albertine Graben and it has been developed with shares of 40:60 respectively with the private share having 60% aiming at attracting investors with experience and capital to develop the Refinery (PAU, 2019).

2.6.3 Downstream activities: These processes are the final step in the path that oil and gas take from being in the ground to being in the hands of consumers. Downstream activities deal with the effective distribution, marketing and sale of petroleum products. The first step in downstream works, therefore, is refining. Crude oil is refined using fractional distillation into a variety of products, including gasoline, naphtha, kerosene, and diesel oil. Fractional distillation works because these different products all have different boiling points. The crude oil is heated in the bottom of the distillation chamber until all the components turn into gases, which rise up the chamber. As they rise up the chamber, they cool, and apparatus is placed to capture the different products as they condense from a vapor into a liquid. Therefore, downstream activities in the

Albertine Graben are largely provided by Total Petro-stations and they mainly focus at bringing usable products to the end users like natural gas gasoline, lubricants, pesticides, propane and pharmaceuticals. However, in the Albertine Graben regarding the development of a refinery, the East African Community Strategy of 2008 recommended, among other things the development of a second refinery in East Africa and consequently the government contracted the Wheeler Energy Limited from United Kingdom to carry out feasibility studies on the development of a refinery (Petroleum Authority Uganda, 2022).

In Uganda, the Ministry of Energy and Mineral Development acquired 300 acres of land for development of a Kampala storage terminal (KST) (UNOC, 2018). This project was handed over to UNOC to implement the development and operation of the terminal. UNOC will hold controlling interest in the terminal. The Terminal will be a hub for all envisaged (inland and transboundary) pipelines for refined products in/through Uganda. The terminal will further enhance reserves of petroleum supply in the country (UNOC, 2022).

CHAPTER THREE

3.1 RESEARCH METHODOLOGY

This chapter provides a detailed explanation of the research designs, research methodology, population sampling procedures and their designs, procedures of data collection and the data analysis techniques that were used to generate the data.

3.2 Research Design

This researcher used the cross-sectional research design. According to Simkus, (2017) a cross sectional study research refers to the observational study that involves examining a group of participants and depicting what already exists in the population without manipulating any variables. It is a research design in which one collects data from many individuals at a single point in time (Thomas, 2020). A cross sectional study is cheap and easy way to gather initial data and thereby identify correlations from a large pool of subjects (Thomas, 2020). In addition, this research study was used because cross sectional studies capture a specific moment in time which is very applicable to the research currently thus provides a snapshot of the conditions in the Albertine Graben at that time. Cross sectional study design is a type of observational study design.

3.3 Study Population

The population of study was conducted in 40 community families and 95 people comprising management staff, Land valuers, local leaders, land surveyors and maintenance operators. In addition, the population study was conducted in local communities, indigenous people and upstream Oil and Gas companies in the Albertine Graben most especially TOTAL E&P.

3.4 Area of study

The area of study was based in the Albertine districts of Buliisa District and Nyowa Districts.

3.5 Sample Size and Selection

The sample size comprised of 70 respondents which were drawn from a population of 85 people comprising of TOTAL'S staff and 40 community families in Buliisa and Nyowa districts. The researcher determined the sample size by the use of the Small Sample Technique of Morgan. The sample from each category for the questionnaire survey was determined by proportionate sampling.

3.5.1 Table showing the composition of the sample size

Company	**Category of population**	**Study population**	**Sample size**
TOTAL E&P (TILENGA PROJECT)	Top managers	10	02
	Middle managers	15	02
	Employees like surveyors, land valuers, maintenance personnel.	65	16
	Total	90	20
SBC company limited	Middle managers	10	05
	Land valuers	40	05
	Total	50	10
Families	**Category of population**	**Study population**	**Sample size**
Buliisa families	Family heads, elders and men	30	10
	Women and children	10	10
	Total number of families	40	20
Nyowa Families	Family Heads	30	10
	Women and children	10	10
	Total number of families	40	20

Source; Primary Data

3.6 Sampling techniques

The researcher adopted the simple random method and Judgmental (authoritative) sampling techniques. According to Thomas (2020), simple random sample method is a sampling method in

which each member of the population has an exactly equal chance of being selected. it is the most straightforward technique because it involves a single random selection and requires little advanced knowledge about the population (Thomas, 2020). The researcher selected the technique because it is applicable when studying a limited population which can easily be sampled. On the other hand, purposive sampling refers to the sampling technique in which the sample members are chosen only on the basis of the researcher's knowledge and judgement. In this sampling technique, the chances that the results obtained were highly accurate with a minimum margin of error. This sampling technique was conducted because it is only restricted to a number of people in the population who own special traits of interest and qualities that the researcher expected from the target population. Therefore, in this scenario, Judgmental sampling was used in professional authorities and employees in Total E&P and SCB Company in which a representative sample was assembled.

3.7 Data Collection Methods and collection instruments

Data collection is the process of collecting, measuring, analyzing information on specific variables into accurate insights in a systematic and objective manner using validated standard techniques. (Lewis & Thornhill, 2016). The data collected can either be primary or secondary data. Primary data is a type of data that is collected by a researcher directly from main sources through interviews, surveys and experiments (Blog, 2016). Primary data is the type of data generated by a researcher himself specifically designed for understanding and solving the research problem at hand. The researcher collected primary data using a questionnaire which was adopted from the literature review. Cooper & Schindler, (2013) describe Questionnaires are research instruments that consist of a set of questions and other prompts structured in a predetermined order aimed towards collecting information from a respondent. In this research both oral and written questions in form of an interview were used by the researcher. This collection method was conducted because it's cost effective since it allowed questionnaires to be delivered on site, over the phone, by post and thus minimal costs were incurred. The questionnaires also prevented bias since the respondents were subjected to answering the questions contained in it and this limited the respondents to answers that had already been predetermined. The questionnaire was divided into two parts; the first part contained the general and demographic information whereas the second part contained three sections that addressed the three research questions.

3.8 Data Analysis

According to Johnson (2022), data analysis is the process of cleaning, transforming, and modelling data to discover useful information for decision making. It is the assessing and evaluation of raw data and translating it into information that can be interpreted and understood by the researcher (Cooper & Schindler, 2013). The data that was collected in this study was qualitative and quantitative data.

The qualitative data is non numeric in nature thus its narrative and is collected through methods of observation whereas the quantitative data is numerical in nature. This means that qualitative research entirely deals with the natural setting of variables attempting to make sense or interpret them (Denzin & Lincoln, 1994). The researcher analyzed quantitative data using descriptive statistical analysis methods of frequency distribution and tabulation. Quantitative data was analyzed mathematically through arranging the responses from the different target population to be summarized in tables from the general analysis. The researcher presented the data in Qualitative data was categorized into themes which were used to back up the quantitative data.

3.9 Measurement of Variables

The researcher measured variables using questions developed basing on the nominal and ordinal scales. The researcher used the nominal scale in measuring questions about the background characteristics. This is because the nominal scale helps to label or tag in order to identify study items. For the ordinal scale, this is a ranking scale that possesses the characteristic of order that is used to measure the items of the independent and dependent variables. The ranking was a five-point Likert Scale (Where 1 = Absolutely disagree, disagree=2, Neither disagree nor agree=3, Agree=4, Absolutely agree=5).

3.10 Research Procedure

The researcher secured an introductory letter from the institute of petroleum studies, District Internal security officer of his home region attached with his identification documents both citizenship and University cards. The researcher presented the documents attached with recommendations from three referees to local chairpersons of Nyowa and Buliisa districts who latter permitted him to interact with the respondents. The researcher shared the questionnaires interactively through both physical and phone interviews while explaining to them his personality and purpose of the study.

3.11 Ethical Considerations

The researcher exhibited ethical behavior throughout the whole research and data collection process this will be done in the following ways:

The researcher upheld the right procedures while accessing the information from local communities, local people and Total E&P Company. The researcher presented his personal information including the name of his institution and recommendations of three personalities. The researcher seeked permission from the person in charge before walking into any institution to collect data.

The researcher observed the companies' rules of safety as a prerequisite for every personnel in the company of Total E&P premises in which he will collect data. The researcher will wear safety shoes, a mask, an identification card and a reflector when interacting with respondents.

The researcher shared a notice to the L.C1s (Local chairpersons) of the selected families and respondents about the intentions and purpose of the study that was conducted so as to enable the respondents understand the importance of collecting the information.

In a move to ensure peace and harmony, the researcher introduced himself to the respondents, where he came from on top of moving with a university identity card. The researcher respected the anonymity and confidentiality of the respondents. In this way, the respondents were assured of being unidentified throughout the study.

The researcher avoided coercion of respondents to give information through encouraging free will to either participate or decline the interviews and questionnaires.

In line with observing the standard operative procedures, the researcher always wore a mask while interacting with the respondents. The researcher observed social distancing to curb the spread of corona virus while interacting with respondents.

3.13 Limitation of the study

The study was limited to only one month within which to collect and analyze data, which was not enough for this research. However, the researcher utilized his time to collect as much data as possible.

Respondents were not willing to respond to the questionnaire. To solve this challenge, the researcher convinced the respondents that their responses were to be kept confidential and only used for academic purposes.

Inaccessibility of middle and top managers was the biggest limitation of the study. The tight and scheduled programs at Total E&P created a wide gap between the researcher and employees towards responding to the set questions in the questionnaires. They failed to avail time to answer the set questions and also as physical interaction became impossible.

In addition, the laying of employees at Total E&P deprived the researcher a scope of respondents. Most employees were laid off from work as some used to work from home. This was done to curb the spread of corona virus and observe the standard operative procedure of social distancing. In addition, some offices required the researcher to present proof of his vaccination card with all dozes before interacting with the respondents which the researcher lacked. However, to solve this challenge, the researcher got all the vaccine doses and obtained a vaccination card and thus increasing his accessibility to respondents.

There was also Concealment of data some respondents. It is always considered that some information was confidential to the companies and therefore not easily shared by the public, yet such information is key for research. For purposes of getting necessary information for the study, the researcher will use a triangulation method so as to ensure accuracy in data collection.

Some respondents most especially employees were not willing to respond to the questionnaire. However, in a way to solve the limitation, the researcher assured the respondents that their responses were kept confidential and strictly for academic purposes.

CHAPTER FOUR

PRESENTATION, ANALYSIS AND INTERPRETATION OF DATA

4.1 Introduction

This chapter presents the findings of the study which have been analyzed from the raw data got from the field. This chapter presents findings of the study basing on the respondent's background and were presented in line with the sole objectives of the research study.

4.2 Response rate

Table 4.2.1: Showing response rate

Respondents	Frequency	Percent
Returned	70	82.3
Not returned	15	17.7
Total	85	100

Source; Primary data,2022

The sample under consideration was 85 respondents. Findings in table 4.2.1 above indicate that from the 85 questionnaires distributed to the respondents, 70 questionnaires were returned and only 15 were not returned representing a response rate of 82.3% making the findings valid. This therefore, implies that the study got a good response rate which justifiably provided a good analysis of responses on ground.

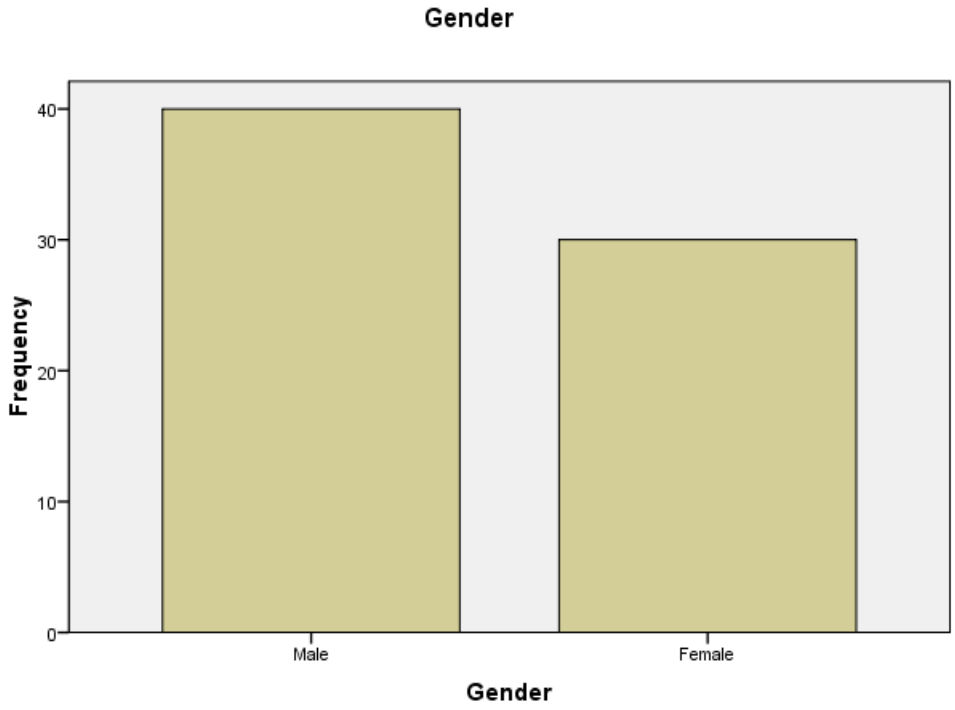
4.3 Gender

4.3.1 Table 2: Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	40	57.1	57.1	57.1
	Female	30	42.9	42.9	100.0
	Total	70	100.0	100.0	

Source: Primary Data

Figure 4.3.2: Gender



Source: Primary Data

The bar graph above shows the presentation of the respondents according to gender. The frequency for male respondents which was the majority is 40 whereas 30 of the respondents were females. According to the International Energy Agency, (2018) the oil and gas sector remains one of the least gender diverse sectors in the economy, despite the recent efforts to promote women

participation. One of the primary reasons is the nature of work in the oil and gas sector. Most of the job profiles in this entity require the sort of involvement in the field that's exhaustive for many women (Steve, 2015). In addition, according to Phoram, 2018 the oil industry is very hands on field experience oriented. The first barrier women must cross in the industry is getting hired on exploration and drilling crews. Both are tough work for men. There are women who can do the work but fewer who can endure the culture and gain full acceptance.

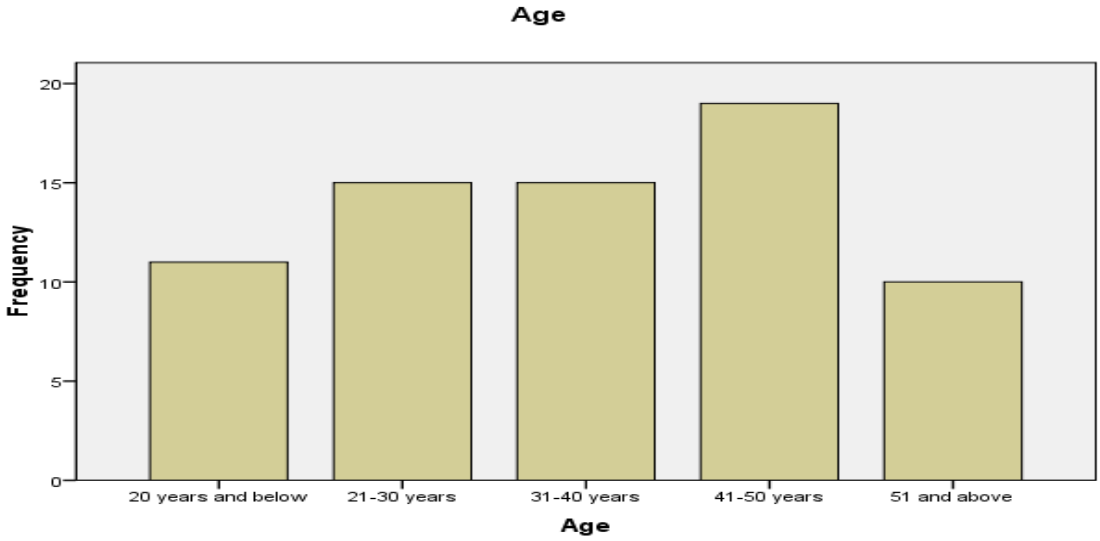
4.4 Age

Table 4.4.1: Age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	20 years and below	11	15.7	15.7	15.7
	21-30 years	15	21.4	21.4	37.1
	31-40 years	15	21.4	21.4	58.6
	41-50 years	19	27.1	27.1	85.7
	51 and above	10	14.3	14.3	100.0
	Total	70	100.0	100.0	

Source; Primary data

4.4.2 Figure Bar Graph showing age of respondents



Source: Primary Data

From the above table above, 11 of the respondents were in the age group below 20 years, 15 respondents were in 21-30 age group years, 15 were in 31-40 years age bracket, 19 respondents were in the 41-50 years age group and 10 respondents were above 50 years. This indicates that respondents were mature enough to answer the questions in the questionnaires which meant that the information given was reliable. In addition, employees who age bracket lay between 20-34 years generation is achievement-oriented, energetic, and focused on using their professional careers to better the world (Arthur, 2017). They seem to make their work mean more than just a paycheck thus satisfying the needs of employees are different based on factors such as tenure with the organization (Louis, 2018).

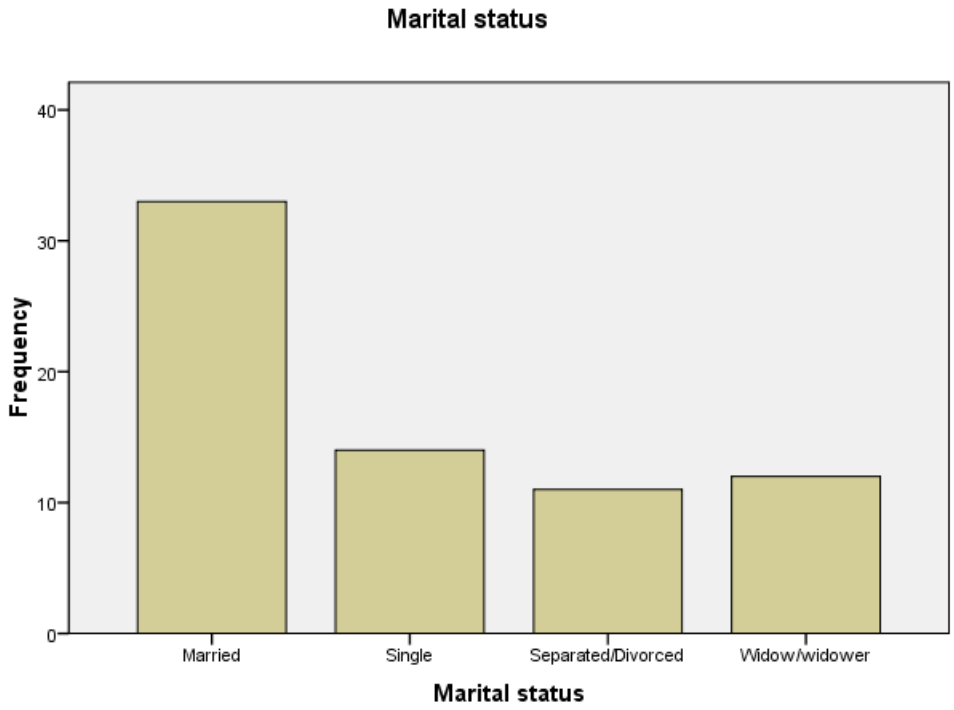
4.5 Marital status

4.5.1 Table: Marital status

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Married	33	47.1	47.1	47.1
	Single	14	20.0	20.0	67.1
	Separated	11	15.7	15.7	82.9
	Widow/widower	12	17.1	17.1	100.0
	Total	70	100.0	100.0	

Source: Primary Data

4.5.2 Bar graph of Marital status



Source: Primary Data

Findings on respondent's marital status showed that 47.1% were married, 20.0% were single, 15.7% were separated and 17.1% were widows and widowers and 1.4% were separated. This implies therefore that a majority of the respondents were married and therefore have got more responsibilities and therefore devote time towards work so as to meet their family needs.

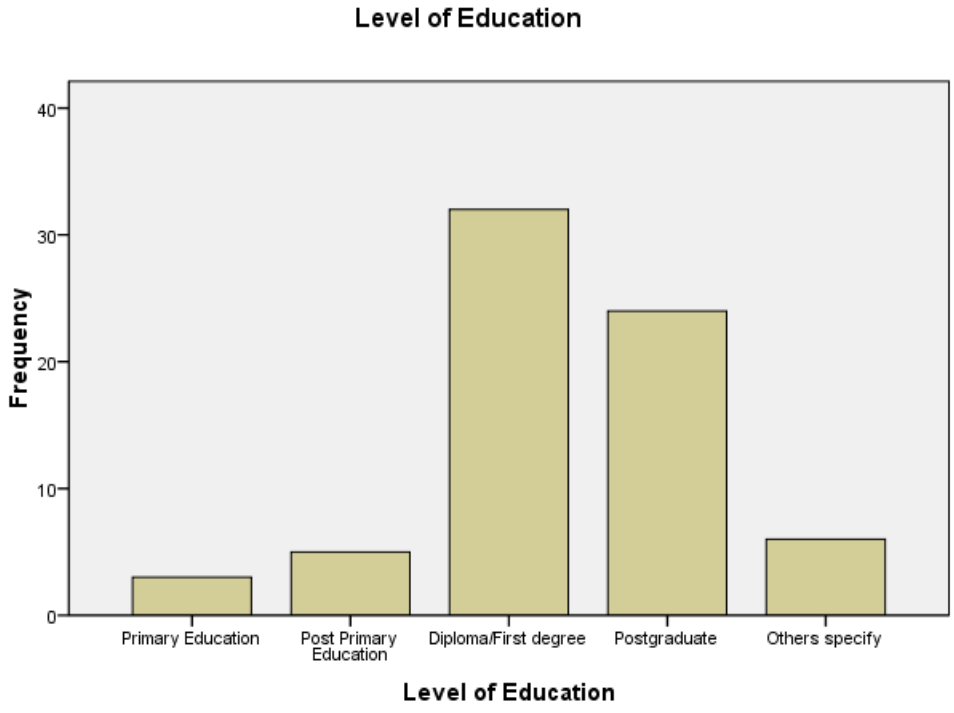
4.6 Level of education

4.6.1 Table of Level of education

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Primary Education	3	4.3	4.3	4.3
	Post Primary Education	5	7.1	7.1	11.4
	Diploma/First degree	32	45.7	45.7	57.1
	Postgraduate	24	34.3	34.3	91.4
	Others specify	6	8.6	8.6	100.0
	Total	70	100.0	100.0	

Source: Primary Data

4.6.2 bar graph of level of education



Source: Primary Data

Various views with their respective percentages were put forward when respondents were asked of the level of education they had attained, they were as follows; majority of them represented by 45.7%said they were degree holders, followed by 34.3% of the respondents who said were postgraduate, 8.6% attained other qualifications like certificates ,7.1% said that they attained post primary education and 4.3% said that they attained only primary education. This implied that majority having degree qualifications meant they understand the field of oil and gas.

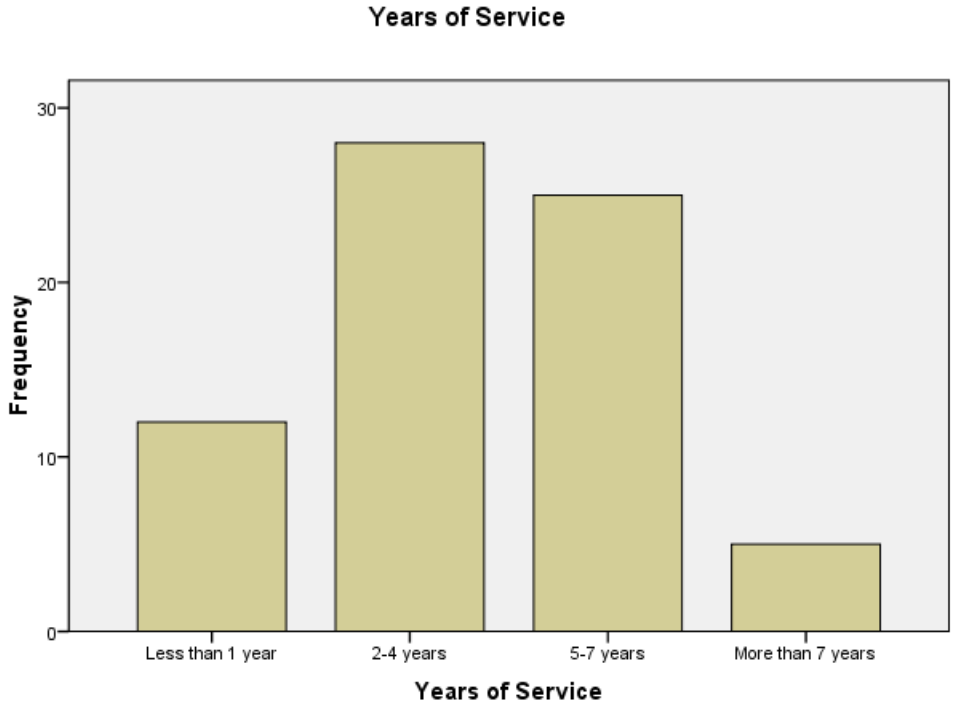
4.7 Years of service

4.7.1 Table of years of service

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than 1 year	12	17.1	17.1	17.1
	2-4 years	28	40.0	40.0	57.1
	5-7 years	25	35.7	35.7	92.9
	More than 7 years	5	7.1	7.1	100.0
	Total	70	100.0	100.0	

Source: Primary Data

4.7.2 bar graph of years of service



Source: Primary Data

From the above table, majority of the respondents had spent a period of 2-4 years in service rated at 40%, this was followed by 35.7% who had spent 5-7 years, a percentage of 17.1% had spent a period of less than 1 year in service and 7.1% served for a period more than 7 years. This indicates that the biggest percentage of respondents had served for reasonable period of time thus provided relevant information for the study. According to Clarey (2014), years of service imply the level of commitment to work by employees is used for benefits purposes, it is also used to reward employees. No form of recognition is as important to the success of any organization as recognition of an employee's years of service therefore employees working in the oil and gas sector had service for quite a reasonable period of time.

4.8 Descriptive analysis

The descriptive analysis status was generated using spss version 17 and the information was exported to Microsoft Word as illustrated in the tables below. A Likert scale of 1-5 was used in the tables as illustrated 1 = Strongly agree (SA), 2 = agree (A), 3 = Fairly (F), 4 =Disagree (D), 5 = Strongly disagree (SD). The analysis was in accordance with the objectives of the study. Mean

standard deviation and variance was used in the tables as illustrated below. The analysis was in accordance with the objectives of the study.

4.9 Findings on Research Objectives

This study set out to examine the effects of Coronavirus on the communities in the Albertine Graben, to examine the impact of Coronavirus disease on oil and gas activities and its stakeholders, and to determine the various measures taken to combat against Coronavirus effects in the Albertine Graben.

4.9.1 Objective 1: To examine the effects of Coronavirus on the communities in the Albertine region

4.9.2 Table showing descriptive statistics of the effects of Coronavirus on the communities in the Albertine region.

	N	Minimum	Maximum	Mean	Std. Deviation
Laying off workers in public offices and other businesses affected people and livelihoods	70	1	5	2.63	1.416
Banning of public meetings and gatherings, for example office meetings and market gatherings affected people's standards of living	70	1	5	2.44	1.223
Social distancing as a measure to curb containment affected transactions and trade negotiations.	70	1	5	2.47	1.348
Staying in doors to minimize movements affected people's sources of income	70	1	5	2.43	1.336
Banning all public means of transport affected movement of people and their merchandise	70	1	5	2.39	1.289

Closure of businesses most especially non-food business affected the standards of living of other families	70	1	5	2.23	1.230
Night curfews for all citizens in the country affected businesses that work during night	70	1	5	2.23	1.206
Restrictions on movements except with authorization from Resident District Commissioners (RDCs) affected movements of people	70	1	5	2.20	1.137
Valid N (listwise)	70				

Source; Primary data

The results shown in table above reveal that the Laying off workers in public offices and other businesses affected people and livelihoods (M= 2.26; SD= 1.41). This implies that oil and gas Companies laid off their workers at a large scale as a way to maintain social distancing. In addition, the Coronavirus rendered many oil and gas employees jobless since there was less work to be done and where work existed, employees were advised to work in shifts and in their respective homes. According to the Ministry of Gender, Labor and Social Development (MGLSD), (2021) more than 2.9 million workers were laid off due to Coronavirus which disrupted the labor market of Uganda's informal sector. Banning of public meetings and gatherings, for example office meetings and market gatherings affected people's standards of living with (M= 2.44; SD = 1.223). The research revealed that the banning of public gatherings greatly affected people's standards of living since hotels, taxi parks, factories, markets and farm workers lost their jobs in line with adhering to the procedures laid down by the Ministry of Health. Social distancing as a measure to curb

containment affected transactions and trade negotiations with (M=2.47; SD=1.348) since social distancing implied that people couldn't meet and negotiate over trade in fear of contracting the virus. This is in agreement with Mathias, 2020 who stated that social distancing disrupted land acquisitions for oil and gas projects in terms of compensation since oil and gas employees could not meet with the public to curb the spread of Coronavirus. Staying in doors to minimize movements affected people's sources of income with (M=2.43; SD=1.336). This is because many businesses like hard-wares, saloons, shops and arcades where closed rendering the people idle with nothing to do. Banning all public means of transport affected movement of people and their merchandise with (M=2.39; SD=1.289) implying that people were unable to move from one place to another since public means were banned affecting their business and sources of income. Closure of businesses most especially non-food business affected the standards of living of other families (M=2.23; SD=1.230). This implies other businesses were not favored depriving a big number of people their sources of income thus causing poverty to them. Night curfews for all citizens in the country affected businesses that work during night (M=2.20; SD=1.137) since a good number of people worked at night for example road side traders, bodabodas and supermarkets and Restrictions on movements except with authorization from Resident District Commissioners (RDCs) affected movements of people (M=2.20;SD=1.137) since people were required to seek letters of approval from their respective RDCs to allow them move especially when seeking for hospital treatment. The findings of the research agree with Mugisha, (2022) who stated that every sector of the country was affected causing a huge impact on people's livelihoods. He stated that when it came to women, the impact had been far reaching since the impact of Coronavirus rendered them more vulnerable (Mugisha, 2020).

4.9.2; Objective 2; To examine the impact of Coronavirus disease on oil and gas activities and its stakeholders

4.9.3 Table showing descriptive statistics of the impact of Coronavirus disease on oil and gas activities and its stakeholders

	N	Minimum	Maximum	Mean	Std. Deviation
Land Acquisition for implementation of oil and gas activities	70	1	5	2.77	1.466
Maintenance and Supervisory works	70	1	5	2.61	1.427
Shipping and Transportation of oil and gas equipment	70	1	5	2.36	1.455
Movement of oil and gas personnel from one place to another	70	1	5	2.70	1.408
Funding of projects	70	1	5	2.81	1.417
Recruitment/training and development of oil and gas staff	70	1	5	2.83	1.274
Valid N (listwise)	70				

Source; Primary data

The findings above showed the impacts of Coronavirus disease on oil and gas activities and its stakeholders where Land Acquisition for implementation of oil and gas activities (M=2.77; SD=1.466), This implies that utility oil and gas companies suspended the land compensation programs so as to curb the spread of the virus through congregating and resultantly very few households were compensated thus less land was acquired. Coronavirus affected Maintenance and Supervisory works (M=2.61; SD=1.427) since the restricted movement implied that oil and gas managers could not carryout monitoring and supervision of some work which affected the quality

of financial works. Coronavirus also Shipping and Transportation of oil and gas equipment (M=2.36; SD=1.455). This was caused by the banning of international boarder movements which affected the transportation of oil and gas equipment to the Albertine Graben. Movement of oil and gas personnel from one place to another was also affected by Coronavirus (M=2.70; SD=1.408). Coronavirus also affected funding of projects (M=2.81; SD=1.417). This implies that some oil and gas activities had to come to are stand still due to the unavailability of funds. Recruitment and development of oil and gas staff (M=2.83; SD=1.274) was also affected by the Coronavirus pandemic since workers could not meet in congregations in line with combating the spread of the Coronavirus

4.9.3 Objective 3: To determine the various measures taken to combat against Coronavirus effects in the Albertine Graben.

4.9.3 Table showing descriptive statistics of the various measures taken to combat against Coronavirus effects in the Albertine Graben.

	N	Minimum	Maximum	Mean	Std. Deviation
Social distancing	70	1	5	2.83	1.454
Wearing masks	70	1	5	2.13	1.239
Imposing Curfew	70	1	5	2.33	1.224
Transport restrictions	70	1	5	2.31	1.246
Restriction of movement of people	70	1	5	2.03	1.142
Vaccination	70	1	5	2.21	1.190
Valid N (listwise)	70				

Source; Primary data

The results shown in table above revealed that respondents strongly agreed to the measure of Social distancing with (M=2.83;SD=1.454) which implies that residents adhered to the President's directive of tonsemberera/social distancing since local people educated that the Coronavirus spread faster in congregated areas followed by Wearing masks (M=2.13;SD=1.239) which was

encouraged most especially in congested places like markets, Imposing Curfew (M=2.33;SD1.224) was also adhered to which was evidenced by people staying in their respective homes from 7;00pm to 6;00am, Transport restrictions (M=2.31;SD=1.246), Restriction of movement of people (M=2.03;SD=1.142) and lastly Vaccination (M=2.21;SD=1.190). These results therefore are in agreement with Kasule, (2021) who stated that the country promoted social distancing, wearing of face masks and frequent washing of hands and use of sanitizers after the confirmation of the first case of Coronavirus on March 21.

CHAPTER FIVE

DISCUSSION, RECOMMENDATIONS AND CONCLUSION

5.1 Introduction

This chapter consists of discussions, recommendations based on these results as well as conclusions drawn from results.

5.2 Discussion

The main research instruments used for this study were self-administered questionnaires with both closed and open-ended questions. The findings generated from the questionnaire are discussed as below;

Impact of Coronavirus on oil and gas activities and its stakeholders.

The findings of the study show that a large majority agreed that corona virus disease affected oil and gas activities by causing interruptions through the restrictions and directives set by the Ministry of Health in Albertine Graben. The Coronavirus measures set that included; banning public gatherings, closure of all educational institutions, stoppage of all public passenger transport, closure of Schools, suspending markets and curfews greatly had a far-reaching significant impact on oil and gas activities and resultantly affected its stake holders. Coronavirus reduced demand of petroleum products among fuel stations in the Albertine districts. In addition, the unprecedented demand decline in oil and gas products caused low revenues prompting oil and gas investors to withdraw their interests in oil and gas investments. There was decline in the importation of petroleum imports, drilling equipment and specialized personnel due to the ban of movement of vehicles. Furthermore, to the restrictions on movement as a result of Coronavirus increased the costs of production and operation of companies in the Albertine Graben. Many trained oil and gas employees were laid off most especially energy service providers, field s drillers and those who were responsible for rectification of faults which made oil and gas activities in the Albertine region get to a stand hold.

Effects of Coronavirus on the communities in the Albertine region.

The study greatly indicated that Coronavirus affected communities in the Albertine region causing increased cases in land grabbing, deprived the incomes of communities causing poverty and misery and increased rural urban migration. Standards of living of people in Buliisa and Nyowa districts decreased because Coronavirus could not allow the process of negotiation over land thus majority were left uncompensated with no were to practice agriculture. As a result, the Albertine region registered an increase in number of deaths as a result of Coronavirus depriving many families their loved ones. In addition, accessibility to healthy services was difficult causing many deaths of

expecting women and other health emergencies. Communities who relied on the government's free healthcare programs experienced a reduced access to primary healthcare. Over 8 million Ugandans (19.7%) lived below the national poverty line since they were earning no income thus suffered from hunger and malnutrition. Furthermore, there was high levels of unemployment and most youth who earned income through small-scale trades such as selling food, hairdressing, welding and boda-boda motorcycles lost their sources of income.

People started borrowing and getting into debt to buy food and other essentials, as food prices risen as the lockdown went on. Food supply also decreased as farmers struggled to transport their produce to markets which were closed due to social distancing procedures.

Measures taken to combat against Coronavirus effects in the Albertine Graben.

Various measures were put forward to combat against Coronavirus by the Ministry of Health that included shopping arcades were suspended, non-food selling shops like hardware shops and salons were banned, Physical work was limited to only 20% of employees, factories were to remain open but on a condition that the owners would arrange for the crucial employees to camp around the factory area ,workers were rotated 3 months at work and 3 moth off thus safe work systems also changed quickly in response to the pandemic, requiring companies to find new ways to safeguard their staff and families causing workforce shortages as employees were infected by the coronavirus cases of social distancing and movement restrictions. In addition, the coronavirus measures affected many participants in the oil and gas industry who saw sales and revenue projections crashes due to the upset of demand associated with Coronavirus.

5.3 Conclusion

The outbreak of Coronavirus had an unprecedented impact on the oil and gas sector in the Albertine Graben, with almost no community and stakeholders left untouched. Many activities like funding, supervisory works, staff training and transportation were put to a stand hold following the first confirmed case in Uganda which was reported on March 21, 2020. Resultantly a number of measures were put forward and adopted in the Albertine Graben which had impacts on the economy and society's well-being of employees, stakeholders and communities at large. These efforts to limit and contain the spread of coronavirus led to a slowdown in economic activity and people's ability to make ends meet.

5.4 Recommendations

I) The government of Uganda should intervene in the high-interest loans by commercial banks, to enable low earners access friendly financial services. Communities in the Albertine region should be supported with low interest rate loans from finical institutions to boost their livelihood activities most especially agriculture and to give economic empowerment to the local people and enable them recover from the effects of Coronavirus (Kyeyune, 2021).

II) The government of Uganda through the ministry of natural disaster and preparedness should support different stake holders, communities and oil and gas companies. Furthermore, oil and gas companies should carry out Corporate Social Responsibility with their host communities. It should be noted that the government secured an interest-free loan from the International Monetary Fund worth $491M (Sh1.8 trillion), to help recover local businesses. Therefore, this money should be recapitalized in Uganda Development Bank (UDB) to enable small and Medium Enterprises (SMEs) access capital to generate liquidity for the financial sector (Patricia, 2021).

III) The government should invest in re-skilling and retooling of the women and young men in the Albertine region to enable them to establish alternative enterprises that provide productivity solutions for enhanced economic recovery. This is because many youths and women in the informal sector, who have been working and earning from hand to mouth such as hawkers, roadside sellers, market vendors of non-food items, salon among others had their businesses affected by the Coronavirus pandemic.

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