THE REPUBLIC OF UGANDA

MINISTRY OF ENERGY AND MINERAL DEVELOPMENT

THE OIL AND GAS SECTOR IN UGANDA

FREQUENTLY ASKED QUESTIONS

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FOREWORD

The Ministry of Energy and Mineral Development is glad to present this booklet on Frequently Asked Questions on the Oil and Gas Sector in Uganda.

The journey to confirm the existence of commercial petroleum resources in Uganda started during the colonial days. Oil seeps were mapped and documented and thereafter wildcat shallow wells were drilled in Kibiro (Hoima), Butiaba (Buliisa) and Semliki valley based on these seepages. These efforts were, however, interrupted by the Second World War and later by colonial policy which zoned the East African region for Agriculture. The political turmoil that existed in Uganda in the 1970s after Independence did not make Uganda an attractive investment destination for petroleum exploration.

In the mid-1980s with stability returning to the country, more consistent efforts were undertaken including data acquisition by Government geoscientists, packaging the data for promotion, capacity building and institutional development. These efforts were successful as international oil companies were attracted to invest in petroleum exploration in Uganda in the late 1990s.

The year 2006 became a milestone when on 6th January 2006, the Mputa-1 well struck oil and was declared the first commercial discovery. Since then tremendous success has been recorded in the country's emerging oil and gas sector and various achievements made in the sector's development. Uganda's petroleum resources have grown from 300 million barrels in 2006 to 6.5 billion barrels of oil in place in 2014; the legal, policy and institutional framework for the sector has evolved; best practice technology is being utilized in the country; and frameworks to ensure stakeholder engagement, participation of Ugandans in the sector, environment protection and robust revenue management are in place.

The country has now progressed from the exploration and appraisal to the development and production phases of the petroleum value chain. Plans to put in place infrastructure such as processing facilities, pipelines and a refinery to support production are in advanced stages. It is expected that by 2021, Uganda will have joined the ranks of oil producing countries. For the East African region, the success in Uganda de-risked the entire East African rift system for petroleum exploration and development.

This publication presents an overview of the petroleum industry with specific

reference to the developments in Uganda's oil and gas sector. It is our hope that the answers to the questions presented herein will enhance the public's understanding and appreciation of the progress that has been made in the sector. Government is committed to ensuring that the petroleum industry will indeed contribute to economic take off of our nation and create lasting value to all Ugandans.

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GENERAL

1. Where in Uganda is Petroleum (Oil and Gas) Exploration taking place?

Oil and Gas Exploration in Uganda is currently taking place in the Albertine Graben (Figure 1). The Graben is part of the East African Rift System and runs along Uganda's western border with the Democratic Republic of Congo (DRC). The Albertine Graben is approximately 500 km long, averaging 45 km in width and 23,000 square kilometres in Uganda. In addition, Government is also carrying out preliminary Geophysical, Geological and Geochemical surveys in the Kadam- Moroto Basin

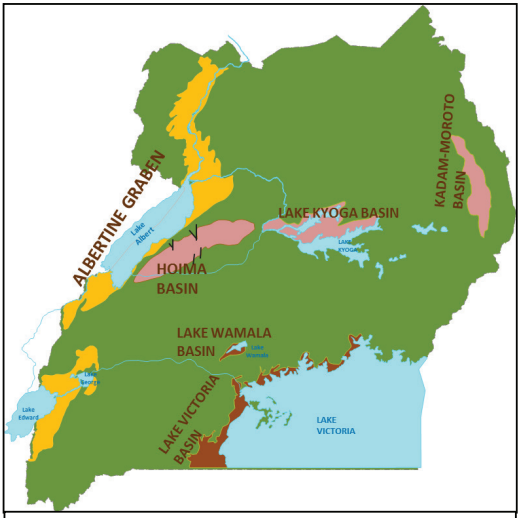


Figure 1; Location of the Albertine Graben

2. What is the Petroleum Value Chain?

The Petroleum Value Chain (Figure 2) is the series of activities staring from exploring for oil to consumption of petroleum products. The Petroleum Value Chain has three major phases, namely; Upstream, Midstream, and Downstream. **Upstream** covers exploration, development and production of petroleum together with decommissioning. Exploration refers to the

search for petroleum accumulations and includes appraisal of the same to establish the extent (distribution) of the petroleum accumulation below the earth's surface and the ease of flow of the petroleum from this accumulation. Development involves preparing for production by putting in place facilities and infrastructure for collection, transportation and processing of crude oil and gas. Production is the removal of petroleum from the accumulations below the earth's surface to the surface, and preparing the petroleum for transportation and refining. **Midstream** includes bulk transportation of petroleum commodities (crude oil and natural gas) and products (gasoline, diesel, jet fuel, etc), refining of oil and conversion of gas. It also includes converting oil and gas into marketable products and chemicals. **Downstream** deals with distribution, marketing and sale of petroleum products.

In some countries, downstream and midstream operations are considered together as downstream operations.

Figure 2: The Petroleum Value Chain

3. When did Uganda confirm commercial oil and gas resources?

Uganda confirmed commercial petroleum resources in 2006. Efforts to find oil in Uganda started as far back as the 1920s. These efforts 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. These initial efforts were not successful in establishing commercial deposits of petroleum in the country. Renewed and consistent exploration efforts commenced in the 1980s which culminated into confirmation of commerciality of the petroleum in Uganda in 2006.

Figure 3: Caroil 2 drilling rig

4. How much oil has been discovered in Uganda?

The estimated resources in the country have increased from 300 million barrels in 2006 to 2 Billion and 3.5 Billion barrels in 2010 and 2012 respectively. As at May 2019, the discovered resources in the country were estimated at 6.0 billion barrels of oil equivalent in place with about 1.4 billion barrels of these resources recoverable (1 barrel is equivalent to 159 litres). The area explored presently represents less than 40% of the total area with the potential for petroleum production in the Albertine Graben. There is therefore potential for additional petroleum resources to be discovered in the country when additional exploration is undertaken.

5. Can all the 6.0 Billion barrels of oil in place be recovered?

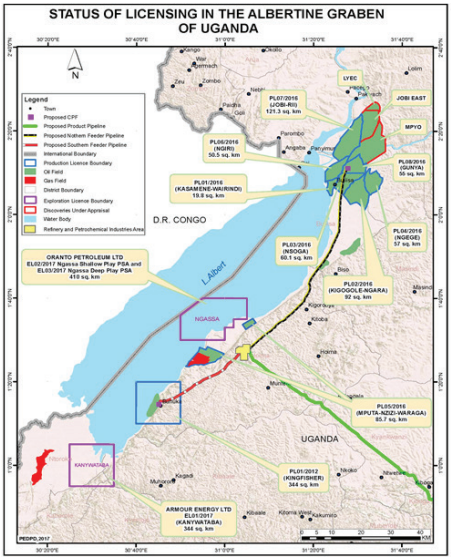
Geological factors including the fact that oil in the subsurface is stored in rocks with pores (similar to water in a sponge) and within structures, makes it impossible to recover 100% of the resources. The amount of oil to be recovered depends on the properties of the rock such as how the pores within the rock are connected to one another, reservoir pressures and type of oil, among others. Globally, an average of 20 to 30 per cent of the oil in place is recovered economically using the available technologies. Enhanced Oil Recovery (EOR) methods are also often used to increase the amount of oil recovered from an oil field using different technologies to supplement the natural production. EOR is used to improve movement of oil in the oil field and the different methods of EOR include polymer flooding, gas injection, and steam flooding.

6. How many Petroleum discoveries have been made in Uganda to date?

Twenty-one (21) oil and/or gas discoveries have been made in Uganda to date as shown in figure 4.

7. Which oil companies are licensed in Uganda?

The oil companies currently licensed in the country to undertake petroleum exploration, development and production are: - China National Offshore Oil Corporation Uganda Limited (CNOOC Uganda Ltd), Total E&P Uganda B.V and Tullow Uganda Operations Pty Limited together with Armour Energy Limited and Oranto Petroleum Limited.



8. Which parts of the Albertine Graben are these companies responsible for?

Total E&P Uganda B.V is operating in **Exploration Areas 1 and 1A** and seven petroleum discoveries have been made in this area. These are: Ngiri, Jobi, Rii, Jobi-East, Mpyo, Gunya and Lyec. Tullow Uganda Operations Pty Ltd is operating in **Exploration Area 2** and this area has a total of nine discoveries and these are Ngege, Kasamene, Kigogole, Wahrindi, Ngara, Nsoga, Mputa, Nzizi, and Waraga. The **Kingfisher Discovery Area** is operated by CNOOC (U) Ltd and it has one discovery, the Kingfisher Discovery. Three exploration licenses were awarded to Armour Energy Ltd and Oranto Petroleum Limited for Kanywataba and Ngassa (Shallow and Deep) fields respectively

9. Who owns the oil and gas resources in Uganda?

Article 244 of the Constitution of Uganda vests the ownership and control of minerals and petroleum in the Government on behalf of the citizens of Uganda. The Government therefore holds all resources in trust for the people of Uganda. The Constitution also empowers Parliament to make laws regulating the exploration and exploitation of minerals and petroleum. In this regard, Section 4 of the Petroleum (Exploration, Development and Production) Act 2013 vests petroleum resources in the Government on behalf of the people.

10. How long will the country's oil and gas resources last?

The length of time that oil and gas resources last in any given country largely depends on the amount of discovered resources and the rate at which these resources are produced. This rate is determined by many factors, including technical, strategic and economic reasons. In Uganda, at a projected peak production rate of about 200,000 barrels of oil per day, it is estimated that the current discovered resources can last 20-30 years. However, additional exploration and appraisal is expected to be undertaken in the country, and this could lead to additional resources being discovered in the country, hence prolonging this production period. It is important that these resources are produced gradually in

an efficient manner and at an economic rate that will also provide a sustained benefit to the country.

11. How far in the ground does the petroleum lie?

The depth at which hydrocarbon deposits are found varies greatly around the world. Very shallow deposits of less than 30metres were found in the early days of exploration. Today, it is common to produce oil from more than 3,000 metres. In Uganda, petroleum has been encountered between 290 metres and 3,000metres in the discoveries that have been made in the Albertine Graben to date.

12. What is the quality of Uganda's crude oil?

Different types of crude oil are produced around the world. Two of the most important quality characteristics of oil are its density and sulphur content. Density ranges from light to heavy, while sulphur content is characterized as sweet or sour. Crude oils that are light (with degrees of API gravity above 36^0) and sweet (low sulphur content) are usually priced higher than heavy, sour crude oils. Uganda's crude oil has; API range of 21^0 ~ 37^0, with a low sulphur content but is waxy with an average pour point of 40^0C and hence solidifies at room temperature. Uganda's crude oil is therefore described as sweet and medium to heavy.

13. What happens after a petroleum discovery has been made?

In accordance with section 66 of the PEDP Act 2013, when a discovery is made, the licensee is required to notify the Government and submit a technical evaluation. The licensed Oil Company appraises the discovery to determine the extent of the discovery and the characteristics of the crude oil therein by drilling additional wells (Figure 5) and/or undertaking

well testing. Following completion of appraisal and interpretation of the data acquired during appraisal, the company applies for a production licence and this application is supported by a Field Development Plan (FDP) which details how the company intends to produce and transport the petroleum in the discovery; and a Petroleum Reservoir Report (PRR) that describes the technical understanding of the reservoir below the surface. These reports are reviewed by Government and discussed with the company until agreement is reached and a production license is issued. The company then prepares the field for production by drilling injection and production wells and also putting in place other surface facilities for production and processing of crude oil.

COMMERCIALISATION STRATEGY

14. What is the plan for commercialising the discovered oil and gas resources?

The National Oil and Gas Policy, 2008 recommends value addition through refining. Government also agreed to a revised commercialization plan which provides for exporting some of the crude oil produced in the country. In this regard, a Memorandum of Understanding (MoU) between Government and the Licensed Oil Companies which provides for the commercialization of the discovered oil and gas resources was concluded in 2014. The MoU provides for use of the petroleum resources discovered in the country for power generation, supply of Crude Oil to the refinery to be developed in Uganda by Government and export of Crude Oil through an export pipeline or any other viable options to be developed by the Industry.

15. Has commercial production of oil and/or gas started?

Commercial production can only commence following the issuance of a production license, which authorises the holder to produce petroleum from a field whose appraisal has been completed and development plan approved. Commercial production of petroleum also requires putting in place infrastructure such as processing plants to separate the crude from impurities like sand and water, pipelines for transportation of crude from the fields, a refinery to transform the crude into the various products such as Diesel, Petrol, and Kerosene and facilities for the export of crude oil. These and other infrastructure such as the road networks, water and electricity in the Albertine Graben are being upgraded to support these developments. Full scale production has been earmarked for 2021/2022, after the necessary infrastructure has been put in place.

16. How much gas has been discovered in Uganda to date?

Natural gas can be "associated gas" (found within oil), or "non-associated/ free gas" (independent natural gas reservoir). Associated gas cannot exist without oil in the reservoir which doesn't necessarily apply to free gas reservoirs. The associated gas established in the country to date is estimated at 173 billion cubic feet (bcf) while non-associated gas is estimated at 500bcf.

17. How can the gas resources be utilised?

The gas resources are commercially viable and can be used for power generation. In addition, natural gas can be used for domestic purposes such as heating and cooking. It can also be used as fuel for vehicles, the production of iron and steel from iron ore, in fertilizer plants and as a chemical feedstock in the manufacture of plastics and other commercially important organic chemicals. Natural gas can also be re-injected into the reservoirs to maintain pressure to support production of crude oil through enhancement of oil recovery. Alternatively, after processing, gas can be used for on-site electricity generation or used as feedstock for different petrochemical industries. Another possibility is to export natural gas as a liquid. Gas-to-liquids (GTL) is a developing technology that converts natural gas into synthetic gasoline, diesel, or jet fuel.

REFINERY DEVELOPMENT

18. Why is Uganda opting for development of a refinery?

Objective 4 of the National Oil and Gas Policy (2008) for Uganda is to promote valuable utilisation of the country's oil and gas resources through in-country refining of crude oil. In this regard therefore, Government undertook a feasibility study on in-country refining in 2010 and the study recommended that development of a refinery in Uganda

was the most economic option for the utilisation of Uganda's crude oil. The refinery will also ensure security of supply of petroleum products to Uganda. In addition, the refinery will create jobs for Ugandans, promote industrialisation while saving foreign exchange which would have been used to import petroleum products.

19. Where will the refinery be located?

The feasibility study recommended Kabaale Parish in Buseruka Sub County, Hoima district as the most suitable location for the refinery. This is due to its centrality in relation to the entire Albertine Graben, proximity to the oil fields, sparse population and relatively flat terrain among others.

20. What is the planned size and configuration of the refinery to be developed?

A refinery with an input capacity of 60,000 barrels per day will be developed. The refinery configuration and complexity determine which products can be produced from the crude oil. The planned refinery is expected to produce Liquefied Petroleum Gas (LPG), diesel, petrol, kerosene, jet fuel and Heavy Fuel Oil (HFO).

21. How will the refinery project be financed?

Government has invited private sector participation in the development of the refinery. The refinery will be developed on a Public-Private partnership (PPP) with shares of 40: 60 respectively. The private share of 60% aims at attracting investors with experience and capital to participate in developing the refinery. The Albertine Graben Refinery Consortium (AGRC) was selected as the lead Investor who will design, build, finance and operate the refinery. Government entered into a Project Framework Agreement (PFA) for the implementation of the Pre - Final Investment Decisions (FID) activities with the Albertine Graben Refinery Consortium (AGRC) in April 2018.

The Consortium consists of Yaatra Africa LLC, Lion Works Group,

Nuovo Pignone International SRL (a General Electric company), and Saipem S.P.A. The Government of Uganda shall participate in the refinery development through the Uganda Refinery Holding Company, a subsidiary of the Uganda National Oil Company. The Consortium together with the Uganda National Oil Company (UNOC) completed the final refinery configuration and it has been approved by government. They have now commenced on the Front-End Engineering Design (FEED) and Environment Social Impact Assessment studies as a lead up to the Final Investment Decision (FID) for the refinery by September, 2020

22. What will be the effect of the development of the refinery on community settlements, will some people be displaced?

The Ministry has acquired 29 sq.km of land for the refinery. This land will host a refinery complex, an international airport, crude oil export hub waste management facilities and petrochemical industries among others.

As part of this process, Government undertook a Resettlement Action Plan (RAP) through a consultative process with the Project Affected Persons (PAPs) (Figure 7) for the required land in 2012. The objective of the RAP was to develop a framework for managing the loss of economic activities and livelihoods through compensation and/ or relocation of the affected people. Following approval of the RAP, Payment of compensation packages commenced in December 2013 and by December 2018, 98% of Project affected Persons (PAPs) who opted for cash compensation had received their payments. The remaining 2% consist

Figure 7: Community Sensitisation Meeting during acquisition of land for the refinery

of PAPs who have not shown up or have rejected the rates. 533 acres of land was acquired in Kyakabooga Parish, Buseruka Subcounty for resettlement of the PAPs who opted for relocation and Construction of resettlement houses for those who opted for relocation was completed and the houses were handed over to the PAPs during the first quarter over on the 10th August 2017. The ministry also carries out Sensitisation and engagements with the PAPs continuously to ensure a smooth exercise. The entire resettlement process is being undertaken in line with the existing national laws and international standards/guidelines.

GOVERNMENT POLICY

23. What are the Policy and Regulatory frameworks governing the country's petroleum sector?

A National Oil and Gas Policy for Uganda was approved by Cabinet in 2008. As part of efforts to operationalize the Policy, new legislation for the oil and gas sector in Uganda has been developed. The Petroleum Exploration, Development and Production (PEDP) Act 2013; and the Petroleum (Refining, Conversion, Transmission and Midstream Storage) Act 2013 became effective in April 2013 and July 2013 respectively. The former repealed the Petroleum Exploration and Production Act of 1985. In addition, the Ministry has developed regulations in line with the two Acts and these are;

I. The Petroleum (Exploration, Development and Production) Regulations,2016
II. The Petroleum (Exploration, Development and Production) (Health, Safety and Environment) Regulations,2016
III. The Petroleum (Exploration, Development and Production) (National Content) Regulations,2016
IV. The Petroleum (Exploration, Development and Production) (Metering) Regulations,2016
V. The Petroleum (Refining, Conversion, Transmission and Midstream Storage) Regulations,2016

VI. The Petroleum (Refining, Conversion, Transmission and Midstream Storage) (Health, Safety and Environment) Regulations, 2016

VII. The Petroleum (Refining, Conversion, Transmission and Midstream Storage) (National Content) Regulations, 2016

This is in addition to other sectoral laws, statutes and guidelines on Environment, Wildlife, Water, Income Tax, Land, among others.

24. 24. What is the Institutional Frame work for the Sector?

The National Oil and Gas Policy highlights the roles of the different Government institutions led by the Ministry of Energy and Mineral Development. The Ministry gives policy guidance and monitors the work of the oil and gas agencies placed under it, namely; Petroleum Authority of Uganda and National Oil Company. The policy recommends the setting up of the three separate institutions with the following roles:

- The Directorate of Petroleum in the Ministry which is responsible for policy making; coordinating the development of the sector; and undertake licensing and national and capacity building among other roles. Directorate of Petroleum comprises of three departments, namely Petroleum Exploration, Development and Production Department (PEDPD- Upstream) Midstream Petroleum Department (MPD) and the Petroleum Supply Department (PSD)

- The Petroleum Authority of Uganda (PAU) regulates the different players in the sector, including enforcing compliance and monitoring the operations of oil companies.

- The Uganda National Oil Company (UNOC) as a separate commercial entity is responsible for state participation in the licenses and other related business aspects.

The detailed roles of the Petroleum Authority and National Oil Company are provided in the PEDP Act 2013. The Boards of Directors for PAU and UNOC were inaugurated in October 2015, The UNOC and PAU are now operational with Most staff positions filled at Top management, Senior management and officer level positions have also been recruited.

25. 25.How can the National Oil and Gas Policy and the Laws be accessed?

Hard copies of the National Oil and Gas Policy for Uganda and the laws and regulations can be accessed from the Ministry of Energy and Mineral Development, and soft copies from both MEMD and PEPD's websites www.energyandminerals.go.ug and www.petroleum.go..ug respectively. As part of the implementation of the National Communication Strategy for the Oil and Gas Sector in Uganda, government has developed a popular/ simplified version of the policy which has been translated into eleven local languages, which can also be accessed as highlighted above.

26. What efforts are in place to keep Local Communities informed and enable their participation in the sector?

The National Communication Strategy for the oil and gas sector in Uganda identifies communities in the Albertine Graben as one of the key audiences for oil and gas information since they host oil and gas operations and infrastructure for the developments. Information dissemination to communities is undertaken through Community consultations and sensitisation meetings before and during operations. Radio talk shows are carried out periodically to relay information to communities in areas of operation and across the country on topics of common interest. In addition, the Community Development Officers based at the district and community levels are being capacity built to also support the dissemination of information on the oil and gas sector to the communities. Local communities supply most of the unskilled labour required

Figure 8: Buliisa Health Centre IV constructed by Tullow Oil as part of CSR initiatives

during implementation of oil and gas activities in their areas. The Oil Companies undertake Corporate Social Responsibility (CSR) initiatives to support service delivery in health (Figure 8), education and enterprise development, among others in the communities where oil and gas activities are undertaken. The Ministry plans to set up regional offices to ensure easy accessibility for the communities.

27. How and when will licensing of new acreage for exploration be undertaken?

The NOGP provides for efficiency in licensing through competitive bidding. The Petroleum (Exploration, Development and Production) Act, 2013 provides for licensing of areas with the potential for petroleum production in the country to be undertaken through open, transparent and competitive bidding. Less than 15% of the Albertine Graben is licensed. The first competitive licensing round was announced by the Minister of Energy and Mineral Development in February 2015 for six blocks Ngassa (410 sq.km) in Hoima, Taitai &Karuka (565 sqkm) in buliisa district, Ngaji (895 sq.km) in Rukungiri & Kanungu districts, Mvule (344

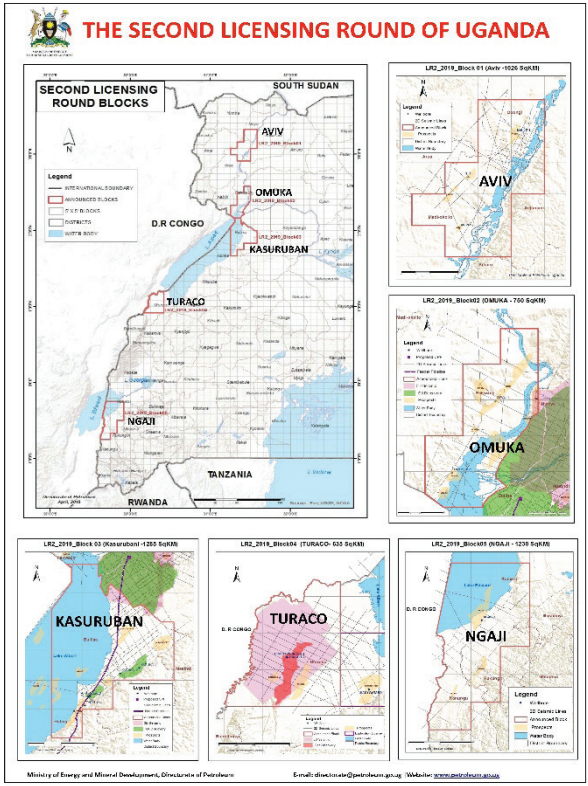


Figure 9: Map of Second Licensing Round

sq.km) in Moyo and Yumbe district together with Turaco 425 sq.km and Kanywataba (344sq km) in Ntoroko district.

The bidding round ended successfully with the issuance of exploration licenses to Armour energy Ltd and Oranto Petroleum Limited for Kanywataba and Ngassa (Deep and Shallow) fields respectively. Government through the Ministry of Energy and Mineral Development's Directorate of Petroleum is planning to undertake the second competitive licensing round in the country during 2020. The Ministry of Energy and Mineral Development announced the Second Licensing round on 8th May, 2019 during the East African Petroleum Conference

and Exhibition (EAPCE'19) which took place in Mombasa, May 2019. In addition, the Ministry of Energy and Mineral Development is preparing to undertake speculative geophysical surveys in the other areas like the Moroto-Kadam basin of the country which have potential for petroleum production but with little or no data coverage yet.

The second Licensing round which was announced on the 8th May for Five blocks including Avivi (1026km^2) Located in districts of Arua, Adjumani, Obongi and Yumbe, Omuka (750 km^2) block is located in formerly Exploration Area 1 in districts of Buliisa, Packwach, Nwoya and Nebbi, Kasuruban (1285 km) Located in districts if Hoima, Buliisa and Masindi, Turaco (635 km$^{2.}$) located in the semiliki basin, Ngaji (1230km$^{2.}$) is located in the districts of Rukungiri, Kanungu and Kasese,

28. The Albertine Graben is shared with Democratic Republic of Congo (DRC); what strategies are in place to ensure harmonised development?

The Governments of Uganda and DRC (then Zaire) signed an agreement of cooperation in 1990, to allow for joint exploration and exploitation of resources across the border by either country. An addendum to the agreement was signed in 2007 to provide for how any fields falling across the border would be shared in line with the principle of unitization. This agreement allows establishment of the percentage of the field in each country and thereby determine each country's share at the time of

production. The two Governments have held discussions on the ongoing work in the Albertine Graben, exchange of technical data and visits to the Albertine Graben to understand the exploration work, among others. It is however important to note that the discoveries made in Uganda to date are not on the common border with DRC. The Governments of the two countries continue to have regular dialogue to ensure harmonious development of the resources on either side of the border.

PETROLEUM REVENUE MANAGEMENT

29. What revenues should Government expect from the discovered petroleum resources?

Government revenues from oil and gas include royalties, profit oil share, state participation and taxes. These revenues are expected to increase over the years as the company's recoverable costs reduce.

The Production Sharing Agreements (PSAs) signed between Governments and the Oil companies provide for the sharing of petroleum during production. The International Oil Company (IOC) invests capital (along with the National Oil Company (NOC) in some cases. Capital expenditures and operating costs are deducted from production in the form of cost oil. The share of the produced oil less cost oil is **profit oil**, which is shared between Government and the licensee in accordance with the PSA. Government also receives other payments such as **bonuses, royalties, duties,** or **taxes** which are calculated on the basis of the amount of oil produced; Government and the IOC will share profit oil throughout the entire duration of production. Government also receives corporate tax on the IOC's profit oil.

30. How does Government determine the recoverable costs?

The PSAs have a provision for recoverable costs and set out the criterion under which these costs are determined basing on the work programmes

and budgets undertaken by the oil companies. These work programmes and budgets are presented to the Advisory Committee Meetings (ACM) comprised of representatives of Government and the Oil Companies for consideration and approval. All budgets submitted by the oil companies are approved at this stage. The Auditor General audits the annual books of account of the oil companies to ascertain the recoverability of all expenditures from the approved activities.

31. Who monitors the operations of the oil companies?

The Petroleum Authority of Uganda is required to monitor and regulate all operations of the oil companies. Prior to its creation, the Ministry of Energy and Mineral Development deployed on-site field monitors during all company operations to among other things ensure that the executed work programs and budgets are in-line with those approved and follow-up to ensure that work is undertaken in line with the provisions of the Laws, PSAs and Regulations. The Companies submit daily reports regarding operations, including the costs for these operations. Other institutions such as NEMA and UWA also have field-based monitors who work with the District Environment Officers and District Community Development Officers to monitor the Environmental, biodiversity and social aspects.

32. How will Petroleum revenues be absorbed into the economy?

The goal of the National Oil and Gas Policy is to use the country's oil and gas resources to contribute to early achievement of poverty eradication and create lasting value to society.

An Oil and Gas Revenue Management Policy was put in place in 2012, and this policy emphasises the need for Petroleum revenues to be used to develop infrastructure (Figure 10) enhance the other productive sectors of the economy such as agriculture, tourism, manufacturing, education, among others. Creation of lasting benefits includes the use of these resources to develop durable and competitive competencies through education, infrastructure development, together with financial

and social capital which are useful beyond the life of the oil and gas sector. The Public Finance Act 2015 provides for among others, the management of revenues accruing from petroleum resources.

LAND USE AND COMPENSATION

33. How are Compensation rates for disturbance during oil and gas operations determined?

Compensation rates for crops, trees and other structural items not of a permanent nature are determined by the district land board and forwarded to the Chief Government Valuer in the Ministry of Lands for approval. These rates are reviewed on a regular basis and need to be fair to all concerned parties and in line with prevailing market prices.

Land is valued based on the market value as provided for in Section 77 of the Land Act Cap.227. This is also in line with international valuation practices.

The market value of land is determined by many factors, including location, accessibility, social amenities, and availability of business opportunities, among others. The value is assessed by professional valuers after conducting a survey to establish the prevailing market price for land in a given locality using a comparative method. These rates are verified and approved by the Chief Government Valuer.

34. What is Government doing to ensure organised development and land use in the Albertine Graben?

The Albertine Graben was declared a special planning area during 2010 and emphasis has been put on physical planning of Municipalities and other towns in the region. Draft plans for Buliisa town council together (figure 11) with, Sebugoro in Hoima district and Butiaba in Buliisa district have been prepared and are under review. The Ministry of Lands, Housing and Urban Development (MLHUD) is also preparing physical development plans for the area around the refinery in Buseruka Subcounty, Hoima

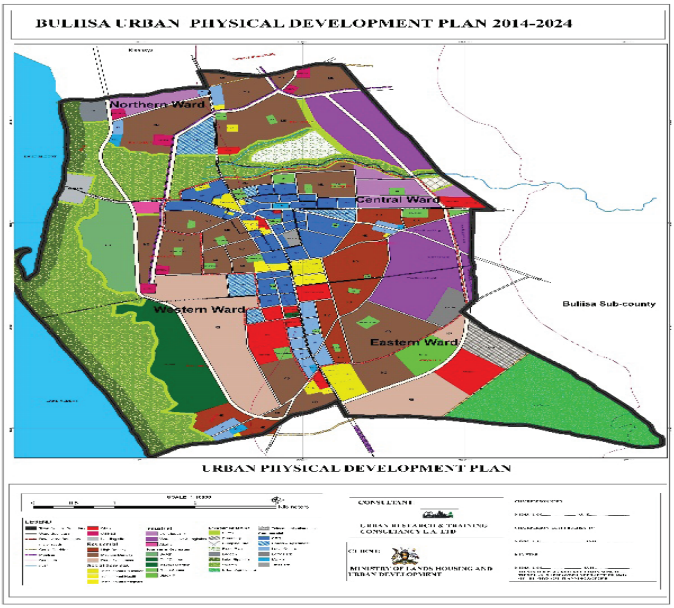


Figure 11: Draft Buliisa Urban Physical Development Plan (2014-2024

District. In addition, MLHUD has commenced developing a Landuse plan for the entire Albertine Graben.

ENVIRONMENT MANAGEMENT

35. How are environmental concerns related to oil exploration activities being handled?

Frameworks to ensure harmonious existence between the environment and oil and gas operations are in place and are being implemented. These include:

- Environment and Social Impact Assessments (ESIAs) which are undertaken in consultation with Government through National Environment Management Authority (NEMA) and the local communities. This ensures that any potential impacts – positive or negative – are considered and mitigation measures are put in place.

- A multi-institutional monitoring team from NEMA, PEPD, Uganda Wildlife Authority (UWA), National Forestry Authority (NFA), Directorate of Water Resources Management (DWRM), and Directorate of Fisheries Resources (DFR) together with the respective District Environment Officers continually monitor the activities.

- Other frameworks developed to date include an Environmental Sensitivity Atlas for the AG, an Environment Monitoring Plan, and an Enforcement Strategy together with Guidelines for Waste management and Operations in protected areas. A Strategic Environment Assessment for oil and gas activities has also been developed to ensure that environmental concerns are included in all Government Plans, Programmes & Policies.

36. Are the Environment and Social Impact Assessment (ESIA) reports public documents and can the comments from stakeholders be reviewed?

ESIAs are indeed public documents, and a copy of the final ESIA report is forwarded to the district through the District Environment Officer (DEO). It includes all comments and concerns raised and the responses given during consultations with stakeholders.

37. How is the waste generated from the drilling operations managed?

Waste produced from drilling operations is mainly composed of mud cuttings which are a mixture of rock cuttings and drilling fluid that contains additives like bentonite, barite which are used in the drilling process. In Uganda, Water Based Mud (WBM) has been used most often because it is more environmentally friendly than Oil Based Mud (OBM).

Waste generated from the well sites is stored at designated consolidation sites. There are four waste consolidation sites; Ngara and Bugungu for wells drilled in Buliisa district, Tangi in Nwoya district for wells drilled North of the Albert Nile and Kisinja for wells drilled in Kaiso-Tonya, Hoima district. The sites have specially designed pits in which the solid and liquid wastes are stored separately. The pits are 4 metres deep and double-lined with strong PVC (10mm thick) and concrete which is tested before being put to use to avoid any seepage into the environment. Monitoring water boreholes are drilled around the perimeter of the each of the pits to monitor any contamination.

NEMA has licensed twelve companies to handle waste at different levels namely; transportation, treatment and disposal. Enviroserve (Figure 12), White Nile Consultants Limited and Luwero Industries have constructed facilities in Hoima and Nakasongola respectively and are now licensed to operate these facilities. The previously containerized waste has been transferred to these facilities for treatment and disposal. In addition, the requisite legislation for waste management is being updated.

Figure 12: Waste treatment facilities at the Enviroserve waste management site in Nyamasoga in Buseruka Subcounty, Hoima District. Right is a solid waste engineered land fill

38. How is Uganda prepared to address the potential for oil spills given the presence of international water bodies in the Albertine Graben?

Oil spills undeniably present a risk in petroleum production processes across both developing and developed countries. In Uganda, oil spills present an additional risk given that Lake Albert is shared with Democratic Republic of Congo and also feeds the White Nile that flows to South Sudan and beyond. The rich biodiversity in the Albertine Graben presents another challenge.

To this end, an Environment Risk Assessment (ERA) and Sensitivity Analysis for oil and gas operations in the Albertine Graben was undertaken. This informed the development of an Oil Spill Contingency Plan that was drafted with input from Office of the Prime Minister, NEMA, Ministry of Water and Environment, the Directorate of Petroleum and the Petroleum Authority of Uganda (PAU) among other agencies. The plan considers level of Preparedness, Emergency response mechanism, Command structure, Resources available and Mechanisms for handling oil spill.

39. What were the findings of the Strategic Environment Assessment (SEA)? Are the recommendations being implemented?

SEA is a new concept recognized internationally which aims to evaluate the cumulative impacts of the oil and gas operations to ensure that these are captured in all Government Plans, Policies and Programs (PPP) across different sectors of the economy. The assessment indicated that there would be economic gains, albeit not without environmental and social challenges. For example, a large volume of waste would be generated with hazard potential to human beings, water bodies and animals. The assessment also indicated demographic changes in the region that would require planned social amenities like road networks, health facilities, and urban plans to avoid slums, among others.

Some of the SEA recommendations under implementation include; development of a waste management plan and strategy to complement the laws that are already in place; State of the art waste management facilities have been constructed in the graben; the Ministry of Works and Transport together with Uganda National Roads Authority are upgrading the road networks in the Albertine Graben; plans to build an international airport are underway; Clean water infrastructure has been extended to region; and a Graben and planning for several growth centers in the region is ongoing.

NATIONAL PARTICIPATION

40. Which opportunities are available for Ugandans in the oil and gas sector?

There will be opportunities for employment and service provision. The Industrial Baseline Study estimates over 160,000 jobs to be created directly, indirectly and induced during the next phase of exploration and the development of the fields at Professional, Technical/ Artisan and

Unskilled levels from direct, indirect and induced opportunities. The study also identifies 25 critical industries with high potential for National Content for Uganda. These are;

- Civil construction ▪ Site safety and security
- Road construction ▪ Bulk material
- Cement ▪ Catering
- Domestic airline services ▪ Facility management
- Food supply ▪ Fuel wholesale
- Furniture manufacturing ▪ Generic waste management
- General maintenance ▪ Hazardous waste management
- Light equipment ▪ Manpower consultancy
- Mechanical construction ▪ Production operations
- Structural/flat steel ▪ Technical consulting
- Transport & Logistics (Goods) ▪ Transportation (People)
- Vendors ▪ Work safety products
- Reinforcement steel manufacturing

The National Content Regulations further provide for fifteen categories of goods and services reserved for Ugandan suppliers;

- Transportation.
- Security.
- Foods and beverages.
- Hotel accommodation and catering.
- Human resource management.
- Office supplies.
- Fuel supply.
- Land surveying.
- Clearing and forwarding.
- Crane hire.
- Locally available construction materials.

- Civil works.
- Environment studies and impact assessments.
- Communications and information technology services.
- Waste management, where possible.

41. 41. It is estimated that between US$15 and US$20b will be spent by oil companies during the development phase. What is being done to ensure part of this money is earned by Ugandans?

Government has put in place policy, legal, regulatory and institutional frameworks to ensure National Content development in the oil and gas sector, specifically during the development phase where the bulk of the opportunities are. This framework gives first priority of employment and supply of goods and services to Ugandans where capacity is available in the country. Where capacity is lacking, Government is working with the licensees, development partners and the private sector to build the necessary capacity of Ugandan citizens and companies to benefit from the available opportunities. This is being undertaken in line with the workforce skills development strategy and plan and the industrial baseline study. Some of the efforts include**,**

- Regulating in-flow of expatriates into the country,
- Supporting national enterprises to acquire contracts for goods and service provision,
- Emphasizing capacity building and enhancing the capacity of Ugandan institutions to provide required training at all levels.
- Dissemination of information on the oil and gas industry requirements such as manpower and services among others,
- Putting in place an Enterprise Enhancement Center to raise the standards of businesses and entrepreneurs,
- Development of a National Suppliers' Database and a National Talent Register,

- Development of standards for goods and services reserved for Ugandans among other measures
- Planning for an Agriculture Support Development Programme

42. How can one get a job in the oil and gas sector?

There are both technical and non-technical employment opportunities in the oil and gas sector (figure 13). These include opportunities for qualified Geoscientists, Engineers, Economists, Accountants, Social Work, among others. These opportunities are advertised in the media and are competitive. The unskilled jobs in the exploration areas are offered based on recommendations made by the community leaders in the areas where the operations take place. The oil and gas sector, is however, not a mass employer but offers more opportunities in service provision and spill over benefits through other sectors such as clearing and forwarding, ICT, hospitality, manufacturing, transportation, construction which are also growing.

CAPACITY BUILDING

43. How is Government ensuring that Ugandans attain the required qualifications to participate in the sector?

The Uganda petroleum Institute at Kigumba was started by Government during 2009 to offer technical training to Ugandans on petroleum related disciplines. Uganda Petroleum Institute, Kigumba was granted approval as a Centre to offer City & Guilds Qualifications on the 21 November 2018 and were allocated the Centre Number: 851035. This accreditation allows UPIK to offer 22 City & Guilds programs from level 1 to level 3). Q-sourcing/TASC and Kinyara Sugar Factory are the other institutions accredited by City & Guilds. UPIK is also working towards becoming an award center for the Offshore Petroleum Industry Training Organization (OPITO); the Engineering Construction Training Industry

Board (ECTIB); and the Certification offered by our Twining Partner the French Petroleum Institute (IFP-Training).

In addition, Makerere University commenced a BSc degree in Petroleum Geoscience in 2010 and an Msc in Petroleum Geoscience during 2012. Government will continue to work with other universities and institutions across the country to support the development of petroleum training in the country.

A National Supplier Database (NSD) was created in 2017 as a platform where businesses interested in supplying the sector can register. To date, the database has 1,011 registered businesses of which 706 are incorporated in Uganda.

On the 1st of February 2019, the National Oil and Gas Talent Register (NOGTR) was launched and registration is ongoing. The NOGTR is an electronic database of skillsets in the sector and will ensure that the PAU is able to monitor the absorption of the available labour force in the sector.

Government has continued to prioritise capacity building of Officers from different institutions taking forward the development of the Oil and Gas Sector in the Country, including; Ministries of Finance Planning and Economic Development, Justice and Constitutional Affairs, Lands, Housing and Urban Development, Energy and Mineral Development, Water and Environment, NEMA, Uganda Wildlife Authority, Uganda Revenue Authority, Office of the Auditor General and Bank of Uganda among others. To date over 250 officers have been trained at post graduate level specializing in different petroleum disciplines. In addition, specialised short-term training programs are also undertaken.

44. What qualifications are required to join the Uganda Petroleum Institute in Kigumba and is there guarantee for jobs?

UPIK admits students that have attained their 'A' Level Certificate and have passed Chemistry, Physics and Math at both 'O' and 'A' Levels. The

applicants should have completed their A' level within the past two years. The diploma course takes 2 years to complete and 6 months of industrial training for certification. Regarding employment opportunities, the oil and gas sector is progressing towards the development phase and construction of the refinery where 65% of the required labour force (100,000 to 150,000 indirect and induced jobs) will be artisans and technicians with industry certified skills.

Visit www.petroleum.go.ug for more information on Uganda's Oil and Gas Sector.

The Government of Uganda is committed to effective and efficient development of the Country's Nascent Oil and Gas Sector.

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