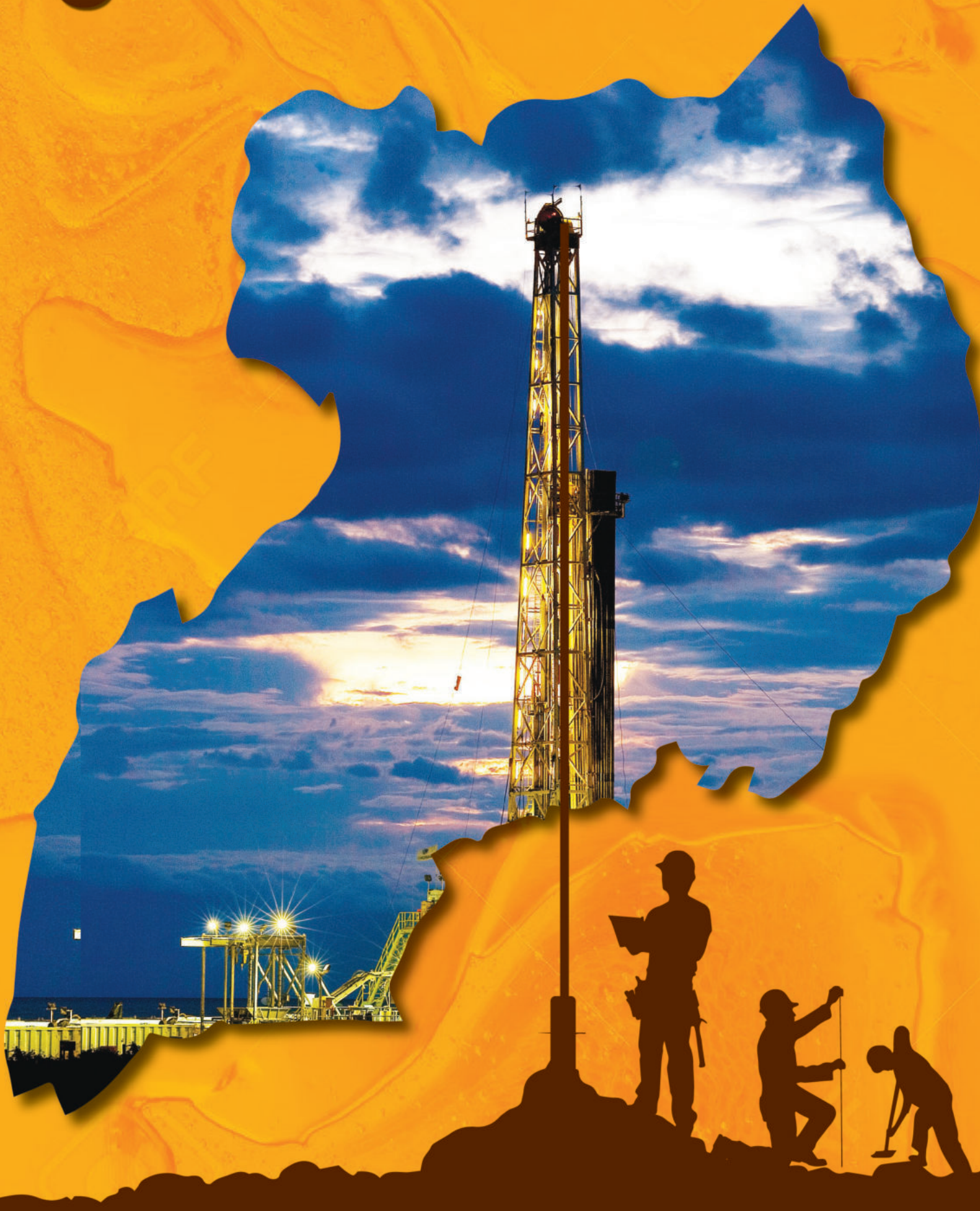


Uganda's Oil Journey



Uganda's Oil Journey



The project is set to exploit 6 billion barrels of oil, of which 1.4 billion barrels is recoverable. This is over an area covering 40% of the total area that has been discovered to have this natural resource.



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Foreword



**His Excellency Yoweri Kaguta
Museveni Tibuhaburwa
President of the Republic of Uganda**

Since we discovered Oil in Uganda, there has been a lot of debate and negotiations on terms to be applied, amount of tax and other expenses, and recent demands that fossil fuel investment in Africa for Africans is unacceptable, which have delayed the commencement of the oil production. It is good that these are reaching a close and we are ready for the project to commence the construction phase.

The project is set to exploit 6 billion barrels of oil, of which 1.4 billion barrels is recoverable. This is over an area covering 40% of the total area that has been discovered to have this natural resource.

This is expected to bring into the country, investments of between US\$ 15-20 billion in the next 3 to 5 years, before commencement of oil production. This kind of investment is in excess of 60% of Uganda's current GDP and is unprecedented.

As this book shows, we have made tremendous progress in; ensuring skills, enterprises and human resources development, putting in place an enabling legal framework, institutional capacity and local content, among so many others.

We now have laws in place to govern the upstream, midstream and downstream. All our Government institutions are operationalized with a team of very patriotic negotiators.

We can confidently say that we are ready for the commercialization of Uganda's Oil. This has, often times, been seen as delaying but, in actual sense, it has been a continuous preparation process. There is no short cut for a country whose agenda is, sustainable exploitation of natural resources in order to create lasting value for society.

A future outlook on our region's readiness for

oil and gas development is timely for both the public and private sector players to get ready to utilise the opportunities that will accrue from the exploitation of the petroleum resources.

We will ensure that this growth and development transforms the livelihoods of our people by investing in other productive sectors of the economy such as Agriculture, Manufacturing and Tourism, in order to cause a multiplier effect across the country and the region.

I want to assure you all that Government is not only committed to delivering First Oil, but more importantly, to ensuring that the Country benefits from the efficient management of the resources.

For some years we have been told fossil fuel investment in Africa for Africans is unacceptable.

Yet Africa needs to diversify, not restrict its methods of energy production. For every wind or solar array, we need continuous baseload power produced by thermal, mini-hydro, natural gas, and in time, also nuclear. Even the International Energy Agency (IEA), recently in lock-step with Europe's African fossil fuels investment moratorium, has changed its tune—now calling for Africa to be empowered to use gas and other hydrocarbons for industrialization.

If Africa was to increase electricity production just by using her known reserves of natural gas, the continent's share of global emissions would rise from 3 percent to just 3.5 percent.

US\$25 billion per year would, according to IEA estimates, raise 600 million people out of energy poverty by 2030 through such diversification. Africa could repay this with the proceeds from energy investments, and it would be possible to employ and grow millions out of poverty.



Prime Minister's Statement

The Government has continued to show consistent support to the oil and gas sector by providing a peaceful environment for the investors to operate.

**Rt. Hon. Robinah Nabbanja,
The Prime Minister of Uganda**



In our 2040 vision, we are considering the sustainable development goals holistically. We must address energy poverty, stop hunger and develop, so we need a holistic approach. The EACOP will benefit the people of East Africa and stopping it is unrealistic and unjust and we are not accepting it. We need about US\$3 billion to develop the pipeline. This does not mean we are not concerned about climate change issues: we are. Which is why we are using clean electricity when developing these reserves. We cannot ignore climate change issues but to stop us from using our resources to develop Uganda is telling us to remain in darkness. The money from these petroleum reserves is ring fenced for infrastructure development which includes electricity infrastructure.

**Hon. Dr. Ruth Nankabirwa Ssentamu,
Minister of Energy and Mineral Development**



“



All our projects are compliant with the environmental and social impact assessments. We will abide by those mitigation measures that are well stipulated in those environmental social impact assessments.

**Eng. Irene Batebe,
Permanent Secretary,
Ministry of Energy and Mineral Development**



CHAPTER
1

Leaders of the Oil & Gas Sector







The Petroleum Authority of Uganda's mission is to regulate and monitor the petroleum industry to create lasting value to society and contribute to Uganda being a sound investment destination. The oil and gas sector in Uganda is not only creating significant value, it is also causing positive transformation in the country. The Authority is looking forward to continuing to work closely with the different stakeholders to achieve alignment of goals and aspirations with a view to enhance the sector's contribution to the development of the country.

**Jane Nambakire Mulemwa,
Chairperson, Board of Directors
Petroleum Authority of Uganda**





As the regulator of the country's oil and gas sector, the Petroleum Authority of Uganda is committed to ensuring that the oil and gas activities in the country are carried out sustainably, and in line with international best practice and standards. This will ensure optimum recovery of the oil and gas resources, costs management and safety of operations, as well as maximising national participation and linkages with other sectors of the economy to achieve value beyond the revenues expected to be earned from these resources.

**Ernest Rubondo,
Executive Director Petroleum
Authority of Uganda**





As TotalEnergies, we are proud to be part of Uganda's energy journey by supporting the development of not only oil and gas resources but also renewables in line with our multi-energy ambition. Our commitment is anchored on our desire to achieve together with society net zero emissions by 2050 and to foster sustainable development in the countries where we operate.

Philippe Groueix,
Country Chair TotalEnergies Uganda
and General Manager,
TotalEnergies EP Uganda





“

We are committed to the efficient and effective development of the oil and gas resource in an environmentally friendly and sustainable manner that promotes harmonious co-existence with the environment and biodiversity.

Chen Zhuobiao,
President CNOOC Uganda Ltd





We make sure our commercial business approach addresses environmental concerns. There is a global push for green energy. We believe we can have clean energy without it being at the expense of those who suffer from poverty. There is more than enough innovation and technology in the oil and gas industry that can make the environment safe.

Emmanuel Katongole,
Chairman, Board of Directors
Uganda National Oil Company Limited





[The oil project's] social and economic benefits are going to propel our country to industrialization. We have projected about US\$ 47 billion within the lifetime of the project. Imagine if you are bringing all that revenue in an economy of US\$ 30 billion GDP.

**Proscovia Nabbanja, Chief
Executive Officer, Uganda
National Oil Company Limited**





The construction of the EACOP Pipeline, in combination with the Tilenga and Kingfisher Projects, will benefit the economies of Uganda and Tanzania; including through tax revenues for the two host governments, job creation, national content, new infrastructure, logistics, skills and technology transfer, and enhancement of the trade corridor between Uganda and Tanzania.

Martin Tiffen, Managing Director, East African Crude Oil Pipeline Company





CHAPTER

2

Journey to the Final Investment Decision







“President Yoweri Museveni came and we discussed how to move forward. He said let’s build capacity; in terms of human resource, and then create institutions that can manage the oil and gas in future and let’s promote our oil and gas potential.”

Kabagambe Kaliisa, Senior Presidential Advisor on Oil, Gas and Minerals and former Permanent Secretary, Ministry of Energy and Mineral Development



Kabagambe Kaliisa



Ernest Rubondo



Honey Malinga



Reuben Kashambu



Robert Kasande

The Journey to Uganda's First Oil and Gas Discovery

- The People and Events that Shaped preliminary
- Oil and Gas exploration efforts in Uganda
- Preliminary Exploration (1900s to 1945)
- Stagnation Period (1945 to 1980)
- Revival and Present Day Efforts (1980 to 2006)

Early Oil signs & Exploration

The quest to confirm the existence of commercial reserves of oil and gas in Uganda started way-back before the colonial period in the late 19th century. Apart from encounters by local communities of oil seepages in the Albertine region, early explorers documented the seepages; the Ottoman Governor of the Egyptian province of Equatoria on the upper Nile, Emin Pasha, in 1877 and the British colonial mercenary soldier, Frederick Dealtry Lugard in 1890. The occurrence of oil and gas seeps is an indication that thermodynamic conditions were favourable for the generation of hydrocarbons.

By the 1920s, various shallow wells were being drilled based on the oil seeps in Butiaba (Buliisa), Kibiro (Hoima) and in Semliki Valley (Ntoroko).

Two oil seeps were spotted in Kibiro, on the eastern shore of Lake Albert and an oil and gas seep was also reported from the Kibuku area south of Lake Albert.





▶ **Geological and geophysical field mapping exercises**



Shallow wells drilled near the Kibiro seeps encountered some heavy asphaltic oil shows (about 15 API). Those at Kibuku showed a 25° API gravity oil. Farther to the north, along the lake near Butiaba, a borehole encountered oil shales with some petroleum indications in sand lenses. Oil seepages about 8 km and 22 km south

of Aswa on the Zairian shore of Lake Albert (across Butiaba) had been known since the first foreigners visited the region and were the reason for the initial steps to explore the graben that took place in Uganda around the early 1920s. The Kibiro oil seeps were first visited in 1919 and reported in 1925. In 1925, the British colonial administration

conducted a geological survey which provided the first official confirmation of the presence of hydrocarbons in the Albertine Graben.

The Anglo-Persian Co. applied for a concession over the Lake Albert area in 1926, but the concession was relinquished in 1930.



Earliest Geological Surveys

The African and European Investment Co. of Johannesburg was granted a concession in 1937 around Lake Albert and in the lake. It undertook many structure tests near Butiaba and some showed hydrocarbons. But the company relinquished its rights in 1940.

The Geological Survey of Uganda carried out an exploration programme between 1948 and 1951, which consisted of field geology, gravity surveys, and drilling of 13 shallow stratigraphic tests averaging about 1,000 ft. This programme was halted when it became clear that deeper drilling was necessary.





Exploration during colonial times

In the twentieth century, exploration was erratic and hindered by geopolitical events. In 1925, the British colonial administration conducted a geological survey to map possible oil deposits. This survey provided the first official confirmation of the presence of hydrocarbons in the Albertine Graben and generated international interest in commercializing oil reserves in Uganda.





Stagnation Period- 1945 to 1960

The outbreak of World War II in 1939 disrupted the oil market and oil exploration in Uganda was abandoned. The war ended in 1945 and some exploration activity resumed in 1952. But this was again halted after a change in colonial policy that clustered East Africa into an agriculture zone and the attitude of the colonial masters exploring for oil shifted to West Africa. Then the struggles for independence by the colonised peoples raged.

Exploration after independence

The political turmoil and insecurity that followed Ugandan independence put a brake on exploration activity. Then the post-independence turmoil, especially in the 1970s, cut Uganda off as an attractive investment destination. In 1971, Comoro Exploration Co. of New York signed an exploration agreement and carried out some work, but failed to live up to the work programme and thus the concession expired.

When oil was discovered in Southern Sudan in 1979, interest in petroleum exploration in Uganda picked up again. The sedimentary basins of Sudan and Uganda are adjacent, although they are separated by a major geological fault (the Aswa Shear Zone). The possibility that the formations in both basins may be related enhanced the attractiveness of Uganda's Albert Rift basin.





▶ Geoscientists on a field mapping in 2005 for lakes George and Edward Basin

Revival- 1980 to 1985

When the government of Gen. Idi Amin which had become a pariah to international investors was removed from power in 1979, the successive government of Apollo Milton Obote was keen to attract oil companies into exploration.

According to a World Bank document from 1984, the five prerequisites for a sedimentary basin to be declared prospective for oil and gas were by the 1920s known to exist in the Western Rift Depression. The five prerequisites were: (a) source rocks, (b) reservoir rocks, (c) protective rocks; (d) sedimentary thickness over 10,000 ft to ensure proper maturation conditions

and sufficient volume of potential oil resources, and (e) appropriate structuration for trap development.

There were, however, challenges in the way. These included lack of exposure to the oil industry, lack of trained man-power in petroleum geology and exploration, and lack of enabling laws.

By the early 1980s, even if the big picture for oil and gas prospects in Uganda remained sketchy due to lack of detailed studies, the presence of the prerequisites in combination with the graben situation made the Western Rift Depression a very attractive area and a prime prospective feature.

The Obote government restarted exploration and was assisted by the World Bank to fund aeromagnetic surveys over the Albertine region. It also advanced the legislative and administrative framework by passing The Petroleum (Exploration and Production) Act in 1985 and establishing a dedicated Petroleum Unit in the Geological Survey and Mines Department.

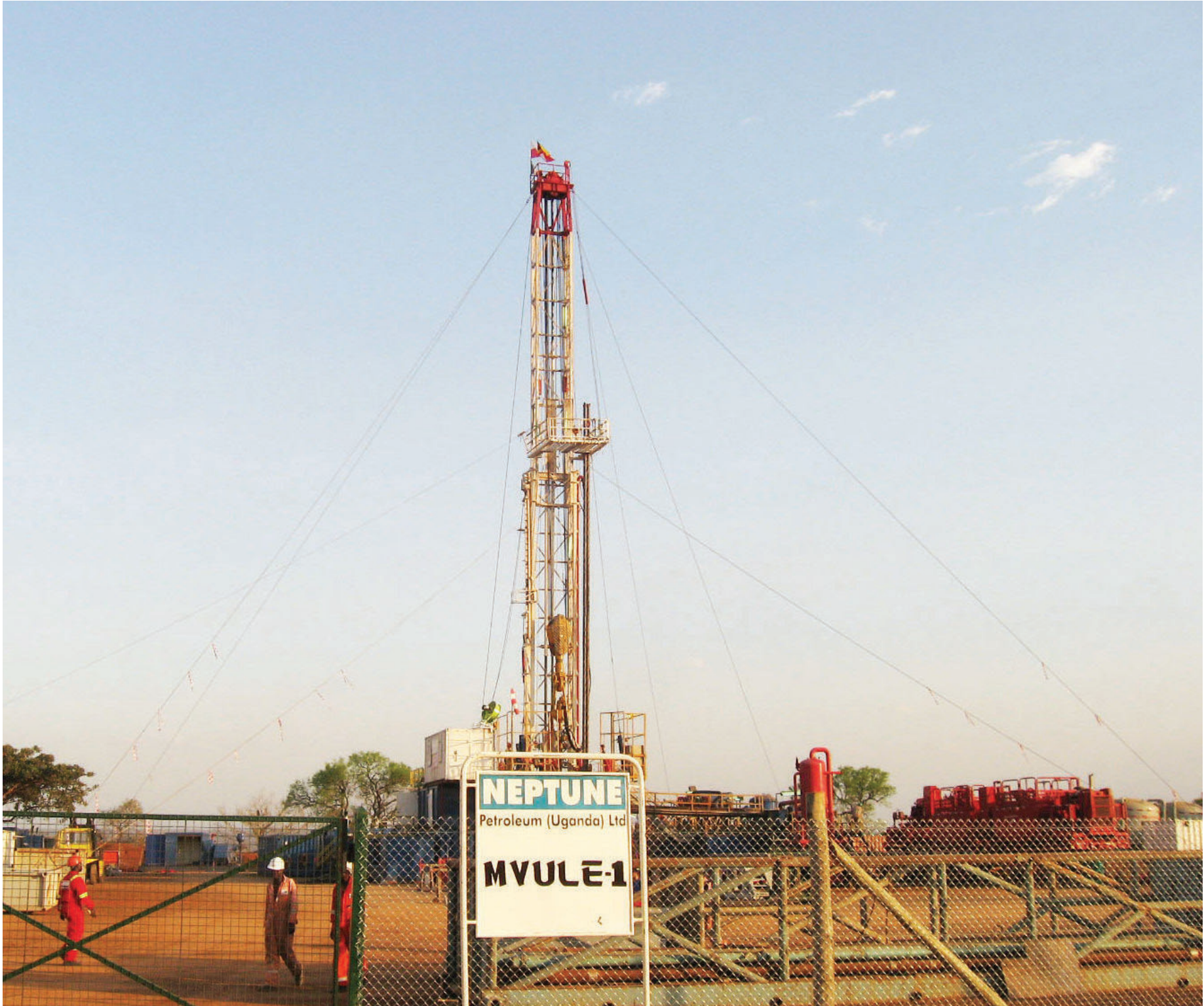
The government set up a Petroleum Exploration Promotion Project in August/September 1982 to continue promotion efforts to attract oil exploration companies and build capacity in the field. On February 7-8, 1985 major negotiations were held in London between the government of Uganda, Tanzania and Zaire (now Democratic Republic of Congo) and the World Bank to solicit

financial support for the Petroleum Exploration Promotion Project. The Government of Uganda was represented by a delegation led by His Excellency E.R. Kamuntu, Ambassador Extraordinary and Plenipotentiary.

The government of President Obote passed The Petroleum (Exploration and Production) Act in 1985, and established a dedicated Petroleum Unit in the Geological Survey and Mines Department in the Ministry of Lands, Minerals, and Water Resources. The World Bank funded aeromagnetic surveys over the Albertine region. Early confirmation of oil and gas in the Western Rift Depression was registered but political instability in the mid-1980s disrupted progress.



▶ Drilling of Ngassa 2 well on the shores of Lake Albert in March 2009



▶ Drilling of Mvule-1 well in Obongi, Moyo District during 2012

Modern Day Exploration Efforts -1986 to 2006



▶ **Kabagambe Kaliisa, Ernest Rubondo, Hon. Gerald Sendawula (then Minister, Natural Resources), Reuben Kashambuzi and Bryan Westwood (then General Manager, Heritage Oil East Africa) at the signing of the Production Sharing Agreements with Heritage Oil in 1997.**

The quest to confirm the existence of commercial reserves of oil and gas in Uganda picked up pace in 1986 soon after His Excellency President Yoweri Museveni assumed power. President Museveni assumed power on Wednesday, January 29, 1986. He was concerned about the energy scarcity in the country and barely a few days after he came to power on Tuesday, February 10, 1986 he met with a team of technocrats from the Ministry of Lands, Minerals, and Water Resources. Then Permanent Secretary Ms. Janet Opio led the team that included Mr. Saulo Mboijana (Commissioner Geological Survey and Mines Department) and Mr. Kabagambe-Kaliisa, then Coordinator of the Uganda Petroleum Promotion Project.

President Museveni and the technocrats agreed on three strategic interventions: training and capacity building of Ugandan scientists, data acquisition for investment promotion, and developing an efficient and robust regulatory and institutional framework to monitor the sector.

President Museveni also suspended negotiations with oil companies with

the aim of endowing Ugandan professionals with stronger bargaining power so that they might negotiate favourable contract terms. Staff were sent for training in Norway, the United States, and India.

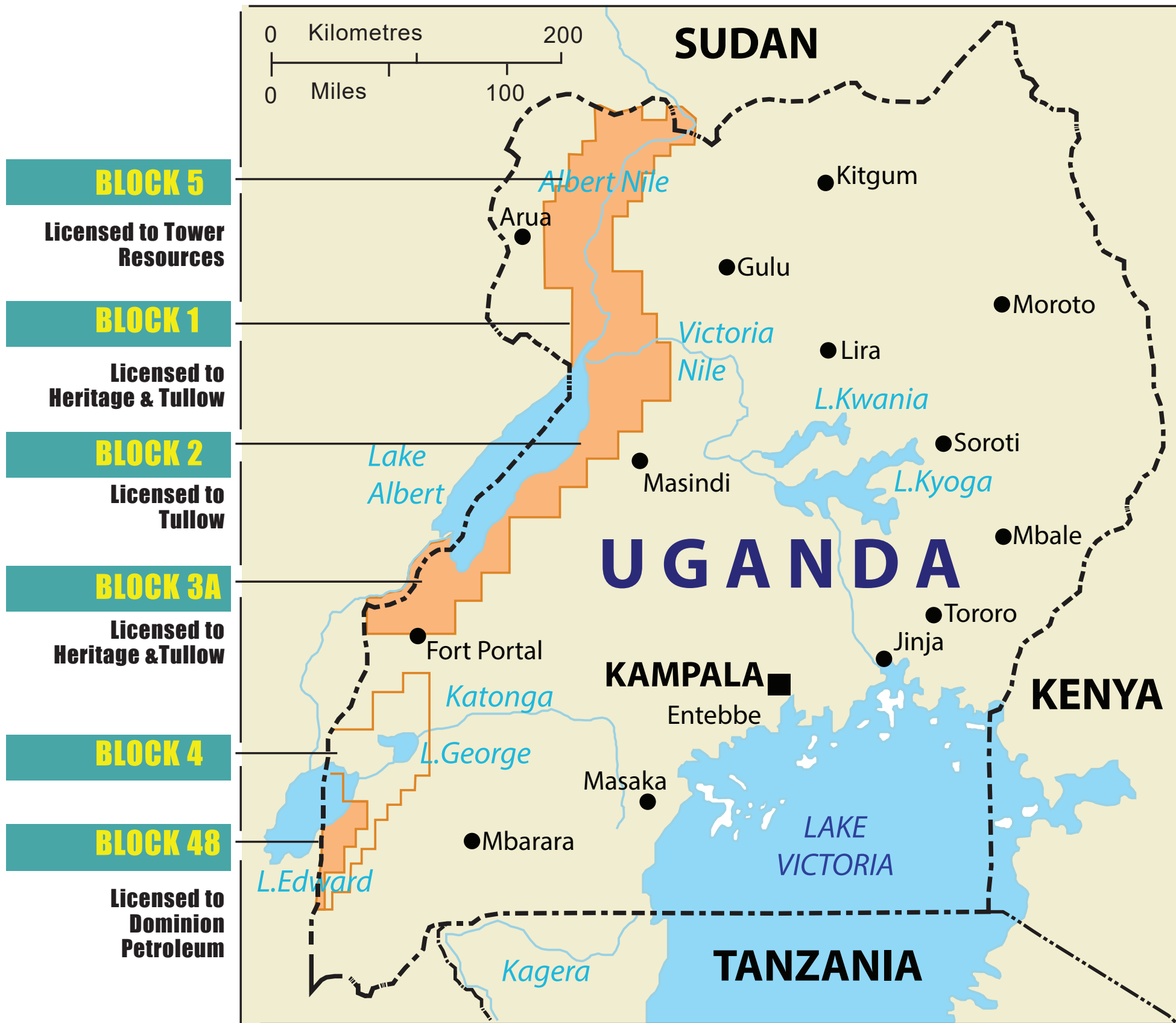
Mr. Kabagambe and Mr. Reuben Kashambuzi (former Commissioner of the Petroleum Exploration and Production Department -PEPD) immediately travelled abroad for further training in petroleum disciplines. They returned and recruited other geoscientists to join the Petroleum Unit under GSMD. Some were also sent abroad. These included Ernest Rubondo; a Geologist trained in China, and Mr. Honey Malinga a Geophysicist.

Prof. Tosson, Prof. Patrick Mazimpaka and Prof. John Odeke Illukor helped in spotting talent and were instrumental in recruitment of various geoscientists.

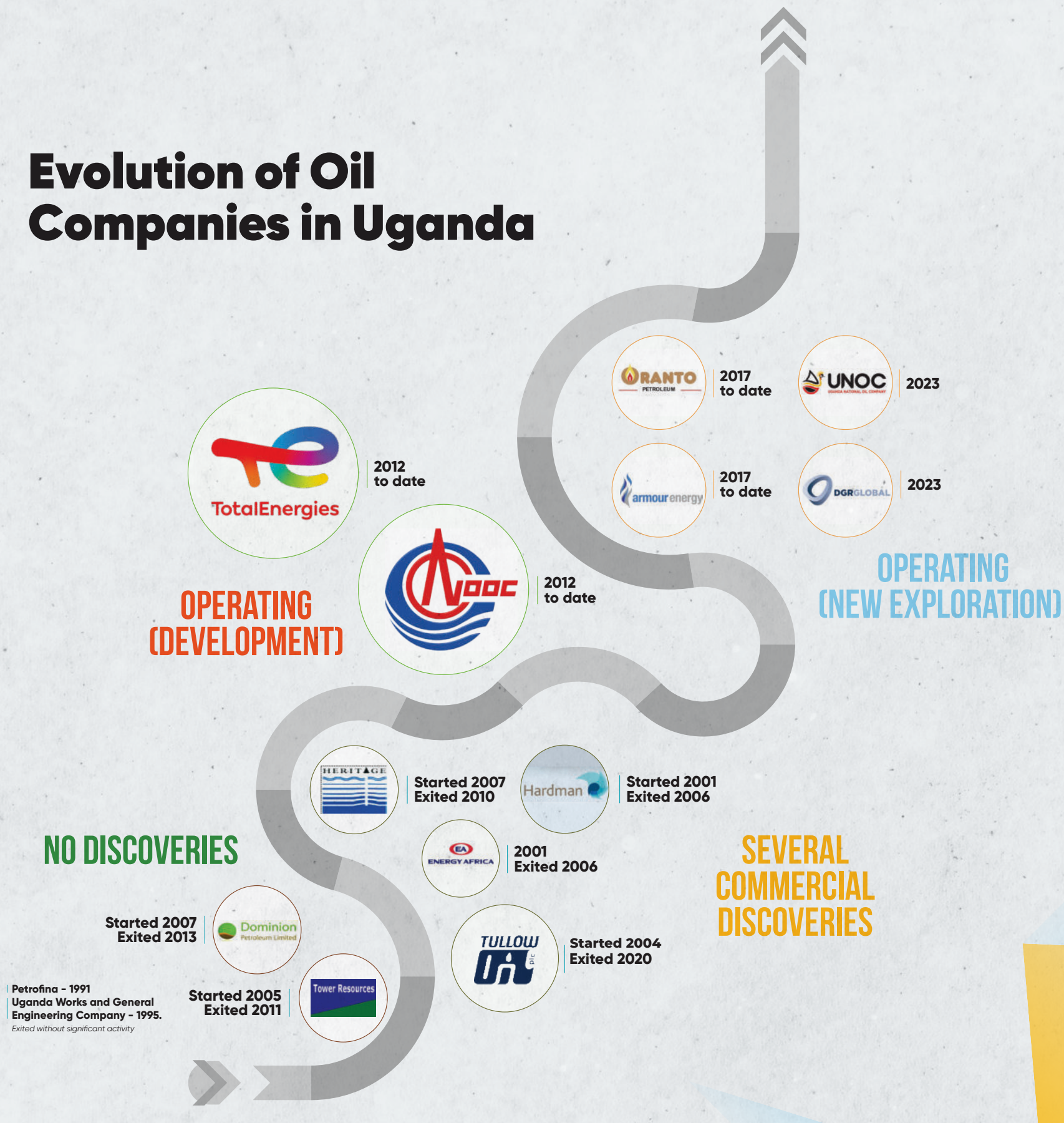
Mr. John Kakenga took the recruits to the Graben for field work and practical lessons.

Mr. John Gara from the State Attorney's Office crafted and drafted the

Map shows early exploration licence allocations



Evolution of Oil Companies in Uganda





▶ Early promotion efforts in the 1990s

petroleum legislation and the Production Sharing Agreements. Mr. Kabagambe-Kaliisa, retired Permanent Secretary, Ministry of Energy and Mineral Development says promoting and convincing international companies to come and invest in Uganda's oil and gas prospects was a hard task.

Early experts, such as the late Prof. Arthur Whiteman viewed the Lake Albert Graben as a young basin and claimed chances of finding petroleum were slim. Prof Whiteman was one of the best geologists in the world and part of the team of geoscientists who discovered oil in Sudan, the Niger Delta, and in the North Sea. He died in 2005 before oil was discovered in Uganda.

Mr. Kabagambe and then Minister of Energy, Hon. Henry Kajura, travelled to Europe and North America on promotion activities but failed to get anyone interested.

The Petroleum Unit under the Ministry of Lands, Minerals and Water Resources had finished conducting the first airborne and magnetic surveys in the Albertine Graben in 1983. This was used to broadly demarcate the Graben into different basins; the Lake Edward-Lake George, Lake Albert and the Packwach-Rhino Camp basins.

Preparation for potential investors involved putting in place an institutional and regulatory frame-work. This included: Enactment of the Petroleum Exploration and Production Act 1985 (now repealed). This was critical in future licensing, monitoring and supervision. Enactment of the 1993 Petroleum regulations. The transformation of the Petroleum Unit, under the Geological Surveys and Mineral Department into the Petroleum Exploration and Production Department (PEPD) in 1991.

In 1990, an agreement of cooperation for the exploration of hydrocarbons and exploitation of common fields was signed between the Governments of DR Congo and Uganda. This foundation helped to successfully negotiate and conclude the first PSA.

On March 26, 1991 the first PSA for Petroleum Exploration and Development was signed with Petrofina. But it was withdrawn in 1993.

Government geoscientists soon started going to the field to gather geological, geophysical and geochemical data. The data acquired was packaged and used to attract investment capital.



▶ First Rig: Turaco Rig in Semliki

Heritage Oil and Gas Limited (Heritage), Hardman Petroleum and Energy Africa, were licensed between 1997 and 2004 in different areas, and undertook the more expensive seismic surveys on land and Lake Albert and drilled wells.

The first deep wells since 1938 (Turaco-1, 2, 3) that were drilled by Heritage in the Semliki Basin between 2002 and 2004 encountered hydrocarbons. But the natural gas tested in the Turaco-3 well was heavily contaminated with Carbon dioxide.

Heritage withdrew but was later convinced to try again in Exploration Area 3A and Exploration Area 1, along with a partner, Energy Africa in 2004.

For Hardman Africa, the story was better. Uganda's scientists, had held discussions with Hardman in 2004 at their offices in Perth, Australia to convince them that the next wells are drilled on land in Kaiso Tonya (Hoima District) rather than in Lake Albert basing on the interpretation of the data acquired. It would have taken longer and more expensive to mobilise the equipment to drill on the lake.

Mputa-1 well was drilled in December 2005 and on 6th January 2006 it struck oil and was declared the first commercial discovery in Uganda. Thus the journey from the first commercial discovery of oil began. From then on it has been mostly good news.

A few years later, the government signed the first production sharing agreements (PSAs).

The 2000s were marked by more substantial exploration activity and the emergence of Irish company, Tullow Oil, as a dominant player in the Ugandan oil sector. On the back of increases in the oil price and a decade of stability in the country, investments in the region increased significantly and more companies showed an interest in drilling exploration wells. The government signed a number of PSAs, and three companies—Tullow Oil, Hardman Resources, and Heritage Oil—fielded discoveries. As a result, the commercial threshold of reserves for oil extraction was reached in 2006 for EA22, in 2007 for EA3A, and in 2009 for EA13. Through several acquisitions, Tullow Oil managed to consolidate rights for all Exploration Areas with significant discoveries (EA1, EA2, and EA3A), and attracted oil giants Total and CNOOC into a joint venture at equal shares in 2011.

START

Uganda's Oil and Gas Discoveries

1. September 2002
Turaco

2. January 2006
Mputa | Nileperch

3. February 2006
Waraga | Alestes
macrolepidotus

4. August 2006
Kajubirizi | Kingfisher

5. November 2006
Nzizi | Tilapia

6. November 2007
Ngassa | Tiger fish

9. June 2008
Karuka |
Labeo horie

7. April 2008
Taitai | Butterfish

15. April 2009
Nsoga | Victoria robber

10. July 2008
Kasamene |
Moon fish

8. June 2008
Ngege | Tilapia

11. August 2008
Kigogole | Kigogole

16. June 2009
Wahrindi | Squeaker
(Upside down Catfish)

18. July 2010
Mpyo | Crocodile

12. September 2008
Ngiri | Warthog

19. April 2011
Jobi East | Buffalo East

13. December 2008
Rii | Giraffe

17. July 2009
Ngara |
Siversides

20. June 2011
Gunya | Baboon

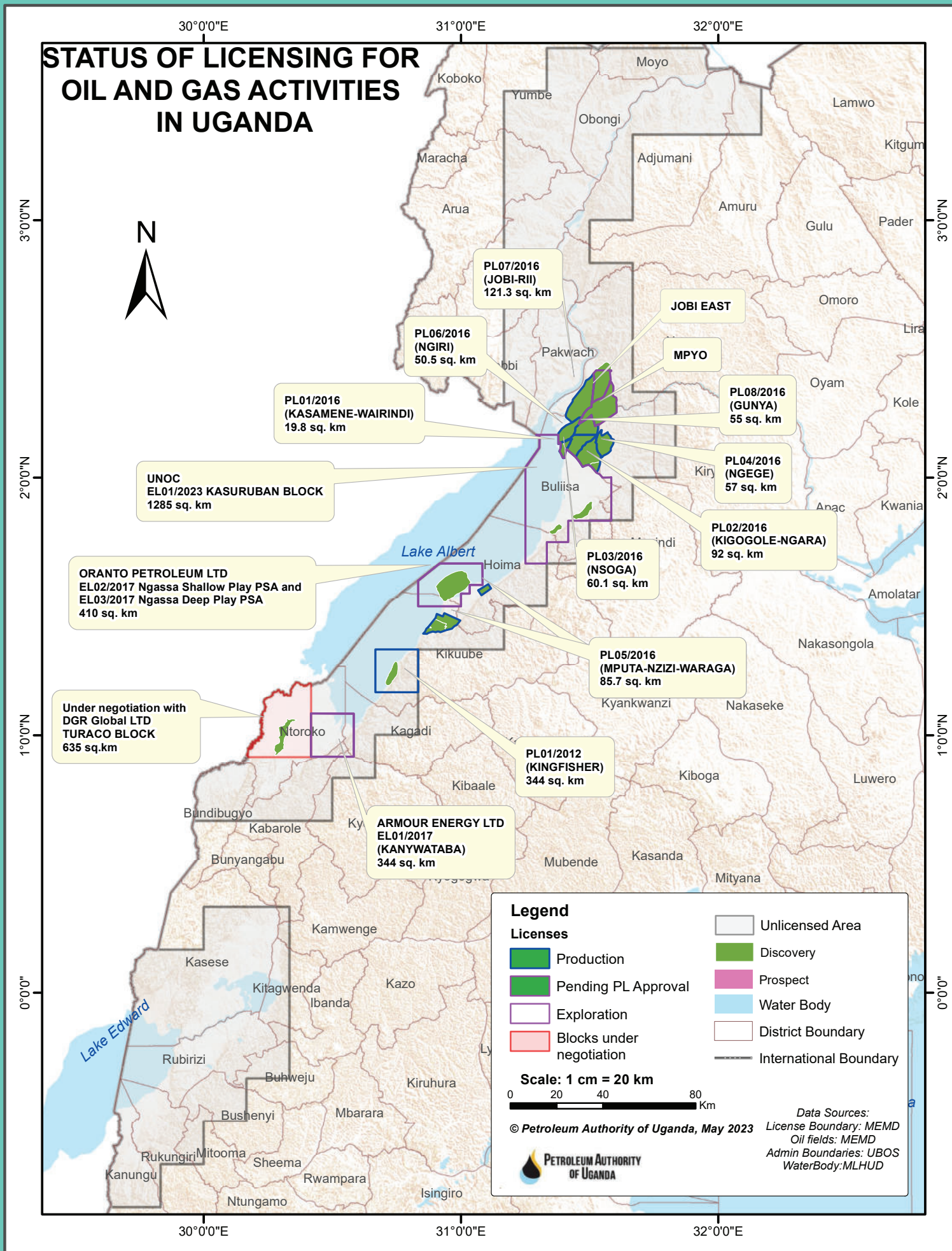
14. November 2008
Jobi | Buffalo

21. December 2012
Lyec | Elephant

END

- | EA 1 discoveries are named after animals in Murchison Falls National Park
- | EA 3A discoveries named after birds in the area
- | EA2 discoveries are named after fish species found in Lake Albert.

STATUS OF LICENSING FOR OIL AND GAS ACTIVITIES IN UGANDA



Remembering Uganda's bumpy journey to Oil & Gas discovery



▶ Fred Kabagambe Kaliisa

January 06, 2006 is a very important date for Fred Kabagambe Kaliisa, the Senior Presidential Advisor on Oil, Gas and Minerals. This is the day the country officially announced discovery of petroleum in the Lake Albert Basin.

Kaliisa smiles and his eyes brighten with pride as he excitedly recalls that day with a bit of nostalgia. "It was a great day because, for a long time, the naysayers had maintained that there was no oil in Uganda."

Kaliisa says this commercial discovery was a landmark to show that there is a working petroleum system in Uganda.

"It was an exciting period," Kaliisa says. Following the landmark

announcement, more discoveries were made throughout the year and President Yoweri Museveni convened a thanksgiving ceremony on October 7, 2006, at Kololo Independence Ground, to thank God.

Up to 2022, Uganda has made 21 discoveries bringing the country's current inventory (STOIIP) to about 6.5 billion barrels of oil with about 1.4 billion barrels set for commercialisation.

Kaliisa who began working in oil and gas exploration in 1982 now chuckles when he is prompted to share his experience of Uganda's oil journey. He says the early days were filled with both pessimism and frustration.



"The road was totally impassable. This is just one example to show you that even before production, the oil exploration phase has brought in dividends."



► **Field visit to operations in the Albertine Graben by the Permanent Secretaries; 2011**

No easy work

The oil prospecting work was never easy. On many occasions, his team lost its way, sleeping in the car or bush, taking baths just behind trees, stepping on snakes, being chased by wild animals, and climbing thorny trees to keep safe from angry buffaloes.

Inside the boardrooms in Kampala, Kaliisa recalls how often he and his team endured the scorn of the less optimistic who referred to the geoscientists as speculators and threatened to cut budget support.

Promoting and convincing international companies to come and invest in Uganda's oil and gas prospects was just as hard. At one time during promotion in Europe and North America with

then Minister of Energy, Henry Kajura, the former Permanent Secretary in the Ministry of Energy and Mineral Development could not meet even a senior geologist to share Uganda's information with.

On another occasion, Kaliisa was mocked by a famous geologist who had discovered oil in Sudan, the Niger Delta and in the North Sea. The expert said they would never find oil in Uganda. In 1986, there was good news when there was a change of government in the country.

"President Yoweri Museveni came and we discussed how to move forward. He said let's build capacity; in terms of human resource, and then create institutions that can manage the oil and gas in future and let's promote our oil and gas potential."



▶ **H.E the President Yoweri Museveni officiates at a thanksgiving ceremony for the discovery of oil in January 2006**

First airborne and magnetic surveys

Luckily, the Petroleum Unit under the Ministry of Lands, Minerals and Water Resources had conducted the first airborne and magnetic surveys in the Albertine Graben in 1983 which returned some positive results with indications of high potential for oil formation and accumulation. There was also a concerted and systematic preparation for potential investors that was undertaken by putting in place an institutional and regulatory frame-work. The data acquired was used to broadly demarcate the Graben into three basins; Lake Edward-Lake George, Lake Albert, the Pakwach-Rhino Camp.

The government was shown that the Rift Valley was not a continuous system but has sub-basins. It also acquired information about the depth of the sedimentary materials that are contained in the basins.

The Petroleum Exploration and Production Act 1985

The enactment of the Petroleum Exploration and Production Act 1985 (now repealed) and the 1993 Petroleum regulations together with the transformation of the Petroleum Unit, under the Geological Surveys and Mineral Department into the Petroleum Exploration and Production Department (PEPD) in 1991 laid a firm foundation for this success story. Kaliisa also mentions

the cooperation with the neighboring Democratic Republic of Congo (then Zaire) as another milestone which culminated into the signing of the agreement of cooperation for the exploration of hydrocarbons and exploitation of common fields in 1990 between the Governments of DR Congo and Uganda.

Early explorers

Kaliisa says this foundation helped Uganda to successfully negotiate and conclude the first PSA for Petroleum Exploration and Development with Petrofina on March 26, 1991. The data acquired was packaged and used to attract investment capital.

Heritage Oil and Gas Limited (Heritage), Hardman Petroleum and Energy Africa, were licensed between 1997 and 2004 in different areas. They undertook the more expensive seismic surveys on land and Lake Albert and drilled wells.

The first deep wells since 1938 (Turaco-1, 2, 3) which were drilled by Heritage in the Semliki Basin between 2002 and 2004 did have positive results in terms of encountering hydrocarbons. This restored the hope of those that had invested their time, money and indeed their lives in this sector. This good news, however, had mixed results as the natural gas tested in the Turaco-3 well was heavily contaminated with Carbon dioxide. Heritage withdrew but was later convinced to try again in Exploration Area 3A and

Exploration Area 1, along with a partner, Energy Africa, in 2004. For Hardman Africa, the story was better.

Kaliisa says Uganda's oil story was to even get better when Ugandan scientists convinced Hardman in 2004 at their offices in Perth, Australia to drill their next wells on land in Kaiso Tonya (Hoima District) rather than in Lake Albert basing on the interpretation of the data acquired.

This was due to the logistical nightmare the local scientists envisaged. Mputa-1 well was drilled in December 2005 and on 6th January 2006 it struck oil and was declared the first commercial discovery in Uganda. From then on, it has been mostly good news.

Looking ahead

Kaliisa has already enough to show that his and many other geologists' efforts were never in vain.

But he says the future will clearly be the time to show that the objectives the pioneers set out for have now been achieved.

"Very few have had the luck to be there," says Kaliisa.

"Even before production starts, oil exploration has brought

enormous benefits to this country. There is significant new infrastructure developed in areas which were previously quite remote." Kaliisa shares many stories to show how much oil discoveries have changed his native Albertine region.

He recalls one particular incident in 2002. Although he was Permanent Secretary in the Energy Ministry, he also liked going to the field to work with his junior staff. He says one time his team was carrying out geological surveys in the Bugungu area in Buliisa where TotalEnergies' Tilenga Project is currently based. That is a 120km journey from Kaliisa's home near Hoima town where he started. Today, it is a two hour drive on high class tarmac road. But back then it was a rough dirt road and took Kaliisa 17 hours.

"Transport and accommodation was difficult at the time," Kaliisa recalls, "So I arrived on a Sunday at my home (near Hoima town) and set out on the journey on morning of Monday at 3am and arrived in Tilenga area at 7pm."

"The road was totally impassable. This is just one example to show you that even before production, the oil exploration phase has brought in dividends."

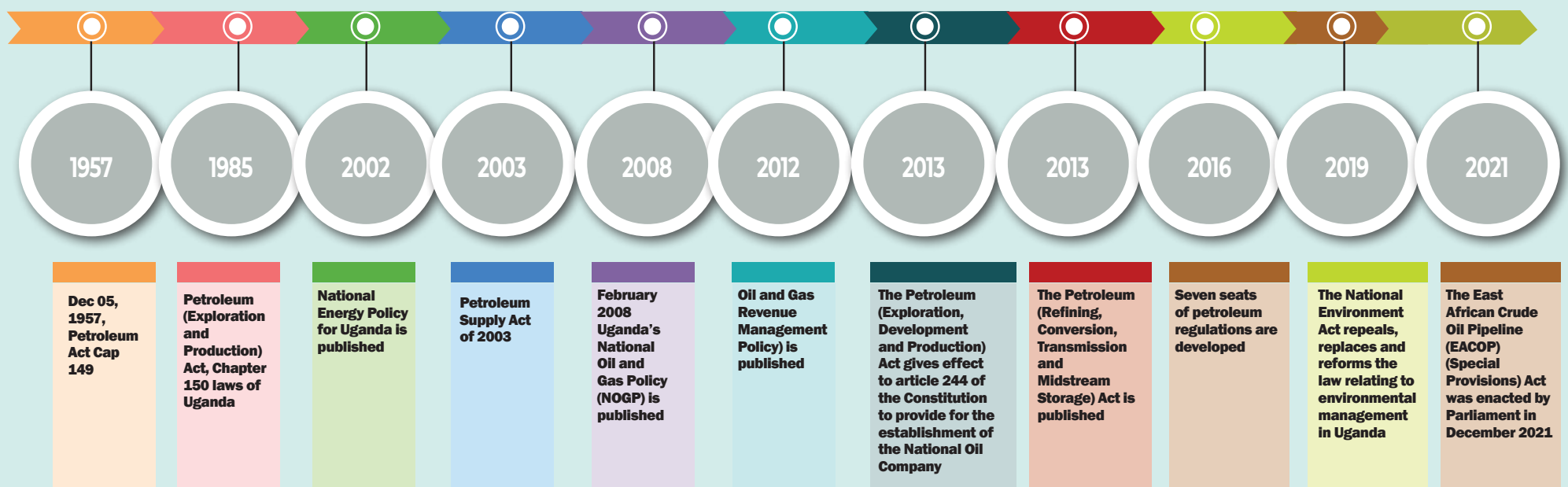


▶ Kingfisher drilling rig in 2008

Development of the Policy, Legal and Regulatory Framework

The five-year period after 2006 was characterized by a substantial slowdown of activity in the sector. Four factors contributed to the deceleration. First, the government saw a need to develop a more robust policy development and legal framework before moving into the production stage. To this effect, the cabinet approved a National Oil and Gas Policy in 2008, and in 2011 parliament imposed a moratorium on the signature of new contracts until the requisite legal framework was put in place. Second, the government did not want to proceed to the production stage without agreement on a large refinery.

Milestones in formulation of Uganda's Oil & Gas sector governance framework



The president pronounced that he did not want crude oil to be exported but add value in the country. He wanted a refinery large enough to refine all of Uganda's oil, saturate the domestic fuel market, and export surplus fuel to the regional market. Oil companies, on the other hand, had concerns regarding the commercial viability of a large refinery and feared ending up in a monopoly. Third, several tax disputes arose, leading to litigation between the government and the oil companies. Last but not least, a downward trend in the oil price beginning in 2014 lowered the oil companies' incentive to push ahead with investments.

With regard to the first of these factors, parliament passed the Petroleum (Exploration, Development and Production) Act and the Petroleum (Refining, Conversion, Transmission and Midstream Storage) Act in 2013. These

Acts established the Petroleum Authority of Uganda (PAU) as the regulatory body and designated the Uganda National Oil Company (UNOC) to manage the government's commercial interest in the sector. Formulated with Norwegian support, the two Acts formed the legal basis for the development of upstream and midstream capacity. In the same year, the Ministry of Finance approved an Oil and Gas Revenue Management Policy. This provided an important signal that the government intended to put in place a prudent governance framework to manage the expected revenue. Consequently, in 2015, the government passed the Public Finance Management Act. This was a landmark legislation that included provisions on the management of oil resources and gave birth to the Charter for Fiscal Responsibility, the Petroleum Revenue Fund, and the Petroleum Revenue Investment Reserve. The develop-

ment of the legal policy and regulatory framework saw extensive support by development partners, most prominently the Norwegian government.

The second and third factors which were slowing down exploration and operational progress were overcome through concessions gained from both the government and international oil companies. In 2013, the government accepted the oil companies' compromise on the refinery and agreed to a smaller facility to serve only the domestic fuel market, and to a pipeline to export crude oil (see sections 2.1.5 and 2.1.6 below). Regarding the tax disputes, the government stood its ground and Tullow Oil eventually agreed to pay the taxes demanded in order to avoid risking the non-renewal of its exploration licences. External factors also improved when in 2016 the international oil price began to recover.

Other laws relevant to the oil and gas sector governance framework

Oil and gas management cuts across policy areas of taxation and revenue management, government accountability, corporate regulation, environment, land security, etc. These other existing laws are relevant to the overall framework for managing the oil and gas sector. In addition to the Constitution itself, these include:

Land Act, 1998	Access to Information Act, 2005	National Environment Act, chapter 153	Investment Code Act, chapter 92	Public Procurement and Disposal of Assets Act	
Wildlife Act, chapter 200	National Forestry and Tree Planting Act, 2003	Public Health Act, chapter 281	Water Act, chapter 152	Penal Code Act, chapter 120	Income Tax Act, 2002

Guiding principle of Uganda's Oil & Gas sector governance framework

Openness and access to information are fundamental rights in activities that may positively or negatively impact individuals, communities and states. It is important that information that will enable stakeholders to assess how their interests are being affected is disclosed, in accordance with Uganda's National Oil and Gas Policy 2008. Uganda's Oil & Gas sector governance framework, recognises the important roles different stakeholders have to play in order to achieve transparency and accountability in the oil and gas

activities. The governance framework promote high standards of transparency and accountability in licensing, procurement, exploration, development and production operations as well as management of revenues from oil and gas in line with accepted national and international financial reporting standards. Oil and gas management cuts across policy areas of taxation and revenue management, government accountability, corporate regulation, environment, land security, etc. These other existing laws are relevant to the overall frame

The laws are accompanied by subsidiary regulations or statutory instruments, such as:

Petroleum (Exploration, Development and Production) (National Content) Regulations, SI No. 44/2016

Petroleum (Refining, Conversion, Transmission and Midstream Storage) (National Content) Regulations, SI No. 34/2016.

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

Statutory Instrument No. 150—1, the Petroleum (Exploration and Production) (Conduct of Exploration Operations) Regulations.

Statutory Instrument 149—1, the Petroleum (Spirit) (Licensing, Testing and Possession) Rules.

Statutory Instrument 149—6, the Petroleum (Spirit) (Marking) (Approval of Marker and Prescription of Fees) Notice.

Capital Gains Tax

Between 2010 and 2022, Uganda earned about US\$700 million in Capital Gains Tax on oil and gas transactions following tax disputes in both local and international tribunals and arbitral bodies.



▶ **Ali Ssekatawa, Director for Legal and Corporate Affairs, Petroleum Authority of Uganda**

The resilience and maturity of Uganda's taxation system was tested when Heritage Oil and Gas Ltd transferred its participating interests to Tullow Oil Uganda. The transaction, which was worth US\$ 1.45 billion, was assessed capital gains tax amounting to US\$ 434,925,000.

Heritage objected to this tax assessment on the ground that the transaction was not taxable in Uganda and arose from a change of law contrary to the stabilization clause. Instead, Heritage Oil offered to pay the Government US\$36 million as ex gratia or a payment out of a sense of moral obligation rather than any legal requirement. Government declined. Heritage upped the offer to US\$120 million. The matter was litigated in the Tax Appeals Tribunal (TAT), High Court of Uganda, High Court of London, and Court of Appeal of London.

Heritage also invoked the arbitration clause in the Production Sharing Agreements to settle the dispute through the United Nations Commission on International Trade Law (UNCITRAL) in London. Until the case was resolved, all the claims raised by Heritage were dismissed in favour of the Government of the Republic of Uganda.

Landmark cases

"The award is a historic ground-breaking precedent on stabilization clauses and duty of oil companies to meet their tax obligations. It is a true testament to URA's resolve to assess, collect, and defend taxes in local and international adjudication bodies," said Ali Ssekatawa, who at the time was the assistant commissioner litigation URA.

Ssekatawa was later, in 2017 appointed the Director for Legal and Corporate Affairs, Petroleum Authority of Uganda (PAU).

In another case, Tullow Oil transferred 66.6% of its interests to France's TotalEnergies and China's National Offshore Oil Corporation (CNOOC) in a US\$2.9 bn transaction. URA levied capital gains tax worth US\$ 473 million. Tullow disputed the URA's assessment and appealed before the TAT and commenced

international arbitration proceedings in ICSID claiming the transaction was exempt under the Production Sharing Agreement. The final and full tax liability settled at was US\$250 million.

Tullow Uganda Ltd (TUL) also filed a claim with ICSID concerning rights and exemptions from taxes and duties under the PSA arising from VAT refund claims.

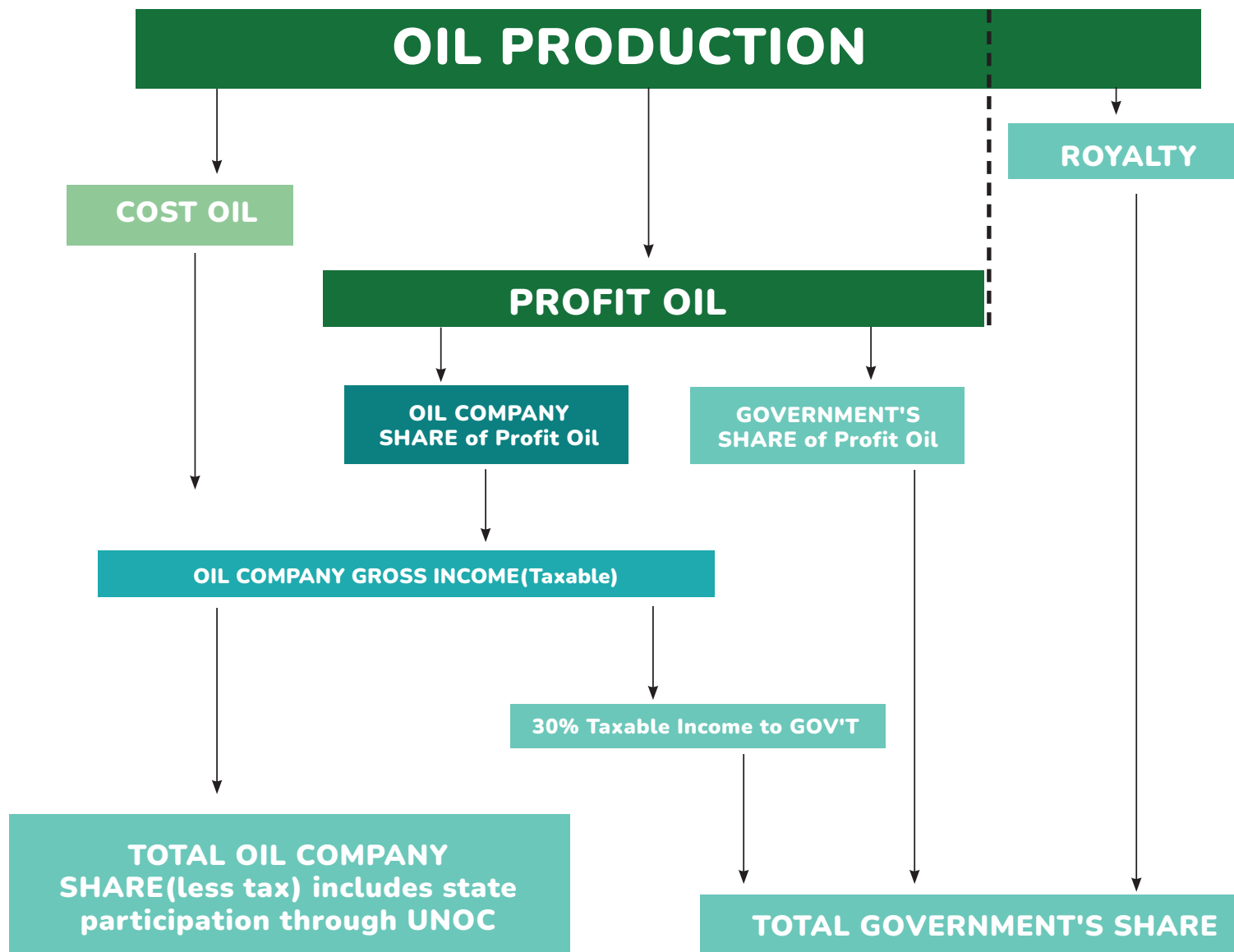
TotalEnergies similarly filed a claim with ICSID asserting that URA's assessment and collection of stamp duty amounting to USD 3.7m was a breach of the PSA which allegedly exempted them from any taxes, duties, and levies. These matters were eventually resolved without going to trial.

Later, Tullow sold its entire stake in the Lake Albert Development Project in

Uganda to Total Energies for US\$575 million in cash plus post first oil contingent payments, the government was paid \$14.6 million in CGT. By this time, all the tax-related disputes had been disposed of. The resolution of the tax disputes restored investors' confidence and paved way to the Final Investment Decision in 2022.

Uganda's Production Sharing Agreements

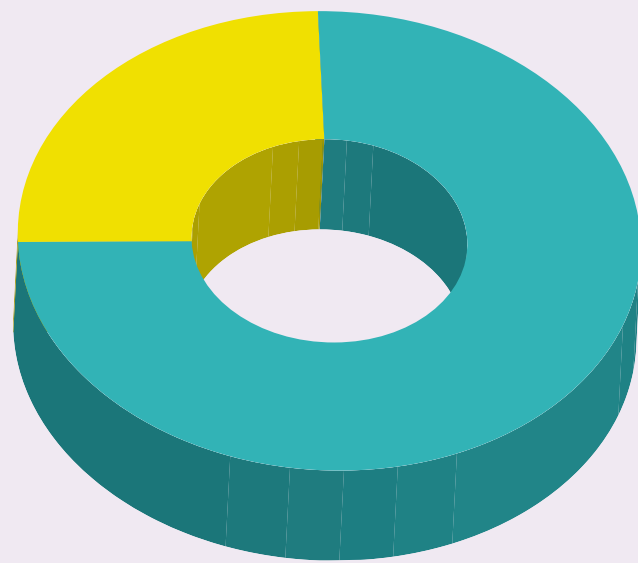
Production Sharing Agreements are the legal instruments that manage the relationship between International Oil Companies, which bring the resources to explore, produce, transport and market the oil and gas resources, and host governments, that own the oil and gas on behalf of their citizens. As such, whenever experts are assessing what the country will get out of their resources, PSAs are usually the first point of call. In 2010, government approached experts at the International Monetary Fund (IMF) to analyse the agreements and their analysis concluded that Uganda's PSAs were among the best in the world.



In a 2014 study titled 'A good deal better?' international campaigner, Global Witness also compared contracts Uganda had entered with the oil companies before 2008 and in 2012 and found that the country had continued to improve its agreements with the oil companies. One of the improvements Global Witness found was the

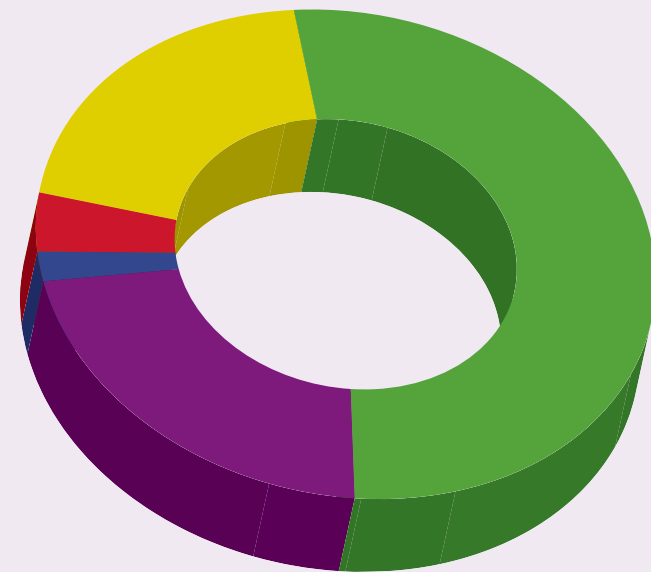
elimination of limiting stabilisation clauses. Stabilisation clauses are usually established in PSAs to insulate companies against regulatory changes, with a bearing on the profitability of a project, usually in countries considered to be high risk. Under the stabilisation clauses in the pre-2008 PSAs, oil companies could demand compensation for losses stemming from changes in the

Petroleum Revenue Split



Oil Company Net Revenue **Government Revenue**

Categorisation of Government Revenues from the Upstream Developments



Profit Oil **Other Fees** **Royalty**
Taxes **State Participation**

law. However, in the 2012 contracts government negotiated more favourable stabilisation clauses. For instance, the stabilisation clauses in the 2012 PSAs do not require the government to compensate companies for costs resulting from applying new laws and regulations. In addition, Global Witness also reveals that the new terms specifically allow Ugandan authorities to introduce new taxes on additional profits, that is higher than expected profits resulting from higher oil prices, higher than expected production or lower than expected costs.

The study also found that “government take” or the percentage of incoming revenues that the government will collect following oil production, “will be high by global standards in both the pre-2008 and 2012 contracts, ranging from 80% to well over 90% depending on circumstances”.

Global Witness also notes that the improved 2012 contract terms will likely increase government take by around 1-2% when compared to the pre-2008 contracts consequently generating hundreds of millions of dollars in additional revenue for the government.

Peter Muliisa, the Chief Legal and Corporate Affairs Officer at Uganda National Oil Company (UNOC) says within the Production Sharing Agreements signed by both the government and the oil companies in 2001 and 2004, Uganda has the biggest share

from the crude oil produced.

Ali Ssekatawa, the Director for Legal and Corporate Affairs at PAU has offered a more detailed insight on the terms of Uganda’s oil agreements. He reveals that when production of oil starts, Uganda will first receive a royalty payment ranging between 5% and 12.5% depending on the level of production.

After this, the oil companies recover the costs they have incurred per year in the process of producing the oil, which is capped at 60% to 70%. This is off the remaining oil after royalty deduction. After these two deductions, the balance is considered profit oil and shared between the oil companies and the government as per the PSAs. Then the government will also collect corporation tax of approximately 30% off the oil company’s share of profit oil. “Government’s overall take from the upstream, as per the current PSAs, therefore, ranges from between 65% to 80,” Ssekatawa notes.

Based on this analysis, it is estimated Uganda could earn between US\$1.5billion to US\$ 2billion per year. Given that the country could produce oil for at least 25 years, oil earnings are projected to bring into government coffers between US\$40 billion and US\$50 billion.

Uganda's oil journey timeline

The Early Efforts (Pre-1980)

1925

Petroleum Potential of Uganda documented by a Government Geologist E.J. Wayland, in the publication "Petroleum in Uganda", 1925. This included reporting of the existence of Oil seepages in Uganda.

1936 -1956

- The first shallow stratigraphic wells were drilled by the African – European Investment Company.
- The first deep well Waki B-1 well was drilled in 1938 in Butiaba, Buliisa.
- Over 20 Shallow wells drilled in Kibiro and Kibuku areas for geological correlation.
- Geological surveys carried out during the 1940's and 50's established the presence of sedimentary sequences of clays and silts (Memoirs of the Geological Survey, 1959).

Period of Limited Activity

1945 - 1980

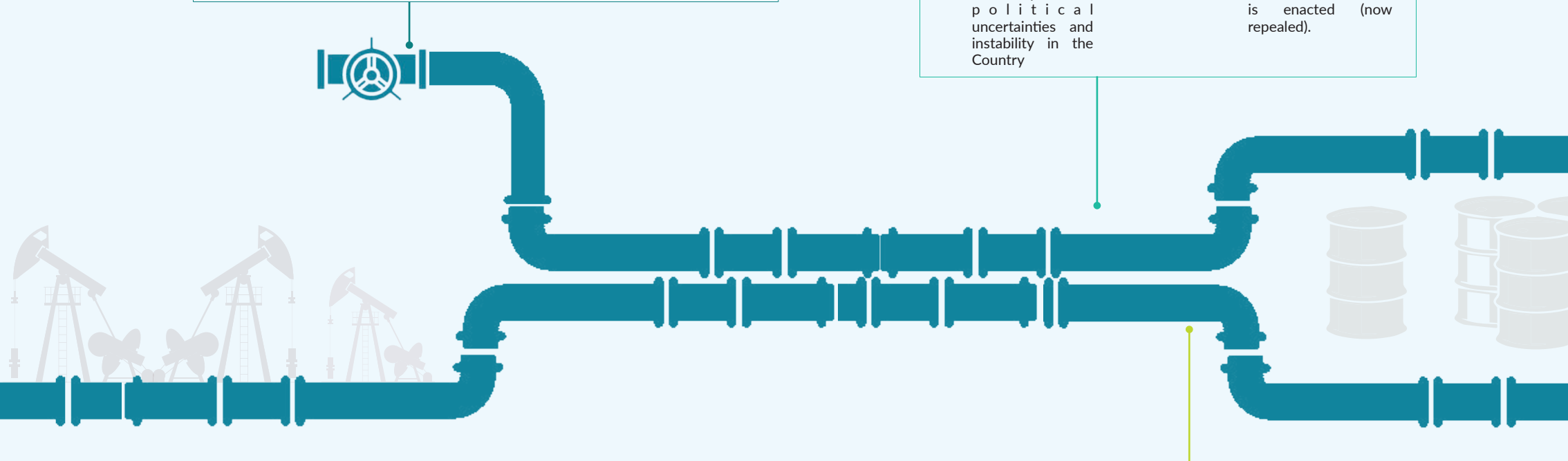
- Second world -war sets in;
- Change in policies of colonial masters; East Africa was zoned for Agriculture and West Africa for Oil Exploration by the Colonial masters
- Post-independence political uncertainties and instability in the Country

1983

Acquired 9,578 line km of aeromagnetic data that identified three depo centres along the entire length of the Graben.

1985

- Petroleum Exploration Project established to spearhead Exploration promotion and Acquisition of Geological and Geophysical data over the Graben.
- The first Petroleum (Exploration and Production) Act is enacted (now repealed).

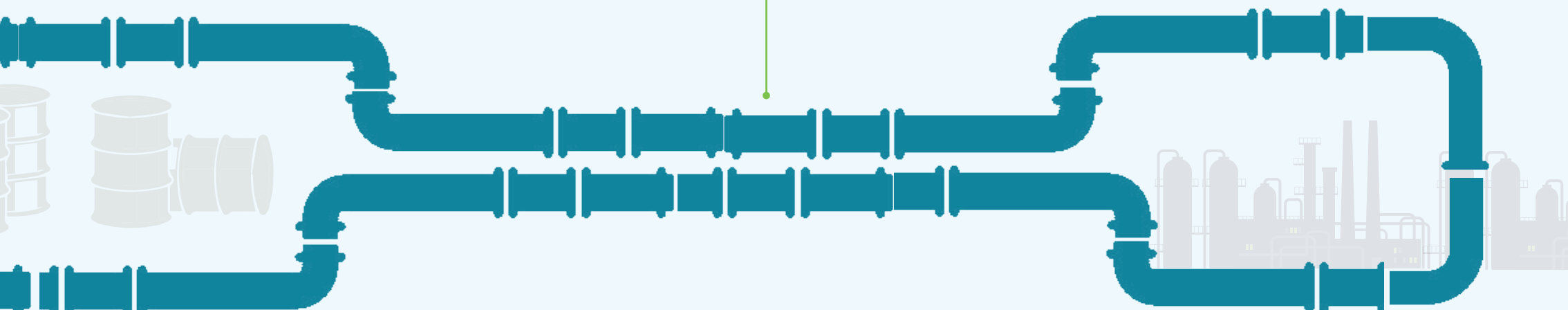


2022	2021	2020	2019	2018	2017	2017	2016	2015
Final Investment Decision announced	Key oil agreements; Host Government Agreement (HGA), Tarrif and Transportation Agreement (TTA), Shareholders Agreement (SHA) were signed on April 11, 2021 paving way for Oil Companies and Government to approve and award contracts for Engineering, Procurement and Construction contracts (EPC).	Tullow agrees to sell its entire interest to Total for 575m USD in cash and post first oil contingent payments. Uganda joined the Extractives Industry Transparency Initiative in August 2020 as the 54th member.	Tullow announces a collapse in the negotiations for the sale of its interest to Total and Cnooc.	The National Content policy was developed to promote build capacity and empower Local Ugandan Comppanies in the Oil and Gas Sector. 17 EPC services have been ring fenced for local Ugandan companies including Caterig services, Camp Construction, Security, transport, clearing and forwarding, hospitality, land survey, customs clearance etc.	Tullow announced a Sale and Purchase agreement (SPA) in which it would transfer its interests to Total.	Uganda, Tanzania sign Inter governmental agreement for EACOP	EACOP route approved Government awards 8 production licenses to C N O O C , TotalEnergies and Tullow Uganda	PAU and UNOC set up



Consistent and Modern Efforts (1980 to 2005)

1986	1990	1991	1992	1993	1997	1998 to 2001
<ul style="list-style-type: none"> His Excellency President Yoweri Museveni issues policy direction for the sector on Capacity Building, Data Acquisition and Promotion, and Monitoring of Compliance of License Companies.. 	<ul style="list-style-type: none"> Cooperation Agreement between Uganda and Congo (DRC) for Joint Exploration and Development of Common fields signed 	<ul style="list-style-type: none"> First Production Sharing Agreement (PSA) between Petrofina Exploration Uganda and Government signed over the entire Albertine Graben. The Petroleum Unit in the Geological Survey and Mines Department of the Ministry transformed into the Petroleum Exploration and Production Department (PEPD). PEPD commences follow up of ground geological and geophysical surveys in areas identified by the aeromagnetic data. Data acquired was used to: <ul style="list-style-type: none"> Subdivide the Graben into nine (9) smaller Exploration Areas; Promote the areas for investment 	<ul style="list-style-type: none"> Universities of Colombia, Leeds, Lubumbashi and PEPD acquire gravity data on Lake Albert in an effort to understand the Graben 	<ul style="list-style-type: none"> Petroleum Exploration and Production Regulations come into force Petrofina Uganda's license is not renewed. 	<ul style="list-style-type: none"> Licensing of Exploration Area 3 (Semliki Basin), to Heritage Oil and Gas Limited (HERITAGE). 	<ul style="list-style-type: none"> HERITAGE acquires the first 2-D seismic data in Uganda (1998) and additional data acquired in Semliki Basin.
2001	2002 to 2004		2003	2004		
<ul style="list-style-type: none"> Heritage acquires an additional 228.39 line km of 2-D seismic data in Semliki Basin with identified drillable prospects and confirmation of structures mapped by gravity and magnetics; Hardman Resources and Energy Africa (now Tullow Oil) is licensed Exploration Area 2 (Northern Lake Albert Basin) 	<ul style="list-style-type: none"> Drilling of Turaco-1, 2 and 3 wells by HERITAGE and ENERGY AFRICA and reaching Total Depth (TD) of 2,487m, 2963m and 2980m respectively; one of the horizons (zones) was tested and confirmed presence of natural gas but heavily contaminated by Carbon-dioxide 		<ul style="list-style-type: none"> Acquisition of seismic data over Lake Albert by Hardman, Energy Africa and Heritage. 	<ul style="list-style-type: none"> Licensing of Exploration Area 1 to Heritage and Energy Africa (Tullow Oil) in July 2004 Exploration Area 3A (Semliki basin) relicensed to Heritage and Energy Africa (Tullow Oil) in September 2004. Drilling of Turaco-3 well by Heritage and Energy Africa reaching Total Depth (TD) of 2,980m. Acquisition of 390 km² of 3-D seismic data in Semliki Basin by Heritage 		



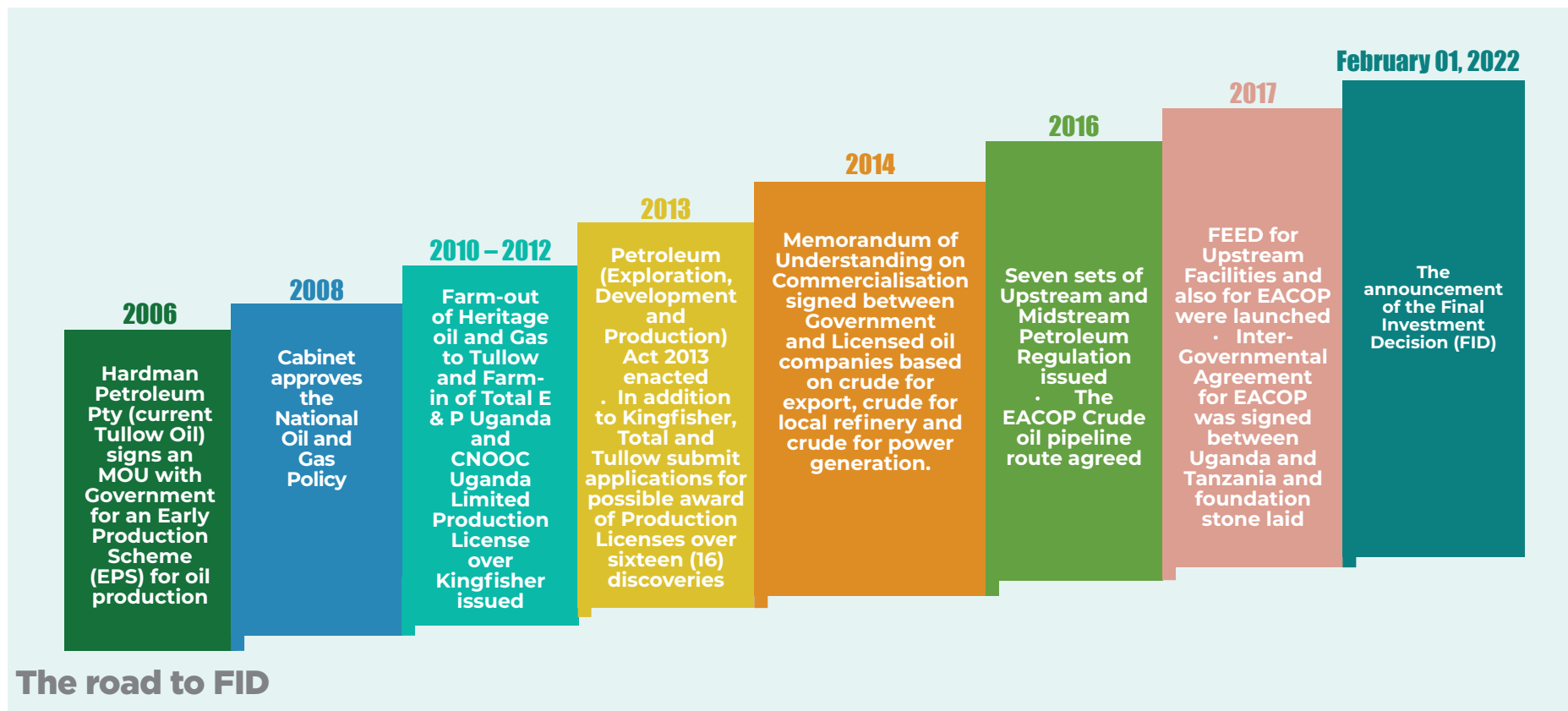
Recent Developments (2005-todate)



2014	2008 to 2014	2013	2012	2010/2011	2008	2007	2005/2006
<ul style="list-style-type: none"> Memorandum of Understanding on Commercialisation signed between Government and Licensed oil companies 	<ul style="list-style-type: none"> 21 discoveries made; 116 wells drilled 6.5 billion barrels of STOIP confirmed 499 billion cubic feet of gas Several achievements made in implementation of the NOGP 	<ul style="list-style-type: none"> The Petroleum (Exploration, Development and Production) Act 2013 and the Petroleum (Refining, Conversion, Transmission and Midstream Storage) Act 2013 First production licence issued over the Kingfisher field 	<ul style="list-style-type: none"> Oil and Gas Revenue Management Policy approved Tullow Oil's acquisition of Heritage assets is finalised and Farms down to CNOOC and Total 	<ul style="list-style-type: none"> Feasibility Study on Refining undertaken by Government; implementation commences 	<ul style="list-style-type: none"> Cabinet approves the National Oil and Gas Policy for Uganda; its implementation commences. 	<ul style="list-style-type: none"> Dominion Petroleum is licensed to Exploration Area 4B (Lakes Edward and George Basin); 	<ul style="list-style-type: none"> Acquisition of 2-D seismic data over the Kaiso-Tonya area by Hardman and Energy Africa/Tullow Oil and also over the Buhuka/Bugoma area, EA 3A by Heritage. Exploration Area 5 (The Rhino Camp Basin) is licensed to Neptune Petroleum (Tower Resources). Drilling of Mputa-1 well by Hardman and Energy Africa Oil in Kaiso-Tonya area becoming the First Discovery Well in the Kaiso-Tonya area Tullow Oil acquires Energy Africa and Hardman Resources

The Final Investment Decision

The announcement of the Final Investment Decision (FID) for oil and gas projects by TotalEnergies EP Uganda, CNOOC Uganda Limited, the Uganda National Oil Company (UNOC), and the Tanzania Petroleum Development Corporation (TPDC) on February 01, 2022 marked a major step in Uganda's oil journey.



The FID announcement was a pledge by the oil companies to invest about US\$ 10 billion to develop the Tilenga Project in Buliisa and Nwoya districts, the Kingfisher Project in Hoima and Kikuube Districts and, the East African Crude Oil Pipeline (EACOP) that will cross the 10 districts of Uganda; Hoima, Kikuube, Kakumiro, Kyankwanzi, Gomba, Mubende, Lwengo, Sembabule, Kyotera and Raka, before crossing into Tanzania to the

port of Tanga on the coast of the Indian Ocean. The ceremony was held at the Kololo Ceremonial Grounds in Kampala. His Excellency Yoweri Kaguta Museveni, President of the Republic of Uganda, was the chief guest. His Excellency Phillip Isidor Mpango, the Vice President of the United Republic of Tanzania attended together with other dignitaries including Mr. Patrick Pouyanne, the CEO and Chairman of TotalEnergies and Mr. Chen Zhuobio, the CNOOC Uganda President.

Hon. Dr. Ruth Nankabirwa Ssentamu, Minister for Energy and Mineral Development, attended together with, Ms. Irene Batebe, Permanent Secretary, Ministry of Energy and Mineral Development, Mr. Emmanuel Katongole, Board Chairman, UNOC, Ms. Proscovia Nabbanja CEO, UNOC, Ms. Jane N. Mulemwa, Board Chair PAU, Mr. Ernest N.T. Rubondo, Executive Director, Petroleum Authority of Uganda (PAU), and other dignitaries.



▶ H.E the President Yoweri Museveni officiates at the announcement of the Final Investment Decision at Kololo Ceremonial Grounds in Kampala



Ugandans seize Opportunities after FID

On 1 February 2022, TotalEnergies, CNOOC, and UNOC, announced that a Final Investment Decision (FID) for Uganda's Lake Albert development project had been reached, marking the most significant step for the country to start producing oil. This decision signalled the commitment of the oil companies to invest close to US\$ 10 billion in three years to develop Uganda's oil and gas resources through the implementation of three major oil and gas projects: the Kingfisher Project in Hoima and Kikuube Districts and the Tilenga Project in Buliisa and Nwoya districts, and the East Africa Crude Oil Pipeline (EACOP) project. It officially marked the beginning of the detailed Engineering, Procurement and Construction (EPC) phase by the Joint Venture Partners and a commitment to first oil, a journey that started in 2006. It may have taken Uganda 16 years from the time it discovered oil in 2006 to reach FID in 2022. But many experts agree that this time was

not wasted. In these years, Uganda established a robust legal and institutional framework to guide the sector, agreed with the international oil companies on the commercialisation route (refinery and pipeline), carried out environmental impact assessment to ensure the resource is exploited in a sustainable manner, and put in place mechanisms to attract suitable international and local contractors to facilitate efficient oil production.

After the FID, Ugandans expect to accrue significant benefits and opportunities from the sector through local content and also build on other efforts; including the construction of the Hoima International Airport and 700 kilometres of oil roads.

The FID signified to the world that Uganda's oil and gas sector remains profitable, even amidst the challenges related to the volatile crude oil prices and the COVID-19 pandemic raging at the time, together with increased discussions about an energy transition from fossil fuels.

The **US\$20bn** investment in Uganda's oil sector

Uganda's oil journey has several moving parts that involve billions of dollars of investment in the country. Some of the four main areas are upstream development, the oil refinery project, the East African Crude Oil Pipeline (EACOP), and support infrastructure which includes an airport, industrial park and roads. The total investment in the four areas is projected at between US\$15-20 billion.



The upstream development involves new Exploration, Central Processing Facilities (CPFs), Pipelines and access roads with an investment projected at US\$8bn. The refinery project at 60,000 barrels per day and a 211km products pipeline will cost US\$3-4 billion. The EACOP is an investment worth US\$3.5 billion and the airport, industrial park, and roads at US\$1 billion.



The Engineering, Procurement and Construction phase

Around the time the oil and gas industry reached FID, the Petroleum Authority of Uganda (PAU), was reviewing contracts worth US\$ 6 billion for over 40 work packages for the Tilenga, Kingfisher and EACOP projects submitted by the licensees for approval before award. Beyond getting Uganda closer to oil production, some of these contracts would go to Ugandans for whom over 16 fields were ring-fenced as part of promoting local content in the oil and gas sector. Following FID and approval by PAU, oil and gas contractors embarked on a flurry of activities surrounding the projects with a target of achieving first oil at the earliest possible time.

This phase also known as the Engineering, Procurement and Construction (EPC) phase entails the most lucrative opportunities for both international and local companies. The initial opportunities relate to the pre-drilling and related civil

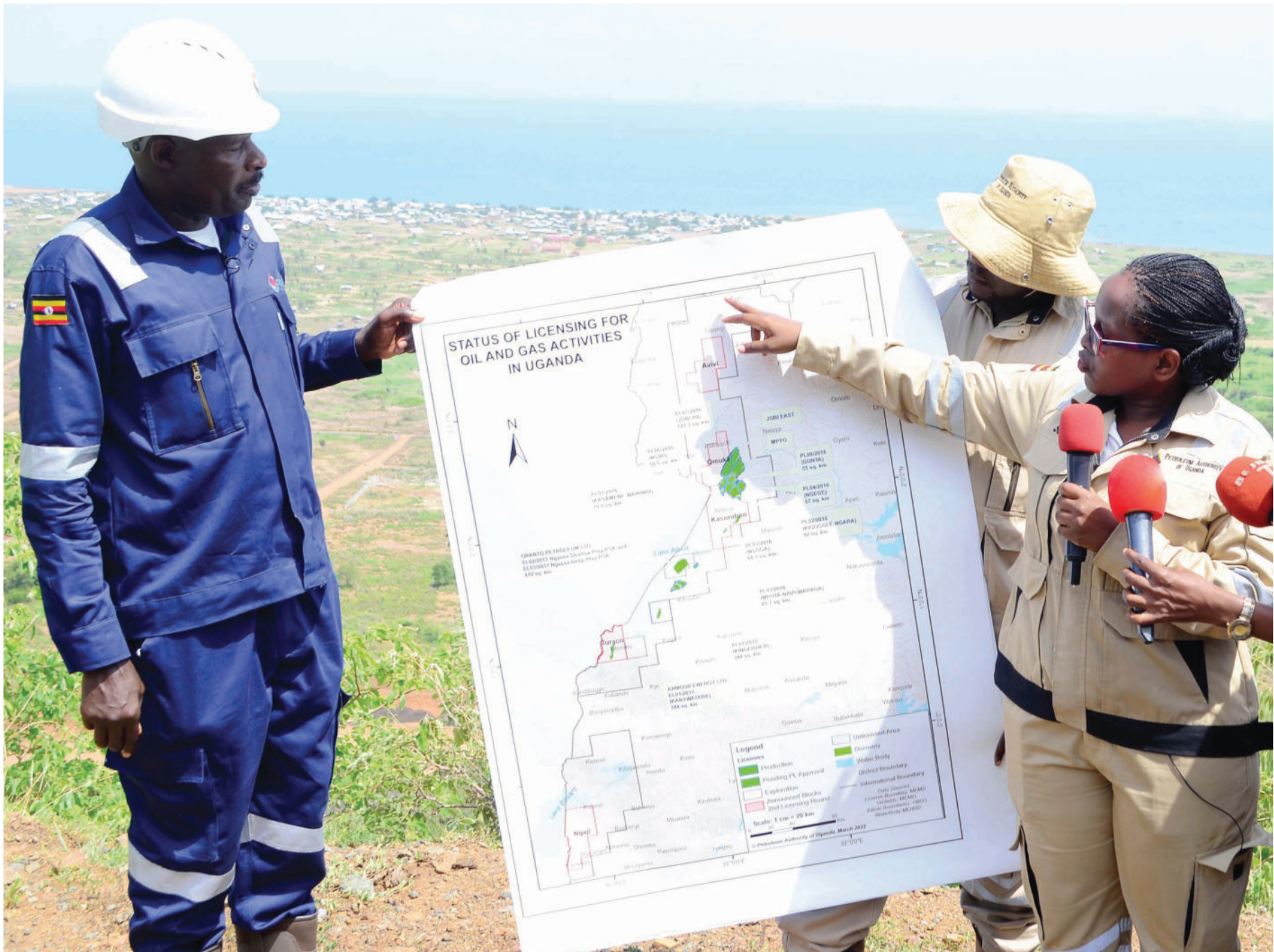
works, which include site preparation and some construction, and related supplies.

At this stage alone, over 3,000,000 tons of local construction materials such as murram, sand, aggregates, and cement are required.

In logistics and transportation, close to 300 trucks are required per day to transport the construction equipment and materials during the peak period.

PAU ensured that some of these opportunities go to local companies by maintaining the National Supplier Database (NSD) where all companies supplying the oil and gas sector are, by law, required to register.

The NSD offers Ugandan companies visibility and an opportunity to do joint ventures with other companies, thereby increasing their chances of tapping into opportunities like the ones unleashed following the FID.



The services Ugandans and Ugandan-based companies can provide have been classified into three; indirect, direct and specialist. Some of the indirect services are security, foods and beverages, hotel accommodation and catering, human resource management, fuel supply, and office supplies.

More locals are also doing land surveying, clearing and forwarding, crane hire, provision of construction materials, civil works, environment studies and impact assessments, communications and information technology services, and waste management.

The direct services include inspection, field services, infield transport, electrical and mechanical services. Ugandans have also taken on specialist services including seismic services, well services, rig hire and other tangible services.

The US\$20bn investment by the various players means there are opportunities in services or linkages like civil works in the form of earth moving and lifting equipment. This requires mechanical, electrical, firefighting and piping equipment.

The health services required are medical emergency response, provision of onsite clinics, personnel medical insurance, occupational health services, medical supplies and logistics, and medical infrastructure services.

Under housing, there are opportunities in provision of low, middle and high-end housing construction, office space, construction/provision of warehousing facilities, lodging facilities, and an upgrade and refurbishment of tourism sites.



Gender equity and inclusivity in Uganda's Petroleum Industry

Research has proved that greater representation of women's voices is vital for advancing sustainable development for any given community. It is further demonstrated that gender equity and inclusivity in the labour force can drive productivity and innovation, enhance engagement with local communities and ultimately raise profits for any company or organisation.

A recent report by the World Bank estimates that companies in extractives industries rarely employ women at a rate higher than ten (10) percent, and many at less than five (5) percent. In light of these facts, the

need to foster and promote gender inclusivity in the oil and gas sector in Uganda has been recognised. This is because women are the most affected gender from the impacts of resource exploitation, involuntary resettlement, and absorption into oil and gas jobs. To advance gender inclusivity and equity, Uganda is party to several international and regional protocols which promote women participation in leadership and governance. These include: the 1979 New York Convention on the Elimination of All Forms of Discrimination against Women; the 1995 Beijing Platform for Action calls for removing barriers to equal participation; the Millen-



nium Development Goals (Goal 3) that called for measurement of progress towards gender equity in the promotion of women; and, the recent Sustainable Development Goals (Goal 5) that calls for gender equality and empowerment of all women and girls. Uganda also recently joined the Extractive Industries Transparency Initiative (EITI) which requires all member countries to take gender inclusivity into consideration when forming Multi-Stakeholder Groups (MSGs). The standards also require the disclosure of disaggregated gender employment data, including by company and occupational level, when available.

Integration in the core oil and gas sector has been advanced through

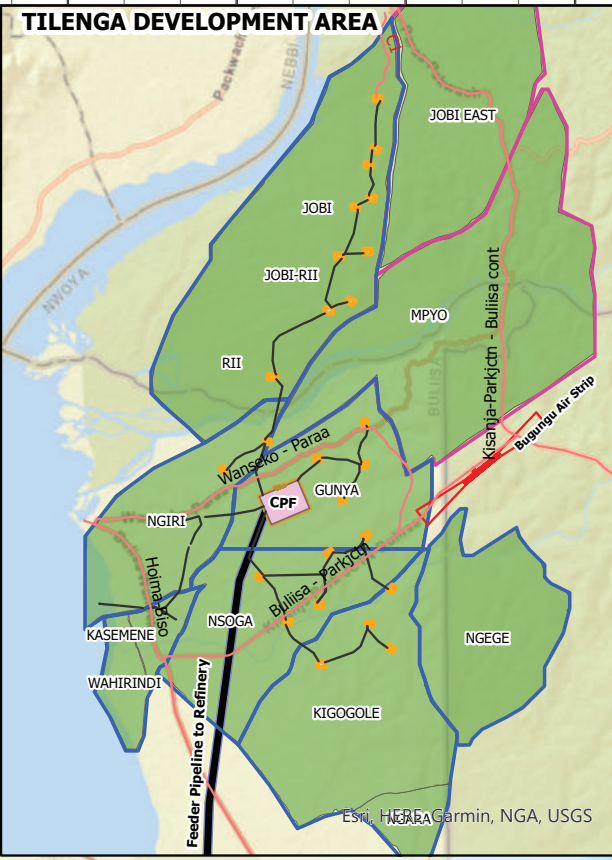
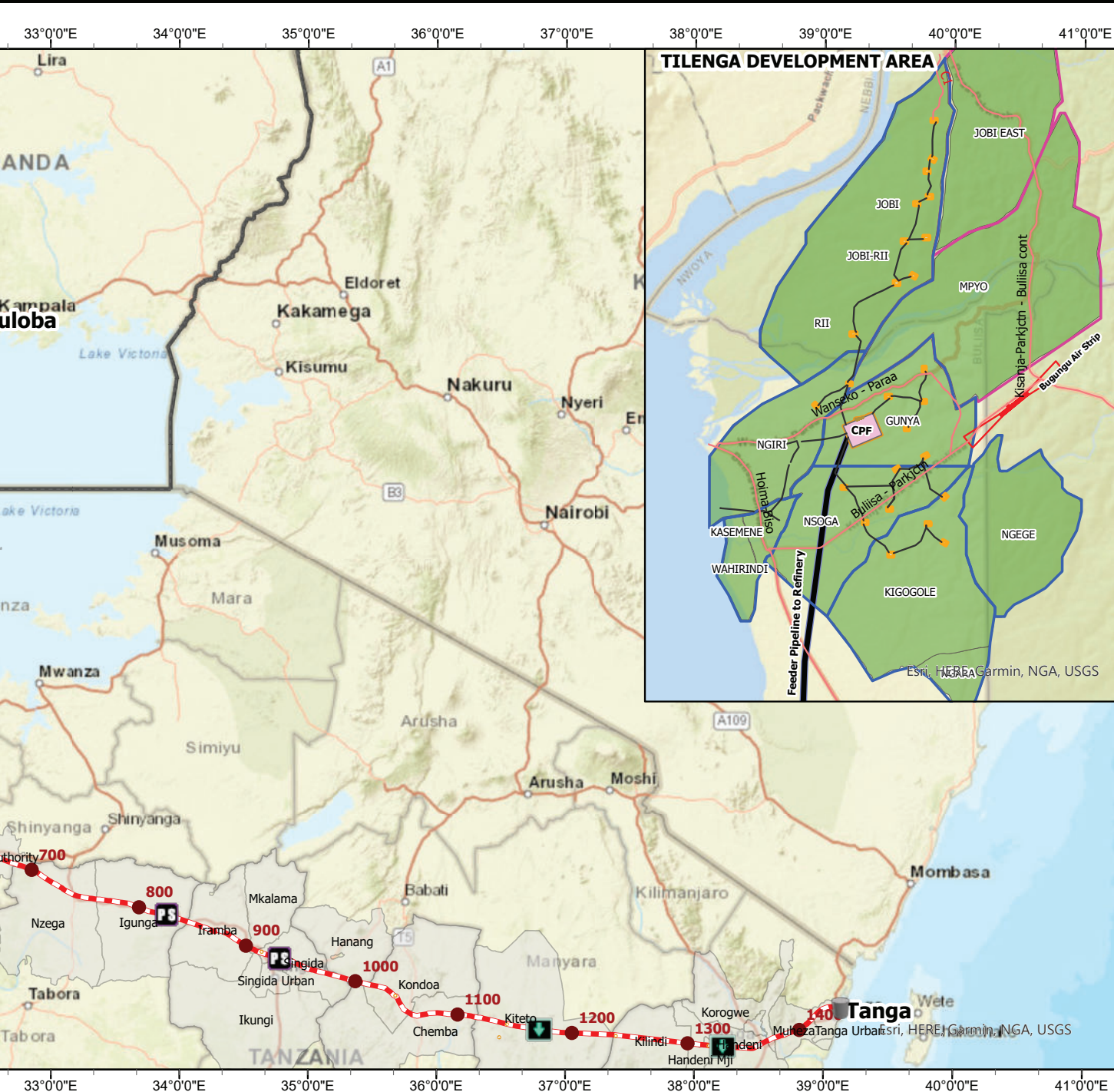
development of local content policies with gender sensitive initiatives, supporting full participation of women at all decision-making levels, and increasing employment opportunities for women and female representation in management positions. Statistics from the International oil companies indicate Uganda stands at a much better position than many of its contemporaries. CNOOC Uganda Limited has 51% of the workforce going to women. TotalEnergies EP Uganda has 39%, Armour Energy Limited stands at 25%, and Oranto Petroleum Limited at 13%.

CHAPTER

3

Uganda's Flagship Oil and Gas Projects





PETROLEUM AUTHORITY OF UGANDA

OIL AND GAS INFRASTRUCTURE

LEGEND

- Kilometric Point
- Pump Station
- Pressure Reduction Station
- Oil Storage Terminal

Pipelines

- EACOP
- Feeder
- Product
- Infield
- Road Network

Active Licenses

- Exploration
- Production
- Oil and Gas Discovery

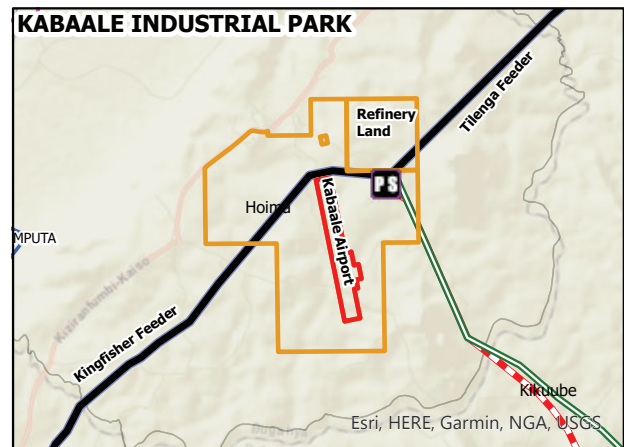
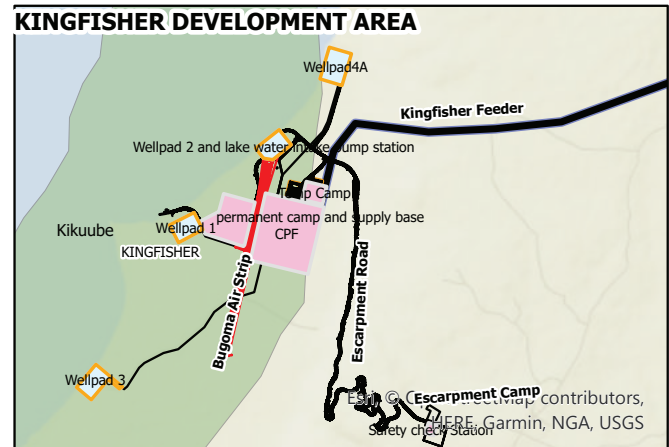
Surface Facilities

- Well Pads
- Camp Area

Coordinate System: WGS_1984_UTM_Zone_36N

0 60 120 180 240 Km


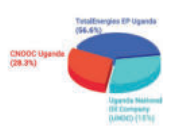






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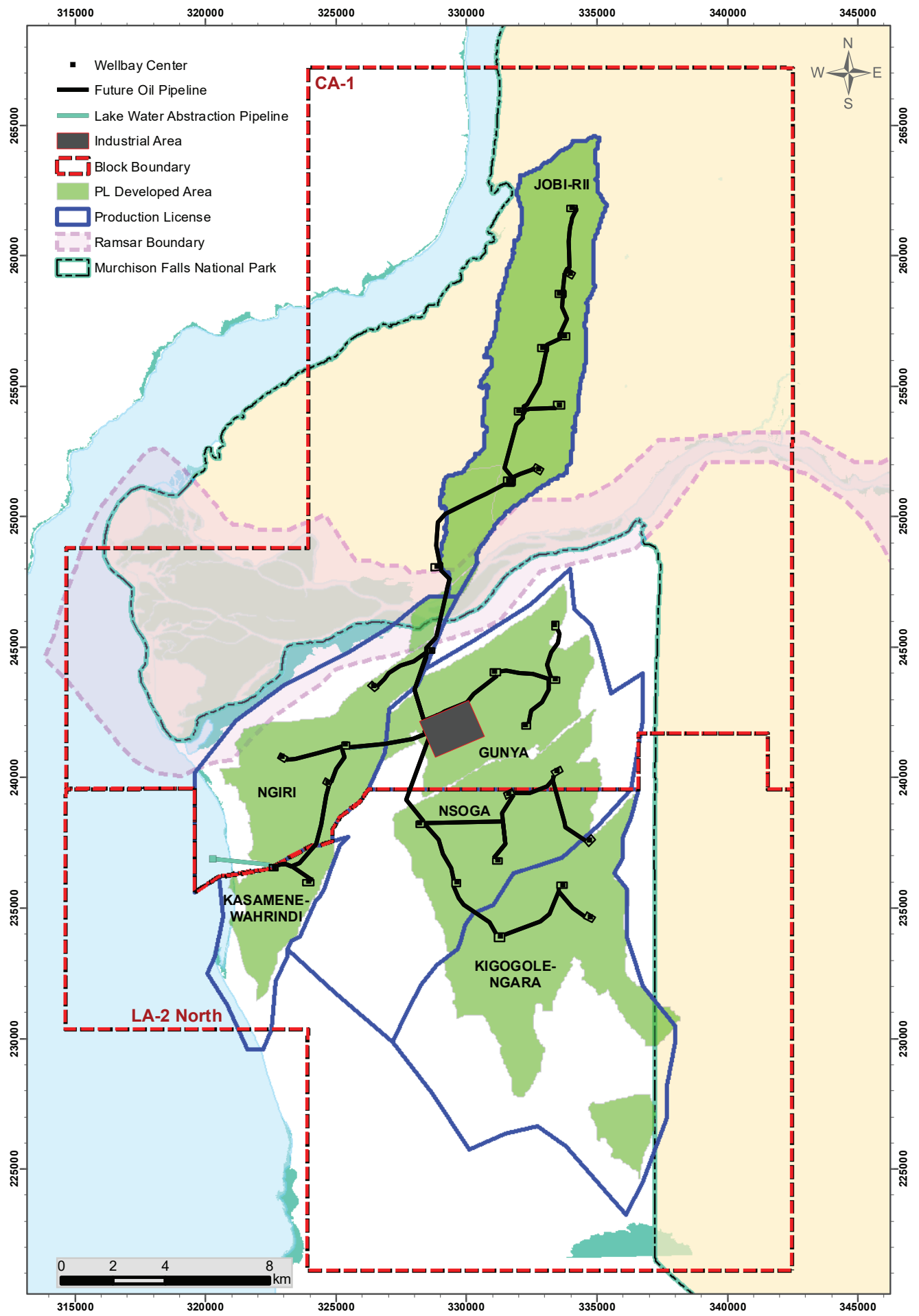


The Tilenga Project

The Tilenga Project is operated by TotalEnergies EP Uganda (TEPU) 56.6%, in partnership with China National Offshore Oil Company (CNOOC) and the Uganda National Oil Company (UNOC) in Buliisa and Nwoya Districts in the Albertine Graben, in Western Uganda. Its total land area is approximately 2,400 acres.

Tilenga Project in brief

	<p>Project is an upstream development with a capacity of 190,000 barrels of oil per day (at peak)</p>
	<p>The Lake Albert Development encompasses Tilenga project operated by TotalEnergies EP Uganda (56.67%) and the Kingfisher project operated by CNOOC (28.33%) both in a Joint Venture partnership with Uganda National Oil Company (UNOC) (15%)</p>
	<p>The project has been designed and will carry out activities in compliance with company, National and International Standards, specifically International Finance Corporation (IFC) performance standards 1-8 on Environmental and social sustainability and UN Guiding principles on Business and Human Rights</p>
	<p>The project covers: 6 oil fields with more than 400 wells that will be drilled on 31 well pads</p>
	<p>Other main project installations include: a central processing facility, wellpads, flow lines, lake water abstraction facility, feeder line, support bases</p>
	<p>Approximately US\$4-\$5 billion</p>
	<p>Located in Buliisa and Nwoya districts covers 3 Production Licenses (PLs) from Contract Area-1 (Job-Rii, Gunya and Ngiri) 3PLs from License Area-2 (kasamene Wahrindi, Kigogole-Ngara and Nsoga)</p>
	<p>A Liquefied petroleum gas (LPG) recovery plant to be established and supply regional markets to promote better cooking solutions. Production (at peak) for the local market will be 80,000t a year</p>



The Tilenga Story

The name TILENGA is a derivative of two local names for the Uganda Kob. TIL in Luo and Engabi in Lugungu. The word represents languages from Tilenga Project's host communities.

Symbol

The antelope used as a symbol on the Tilenga logo is representative of the main animal found in the project area. The symbol depicts the rich biodiversity and environment of the area where the project is located and TotalEnergies EP Uganda's willingness to preserve it. The Corporate Identity for Tilenga Project is based on the Uganda Kob which is part the national emblem: the project is national and strategic for Uganda. The form of the antelope head is highly stylised, giving a sense of vitality and of the environment in which TotalEnergies EP Uganda operates.

Uganda Flag In The Horns

Red (our blood and symbolism of life, our vibrant energy reserves) and Black (African heritage), Yellow (abundant sunshine) all together also reflect the true origin and heritage of the project and its aspirations to develop Uganda's oil and gas potential.

During the public hearings that were organised by the National Environment Management Authority (NEMA) in November, 2018, the name became one of the hot topics for debate. In Buliisa, senior representatives of the Bagungu Community Association argued that the project be renamed "Bugungu-Tilenga Oil Project." In Nwoya, local leaders also brought up the same issue and also requested that the oilfields be renamed after the lineage of indigenous Acholi chiefs.

The then State Minister for Mineral development, Peter Lokeris, counselled the two communities and explained the naming of the project.





Tilenga Project meets international Environmental Social standards

The ESIA report for the Tilenga project was submitted to NEMA in June 2018. The PAU and other Government Ministries, Departments and Agencies (MDAs) reviewed the report and submitted comments to NEMA. Subsequently, the PAU organized two public hearings for the ESIA on 12th and 15th November, 2018 in Buliisa and Nwoya Districts, respectively. One of the key issues raised during the review included the lack of an Environmental and Social Management Plan (ESMP) for the Tilenga project. Following the hearings, an updated ESIA report was submitted and NEMA issued a conditional ESIA certificate for a period of 10 years in April 2019.



Information and consultation central for projects

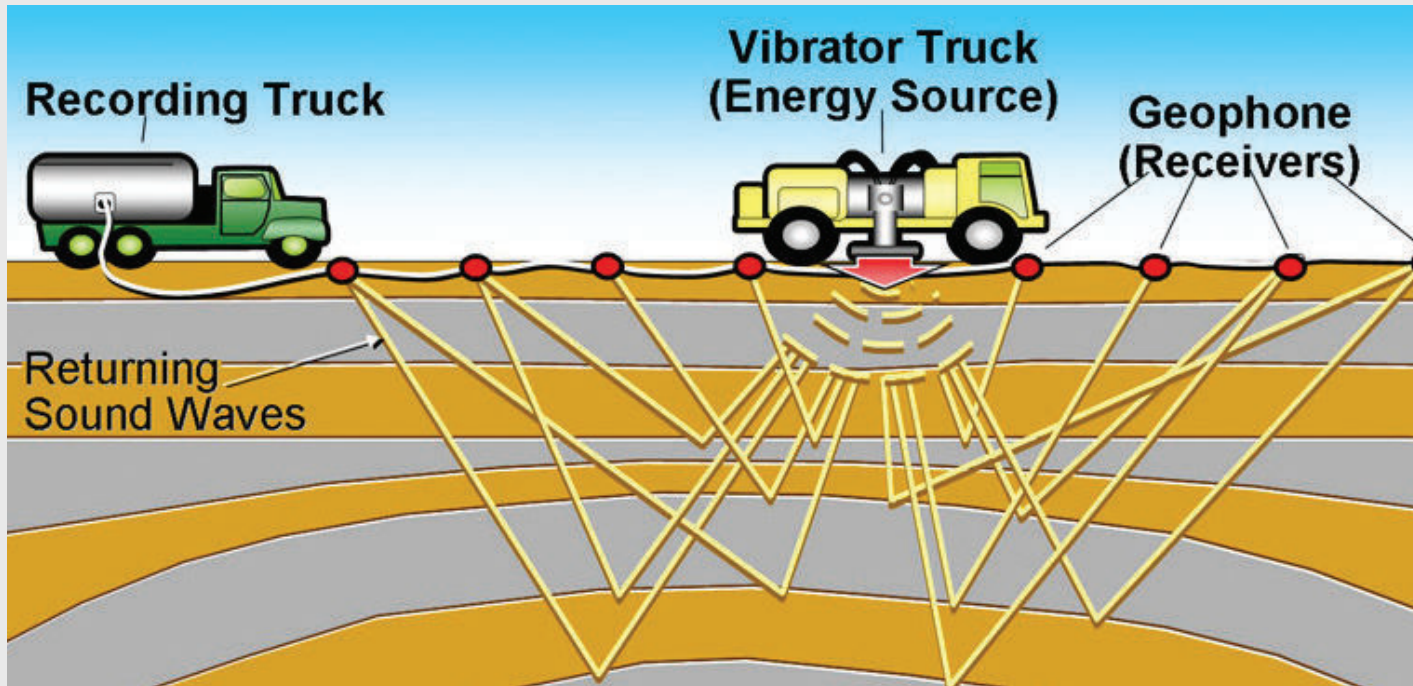
- +10,000 people consulted**
When conducting the Environmental and Social impact Assessment(ESIA)
- +5,000 meetings**
held to date with the people concerned and civilian organizations
- Feedback from the people concerned included in the update of the impact study**
which was approved by the National Environment Management Authority (NEMA)
- 90 community liaison officers**
in constant contact with local communities



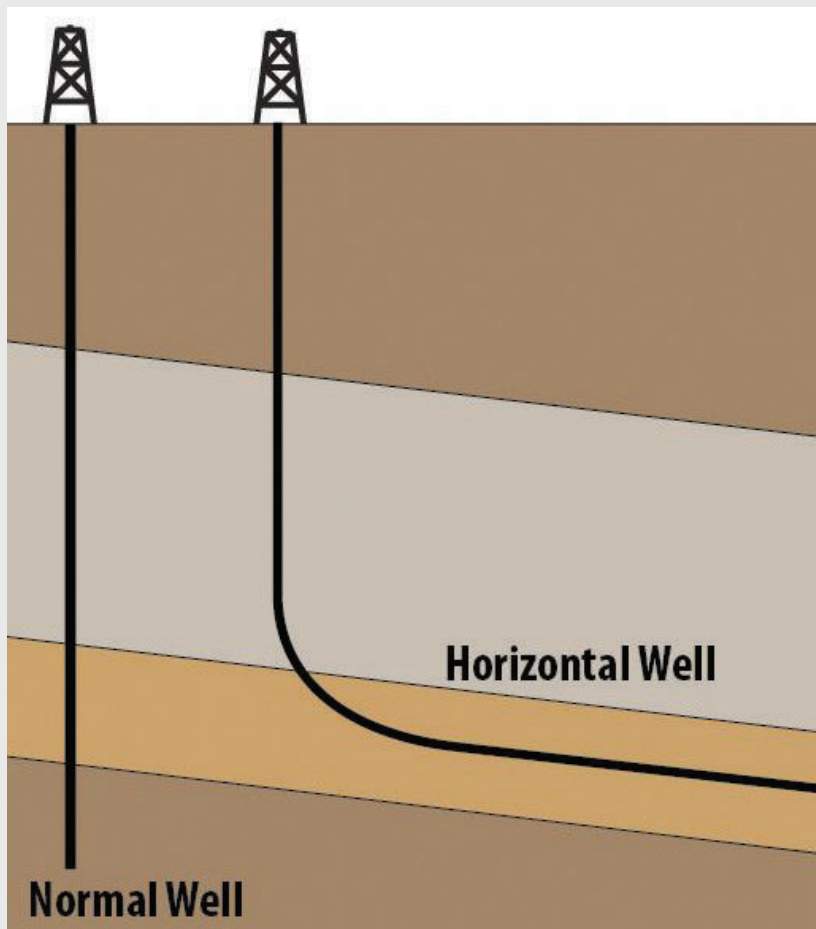
▶ Public Hearing for the Tilenga ESIA report in Bulissa District in November 2018

Environment friendly technologies in Murchison Falls National Park





▶ 3D wireless seismic data acquisition in Murchison Falls National Park in 2012



In 2013, TotalEnergies EP Uganda employed 3D cable-less seismic technology for the first time onshore in Africa, placing Uganda's oil and gas sector at the forefront of using innovative technology in exploration. 3D seismic acquisition is based on the same principle as the ultrasound scanners used in medical clinics. This technology produces quick results with less manpower and fewer supporting vehicles.

The technology helped the company achieve best coverage and quality data without deploying kilometres of cables, thus having limited impact on vegetation compared to other techniques. In addition, drilling of horizontal wells for the first time in East Africa was used. These technologies therefore reduced the number of wells drilled, fewer pads constructed, less number of roads opened, resulting in reduced footprint on the environment.



Protecting the environment throughout the projects

The project's aim is clear: To minimize our impact on environment and biodiversity wherever we have activities, throughout the entire life cycle of our facilities and products. Several elements are central to TotalEnergies approach which is based on national requirements and international finance corporation (IFC) performance standards.



Preserving Murchison Falls National Park and Lake Albert region

A controlled project

0.05% The project has been designed to minimize the footprint of the facilities which will occupied less than 0.05% of the park's area.



TotalEnergies EP Uganda is committed to implement action plans designed to produce net positive impact on biodiversity.



These plans are defined in close cooperation with the authorities and stakeholders in charge of nature conservation.



Numerous action plans are implemented under the control of third-parties and in collaboration with stakeholders to address cumulative impacts in the landscape.

Concrete actions



Minimizing the number and the size of the well-pads



Reinjection of all produced water into the wells



No routine flaring

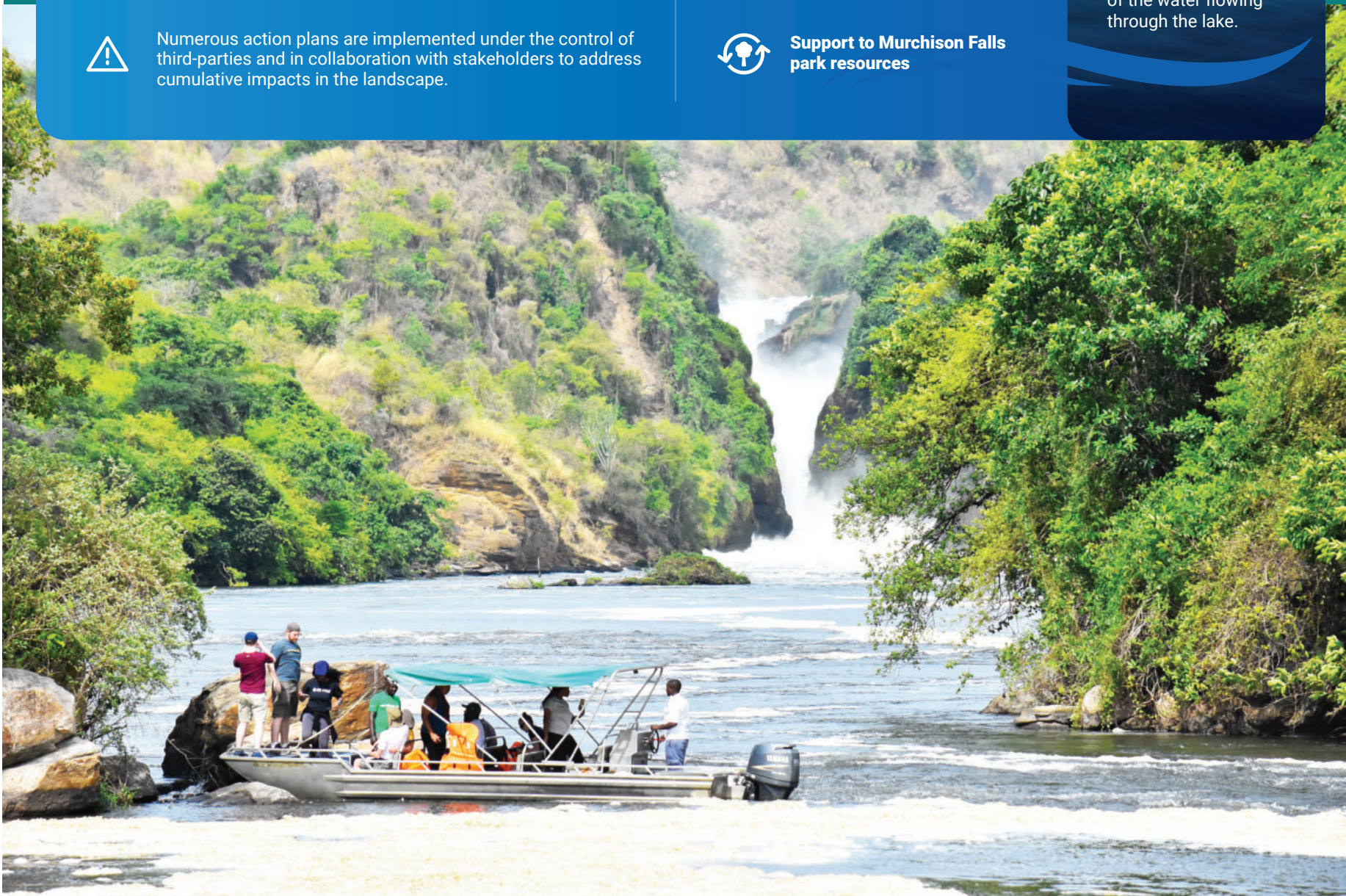


Support to Murchison Falls park resources

Protecting water supply

The project's impact on the lake is limited.

Water consumption during the first years of production will be 35,000 cubic meters per day and will decrease after. It represents 0.04% of the water flowing through the lake.



Promoting the coexistence of development and tourism

The Tilenga Oil & gas project is being developed in the eco-sensitive Murchison Falls National Park (MFNP) which is a major tourism attraction. This region is home to 42% of Uganda's tourist attractions (lakes, hot springs, monuments and national parks). Tourism accounts for over 10% of GDP and the tourism sector has been prioritised in the Uganda Vision 2040. In anticipation of perceived and potential impacts of Project activities on tourism operations, the developers have taken steps to mitigate the effects of some of the activities such as noise, lights, biodiversity loss, and increased project traffic and activities.

The main eco-protection measures taken in Murchison Falls Park include:

- Number of well locations limited to ten
- Underground oil and water injection lines
- No processing facilities
- No flares
- Installation of horizontally drilled flowlines to cross the Nile
- No night work, except for drilling
- Strict specifications applied to drilling equipment in order to limiting sound and visual impact
- Removal of all waste for processing
- Traffic management plan to limit the number of vehicles and interference with tourist activities in the Park









Biodiversity promotion and supporting conservation

The Tilenga project is being undertaken in a highly sensitive environment. The Albertine Rift Valley is one of Africa's most important areas for biodiversity and includes the Murchison Falls Conservation Area, Budongo Central Forest Reserve, Lake Albert amongst others. The area is home to over 76 mammal species including Nubian Giraffe, Lion, African Elephant and Eastern Chimpanzee as well as 450 known bird species.

On June 8, 2022, TotalEnergies EP Uganda (TEPU) launched the Tilenga Biodiversity Programme, an initiative aimed at protecting and conserving biodiversity in and around the Tilenga project area.

The Tilenga Biodiversity Programme is designed to ensure that positive outcomes for biodiversity and communities are managed by applying the mitigation hierarchy to “avoid, minimize and restore” impacts through the implementation of appropriate mitigation measures and to compensate for impacts that are likely to persist to achieve positive outcomes for wildlife and people within the landscape. This will be achieved by TEPU working in partnership with local communities, mandated institutions, conservation partners and civil society.

The Biodiversity Plan is hinged on four pillars

- Reducing human pressures and strengthening the ecological resilience of the Murchison Falls protected area through enhanced park protection and community-based management such as supporting alternative livelihoods.
- Implementing conservation and restoration measures for forests and their connectivity targeting protection of 10,000 hectares of natural forest threatened with deforestation and restoration of 1,000 hectares of tropical forest.
- Protecting and maintaining the connectivity of habitats in the savannah and in the proximity of the Bugungu Natural Reserve by addressing threats within and around the Reserve and developing schemes to support diversification of livelihoods and reduce dependency on Bugungu Natural Reserve
- Working with the host community to manage and restore wetlands along the southern bank of Lake Albert through community-based management initiatives



“We are mindful of the sensitive context within which we are undertaking our activities. We have thus made a commitment to ensure that we implement action plans designed to produce net positive impact on biodiversity. The biodiversity programme will ensure a sustainable approach in working with the community towards protecting and conserving the ecologically rich area in and around the Murchison Falls Conservation Area”

Philippe Groueix
General Manager
TotalEnergies EP Uganda

Land acquisition for the **Tilenga Project**

The Tilenga project land acquisition involves acquiring land for temporary and permanent occupation to develop several production facilities and linear infrastructure and resettlement of Project Affected Persons (PAPs). This involves Resettlement Action Plans (RAPs). TotalEnergies EP (TEPU) had to develop Resettlement Action Plans (RAPs) and obtain GOU's approval of these RAPs prior to implementation. Acquiring land for the Tilenga project was contracted to Atacama Consulting and resettlement planning process was broken down into components, each of which involved various projects in Buliisa, Hoima and Kikuube Districts as follows:

The project involved:

**Permanent acquisition
of approximately
2,901 acres of land**

**Management of
5,552 Project Affected
Persons (PAPs)**

**Management of
resettlement of
228 households**





Resettlement Action Plans

Rap 1	Rap 2	Rap 3a	Rap 3b	Rap 4	Rap 5
Land acquisition of priority areas of the industrial area for the Tilenga Project located in the vicinity of Kasenyi village, Ngwedo Sub County, Buliisa District, Uganda.	North Western Components:	North Eastern Components:	South Eastern Components:	Feeder Oil Pipeline Components:	Upgrade of Existing Access Roads:
786 acres: total affected area 622 affected persons(PAPs) 30 PAPs displaced	284 acres: total affected area 327 affected persons 60 physically displaced 18 proposed facilities namely; ~ 6 well pads ~ 6 flow lines ~ 5 access roads ~ 1 water abstraction station	242 acres: total affected area 786 affected persons 11 physically displaced 22 proposed facilities namely; ~ 6 well pads ~ 8 trunk lines ~ 6 access roads ~ 2 HDD sites options	452 acres: total affected area 823 affected persons 29 physically displaced 33 proposed facilities namely; ~ 11 well pads ~ 11 trunk lines ~ 11 access roads	767 acres: total affected area 1119 affected persons 32 physically displaced 4 proposed facilities namely; ~ 1 feeder pipeline ~ 1 heat trace power stations ~ 1 mobile camp ~ 1 access roads	365 acres: total affected area 1846 affected persons 43 physically displaced 9 access roads in Bulisa District



▶ Resettlement houses for project affected persons whose primary residence was affected by the Tilenga project land take

Tilenga Project Land Acquisition Timelines



Starting in 2014

Total Energies EP Uganda and its partners suggest a standard framework for any land acquisition in the region of Lake Albert.

2016

The Government of Uganda approves the proposed common framework

2017

Total Energies EP Uganda and its partners submit a first Resettlement Action Plan (RAP 1, for industrial area) to specify the conditions for relocating the affected people. The authorities approve it in 2018.

2020

Implementation of RAP1 with compensation payments, transition support, resettlement house construction. Submission and approval of the other plans (RAPs 2-5).

2021/2022

Completion of RAP 1. Implementation of the remaining Resettlement Action Plans (RAPs 2-5).



The 8 step holistic resettlement plan

■ Land Value Assessment

The Chief Government Valuer in MLHUD established the compensation rates relying on several market studies that were carried out by Total Energies EP Uganda and an independent committee.

■ Crop Value Assessment

The crops compensation rates are set by the District Land Boards who are the final decision makers. They also relied on several market studies that were carried out by Total Energies EP Uganda and an independent committee.

■ Compensation Options

Primary residents were given an option to choose between monetary compensation or compensation in kind (housing). For compensation in kind, special attention were paid to the choice of alternative land to ensure that access to infrastructure (main roads, schools, water networks, medical centers) is maintained or improved.

■ 'Cut off' Date

On that date, no further improvement to the land, housing or crops were taken into account in calculating compensation. Cultivation of the land was still possible and even recommended.

■ Agreements implementation

Financial training for the people concerned, compensation agreement signing by the people concerned, Total Energies EP Uganda and government of Uganda. Here, particular attention was paid to the vulnerable people and women's rights.

■ Compensation received and 'notice to vacate' signed

The people concerned received their compensation. In exchange, the land became the property of the Government of Uganda as occupants were given a set amount of time to leave the land.

■ Implementation of the Livelihood Restoration Support initiative

Some of these initiatives included; proposing training and activities linked to agriculture such as cassava and vegetable growing, tree seedlings, apiary; extending support in managing their plans and helping households to diversify income sources.

■ Monitoring of implementation and improvement in the quality of life

Some of these initiatives included; proposing training and activities linked to agriculture such as cassava and vegetable growing, tree seedlings, apiary; extending support in managing their plans and helping households to diversify income sources.

Livelihood projects

The Project Affected Persons (PAPs) have received land titles for the houses and relocation assistance. They are also benefiting from livelihood restoration programmes and psycho-social support, including: financial and vocational training, health focused training (HIV awareness), improved agricultural services (improved seedlings, crop and livestock), extension services, bee keeping, and, dry rations of food.





▶ Livelihood restoration and improvement activities for project affected persons under the Tilenga project



Engaging stakeholders in the Tilenga Project

From the beginning of the Tilenga project, TotalEnergies and its Joint Venture Partners placed particular importance on informing and consulting the local population and addressing their concerns, both at the local and national level. As a policy, TotalEnergies and partners believe involvement of the local population is a key factor in the project success. Those consulted included concerned community members, authority figures and institutions, private sector players, and civil society.



▶ Stakeholder engagement during land acquisition

Information and consultation central for the Tilenga Project:

- Over 10,000 people consulted when conducting the Environmental and Social Impact Assessment (ESIA).
- Information from the people concerned was included in the update of the impact study that was approved by the government's environmental authority (NEMA).
- 90 community liaison officers are in constant contact with local communities.
- Over 5,000 meetings held to-date with the people concerned and civil organisations.

Inform and involve the people and local actors



A clear framework for participatory and inclusive dialogue

The plan clearly defines the relationships and interactions with the stakeholders involved in the projects



A permanent dialogue in the field is conducted by dedicated community liaison officers

Who are in direct contact with the impacted communities. They gather concerns and and share with relevant teams within TEPU for handling.



The people impacted by the project are engaged and consulted at each stage

of the projects development. Local committees are set up at village and district level.



Quarterly information meetings are held

at the national and local level. Invitations are made by radio, TV, press, Social media, emails, letters

Consultation of all stakeholders involved in the projects

LOCAL ADMINISTRATIVE AUTHORITIES

Authorities

GOVERNMENT LEGISLATORS

CULTURAL AND TRADITIONAL LEADERS

SUPPLIERS AND CONTRACTORS
INDUSTRIAL AND FINANCIAL PARTNERS

Private sector

TOUR OPERATORS TRADE ASSOCIATIONS

TOTAL ENERGIES EP UGANDA EMPLOYEES

LOCAL COMPANIES

HEALTHCARE CENTERS

SCHOOLS PROFESSIONAL ORGANIZATIONS

DONORS **Civil society** MEDIA NGO

REPRESENTATIVES OF THE RELIGIOUS COMMUNITIES

RESIDENTS

Communities concerned LAND USERS
LANDOWNERS

Tilenga Project: Acting Transparently

The projects for the development of the oil and gas resources of the Lake Albert region and the cross-border pipeline are situated in a sensitive social and environmental context that requires special measures for the environment and the rights of the local communities



▶ Field visit for civil society representatives to Tilenga Project Activities



As a responsible operator, TotalEnergies recognises the projects' environmental and social issues, and takes them into consideration.

The completion of the project will require the implementation of a land acquisition programme covering some 2115 acres / 856 hectares. For Tilenga, this means relocating 194 primary residences affecting various stakeholders, landowners and land users.

Carried out in compliance with IFC performance standards, this programme will begin with a complete survey of the land and crops and monetary compensation and/or compensation in kind. Each family whose primary residence is being relocated may choose between a new home and monetary compensation. An accessible, transparent and fair complaints-handling system will be running throughout the process.

Special attention has been paid to information, consultation and consensus-building with all stakeholders.

TotalEnergies attaches the utmost importance to compliance with human rights in the implementation of these projects. Everybody has the right to express themselves. These projects are located in a particularly sensitive natural environment, especially in terms of biodiversity. Strict measures have been taken to avoid, mitigate and offset their impact.

TotalEnergies has decided to restrict the footprint of the Tilenga project in Uganda's Murchison Falls Park, a protected area and a showcase for African biodiversity.



Promoting women's rights and gender equality

TotalEnergies has important commitments related to women's rights and gender equality in its Human Rights Guide and in other corporate policies. It has also committed to work with other industry actors to address women and gender as part of the "Closing the Gender Gap in Oil and Gas: A Call to Action for the Industry Declaration.

In the Human Rights Impact Assessment (HRIA) of the Tilenga Project, the challenges noted included informing and consulting with women, discrimination, sexual harassment and Gender-Based Violence (GBV) in the workplace, sexual abuse and exploitation of community women and girls by workers associated with the oil & gas industry, and adverse impacts on women related to disputes with men over resettlement compensation.

The main concerns raised related to the risk of poor conduct of contractors, private security guards and Government Security Forces and potential impacts on women and girls.

The Project has made commitments related to women's rights and gender equality in relation to its own direct workforce, contractors and communities, which are reflected in TotalEnergies EP Uganda (TEPU) policies and various social management plans. In particular, the Project developed a Gender Management Plan (GMP).







National content Policy prioritising Ugandans

The national content strategy of the Tilenga Project operated by TotalEnergies EP Uganda (TEPU) aims at maximising the use of Ugandan manpower, Ugandan goods and service and fostering capacity building and knowledge and technology transfer. The aim is to ensure sustainable national participation and national content development in project activities.

Given that the oil and gas sector is developing in Uganda, there are skills and competency gaps that must be resolved to increase the level of national involvement.

Training and skilling initiatives are means through which qualified Ugandans are skilled and upskilled to be able to participate in the sector as per the required competences and standards. Ugandan companies also acquire competent and certified personnel which makes them

more competitive for business opportunities in the sector. Overall, the value created and added in Uganda's economy grows.

Deliberate and collaborative efforts with the Government of Uganda, contractors, partners and key stakeholders have led to success in growing national participation.

One of the programmes is the Tilenga MOOC which consists of courses with content related to basic mathematics, science and the oil and gas value chain and TotalEnergies group activities related to the oil and gas Industry. It aims to identify, recruit, train and develop up to 150 eligible Ugandans to be able to become production operators, maintenance, and inspection technicians to work on the Tilenga project in the production phase after 1st oil. The training is conducted in partnership with Uganda Petroleum Institute Kigumba (UPIK).

In-Country Value

<p>Employment -Over 7,800 Ugandans (representing over 77% of total personnel),comprising of 520 directly by company and circa 7,310 by contractors of which:</p> <p>Enabling infrastructure-1,412 Ugandans (96%)</p> <p>Drilling&Wells-1,022 Ugandans (75%)</p> <p>Facilities EPSCC-2,681 Ugandans (62%)</p> <p>Support Contracts-2,195 Ugandans (68%)</p> <p>Training- Over 1.1 million manhours on training Ugandans by Company and contractors</p>	<p>Goods and Services-In excess of \$722 million spend in Uganda mainly on items such as cement,steel,aggregates,logistics, catering, hospitality, construction and facilities setup</p> <p>Local supplier development-Over \$7.7million, 3,000 manhours and a minimum of four (4) workshops per year dedicated to supplier development and local industry enhancement</p>	<p>Transfer of technology, knowledge, and skills-Over 500 welders, 360 HGV drivers, 256 scholarships and \$3 million committed</p> <p>Support to education institutions- Up to \$1 million and five (5) beneficiary technical institutions committed on collaborations and Tilenga Train- the- Trainer</p>
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▶ **Training of internationally certified welders**

Major successes of national content strategy

- Ugandans are employed within TotalEnergies EP Uganda workforce and by our contractors and subcontractors. as at end of 2021. Up to 94% of TotalEnergies staff are Ugandans and this figure continues to increase.
- TotalEnergies EP has invested heavily in training its Ugandan staff. Many are given international exposure (secondments) within other TotalEnergies' affiliates in the world.
- Many Ugandan companies are directly contracted to provide a variety of goods and services that include; transport and logistics, camp management, catering, medical, information technology and communication, security, civil works, manpower and training services,

social and environmental services, accommodation, legal services, land surveys among others.

- TotalEnergies EP has invested in initiatives for transfer of technology, knowledge and skills, training & certification of welders, drivers, QC Inspectors, International masters' scholarships and training of government officials.
- Many local suppliers of TotalEnergies EP have benefited from development initiatives like supplier workshops, market intelligence survey, scaffolding training and the Agriculture Development Program.
- Oil and gas related courses at Makerere University have been supported under the Total Professeurs Associés (TPA) programme.



Tilenga sustainability initiatives: Giving back to the community

TotalEnergies EP Uganda is committed to sustainable development initiatives in the Tilenga Project. Initiatives it has taken to ensure this include enhancing road safety, cultural heritage and biodiversity conservation in the Albertine region.

The company has agreements with implementing partners:

- Safe Way Right Way (SWRW) for road safety initiatives in schools;
- Cross Cultural Foundation Uganda (CCFU) for the implementation of a cultural dialogue and heritage programme
- Wildlife Conservation Society (WCS) to support UWA law enforcement activities in the MFNP park; and
- Chimpanzee Sanctuary and Wildlife Conservation Trust (CSWT) to promote community, education and awareness around Budongo forest central reserve.





Joining ROOTS campaign to plant 1m trees

TotalEnergies EP Uganda (TEPU) on May 20, 2022 entered into partnership with the Ministry of Water and Environment, Uganda Breweries Limited, Stanbic Bank Uganda, and ATC Uganda, Development Partners, and the civil society partners to plant 1 million trees across the country in one day, as a show of firm commitment towards the Running out of Trees (ROOTs) Campaign. The ambition of the ROOTs campaign is to plant 40 million trees per year until 2026 for the first phase of the programme. By 2022, over 25 million trees have been planted. The campaign aims to address a looming challenge of deforestation in the country that threatens to render Uganda more vulnerable to climate related disasters and unable to meet its wood needs by 2030, if nothing drastic is done to reverse the declining forest cover.

“TotalEnergies has made clear commitments towards ensuring that its activities are conducted in line with best environmental and social practices. We are committed to working with partners who are experts in implementing sustainable projects aimed at achieving positive outcomes for conservation, culture and communities.”

Philippe Groueix, General Manager TotalEnergies EP Uganda said,



The ambition of the ROOTs campaign is to plant **40 million** trees per year until 2026 for the first phase of the programme. By 2022, over **25 million** trees have been planted

The Kingfisher Development Project

The Kingfisher Development Area (KFDA) covers the Kingfisher field located in Kikuube District with plans for future tie-in of Mputa-Nzizi-Waraga fields in Kaiso-Tonya, Hoima District. The project is operated by CNOOC Uganda Ltd (CUL).









The project



Thirty-one (31) wells (11 injectors and 20 producers) to be drilled on four (4) well pads



A forty-six (46) kilometre 12-inch feeder pipeline from the CPF in Buhuka to the export hub and Refinery in Kabaale, Hoima District



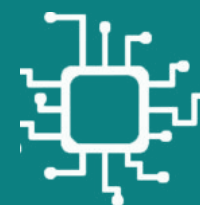
Nineteen (19) kilometres of flowlines to connect the fields to the CPF



Supporting infrastructure such as temporary and permanent camps, a materials yard, a jetty and several access roads, among others



A 47km feeder pipeline through three sub-counties and 29 villages



Central Processing Facility (CPF) with a capacity of 40,000 barrels of oil per day





National Content



Employment of over
2,716 Ugandans
(Over 78% of the
total workforce)

280
directly
employed by
company

2,436
Employed by
contractors

EPCs (1,2,3&4)
-1581
(Ugandans
81%)



Drilling Packages
- 244 Ugandans
52%



Support Contracts
- 600 Ugandans
100%







“

We ensure strict adherence to NEMA regulations and guidelines and make clear commitment to apply international best practices particularly the International Finance Corporation (IFC) performance standards





Land Acquisition



Compensation payment of project affected PAPs up to 99% and acquisition of land for the various KFDA project components



Compensation payment of Buhuka Communal Land Association, subdivision and transfer of the Title to Uganda Land Commission (ULC) was completed



Resettlement Houses: Completed and handed over 5 RAP-1 houses to PAPs in 2019, completed and handed over 56 RAP-II & III resettlement units in July 2022



Completed Livestock and Crop development Livelihood Restoration Program in Feb. 2022. PAP's appreciated knowledge got from trainings in crop and animal husbandry



Completed Financial Literacy Training for >1000+ and Business Development support & training of 100 youth in various courses at Nile Vocation Institute was completed



What people say about the Kingfisher project



We are grateful to CNOOC Uganda Limited for the opportunity to transport the very First Rig for commercial production in Uganda.

Isaac Nseroko
Director DDG Logistics



A good learning environment that has taught us to operate on global standards.

Kevin Brian Amany
Creative Director Switch Media Limited



It's been a great experience of learning and providing bespoke services to our clients -

Aggrey Ashaba
GM, GCC



We are very happy for the clean water brought to the village by CNOOC that has helped us reduce water related diseases-

Dismas Babihemaiso
LCI Nsonga A



There has been an improvement in the grades amongst the students who work hard to receive the Best Performers Award.

Godfrey Sserwanja
DEO Hoima District





East African Crude Oil Pipeline

Route to market

The East African Crude Oil Pipeline project (EACOP) will transport Uganda's oil to the international market. The oil is waxy and requires a heat traced pipeline. Experts say construction of the East African Crude Oil Pipeline requires the best contractors in the world who could only be attracted by the super majors. The East African Crude Pipeline (EACOP) is a 1,443km crude oil export facility connecting Kabaale in the Hoima District of Uganda and Chongoleani in Tanga, Tanzania.

Joint Venture Partners – TotalEnergies Holding EACOP SAS with 62% and CNOOC Uganda Limited with 8% – holds the largest shareholding in the pipeline with a combined 70% stake as Uganda government through the Uganda National Oil Company (UNOC) and Tanzania government through Tanzania Petroleum Development Corporation (TPDC) holds 15% each.

The US\$4bn pipeline covers 296km in Uganda and navigates through ten districts and 25 sub-counties. In Tanzania, the pipeline covers 1,149km traversing through eight regions and 25 districts. The pipeline's route was chosen to avoid or minimize environmental and social impacts, with the pumping stations partially powered by solar plants.



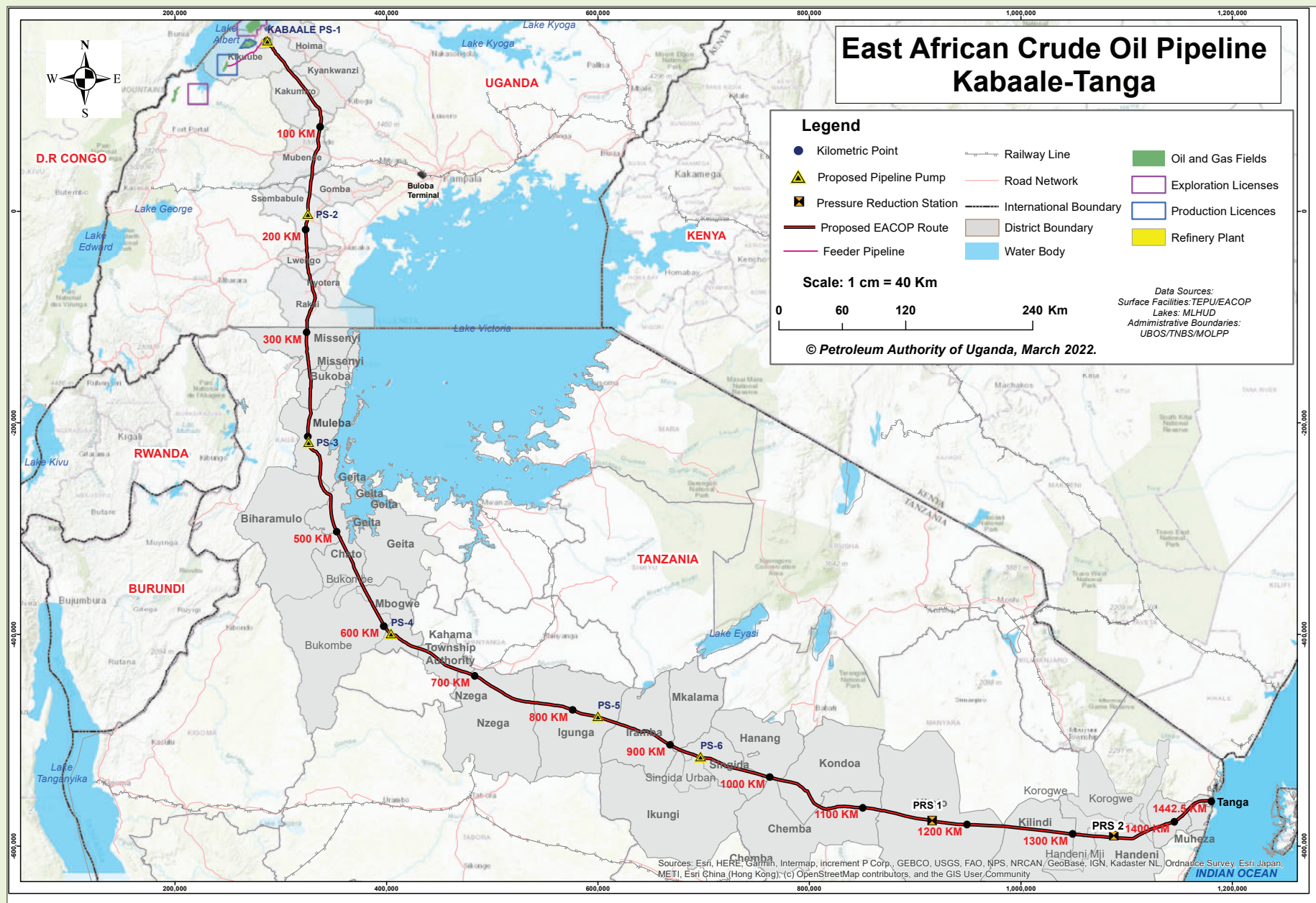


Laying the Foundation Stones

- On August 05, 2017, the President of Uganda, H.E Yoweri Kaguta Museveni and his Tanzanian counterpart, H.E President John Joseph Pombe Magufuli (deceased) laid the Foundation Stone at the end point of the 1,443km long pipeline at Chongoleani, near Tanga Port in Tanzania.
- On November 09, 2017, the President of Uganda, H.E Yoweri Kaguta Museveni and his Tanzanian counterpart, H.E President John Joseph Pombe Magufuli laid the Cross Border Mark stone at Ruzinga Village, Mutukula – Kyotera District.
- On November 11, 2017 the President of Uganda, H.E Yoweri Kaguta Museveni and his Tanzanian counterpart, H.E President John Joseph Pombe Magufuli laid the Foundation Stone at the starting point of the pipeline at Kabaale in Hoima District in Uganda.



▶ H.E the President and the CEO of TotalEnergies witness the laying of the EACOP Foundation Stone in 2017



Heat traced crude oil pipeline

The pipeline is buried 1.2m underground, insulated and heat-traced due to the viscous and waxy nature of crude oil. An integrated heating system maintains the crude oil's temperature above 50°C so that the wax remains in solution. It comprises 6.6kV Electrical Heat Trace (EHT) cables, each providing 30W/m of heat powered by 33kV underground cables.

The Ugandan section of the pipeline is installed with 230km of 33kV power cables and 296km of fibre-optic cables, while the Tanzania segment includes the installation of 3,465km of 6.6kV single phase EHT cabling, and 939km of 33kV power cabling.

A marine storage terminal with scope for expansion for a 500,000 barrel tank and the load-out facility is located in the northern part of the Tanga Port. The crude oil conveyed by the pipeline is stored at the terminal before being shipped and sold. The terminal helps the vessels load the crude oil at a sheltered deep water site. The pipeline also comprises two pumping stations in Uganda with a capacity of 216,000 barrels of oil

per day (bopd) and four in Tanzania. Two pressure-reduction stations in Tanzania, 53 block valve stations in Tanzania and 60 stations in Uganda have been developed. Also, the pipeline features 27 heating stations, a loading pad in Kabaale and a facility to load crude oil into tankers at Chongoleani.

The project also include the construction of 96.5km of temporary and permanent access roads, ten construction camps, and 15 electrical heat trace substations in Tanzania.

The EACOP underwent rigorous Environmental Social Impact Assessments (ESIAs). The experts held public hearing with Project Affected Persons and civil society organisations from the ten districts traversed by the EACOP in Uganda. This ensured that physical, biological and social baselines were extensively covered, challenges documented, and mitigation measures recommended. The Front-End Engineering Designs (FEED) for the EACOP was reviewed to satisfaction and approved by the Petroleum Authority of Uganda (PAU).



▶ H.E President Yoweri Museveni and the CEO of TotalEnergies, Mr. Patrick Pouyanne with senior Government and private sector officials after the signing of the key EACOP agreements in April 2021

Pipeline facts & figures



1,443 km buried, heat traced crude oil pipeline Runs from Kabaale in Hoima, Uganda to the port of Tanga in Tanzania



Has a flow rate of 216,000 barrels of export crude oil per day at plateau production



Will lead to an increase of over 60% in FDI for Uganda and Tanzania in the construction phase



Is
US\$4B
investment



Requires over 500 tonnes of imported equipment and materials



EACOP will impact Project 13,158 Affected Persons (3,648 in Uganda and 9,513 in Tanzania)



“It is a masterpiece of a project and will be achieved at low cost and with a low carbon footprint.”

Mr. Patrick Pouyanne, the CEO and Chairman of TotalEnergies who led the Joint Venture Partners (JVPs) in announcing the FID





Selecting the **best** **pipeline route**

The route of the East African Crude Oil Pipeline (EACOP) which will transport crude oil from Uganda, through Tanzania, to the international market was designed to minimise its environmental impact.



▶ Joint supervisory visit of the EACOP route in Uganda by PAU and EWURA in August 2022

EACOP Milestones

**August
2017**

The foundation stones for the EACOP were laid in Tanga in August 2017 and in Hoima and Mutukula in November 2017

**November
2020**

On November 30, 2020 the Uganda NEMA issued a certificate of approval for the ESIA for the EACOP Project in Uganda. The approval for the Tanzanian section was issued by the NEMC, on November 29, 2019

**April
2021**

The Shareholders Agreement (SHA), the Host Government Agreement (HGA) and the Transportation and Tariff Agreement (TTA) were signed on April 11, 2021

**February
2022**

On 01 February 2022, Total Energies EP Uganda, CNOOC, UNOC, and the TPDC announced the Final Investment Decision on the Lake Albert Development

**February
2022**

The East African Crude Oil Company (EACOP) Ltd was formally established following the Final Investment Decision (FID) ceremony on February 01, 2022

The decision made to pass the pipeline through Tanzania and not Kenya, which was initially favoured, was based on lower cost, more security, and time.

The underground pipeline from Kabaale in Hoima District to Tanga Port in Tanzania, covers a distance of 1,443 kilometres. In Uganda, the EACOP project will cover 296 kilometres through ten districts.

The decision was most strategic for Uganda as it also ensured that the country diversified its export routes. Up until this point, 90 percent of Uganda's imports and 80 percent of exports passed through Mombasa.

At US\$3.55 billion, the Tanga route was evaluated as US\$1.5 billion cheaper, with already developed operations, and shielded from the periodical strong Indian Ocean winds. Land acquisition in Tanzania

is less complicated as powers over the same are vested in the President.

The route to the port has existing roads with 1101km of tarmac roads and 582km of usable murram roads, and a railway along the project right of way. On top of these findings contained in the feasibility study commissioned by Total and conducted by US-based Gulf Interstate Engineering, the Tanzania government also boosted the southern route with a raft of fiscal incentives.

These included; VAT exemption during construction and operation on all goods and services, exemption of transit fees, a tax holiday on incomes for ten years, 20% accelerated depreciation rate, reduced withholding tax rate on goods and services from 15 to 5%, and exemption of 10% withholding tax on interest on loans.

- The Inter-Governmental Agreement

between Uganda and Tanzania was signed during May 2017

- The foundation stones for the EACOP were laid both in Tanga and Hoima during August 2017 and November 2017 respectively.
- Negotiations of the Host Government Agreement (HGA) for EACOP between the Pipeline Project Team (PPT) and the Ugandan government were concluded in September 2020. Subsequently, negotiations for the Shareholders Agreement (SHA) and the Transportation and Tariff Agreement (TTA) were also finalised. This culminated into the signing of the Uganda HGA, SHA and TTA on 11th April 2021. This marked the launch of Uganda's oil and gas projects.

EACOP Project milestones

Establishment of the East African Crude Oil Company Ltd

The East African Crude Oil Company (EACOP) Ltd was formed following the Final Investment Decision (FID) ceremony on February 01, 2022 as a special purpose company with shareholders TotalEnergies (62%), Uganda National Oil Company (UNOC – 15%), Tanzania Petroleum Development Corporation (TPDC – 15%) and CNOOC (8%).

Signing the Host Government Agreements (HGAs)

On April 11 and May 20, 2021 respectively, the governments of the Republic of Uganda and the United Republic of Tanzania signed the Host Government Agreement (HGA). The HGAs establish the legal and commercial framework for EACOP to be financed, constructed and operated.



Signing of the Inter-Governmental Agreement

In May 2017, the Governments of the Republic of Uganda and The United Republic of Tanzania signed the Inter-Governmental Agreement (IGA) for the two countries to develop the EACOP Project. The IGA is the foundation for the project and other project agreements, including the Host Government Agreements, Shareholders' Agreements and the Financing Agreements.

▶ Signing of the EACOP IGA in May 2017 in Kampala

EACOP ensures best practices

Construction of the East African Crude Oil Pipeline (EACOP) ensured that potential effects on the health, safety, and security of communities, workers and the environment were well addressed and managed throughout the planning, construction, and operational phases. This included preserving local biodiversity.



Environmental and Social Impact Assessment (ESIA) approval

On December 3, 2020, the National Environment Management Authority (NEMA) issued an ESIA certificate of approval to Total East Africa Midstream B.V (a TotalEnergies affiliate) for the East African Crude Oil Pipeline (EACOP) project. As required by law and regulations, NEMA's issuance of the certificate followed three public hearings that took place in the districts of Kakumiro (October 21, 2019), Mubende (October 23, 2019) and Rakai (October 25, 2019), three of the 10 districts where the pipeline is supposed to pass.



▶ Issuance of the EACOP ESIA certificate for the Uganda section

EACOP Environmental Social Impact Assessment (ESIA) milestones

Environmental Social Impact Assessment (ESIA) conducted between 2017 and 2018 covered extensive physical, biological and social baselines

The EACOP sponsors submitted the Environmental and Social Impact Assessment (ESIA) report to NEMA during January 2019

Public Hearings on ESIA studies held in affected districts of Kakumiro, Mubende and Kyotera in October 2019

Front-End Engineering Designs (FEED) approved by the Petroleum Authority of Uganda (PAU) in October 2020



▶ **EACOP land acquisition consultative meeting in Kikuube district**

The hearings were organized by the Petroleum Authority of Uganda (PAU) in consultation with the country's environmental regulatory agency. The ESIA studies for the EACOP had been conducted between 2017 and 2018 and had covered extensive physical, biological and social baselines as well as stakeholder engagements.

And, as required by the National Environment

Act and in fulfilment of the Environmental Impact Assessment (EIA) regulations, the first EACOP project report was submitted to NEMA for review on January 15, 2019. Over 6,000 residents attended the public hearings over the three days.

Having captured all the key issues that arose during the review process, the National Environment Management Authority communicated these to the developer of the

EACOP project (Total East Africa Midstream – BV) to address those issues in the environmental and social impact assessment report. Having addressed the issues, the developer submitted the final Environment Impact Assessment Report to NEMA on August 7, 2020. NEMA then reviewed the resubmitted ESIA and went on to issue the Certificate of Approval of the Environmental and Social Impact Statement for the EACOP Project.

Lead Agencies involved in the initial review of the EACOP:

- Petroleum Authority of Uganda
- National Forestry Authority
- Uganda Wildlife Authority
- Directorate of Water Resources Management,
- Uganda National Roads Authority
- Ministry of Gender Labour and Social Development,
- Ministry of Waster and Environment
- Petroleum Exploration and Production Department
- The Petroleum Midstream Department in the Ministry of Energy and Mineral Development
- The local governments of Hoima, Kikuube, Kakumiro, Kyankwanzi, Mubende, Gomba, Sembabule, Lwengo, Rakai and Kyotera.

The public, including persons specifically affected by the project, were also consulted on the EACOP project through a public disclosure regime – which included provision of written information on the project and ESIA (in English and various local languages from the project area of influence); radio and television announcements and talk shows; and stakeholder engagement meetings in the 10 pipeline districts at selected sub-counties.

EACOP project in Tanzania

The Tanzania Petroleum Development Corporation (TPDC) is a joint shareholder in EACOP.



Environmental and Social Impact Assessments- Uganda and Tanzania

- On December 03, 2019, the National Environment Management Authority (NEMA) issued a certificate of approval to Total East Africa Midstream B.V, for the Environment and Social Impact Assessment (ESIA) for East African Crude Oil Pipeline (EACOP) Project- in Uganda.
- On November 29, 2019, the National Environment Management Council (NEMC) issued the approval for the Tanzanian section.
- Potential impacts, positive and negative on the economy, people, and environment in Tanzania have been described and assessed for many features considered to be valued and important to society (for example, protection of people’s livelihoods).

In Tanzania, the EACOP project comprises the following components:

» 1147-km-long, 24-in.-diameter, insulated, electrically trace heated, buried pipeline from the Uganda–Tanzania border to the marine storage terminal (MST) on the Chongoleani peninsula directly north of Tanga

» Above Ground Installations (AGI):

- four pumping stations
- two standalone pressure reduction stations and a pressure reduction system within the marine storage terminal
- the marine storage terminal (MST)
- an offshore load out facility (LOF) comprising a 1.9-km trestle and a loading platform for transfer of oil to tankers
- 49 standalone main line block valve stations, 3 standalone electric trace heating substations, 11 electric substations combined with main line block valve stations, and 7 electric substations combined with AGIs and MST

» Construction facilities

12
main camps
and pipe yards

pipe coating
facility

» Roads

47 km
of new and
upgraded
permanent
access roads

60 km
of new and upgraded
construction facility
access roads



▶ Joint supervisory visit of the EACOP route in Uganda by PAU and EWURA in August 2022

PAU signs MoU with EWURA

The Petroleum Authority of Uganda held several meetings with the Energy, Water and Utilities Regulatory Authority (EWURA), which is mandated to regulate the midstream and downstream activities in Tanzania, to discuss the modalities of cooperation in the regulation of the EACOP – a cross-border pipeline. The meetings discussed the regulatory requirements in their various laws, and those that would require harmonization between the two States in the ongoing HGA negotiations. These discussions resulted into a Memorandum of Understanding (MoU) between the PAU and EWURA to guide future partnership.

Pipeline FEED and EPCM agreements

- Gulf Interstate Engineering carried out the FEED study, which was completed in February 2018. The PAU reviewed the FEED and several engagements with the PPT were held to facilitate approval of the FEED.
- The Engineering, Procurement and Construction Management (EPCM) contract was awarded to WorleyParsons (now Worley Limited) UK, working with Newplan Engineers and Infra Consulting Services from Uganda, together with Norplan Tanzania and Inter Consult Ltd from Tanzania. Early EPCM activities commenced in August 2018.

The Uganda Refinery Project

60,000 barrels per day greenfield refinery in Hoima district, and a 210km petroleum products pipeline from Hoima to Mpigi District in Uganda





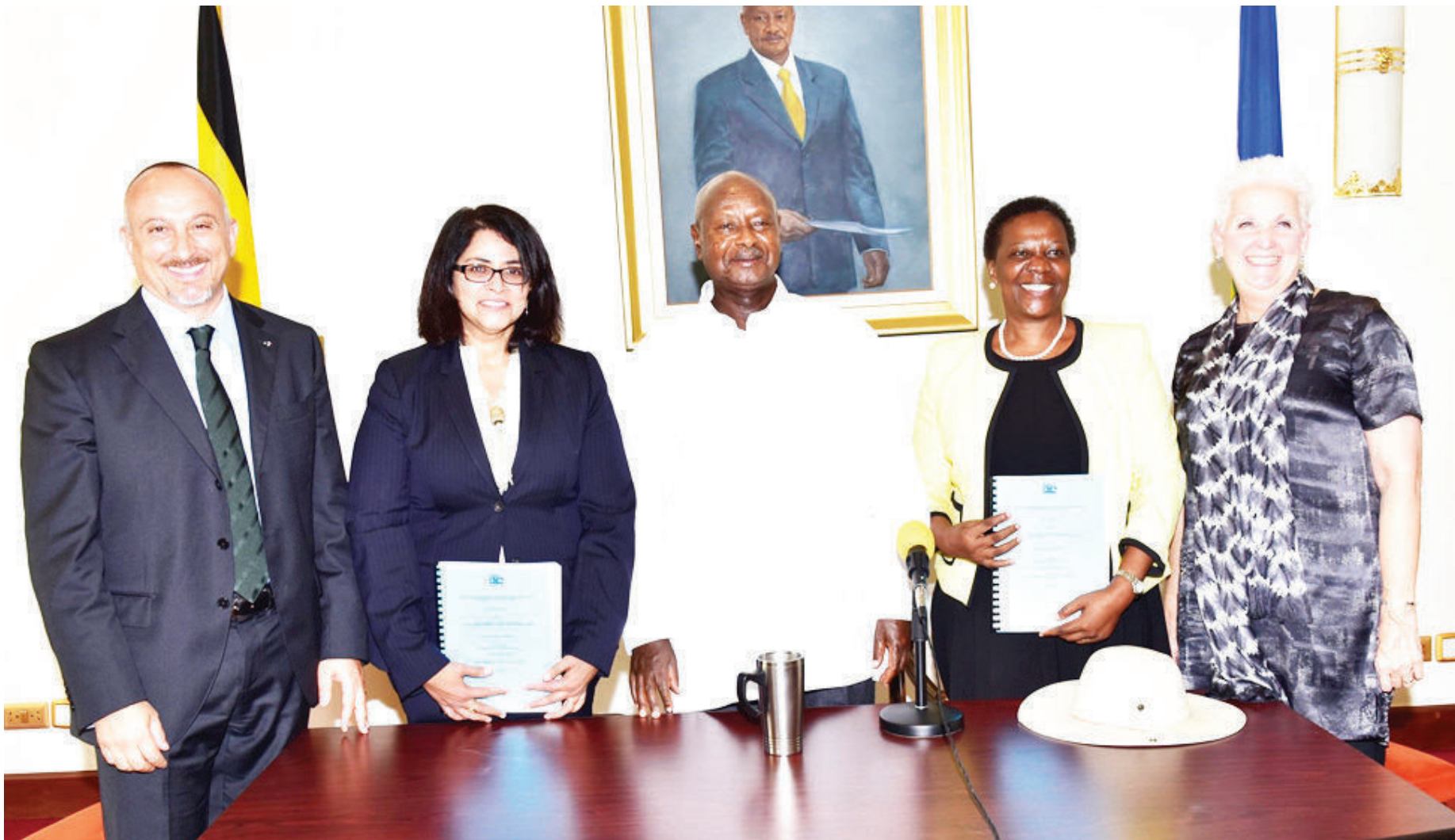
Refinery is best for Medium-heavy and waxy crude oil

The Uganda oil refinery is designed with a peak capacity of 60,000 barrels per day. The oil products from the refinery, including petrol, diesel, jet fuel, and liquefied petroleum gas (LPG), are for the domestic and regional market. The refinery is meant to ensure steady supply at reasonable product prices.

A refinery, therefore, is a key infrastructure project for the commercialisation plan of the oil and gas resources estimated at 6.5 billion barrels of which 1.4 billion to 1.7 billion is recoverable. It is to be located at the Kabaale Industrial Park in Buseruka, Hoima District. The Uganda Refinery Holding Company represents the State interest with 40% shareholding while the Albertine Graben Energy Consortium holds 60%.

According to a macro-economic study by Stanbic Bank in consultation with the Uganda National Oil Company (UNOC), the refinery will add US\$3.3 billion to Uganda's gross domestic product (GDP) per annum and US\$8.2bn per annum to the national capital formation. It will also improve Uganda's balance of payments by US\$591m, according to the study. Regarding jobs, 32,000 will be created. Of these, 1,200 are direct, 16,900 indirect and 13,900 induced.

The Uganda refinery will produce 658 metric tonnes of LPG per day, which will reduce Uganda's widespread reliance on charcoal and firewood. This is in addition to reducing carbon emissions from hundreds of trucks, which ferry petroleum products daily into the country over very long distances from Mombasa and Dar-es-Salaam.



▶ **President Yoweri Museveni (C) with officials after signing the project Framework agreement in 2008**



Why Residue Fluid Catalytic Cracking (RFCC) type was chosen

The “physical characteristics” of crude oil, according to the US Energy Information Administration, determine how it is refined. In simple terms, crude oils are classified by density and sulfur content. Less dense crude oils generally have a larger share of light hydrocarbons. Refineries can produce high-value products such as gasoline, diesel fuel, and jet fuel from light crude oil with simple distillation.

When refineries use simple distillation on denser (heavier) crude oils, they produce low-value products. Heavy crude oils require additional, more expensive processing to produce high-value products.”

Uganda’s crude oil is classified as medium-heavy and waxy in nature, which necessitated the residue fluid catalytic cracking (RFCC) technology refinery. This type of refinery would ensure production of more valuable light petroleum products-petrol, diesel, LPG, and jet fuel.

The RFCC would lead to 85% value in terms of finished, ready-to-use petroleum products compared to 30%, which a modular refinery would yield for Uganda’s crude oil.

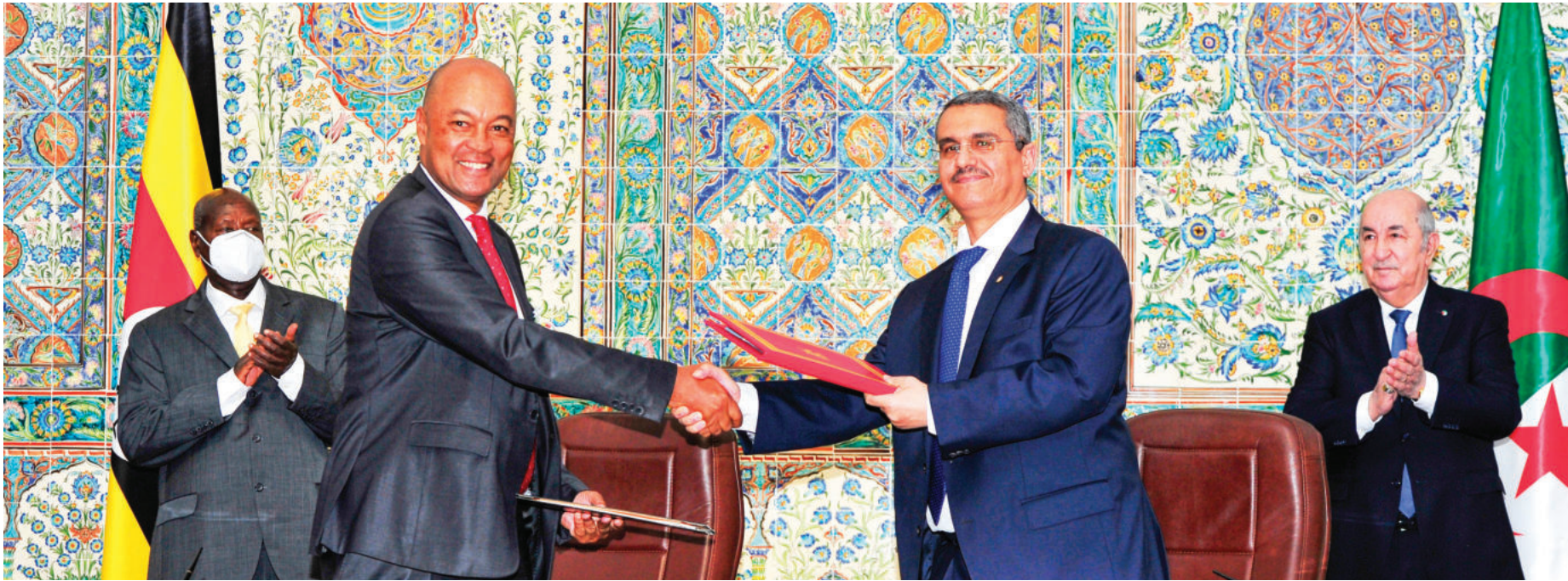
The Front-End Engineering Design (FEED) for the Refinery Project was completed and approved by the Government of Uganda. An Environment Social Impact Assessment (ESIA) was also done. The Final Investment Decision (FID) follows these two before commissioning of the refinery.

Facts and Figures

The refinery will add **US\$3.3bn** to Uganda’s gross domestic product (GDP) per annum and **US\$8.2bn** per annum to the national capital formation

It will also improve Uganda’s balance of payments by **US\$591m**

It will create, **32,000 jobs** Of these, **1,200** are direct, **16,900** indirect and **13,900** induced



▶ UNOC signs MoU with Algeria

Uganda's Refinery: The case for a Complex/Conventional Versus the Modular Refining Technology

In planning for the development of the refinery in the country, Government of Uganda (GOU) evaluated different options and selected the best available, technically feasible and economically sound technology to refine Uganda's type of crude oil. Whereas modular refineries are simple refineries with basic process units requiring less capital investment than complex refineries, the option may not be viable for the type of crude oil Uganda has discovered.

The major unit in a modular refinery is the Crude Distillation Unit (CDU), which is an initial processing unit in any refinery that allows for simple distillation of crude oil into low octane naphtha (gasoline), diesel, kerosene and residual fuel oil. These low octane products will need to be cracked by other units within a refinery process to yield high value products that meet the required specifications and the Uganda Market demand.

Uganda Refinery: Signing the Project Framework Agreement

Government (through the Ministry of Energy and Mineral Development) on the 10th of April 2018, signed a Project Framework Agreement (PFA) with the Albertine Graben Energy Consortium (AGEC), for the design, financing, construction, and operation of a 60,000 bopd refinery in Hoima, Uganda. The AGEC contracted SAIPEM S.p.A to undertake a Front-End Engineering Design (FEED)

for the project. SAIPEM considered different refinery configurations and like Foster Wheeler Energy Limited, selected a complex refinery as opposed to a simple/modular refinery.

The nature of crude oil to be refined and the kind of market to supply are key in selecting a refinery configuration. Given the waxy nature of the Ugandan Crude oil coupled with the environmental regulations, the best refinery technology for Uganda is one that would ensure optimum yields while minimizing the coke production and other greenhouse gases (GHGs). The chosen configuration should ensure optimal investment profile in terms of low Capital Expenditure (CAPEX) during construction and low Operating Expenditure (OPEX) while yielding a high rate of return.

Uganda Refinery Configuration

SAIPEM performed a SWOT analysis on four refinery configuration options and selected the best technology to meet the demand for refined products for Uganda and its East African neighbours. The selected configuration provides flexibility of producing a fair balance between the main transportation fuels (Gasoline and diesel), presents an opportunity for petrochemical industry development, has a simplified conversion scheme with a reduced number of process units, produces zero coke which is good for environmental protection

and has the best Investment package. The selected technology currently leads the global trend for the new refineries coming onboard world over, due to its technical and economic robustness and high standard of environmental compliance.

The product slate from the refinery will include Diesel, Petrol, LPG, jet fuel, Kerosene and fuel oil which meet the international products (Euro IV) specifications. The refinery will also produce other by-products which can be used to support other sectors like agriculture. Modular refineries have limitations in conversion efficiencies, and as such would not produce all desired products for the Ugandan market, let alone of the required quality and specifications.

Uganda Refinery Project Studies

The Environment and Social Impact Assessment (ESIA) for the refinery has been finalised by the project developer and is due for submission.

The Final Investment Decision (FID) for the Refinery Project is expected to be taken during 2023 after finalising key commercial agreements which include the Crude Oil Supply Agreement (CSA), the Implementation Agreement (IA) and the Share Holders Agreement (SHA). The FID for the Refinery will be followed by Engineering, Procurement and Construction (EPC) Phase leading to Refinery Commissioning in 2027. The Uganda refinery will offer many opportunities including ensuring the security of supply of petroleum products within the East African region especially for the inland markets.

Besides creating jobs for the people of Uganda, the refinery will be the industrial game changer for the Uganda economy. It will contribute to improvements in the Balance of Payments by over US\$ 500 million and total fiscal revenues of over US\$ 800 million. Additionally, it will spur the development of economic linkages between the oil and gas sector and other sectors of the economy to facilitate broad based growth and transformation through the development of off shoot industries such as petro-chemicals and fertilizers.



Support Infrastructure for the Oil and Gas sector



**Kabaale
International Airport**



**Kabalega
Industrial Park**

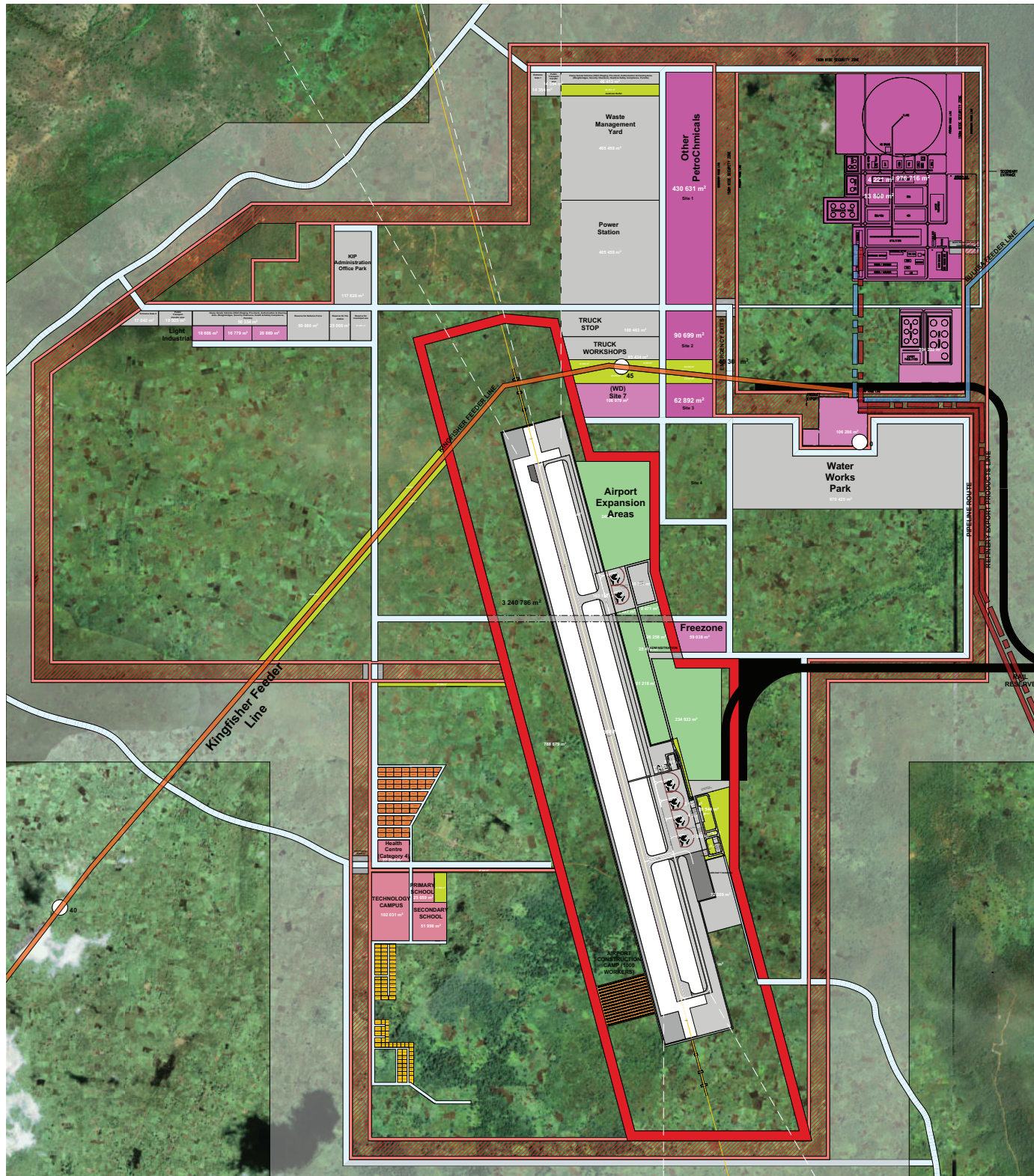


Oil Roads





Map of Kabaale Industrial Park in Hoima



	FAR	COV. (%)		FAR	COV		FAR	COV
LOW DENSITY RESIDENTIAL	1	20%	6. INSTITUTIONAL	n/a	n/a	11. SECURITY FENCE BUFFER	n/a	n/a
HIGH DENSITY RESIDENTIAL	1	40%	7. UTILITIES AND TRANSPORT	n/a	n/a	12. AIRPORT FENCE	n/a	n/a
LIGHT INDUSTRY	1	70%	8. OPEN SPACE	n/a	n/a			
HEAVY INDUSTRY	0.5	n/a	9. AGRICULTURE	n/a	n/a			
COMMERCIAL	0.8	75%	10. EXPANSION AREAS	n/a	n/a			

DATE: 07.07.17

REV: 010

KIP OIL AND GAS INTERIMS MASTERPLAN Phase 1_Zoning Plan

SCALE: 1: 12000

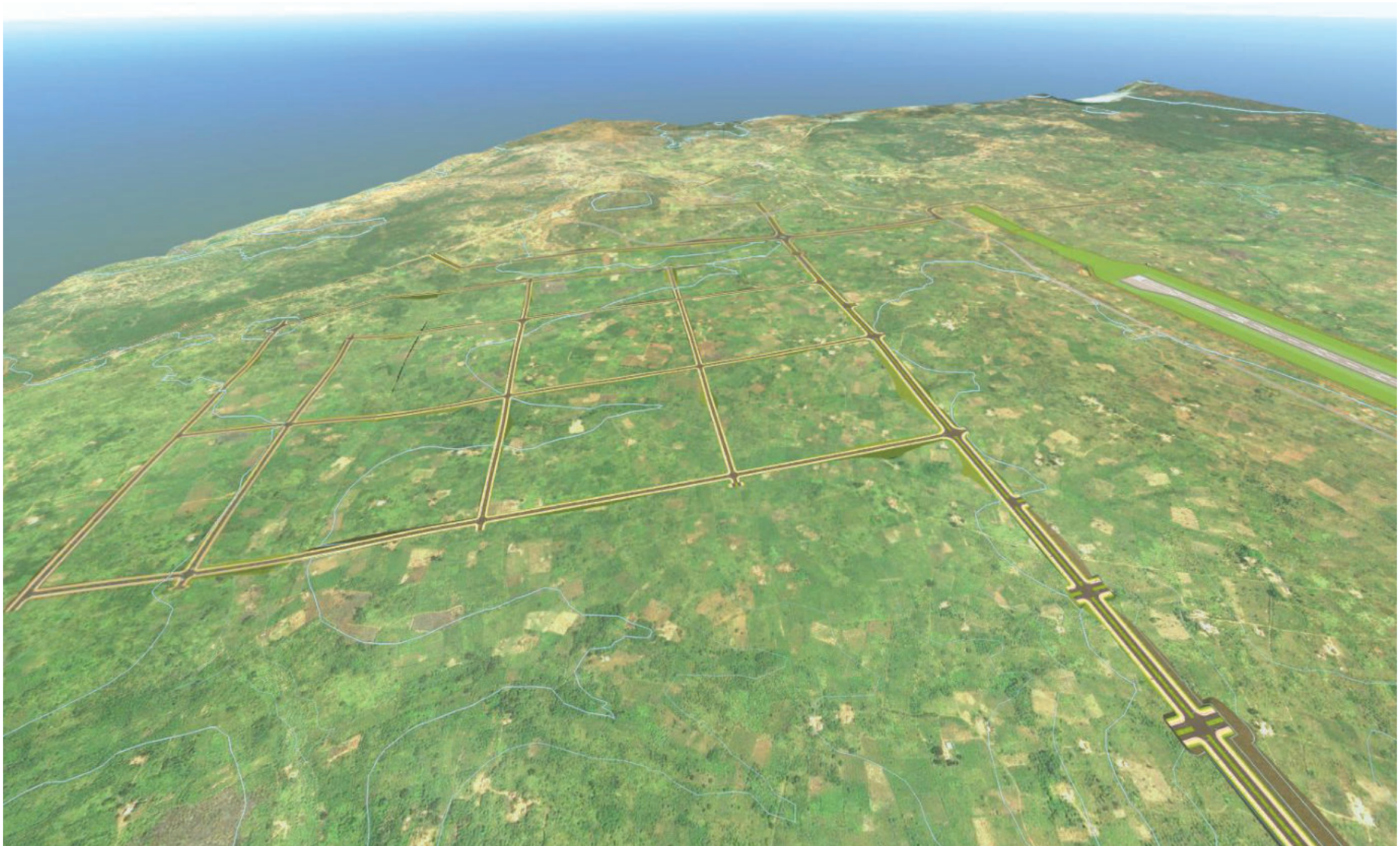


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Kabalega Industrial Park in Hoima

The Government of Uganda acquired 29.57 sq. km of land to be developed into an oil and gas industrial park, in Kabaale, Hoima District. On January 15, 2018, the project was handed over to the Uganda National Oil Company (UNOC) to lead the development, operationalisation and management of the industrial park with a strategic joint venture partner. Kabaale Industrial Park (KIP) will host the Uganda Oil Refinery. Also at the KIP, will be the Hoima International Airport.



An artistic impression of Kabalega Industrial Park in Hoima

The park comprises:

**Uganda's 2nd
International Airport**

**Petrochemical &
Fertiliser Industries**

**Crude Oil
Export hub**

**Uganda
Refinery**

Kabaale International Airport in Hoima

The oil region has an international airport at Kabaale in Buseruka sub county, Hoima District to support the oil industry in the Albertine region. It has a runway length of 3,500m and a width of 75m including shoulders and is capable of handling large passenger and cargo aircraft. It is designed, initially, to only service cargo aircraft and passenger aircraft for the construction and operation of the oil refinery and oil fields. Further development of the airport will enable it to service anticipated increased commercial passenger flights and cargo flights for the fish and flower export industry.



▶ Works on the 3.5km runway for Kabaale International Airport are 90% complete





Oil and Gas Project roads

Buliisa District has approximately 160 km of trunk roads managed by the Uganda National Roads Authority (UNRA) and 85 km feeder roads and 130 km community access roads managed by the district government. At inception of oil and gas projects in the area, renovations were done on key strategic roads including the Butiaba-Wanseko, Buliisa Town Council- Bugungu Airstrip, Wanseko-Mubako (through Kasenyi), and Buliisa Town Council to Waiga (through Bugana-Kichoke). The UNRA upgraded the 111km Hoima-Butiaba-Wanseko road to paved standard as part of the wider road upgrade projects for the oil region. The Karuma-Pakwach-Nebbi-Arua road which runs through Nwoya District is also a strategic road. Hoima Municipality has approximately 606 km of roads, of which 8 km are tarmacked, 291 km are gravel roads, and 307 km are earth roads. In Masindi District there are approximately 51 km of tarmacked road, 191 km are gravel roads, and 389km are earth roads. Masindi District has a higher proportion of tarmacked roads compared to Hoima District. Tarmac roads are only found in the central division of Masindi District.



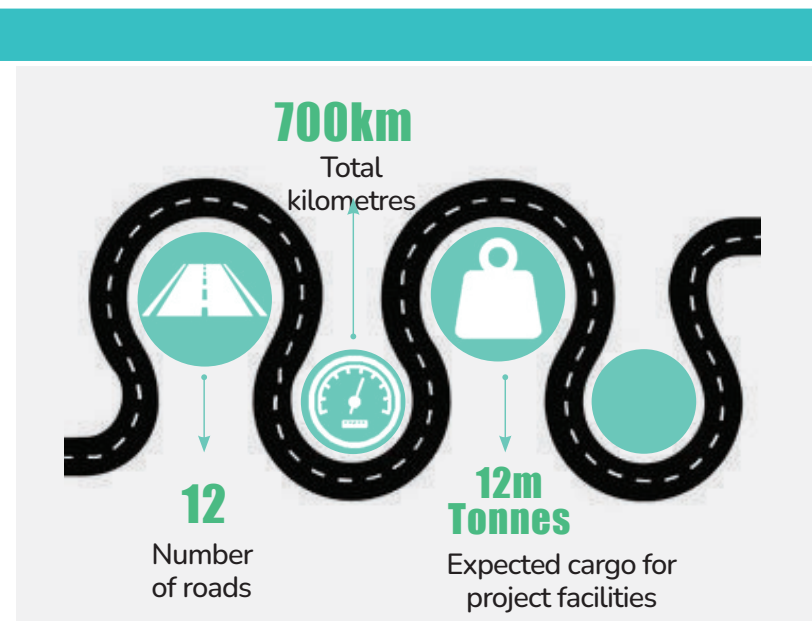


Oil and gas activities open up Albertine region

The discovery of oil in the Albertine Graben in Uganda's western region in 2006 has transformed the socio-economic features of the area which comprises the districts of Buliisa, Kikuube and Hoima.

Table of the major Oil Roads

No	Road Name	Length (km)	District Traversed
	Hoima-Butiaba-Wanseko Road	111	Hoima, Buliisa
	Masindi-Biiso	54	Masindi
	Masindi-Bugungu via Murchison Falls National Park	80	Masindi
	Hohwa-Nyairongo-Kyarushesha- Road	25	Hoima
	Wanseko-Bugungu Road	23	Buliisa
	Buhimba-Nalweyo-Kakindu-Kakumiro-Mubende	93	Mubende, Kibaale
	Lusalira- Nkonge-Sembabule	97	Ssembabule, Mpigi, Masindi
	Bugungu - Buliisa	29	Buliisa
	Kabale – Kiziramfumbi road	30	Hoima
	Tangi junction – Paraa (Including Tangi Gate & Emmi Bridges)	22	Nwoya
	Kabwoya-Buhuka	43	Hoima
	Karugutu-Ntoroko (Via Semiliki National Park)	55	Fort Portal



UNRA has been busy with works on the 700km road infrastructure in the Albertine region working with various contractors and with the Export-Import (Exim) Bank of China as the main financier.

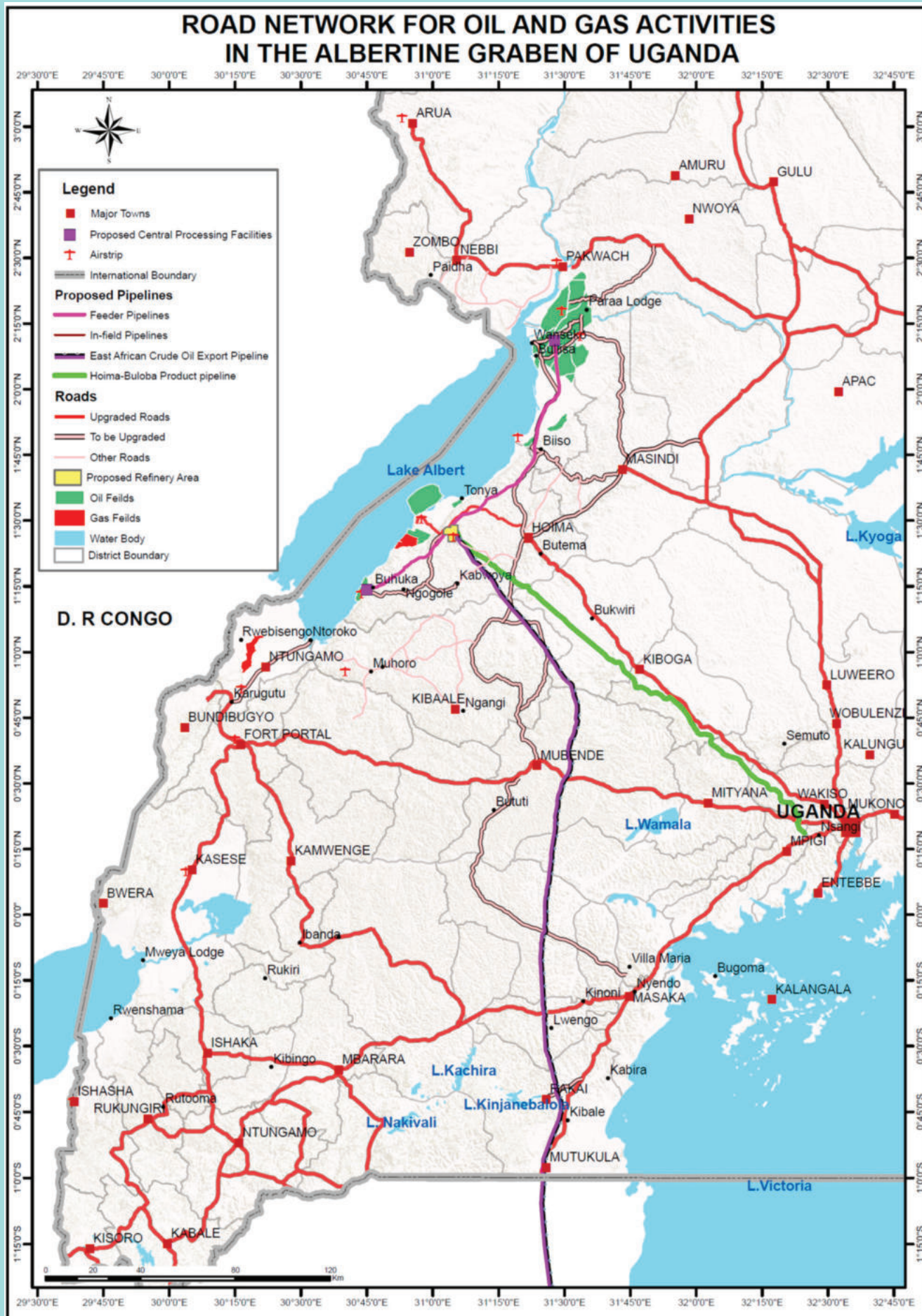
In January 2022, President Yoweri Museveni commissioned the Hoima-Butiaba-Wanseko Road, a 111km project that is part of the Oil Roads; key for the production of oil and the commercialisation of the oil sector. The roads are needed to move an estimated 12 million tonnes of materials to the Albertine region for the construction of project facilities. The roads and bridges were required to facilitate the logistics for the construction of the different infrastructures within the oil area.

Following a bilateral agreement between the government of

Tanzania and Uganda in 2021 and the Final Investment Decision (FID) between Government of Uganda and Joint Venture Partners on 1 February 2022, the revised timeline for delivery of first oil was set for 2025.

To fast-track development of Oil Roads infrastructure, UNRA Executive Director Allen Kagina and her team adopted a strategy of tackling priority sections such as Bridges, Escarpments, Swamps, Sharp bends, etc. to ensure the road sections became passable.

Additionally, during implementation of the Oil Roads, UNRA's upcountry stations along the entry-exit routes to the oil region have supported the process by keeping all the roads in good and motorable condition and offered guidance and further support



Uganda's Oil Roads

Once a backwater, the area now boasts a city and numerous major development infrastructure; including an international airport and oil refinery. The area is also the starting point for the East African Crude Oil Pipeline (EACOP); the longest heated crude oil pipeline in the world which traverses Uganda.

UNRA mandated to design, procure and implement oil roads

The cabinet in 2017 directed the Uganda National Roads Authority (UNRA) to design, procure and implement the construction of 12 roads measuring about 700km.



▶ H.E the president commissions the Hoima-Buliisa-Wanseko road

The value of these contracts ranges from US\$3-8 million depending on scope of work, duration and other factors.

This policy of contracting Ugandan firms has been praised for enabling Ugandans to be active players in the economy. These companies are involved in earthworks, drainage works, pavement layer works, stone pitching among other engagements.

Mukoda Engineering Works, M/S Kibibu Engineering, M/S Gweri General Construction Ltd, Bayimu Engineering Company Ltd, Kasese Nail and Wood; those are some of the local contractors in Uganda that UNRA has engaged in the construction of Oil Roads in Uganda since work kicked off in 2016. Other local firms were subcontracted to do relocation of utilities, landscaping and grassing, geotechnical and swamp investigations, social and safeguards activities. Ugandan firms have also worked directly with the main contractors on the oil projects in supply of fuel, vehicle hire and other materials such as cement and reinforcement bars.



▶ **Ms Allen Kagina, ED UNRA with PAU officials on a supervisory visit of oil operations**

Some of the Ugandan firms doing the above works include Bayimu Engineering Company Ltd, Family Rescue Initiatives – Uganda, Eco & Partner Consult Ltd, Troline Construction & Engineering Works Ltd, Rasph Construction Company Limited and KHED International Group Limited among others.

UNRA Taskforce and Project Management Team

UNRA has a Taskforce and Project Management Team that is mandated to ensure adherence to the government policy framework on local content. This team monitors the performance of the local contractors in line with the contract requirements. It developed a guide for the Monitoring and Evaluation process.

UNRA's in-house unit

UNRA has an in-house construction unit to buttress local capacity efforts and the 23 UNRA stations across the country have equipment and manpower that enables it to take on some work.

These stations have graders, rollers, water bowsers, low loaders, excavators, mainly for maintenance works on the oil roads. For the heavier work, UNRA uses contractors.

UNRA executive director Allen Kagina says the in-house unit is not designed to put local contractors out of business. It comes in when there is more work than the local contractors can handle. UNRA's intervention is to relieve pressure and demonstrate that Ugandans can do roads at a cheaper rate. UNRA's main mandate is to do national roads, highways, and district roads. The unit however needs money for fuel and materials because equipment is already in place.

As a sign of capacity growth among UNRA staff, the roads agency does land acquisition and uses its own staff as consultants on projects. Previously, there was a lot of hiring of consultants to work on projects including carrying out work like land acquisition.

The local content strategy has been part of the restructuring of UNRA since 2015 when new management took over under Allen Kagina.

The restructuring saw UNRA recruit a lot of new staff and invest in programmes designed to develop the core competencies the organisation needs. UNRA also developed a robust Performance Management System (PMS) to ensure increased quality output.



▶ Prime Minister Robinah Nabbanja and Disaster Preparedness Minister Hilary Onek at Launch of the National Oil Spill Contingency Plan

Uganda's Oil Spill Contingency plan

In February 2022, the government approved the country's Oil Spill Contingency Plan. It highlights the responsibilities of the licensees and operators in prevention and management of oil spills.

The Oil Spill Contingency Plan which was put together by the Petroleum Authority of Uganda (PAU) in partnership with the Office of the Prime Minister (OPM), and the National Environment Management Authority (NEMA), is premised on the internationally recognised “people, environment, assets and reputation” priority order (PEAR).

It provides for the protection of human health and the environment from oil spills and defines the three different tiers of preparedness or responses. It also establishes an effective and coordinated

national oil spill preparedness and response system, including designating responsible institutions.

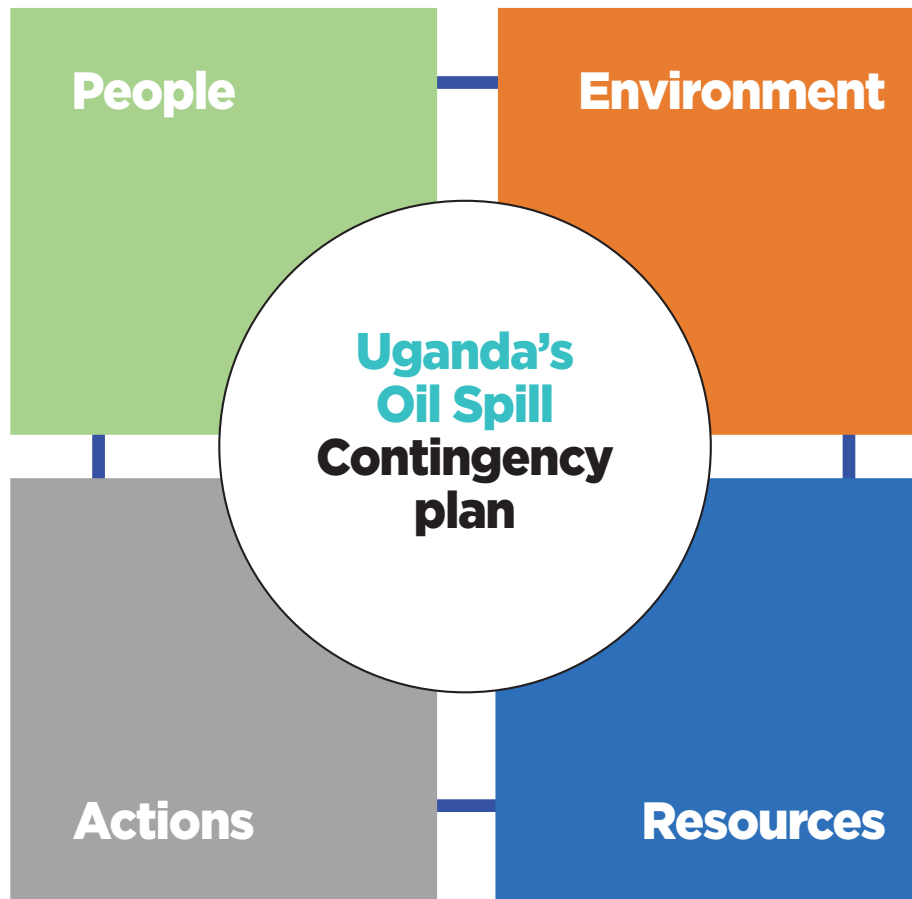
The plan provides a system for collaboration on oil spill preparedness and response between licensees and operators, local governments and the central government, and also seeks international assistance when necessary. It also establishes an inventory system for oil spill response resources. This is in form of personnel and equipment, including training of personnel, drills and exercises.

The Petroleum Authority of Uganda has

initiated steps to strengthen regulatory capacity in oil spill management that include equipping oil spill monitoring and incident command centres, facilitating the establishment oil spill response equipment hubs and undertaking specialised training in oil spill management.

Dedicated staff at PAU, NEMA and OPM support the development of oil spill contingency plans for the government lead agencies and local governments and developing a framework for international collaboration on oil spills.

About the National Oil Spill Contingency Plan



The National Oil Spill Contingency Plan (NOSCP) is based on the internationally recognised response plan in the event of an oil spill. The response considers four main elements: People (safeguard and save life), Environment (Protect the environmental resources from adverse harm), Assets (secure important economic assets), Reputation (of the Oil Company or other responsible entities). This responsible is commonly known by the acronym 'PEAR'.

Highlights of the National Oil Spill Contingency Plan

- It highlights the responsibility of licensees and operators for prevention of oil spills and the need for investing in preparedness for response to oil spills (even if unlikely) within the country's territory and shared water bodies.
- It provides for protection of human health and the environment from oil spills – while clearly defining the different Tiers of preparedness/Response.
- It establishes an effective and coordinated national oil spill preparedness and response system, including designating responsible institutions.
- It provides a system for collaboration on oil spill preparedness and response between licensees and operators, Local Governments, and the Government, including international assistance when necessary.
- It establishes an inventory system for oil spill response resources (personnel & equipment), including training of personnel, drills, and exercises.



“We have left no stone unturned to ensure that our biodiversity concerns are well addressed,” says Ruth Nankabirwa, the Minister of Energy and Mineral Development (MEMD). She says her Ministry has worked with other agencies of Government and industry stakeholders to champion the development of frameworks to support environment management and biodiversity protection in Uganda's oil and gas activities.

Regulating Uganda's Oil Sector to Create Lasting Value

The Petroleum Authority of Uganda (PAU)'s mandate is to regulate and monitor the petroleum sector, to create lasting value for society, and contribute to Uganda being a sound investment destination



▶ Supervisory visit to field operations by the PAU management team



The Authority carries out its regulatory function through five key areas:

Petroleum Resource Management:

- The Authority works with licensed oil companies to study petroleum fields to establish and estimate the country's resource volumes to ensure the optimal recovery. It compiles and submits the country's annual oil and gas resources reports.

Monitoring of costs and economic analysis for oil and gas operations in the country:

- The PAU promotes and maintains an efficient cost environment and undertakes economic analysis for the oil and gas projects. The PAU is responsible for ensuring that the profitability of the projects is maintained and that Government's take from the oil and gas resources is not eroded.

Management of the country's petroleum and related data:

- It manages data generated from oil and gas activities and assesses and responds to requests for the data by various users. The key data types include: Geological, Geophysical & Engineering (GG&E), Health, Safety and Environment, Costs, National Content, and spatial data and related Administrative records.

Monitoring of environment, health, safety and social management:

- It works closely with the licensed entities and other Government and non-Government partners to ensure environment protection, human health and safety during oil and gas activities.

Regulating participation of Ugandans and Uganda enterprises (National Content):

- The PAU promotes, monitors and regulates the participation of Ugandans in the supply of goods and services to the oil and gas activities, with a view to create and retain value in the country.



“

“We are proud to note that unlike other countries where petroleum activities have been associated with significant environmental impacts and safety incidents, here in Uganda, the petroleum sector has instead made a significant contribution to environmental protection and biodiversity conservation through capacity building of relevant Government institutions, research and support to environmental management initiatives. No significant environmental or safety incidents have been registered since oil and gas activities started in the early 2000s. As the PAU, we are committed to maintaining this track record.”

Ernest Rubondo, ED Petroleum Authority of Uganda

Strategic Partnerships

The Petroleum Authority of Uganda works closely with Government and non- Government players at both national and international levels in the implementation of its mandate. These partnerships include the one between the PAU and the Energy and Water Utilities Regulatory Authority of Tanzania (EWURA), which has a similar mandate on the EACOP. The purpose of the partnership with EWURA is to facilitate joint monitoring and regulation of EACOP. The PAU also works closely with the Energy Regulators Association of East Africa (EREA), the Norwegian Petroleum Directorate (NPD) and the Petroleum Safety Authority (PSA) of Norway and the African Development Bank to benchmark and share experiences on best industry practices in monitoring and regulating the petroleum sector. At a National level, the authority is working with entities such as Uganda National Bureau of Standards (UNBS), Uganda Registration Services Bureau (URSB); Ministry of Foreign Affairs; National Social Security Fund; Uganda Revenue Authority, Stanbic Group, Economic Policy Research Center, Uganda Bankers Association, and GiZ among others.



▶ PAU and EWURA Board supervisory visit of the EACOP route



The National Supplier Database

In 2017, the Petroleum Authority of Uganda (PAU), Uganda's oil and gas industry regulator, inaugurated the National Supplier Database (NSD), an online register of all commercial entities with interest in supplying goods, works and services to the country's oil and gas industry. The platform enables the government understand the experience and capabilities of qualified Ugandan and foreign companies in the industry to enhance transparency and accountability during the procurement process.

According to the Industrial Baseline Survey done by the international oil companies in 2013, there are up to 16 services ring-fenced for Ugandan entrepreneurs including transportation, work safety products, road construction, security, and hospitality among others.

Licensed oil companies are therefore required to regularly hold supplier development workshops, which describe the opportunities available in the respective projects. The

opportunities are at Tier-1, Tier-2 and Tier-3 level.

In instances where Ugandan suppliers interested in providing goods and services to the oil and gas sector are insufficient, they are advised to build partnerships with international counterparts in order to partake of the multi-billion dollar opportunities.

By 2022, there were over 2,200 companies qualified and registered by the petroleum authority on the NSD. Close to 75% or 1966 of the registered companies were Ugandan entities while



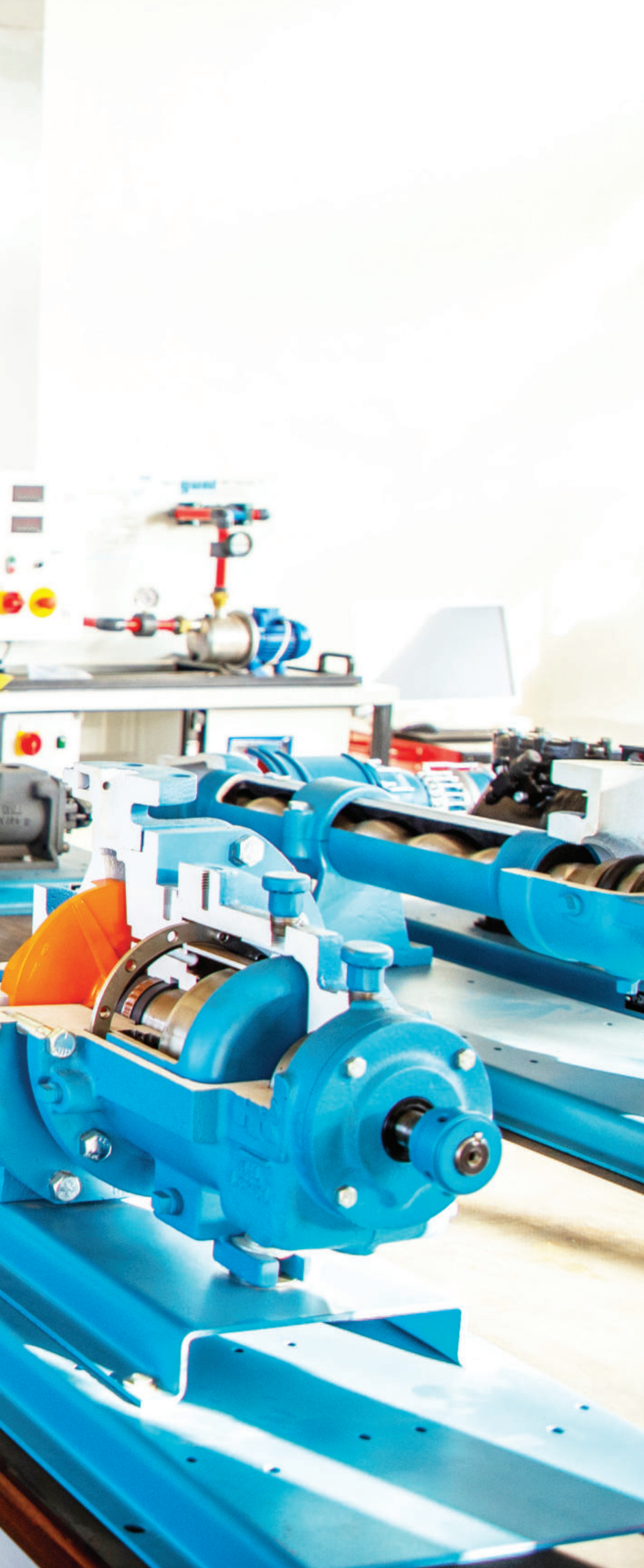
the rest were from abroad.

The NSD was expected to hit the 3000 mark by the end of December 2023, with new applications and re-applications for those entities whose validity expired. Going forward, the NSD will be upgraded to a joint qualification system, before the end of 2022. This upgrade will enhance transparency in the procurement processes.

Overall, the petroleum authority approves contracts awarded to Ugandan companies directly at Tier 1 and through subcontracting commitments at Tier-2. The petroleum authority's target is for at least 40% of the total value of the investments in the sector, to be awarded to Ugandan companies.







The National Oil and Gas Talent Register

In February 2019, the Petroleum Authority of Uganda (PAU) launched the National Oil and Gas Talent Register (NOGTR), a one-stop online platform for prospective employees and employers to post their credentials and vacancies.

The petroleum authority launched the platform to boost the visibility of Ugandans who are interested in working in the emerging oil and gas industry. Activities on the three major projects; Tilenga, Kingfisher and the EACOP and the induced support services have created jobs for Ugandan individuals and enterprises.

According to some industry estimates, close to 160,000 jobs are expected to be generated from the construction phase of Uganda's oil and gas industry. These include 20,000 direct jobs, 40,000 indirect jobs and 100,000 induced jobs.

Direct jobs include; Geological engineers (112), drilling rig operators/technicians (187), mechanical technicians and related trades (636), welding (1,230), instrumentation technicians

(465), drilling rig and related labourers (645), hospitality and catering (1,071). Indirect jobs include security personnel (1000), drivers (2850) and machine operators (900). More are expected in ICT, hospitality, health, agriculture, insurance, logistics and transportation, among others.

According to the petroleum authority, the number of talents and employers registered on the NOGTR is expected to grow to more than 10,000 and 150 respectively, by the end of 2023.

At the end of 2022, about 7,000 people will be employed directly in the oil and gas sector with over 90% of those being Ugandan. The multiplier effect of indirect and induced employment is estimated at between 5 and 7 times.



National Petroleum Data Repository

A country's oil and gas industry is only as good as the quality and accessibility of its data. That is an oil and gas industry maxim. Talk to any senior official in Uganda's petroleum sector and they will tell you how, without data, they struggled in the 1980s to attract oil and gas exploration firms into Uganda.



Uganda hardly had any petroleum reserves data because no significant oil and gas exploration activities had been undertaken in the country previously. The government lacked equipment for the acquisition of petroleum technical data like geological and geophysical data that was required to promote the country's petroleum potential.

The government needed gravity metres and magnetometers, campuses, GPS systems, camping gear, field vehicles as well as computer hardware and software for processing and interpreting data acquired in the field. There was no digital cartography and maps had to be shaded manually. The data area changed for the better when the World Bank offered the government a loan for oil and gas exploration activities.

Today, the government has one of the most current petroleum resources data amongst Africa's new petroleum provinces. The Petroleum Authority of Uganda (PAU) is now tasked with regulating the acquisition,

processing, interpretation, receipt, archiving and dissemination of the country's oil and gas data.

As of 2022, Uganda had over 50 terabytes of oil and gas data. Storing such data would require about 800 iPhones with 64GB of storage each. The categories of data under the PAU's custody include geophysical, engineering, health, safety and environment, costs, national content, surface and sub-surface facilities data and administration data. The PAU has completed the setting up of the country's state of the art of data centre in Entebbe.

This facility which is under the National Petroleum Data Repository Infrastructure includes a real-time monitoring centre, a disaster recovery facility, and a seismic data transcription facility centre. This real-time monitoring centre will provide real-time information and enhance the monitoring of the drilling, production and crude oil transportation.

Managing Uganda's commercial interests

The Uganda National Oil Company (UNOC) is the Government of Uganda's commercial entity in the petroleum sub-sector. It was incorporated in June 2015 as a limited liability company under the Petroleum Act of 2013. UNOC is wholly owned by the government. Its primary mandate is to manage the government's commercial interests in the petroleum sub-sector.



▶ UNOC manages storage terminals and is involved in bulk trading of petroleum products



▶ **UNOC CEO Proscovia Nabbanja (R) and CNOOC Uganda Ltd president Chen Zhuobiao after signing a joint application agreement for the Pelican-Crane block in the Albertine Graben**

UNOC is positioned to play a key role in ensuring the sustainability of petroleum production through reserve replacement for the country. The company therefore plans to embark on exploration and new ventures to optimise production sustainability for the projects under development. It has participated in the second licensing round by the Minister of Energy and Mineral Development of 2019 that availed five blocks in the Albertine Graben, western Uganda. The availed blocks are Ngaji, Turaco, Avivi, Kasuruban and Omuka.

UNOC views itself as a new sector player that can drive exploration through strategic partnerships whilst building the company's skills and capacity to be an independent operator in the long term.

Exploration and production

In the upstream petroleum sub-sector, UNOC plays two roles; to manage the participation of Uganda government in the production licenses and secondly, to investigate and propose new petroleum exploration ventures.

Subsidiaries

UNOC has two subsidiaries, the Uganda Refinery Holding Company Limited (URHC) and the National Pipeline Company (U) Ltd which it wholly owns.

Refinery

The Albertine Graben Energy Consortium (AGEC) are developing the refinery, together with URHC. The refinery has a planned capacity of 60,000 barrels of crude oil per day.

The URHC is the processing subsidiary. Its mandate includes participating in Uganda's Oil

Refinery with a participating interest of 40%, developing, managing, and operationalising the Kabaale Industrial Park. URHC is mandated to find strategic partnerships to achieve these objectives.

The Front-End Engineering Design (FEED) for the Refinery was completed and submitted to Government, which responded with a no objection following review. The FEED focuses on the technical design requirements of the Project as well as the investment cost to an accuracy of +/- 30%.

President Museveni initially said refining all crude oil in-country will increase local value addition and end dependency on fuel imports. The president's views were bolstered by Foster Wheeler's feasibility study conducted in 2010-11, which claimed that a 150,000 bbl/day refinery would generate US\$1 billion in profits annually through import substitution and export

earnings. After negotiations with the International Oil Companies, the government agreed to a smaller refinery of 30,000 bbl/day (scalable to 60,000 bbl/day) to serve the domestic market. In early 2018 the GoU signed a new deal on the refinery with investors consisting of the Albertine Graben Energy Consortium (led by US-based General Electric). The refinery is estimated to cost US\$3–4 billion and is to be financed up to 40 per cent by the GoU.

AGRC contracted DNV-GL in a joint venture with Atacama Consulting, a Ugandan consultancy firm, to undertake the environmental and social impact assessment (ESIA) studies for the project with support from UNOC.

The ESIA, which identifies the environmental and social impacts of the project in the project area and provides mitigation measures, is at over 97% completion.

Part of the ESIA activities are geotechnical and geophysical investigations to study the soil vis-à-vis the refinery machinery.

Transporting Oil

The National Pipeline Company (U) Ltd is the transportation subsidiary. It is mandated to own, operate and maintain oil and gas pipelines in Uganda. This also includes:

- Participating in the development of the East African Crude Oil Pipeline (EACOP)
- Operating and maintaining oil and gas storage terminals for upstream, midstream and downstream activities.
- Owning and setting up strategic oil and gas reserves.
- Entering into strategic partnerships to achieve these objectives.

The National Pipeline Company holds a 15% participating interest in EACOP.

To facilitate EACOP activities, Parliament passed the East African Crude Oil Pipeline (EACOP) (Special Provisions) Bill, 2021 and the Public Finance Management (Amendment) Bill, 2021 and the Income Tax (Amendment) (NO.2) Bill, 2021. The joint venture partners namely Total Energies EP Uganda, CNOOC Uganda Limited and UNOC in February 2022, announced the Final Investment Decision (FID) on the project.



▶ Jinja Storage Terminal managed by UNOC



Managing Oil supply

Jinja Storage Terminal

UNOC operates the Jinja Storage Terminal (JST), a 30-million-litre refined petroleum products storage facility in Jinja City, in the eastern part of the country. JST is a bonded storage facility that provides “hospitality” (storing fuel for oil marketing companies) to clients and keeps government strategic stock to ensure security of petroleum supplies. UNOC is developing a fuel pipeline and an oil jetty to link the facility to water transport from Kisumu (Kenya). This will facilitate oil imports via the lake. The facility is designed to avoid acute fuel shortage due to unpredictable factors.

Kampala Storage Terminal

The Kampala Storage (KST) is a greenfield petroleum products storage terminal under development in the central region, approximately 26 kilometers from Kampala City, off Mityana road (Buyala Trading Centre). The terminal is planned to serve as a storage facility for both Government strategic reserves and providing “hospitality” (storing fuel for oil marketing companies). It is also planned as a hub for planned refined products pipeline such as the Hoima – Kampala pipeline. The project designs are being progressed, the environmental social impact assessment (ESIA) was completed, and procurement of strategic partners is ongoing.

Bulk trading business

In this, UNOC purchases bulk fuel from supply sources along the value chain, imports it into Uganda, and sells to the oil marketing companies (OMCs) for onward distribution to the Ugandan market.

Following acquisition of relevant licenses and regulatory approvals, the business was launched on March 16, 2021, with a delivery of 430,000 liters of diesel to Stabex International Ltd, one of the leading oil marketing companies. A few transactions have been safely, and profitably implemented, paving way for the desired business development and growth.

UNOC plans to position itself strategically within the petroleum products supply chain to import the products (in bulk) from various supply sources and deliver to the oil marketing companies in Uganda, a good portion of their monthly demand. UNOC will accomplish this through the strategic partnerships it is establishing, as it seeks to deliver on its mandate of enhancing the supply of petroleum products into the country, as well as preparing itself for handling the Ugandan refined products.

Pioneer CEO: Dr. Josephine Wapakhabulo

Starting the **Uganda National Oil Company** from scratch

Dr. Josephine Wapakhabulo was the pioneer officer of the Uganda National Oil Company. She was named CEO in June and took up the appointment in August 2016. She was tasked with setting up the start-up state parastatal and transform it into a world class national oil and gas company.

Wapakhabulo who holds a Bachelors in electronic and electrical engineering, an MSc and a PhD, came to the job with over 15 years' experience in implementing inventive solutions and achieving business objectives. She brought effective leadership, team building, strategic, operational and project management from her work in leading multi-national companies.

Wapakhabulo recalls how she had to do everything from scratch inside what she described as her one-room office at Amber House—the headquarters of the Ministry of Energy and Mineral Development. “My first phone call was to a friend to find someone who could design a logo for the company,” she says. She also recruited a staff of leading professionals in their field, among them, Peter Muliisa, the Chief Legal and Corporate Affairs Officer and Proscovia Nabbanja, as Chief Operating Officer. She also developed a five year corporate strategy for UNOC, instilled a corporate culture, and introduced the Balanced Scorecard performance



My biggest ultimate goal was to make sure that whoever comes after me should excel.

measure to ensure work efficiency. She also built partnerships between UNOC and organisations within Uganda and around the world.

At a more strategic level, Wapakhabulo is credited with successfully setting up subsidiary companies—the Uganda Refinery Holding Company Ltd (URHC) that is responsible for refining and involvement in the petrochemical businesses; and the National Pipeline Company (U) (NPC) that is responsible for the pipeline and downstream storage ventures. In order to ensure the government has a strategic fuel reserves, UNOC entered into a joint venture with One Petroleum under the Jinja Storage terminal to ensure rehabilitation, operation and management of the terminal to industry standards. Under the oil refinery project, Wapakhabulo together with her team worked on the refinery front-end loading and selection of a refinery configuration fit for Uganda's economic growth. In the downstream sub-sector, Wapakhabulo secured the licences for the importation, storage, wholesale, distribution and exportation of bulk petroleum products. She also positioned UNOC as a key player in the sustainable use of Uganda's oil resources and reserves by ensuring it's engaged in further oil exploration. She left UNOC in August, 2019.

“My biggest ultimate goal was to make sure that whoever comes after me should excel,” Wapakhabulo told the media in one of her rare interviews in 2019.

40 million trees for Go Green Campaign

The Uganda National Oil Company has *UNOC Go Green Campaign* under which 40 million trees are being planted countrywide in a span of five to seven years. This is guided by goal number 13 on climate action of the sustainable development goals (SDGs). The campaign involves 36,950 hectares comprising natural forest restoration and private plantations among others.

The campaign kicked off at the Uganda Petroleum Institute in Kigumba (UPIK) where over one hundred trees were planted. Various tree species were planted depending on the extent of deforestation, area, and type of soil.

Areas where the trees are being planted include Taala Central Forest Reserve (in Kyankwanzi District (the only forest reserve traversed by the East African Crude Oil Pipeline), Buyaga Dam Central Forest Reserve and Kazooba Forest Reserve in Sembabule and Mabira forest enclaves.

Others are Kabaale Industrial Park (KIP), a UNOC project in Hoima, West Nile, road corridors and private land.

UNOC's partners including TotalEnergies have unveiled and committed to a comprehensive biodiversity plan to ensure protection of flora and fauna in "sensitive" ecosystems.



▶ UNOC's staff plant trees at the Uganda Petroleum Institute Kigumba

CHAPTER

4

The Impact of the Oil & Gas sector



B HOTEL







Local roads contractors benefit from oil roads

By law, Ugandan contractors are supposed to get 30% of the contract value of any contract that is awarded to a foreign firm according to rules by Public Procurement and Disposal of Public Assets (PPDA). This is designed to promote local content and is also in accordance with the Buy Uganda Build Uganda (BUBU) policy set by the government. Regarding the oil roads, according to the Uganda National Roads Authority (UNRA) statistics, the value of sub-contracted works on the oil roads by 2020 amounted to US\$ 167 million (Approx. Shs630 billion).

Where else would I have received a tarmac road?



We appreciate very much the project. For me, where else would I have received a tarmac road, a good market for my people deep in the village in Buliisa?” said Stephen Birahwa Mukitale, the former Member of Parliament for Buliisa County, Buliisa District. “We are now looking much better. The next task is to invite prospective investors to invest in this beautiful area, naturally endowed with fishing, tourism and good agricultural land.” Mukitale wants the government to extend more road infrastructure, more markets and land titles for the established administrative units and the local population.

He also wants the government through the Uganda National Roads Authority (UNRA) to take over the management of the newly built roads instead of leaving them to the districts which have limited funds to do so. The districts have set up committees to supervise and maintain these roads during and after the construction.

Stephen Birahwa Mukitale: A former Member of Parliament for Buliisa County in Buliisa District says the discovery of the petroleum resource has placed the Albertine Region on the right path to development.



► Improving infrastructure in Buliisa Town Council

HOIMA MAIN STREET

TotalEnergies

bonjour

Q
TZ

auto service

excidium
PETROL

excidium
DIESEL

TotalEnergies
welcomes you





Urban boom as oil cities open up

The Ministry designed physical development plans for nine urban centers of; Wanseko, and Biiso in Buliisa District; Kigorobya and Butema in Hoima District, as well as Kiziranfumbi, Kyangwali, Kabwoya, Kyarushesha and Buhuka in Kikuube District.

These centers were selected based on their proximity to the major oil and gas infrastructure, their high growth prospects and high population. The physical plans provided for areas of organised settlements, industrialisation, commercial centers, civic administration, and places of worship, water and sewerage lines as well as sensitive areas that need protection to conserve the environment. The planning was because the Albertine region was experiencing unprecedented influx of population and therefore needed to plan ahead to forestall negative impact of that surge in population.

Building capacity of Ugandans in oil & gas sector

The government strategically decided to train key labour force to work in key priority areas in oil and gas. Uganda's approach is to build the capacity of Ugandans and Ugandan enterprises to benefit from the sector.

Uganda has laws to ensure that all the gains from the sector benefit all Ugandans. The National Oil and Gas Policy provides for the use of the country's oil and gas resources to contribute to early achievement of economic transformation and create lasting value to society.

Through the policy, the government is committed to supporting participation of Ugandans in the Oil and Gas Sector through the following efforts:

- Build the capabilities of Uganda's human resources in the Oil and Gas Industry.
- Promote employment of Ugandan citizens and enterprises in the Oil and Gas Industry.
- Develop the competitiveness of Ugandan enterprises as suppliers and Joint Venture Partners.
- Increase the use of locally produced or available goods and services by the Oil and Gas Industry
- Promote in-country research and development and technology transfer to Ugandans.

The government's strategy is to ensure that all stakeholders have a role in the implementation of the policy to ensure a productive sector.





Oil and gas development offer 10,000 jobs

More than 10,000 skilled and unskilled jobs will be available for Ugandans in the development phase of the nation's oil and gas journey. In preparation, the main oil and gas sector players have carried out massive training of locals; especially those based in the Bunyoro Kitara Kingdom area where the oil and gas fields are.. CNOOC Uganda Ltd has offered numerous vocational trainings and other initiatives over the years.





Locals supported to get industry skills

- Over 140 drivers trained in Heavy Goods Vehicle (HGV) driving required in the oil and gas sector. The drivers were sieved through a rigorous search by CNOOC Uganda Ltd and the Bunyoro Kitara Kingdom, the region where the Kingfisher oil project is located. They were trained in accordance with the East African community curriculum and offered Heavy Goods Vehicle Driving (class CH) licences or rigid trucks (class CM) licences. Another 110 HGV drivers to be trained.
- The transport sector is among the 25 sectors ring-fenced for Ugandan entities as part of efforts to promote local content by the oil sector regulator, the Petroleum Authority of Uganda.
- CNOOC has offered vocational skills training to 220 selected youth from oil project affected households at the Nile Vocational Institute in Hoima. The beneficiaries were trained in welding, motorcycle basic mechanics, motor vehicle basic mechanics, building construction, tailoring, catering, and hairdressing.
- CNOOC Uganda Limited also partners with Uganda Petroleum Institute Kigumba (UPIK), Sun Maker Oil and Gas Training Institute, and other vocational institutions to offer “train a trainer” programmes.
- CNOOC has also offered financial literacy training and business development support targeting 1300 beneficiaries (Projected Affected Persons and their spouses) along the feeder pipeline that traverses five parishes within the Kingfisher Field Development Area.
- CNOOC has supported training and certification of 126 trainers from Uganda Petroleum Institute Kigumba (UPIK) and Uganda Technical College Kichwamba, and other vocational training institutions.
- Through enterprise development training programmes, over 350 Small & Medium Size Enterprises (SMEs) from Albertine to Kampala regions are to be trained.
- Up to 84 teachers from different universities and vocational training institutes in Uganda sponsored
- Welders have acquired international certification: 230 welders upgraded from 2G to 6G coded welding to the American Welding Society (AWS) standard. An additional 160 welders later trained and certified.





▶ Training of Heavy Goods Vehicles Drivers

Tilenga Project creates jobs

By May 2022, over 1000 workers were employed at the Tilenga project. These included drivers, builders, masons, EHS officers, cooks, engineers, contractors, environment protection advisors, porters, project managers, safety officers, health workers, etcetera.

According to Edrisa Kwizera, Tilenga Project Representative, at peak, the project will employ 4000 workers and 95% of those employed are Ugandans. And by 2024, at least 7,800 workers will be employed on the Tilenga Project. A number of contractors both local and international are engaged in the Tilenga Project.

“We have very many contractors involved at this site with Mota-Engil as the main contractor which is currently employing more than 600 workers, majority of whom are Ugandans. We have 6 sub-contractors also employing hundreds of Ugandans. As part of developing local content, the construction camp has been handed to a joint venture of a Ugandan company. Here we are talking of over 1000 workers on this site

and over 95% of them are Ugandans and hundreds of them are from the surrounding communities,” says Kwizera.

Tilenga Project supports livelihoods

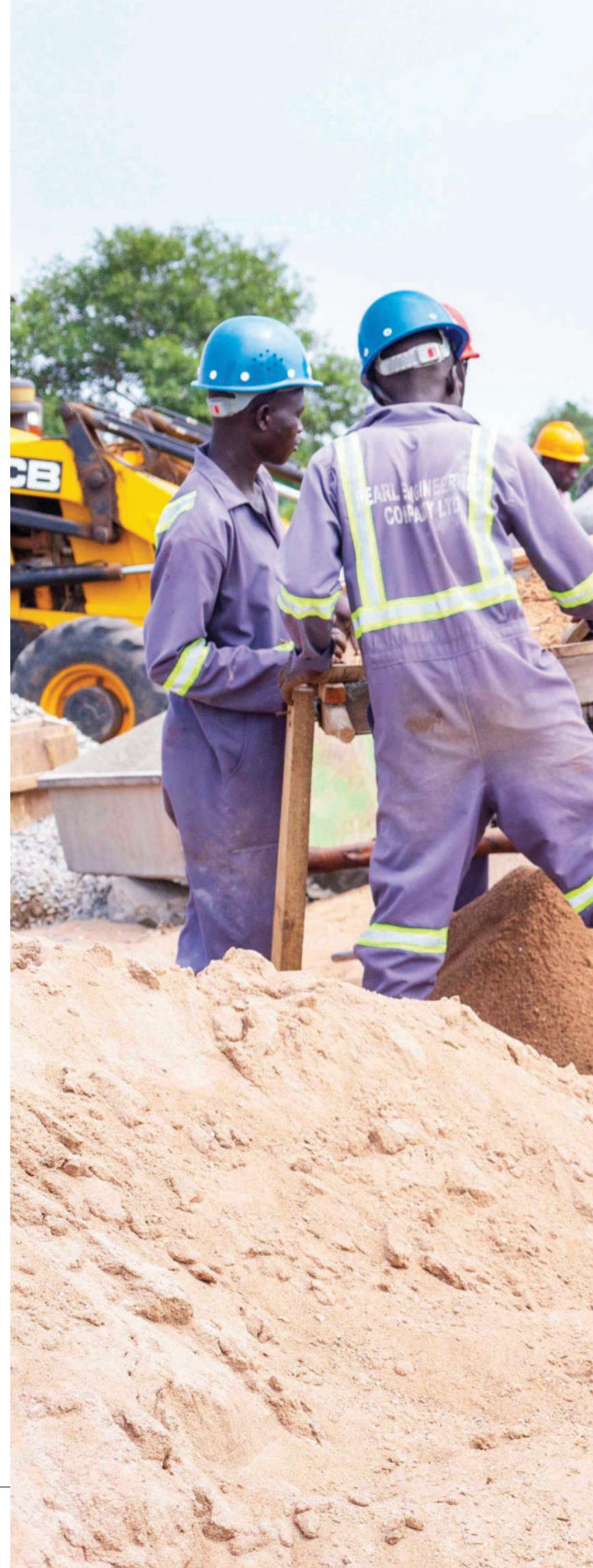
Total Energies is also extending livelihood support to project affected persons. The farmers around the project and from the region are supplying food to the project workers. This implies direct income to the farmers. “In our assessment the Tilenga Project has an overall net positive impact to the communities,” says Kwizera.

He lists, livelihood restoration programmes, water source projects, and health facilities. He says they recognise that Tilenga is an agricultural area and are working on several agricultural development initiatives like supplying farm inputs and seeds to farmers. He says they have resettled more 31 Project Affected Persons (PAPs) who previously lived in the Tilenga Industrial Area.

“The project will continue to create impact in the life of the project,” Kwizera says.



“In our assessment the Tilenga Project has an overall net positive impact to the communities,”





Opportunities in Oil sector

TotalEnergies EP Uganda provides employment opportunities to 7,800 Ugandans – both directly and through its contractors – in Engineering, Procurement, Supply, Construction and Commissioning (EPSCC). Over 94% of the company's employees, contractors and sub-contractors are Ugandans. Induced jobs are also generated by the spending of oil and gas industry revenues in other sectors like catering, medical, hotel and banking.

This is a big opportunity in a country where about 700,000 young people attain the working age every year but have no jobs. With unemployment expected to increase as the number reaching employment age rises to an average of one million people per year in the decade from 2030-2040 according to the World Bank statistics, TotalEnergies EP Uganda has helped to transform lives and livelihoods.

Get the TotalEnergies EP Uganda job

- Both Arts and science disciplines benefit
- Those without formal trainings do casual labour
- Semi-skilled are employed as drivers and assistant surveyors
- Recruitment is competitive and transparent in accordance with applicable laws
- Priority is given to communities within the vicinity of the company's operations

TotalEnergies employees support knowledge transfer

TotalEnergies employees from around the world support the development of the project by filling skills gaps, and transfer of knowledge. TotalEnergies EP Uganda and contractors spend more than 1.1million man-hours on training Ugandans in matters related to oil and gas.

Total Ugandans employed in TotalEnergies EP Uganda

- 7,800, representing 77% of the total personnel
- Directly employed by TotalEnergies 520 and contractors 7,310
- 1,412 Ugandans accounting for 96 per cent participated in development of enabling infrastructure
- 1,022 Ugandans accounting for 75 percent involved in drilling and wells
- 2,681 Ugandans representing 62 per cent of the total work force participated in Engineering, Procurement, Supply, Construction and Commissioning (EPSCC) and
- 2,195 Ugandans representing 98 per cent of the local populations participated in the support contracts.



Local SMEs empowered to tap opportunities in oil and gas

Private sector players are also training Ugandan business owners to tap into the opportunities in the oil and gas sector. Uganda's biggest commercial bank, Stanbic Bank, has a business incubation center to train Small & Medium Enterprises (SMEs) to access opportunities in oil and gas. The trained SMEs go on to bid and tender for services in the oil and gas sector. The managers of the SMEs know how to prepare tender documents that conform to the oil and gas sector requirements. The Uganda National Bureau of Standards (UNBS) has set up more than 2,000 standards.



SOLID ROCK LIFE & BUSINESS

To inspire, equip and transform communities, organizations and individuals through capacity building and consultancy services, so they grow, thrive and have better businesses and lives.



▶ The Petroleum Authority of Uganda (PAU), through expert organisations like Solid Rock (Life & Business), trains small and medium enterprises (SMEs) in the 10 districts where the East African Crude Oil Pipeline (EACOP) will pass to take on available opportunities.

Local human resource capacity in oil and gas

TotalEnergies EP Uganda is dedicated to development of the capacity of Ugandan citizens in order to benefit from the country's petroleum resources to the highest extent possible. Banking on the information and communication technology accessible countrywide, TotalEnergies EP Uganda offered a free online programme dubbed the Tilenga Massive Open Online Course (Tilenga MOOC) to hone skills relevant to the sector.

The trainings were carried out in partnership with the Uganda Petroleum Institute Kigumba (UPIK), complemented by international exposure in other countries that TotalEnergies has operations in oil and gas production.

The programme identified, recruited, trained and developed more than 150 talented Ugandans to be able to participate in the country's oil and gas sector rather than rely on expatri-

ates. Successful beneficiaries were trained to become production operators, maintenance, and inspection technicians for the Tilenga project.

According to Philippe Groueix, General Manager, TotalEnergies E& P Uganda, Tilenga Project also looked at enhancing competencies and capacities of Ugandan companies, Ugandan citizens and registered entities in oil and gas activities to encourage local participation. "As

a truly Ugandan company, our national content strategy aimed at maximizing the use of Ugandan expertise, goods and services. The Tilenga MOOC is one of such initiatives that enhanced the skills and knowledge of young talented Ugandans interested in participating in the oil and gas sector," said Groueix, adding that the programme was part of TotalEnergies EP Uganda's National Content Strategy that emphasizes utilisation of products and services produced within the country boundaries.

The Tilenga MOOC was open to all Ugandans between the ages of 18–28 with emphasis on people living within Tilenga Project areas. An A 'level or Uganda Advanced Certificate of Education was the minimum education level requirement. Participants also needed to have valid email address. Groueix said selected participants in MOOC benefited from technical, scientific, and mathematical knowledge with those that successfully completed the course receiving certificate of completion and may be selected for opportunities in the Tilenga project. Besides career and skills benefits, participants also received intensive training on Health, Safety and Environment.

"Due to the highly risky and technical nature of the industry, health, safety and environment are priorities for TotalEnergies and key aspects of the Tilenga project," Groueix said. "The safety of our employees, contractors and communities is of paramount importance to the Company."





Educational scholarships

TotalEnergies EP Uganda sponsored 12 Ugandan youth in 2022 to undertake trainings in drilling and wells engineers at the French Petroleum Institute (IFP) School in Paris, France. The company also sent six well site geologist trainees to France to obtain their Well Site Geology certification training.

In 2021, TEPU sponsored three scholars to pursue masters' programme in geoscience disciplines at IFP School. Nine other beneficiaries graduated with Masters degrees from internationally recognised education institutions including Imperial College of London, the University of Aberdeen UK, and the Institute of Petroleum Studies Nigeria through the Oil & Gas scholarship.

TotalEnergies EP Uganda also

carried out technology transfer and capacity building activities such as supporting oil and gas related courses at Makerere University under the Total Professeurs Associés (TPA) programme.

These multi-pronged initiatives offered youth educational opportunities in top institutions. This contributed to a pool of trained resources within the country with the capacity to participate in the overall development of oil and gas resources and other sectors.

Petroleum Institute gets international support

Two institutions; Uganda Petroleum Institute, Kigumba, popularly known as UPIK, and Uganda Technical College Kichwamba, received support under ARSDP and USDP.

The two institutions partnered with experienced technical institutes abroad for capacity building. The UPIK twinned with the French school for energy innovation and sustainable mobility; IFP, while Kichwamba twinned with at least 24 instructors and two supervisors from UPIK. The instructors from the Technical Vocational Education and Training (TVET) institutions had been trained at IFP France so that they can become better instructors and master trainers for their fellow instructors.

The Ministry of Education and Sports in partnership with the industrial players developed a Competence Based Curriculum for them.





Oil and Gas **knowledge** **and skills training**

The discovery of oil and gas triggered the government to heavily invest in ensuring that Ugandans gain knowledge and skills in the sector. The government's strategy included training Ugandan instructors to train local populations in skills and knowledge of the sector. The government had by 2022 sponsored 1,095 students in the Albertine region to undertake short training courses in oil and gas. Of this, 608 students have already enrolled for training in selected technical institutions

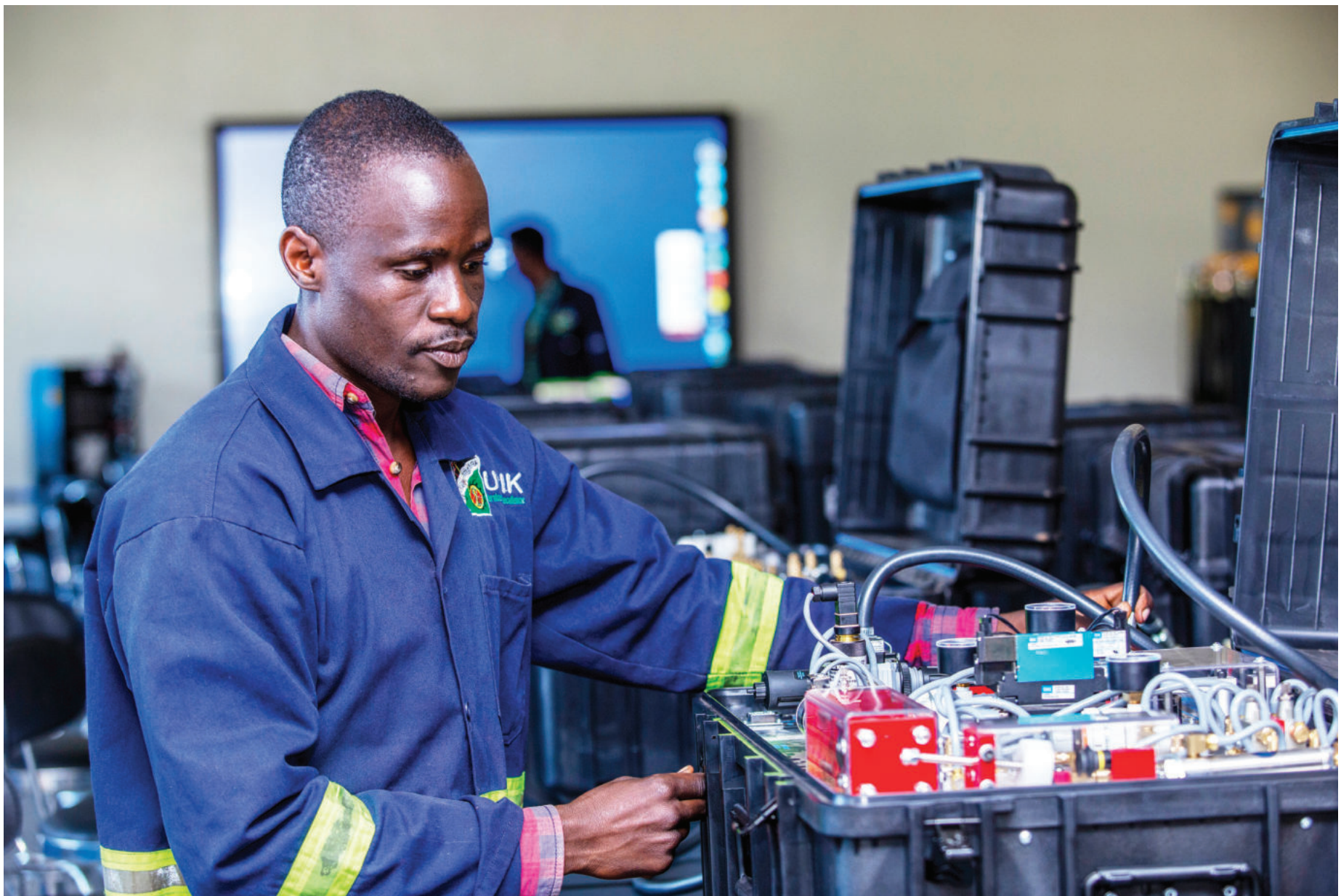
including Uganda Standards Driving Agency. Approximately, 400 have completed their programmes and many are employed. Two training projects; the Albertine Region Sustainable Development Project (ARSDP) and the Uganda Skilling Development Project (USDPA) were set up with support of US\$145 million World Bank funding. Agnes Arach, the coordinator for ARSDP and USDPA in the Ministry of Education and Sports says they boosted the technical training capacities and public confidence.

Uganda Petroleum Institute, Kigumba

The two projects facilitated the development of five new programmes at UPIK. These are Upstream Operations, Downstream Operations, Electrical Maintenance, Mechanical Maintenance, and Instrumental Maintenance. UPIK enrolled approximately 200 students in 2022 in the new programmes.

UPIK attained international accreditation for Offshore Petroleum Industry Training Organisation – OPITO (UK) and City and Guilds (UK). This implies that UPIK graduates and instructors in the oil and gas-related fields qualify to work anywhere in the world. They are

certified and supervised by international assessment bodies. Their certificates are internationally recognised. UPIK has also signed a memorandum of understanding with Total EP to train the staff of the French oil major in oil and gas areas. UPIK boasts computer-aided design laboratories, information, and communications technology centers, and assimilators equipped with modern technology. UPIK has moved from the prefabricated buildings of its inception to modern student and instructor accommodation facilities, workshops, training rooms, health facilities, and administration offices.

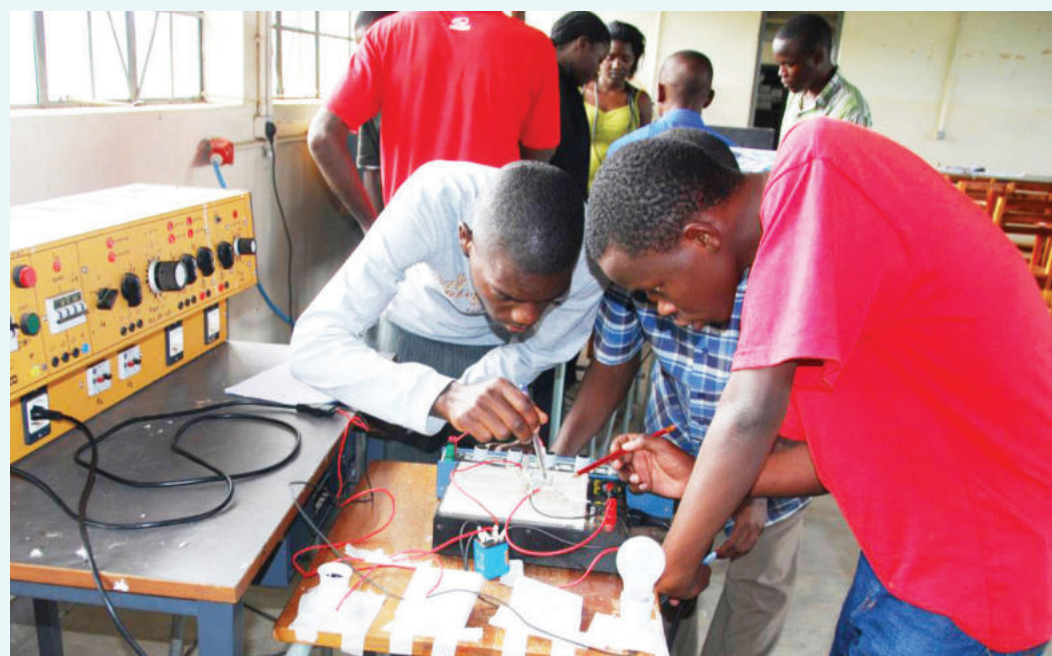


Uganda Technical College **Kichwamba**

Kichwamba got four programmes: Plumbing and Pipe-fitting, Carpentry and Joinery, Welding and Metal Fabrication and Electrical Installation.

“The idea was that the local communities near the oil production areas reap from their resources,” Arach said. “We designed and built workshops that match the new curriculum, supplied equipment to these workshops.” They also trained instructors to deliver the new curriculum.

Kichwamba which is also City and Guilds accredited, enrolled more than 240 students. The Ministry of Education and Sports has constructed four workshops and installed equipment to support oil-related training.





Secondary school **scholarships** empower youth

TotalEnergies EP Uganda has an education scholarship scheme for students in Uganda's oil districts of Buliisa, Nwoya, Pakwach, Masindi and Nebbi. The scholarships target outstanding students and are full package, covering tuition fees, scholastic materials, medical insurance, accommodation at school and transport to and from school at the beginning and end of each term.

TotalEnergies EP Uganda has supported over 200 scholars at O' Level, A' Level and Vocational Education; especially in the science disciplines in schools such as Sacred Heart SS in Gulu and St. Andrea Kahwa SS in Hoima, Kings College Buddo, Namilyango College, Trinity College Nabbingo, Seeta High School and St Mary's College Kisubi.

TotalEnergies EP Uganda believes that equal access to affordable education and training will eliminate gender and wealth disparities. The company believes that enrolling students it supports in the top schools will help them compete favourably with their counterparts in national examinations and thereby improve their chances of gaining entry into some of the recognised universities and other institutions of higher learning worldwide and consequently boost their families.

Support to educational institutions

TotalEnergies EP Uganda also collaborated with the country's technical institutions and the oil and gas related courses at Kyambogo University, Makerere University Business School and Makerere University under the Total Professeurs Associés (TPA) programme.

Kigumba Scholarship programme changes lives

The Uganda Petroleum Institute Kigumba (UPIK) has a scholarship programme for people from areas where the Uganda National Oil Company (UNOC) has projects. The beneficiaries must have prior training. The programme was launched in June 2022. The young men and women pursue an International Vocational Qualification (IVQ). At least 70 per cent of the jobs being created in the projects are for qualified technicians with international accreditation.







Technology transfer, knowledge and **skills development**

TotalEnergies believes in technology transfer as well as knowledge and skills development in all their areas of operations. The aim is to boost the country's capability in oil and gas production.

In Uganda, TotalEnergies EP Uganda has trained more than 500 welders, 360HGV drivers, offered 256 academic scholarships and committed more than US\$3million toward related activities. Most of the welders, both male and female, hail from areas near the oil development

districts of Buliisa, Nwoya, Hoima, Masindi, Pakwach and the East African Crude Oil Pipeline project districts – Kakumiro, Kyankwanzi, Mubende, Gomba, Sembabule, Lwengo and Kyotera.

The beneficiaries were equipped with specialised training in 2G and 4G coded welding levels including Occupational Health, Safety & Environment and Entrepreneurship training in line with the industry standards and requirements.

Oil and gas sector ushers in new professional classes

As Uganda's oil and gas sector has transitioned from exploration to development of oil fields and pipeline infrastructure, the country has amassed a new professional class with specialty and skillsets crucial for the transformation of the sector.

From geologists and energy economists to drilling and site engineers, the oil-rich Albertine region is teeming with new talent in the technical and executive realms handling the bulk of the work emerging with the construction of a 1443km pipeline and a planned refinery.

For a sector where investment promotion, licensing, regulation and compliance, forming joint ventures, new exploration and developing oil fields remains important, Uganda is employing and growing a new generation of professionals to work in its flourishing petroleum sector.

Companies like TotalEnergies, CNOOC operating the Tilenga and Kingfisher projects respectively have recruited Ugandans to work as geochemists, mining engineers, mudloggers, etc. These and other technical people are meant to work on the Central Processing Facilities, well pads, in-field and feeder pipelines.

As a sector regulator, Petroleum Authority Uganda (PAU) and the Uganda National Oil Company (UNOC) which manages the Uganda government's commercial interests in the oil sector, have hired large numbers of staff. Together with the Ministry of Energy, the three have trained and hired talent to

develop Uganda's 6 billion barrels of oil into fully commercially viable entities.

Ugandans are snapping up available opportunities. John Habumugisha, a mechanical engineer, is the deputy general manager of the East Africa Crude Oil Pipeline (EACOP). The EACOP is one of TotalEnergies' biggest projects in Africa with an investment of US\$10 billion.

Habumugisha oversees EACOP's 6 pumping stations, 27 heating stations, and its 2 pressure reduction stations alongside the hundreds of technical staff that will grind away on the 1443 km pipeline.

Mariam Nampeera Mbowa is the deputy General Manager of TotalEnergies EP Uganda, the lead investor in Uganda's upstream sector. The person leading the TotalEnergies drilling campaign is Ugandan, and so is the person leading the company's Tilenga engineering front.

As Uganda searches for more oil, the demand will rise for the skillsets and technical expertise in the downstream, midstream and upstream sectors.

Many professionals enroll at institutions like University of Dundee, Scotland, where the university's Centre for Energy, Petroleum and

Mineral Law and Policy, is renowned as one of the best places in the world for energy studies.

Elison Karuhanga is a lawyer who has been active in the sector following his Masters of Law at Aberdeen University. He says many lawyers like him now have drafting and negotiation skills.

Victoria Nalule is the Founder of an NGO, the African Energy and Minerals Management Initiative. She is the CEO and lead consultant at Nalule Energy & Minerals Consultants. She is also an Energy & Natural Resources Law Lecturer at the University of Bradford, UK.

Nalule has given talks on negotiating petroleum agreements, offering practical solutions on dealing with Africa's extractive industries. She has also advised governments and policy makers on oil, gas, energy transitions and mining projects including training officials from the Nigerian Petroleum Development Company.

Further, she has presented on the South African Petroleum Bill before the country's policy makers. Elsewhere she has led a team of energy experts in reviewing Energy/Mining laws and policies for countries such as Namibia, Ethiopia etc.





CNOOC's CSR activities



CNOOC's CSR activities cover sectors of education, health, environment, awareness, and relief aid, among others. They include:

- The CNOOC Best Performers Award: This is a scholarship programme that promotes sports talent through the CNOOC Bunyoro Kitara Cup for seven successive years.
- Vocational Skills Training
- Top Up pay for teachers and nurses in Buhuka, CNOOC's operating area. This is critical because Buhuka was previously hard to reach due to the escarpment barrier and lack of a motorway, which always made it hard to retain teachers and nurses
- Provision of relief aid to communities
- Refurbishment of the Uganda Museum
- Hosting medical camps
- Construction of maternity ward
- Offering health support
- A road safety awareness campaign called Safe Way Right Way.
- Over 900 students at PLE, UCE and UACE levels have received scholarship awards for their excellent performance since 2013. The evaluation of the award programme revealed improved performance grades in the beneficiary districts of Hoima and Kikuube by over 400%.
- The company has also sponsored eight students to undertake Bachelors' degrees and Masters degrees at university level, after which they have been employed in the company.
- Through environmental programmes, CNOOC championed planting of more than 10,000 trees in Kikuube.
- CNOOC has also trained 30 welders and equipped them with necessary skills and certification to ably participate in the oil and gas industry.

Agriculture: Feeding the Oil & Gas sector

TotalEnergies EP Uganda understands that Uganda's agricultural sector is a priority and has been the backbone of the economy for decades, employing over 80 percent of the rural population and about 64.3 percent of the working population.

The sector is a source of food, raw materials for industries and foreign exchange given the many agricultural exports. It provides subsistence livelihood and income to a large portion of the population and contributes to the national economy.

TotalEnergies EP Uganda, as it has done for years in other countries, sought to extend its support to agriculture among Project Affected Persons (PAPs) in the Tilenga.

TotalEnergies EP Uganda compensated the PAPs and contracted Community Integrated Development Initiative (CIDI), an indigenous not for profit organisation that works with communities to improve their food security, to train them in better farming practices; especially in cassava growing. It also supplied them with better yielding drought tolerant cassava varieties.

Living a better life

Milton Onencan, 55, a resident of Kasenyi Vilage, Ngwedo Sub County in Buliisa District, is one of the Project Affected Persons that has recorded a surge in agriculture production courtesy of TotalEnergies EP Uganda agriculture livelihood restoration

programme.

Onencan initially farmed on a 0.5 acre piece of land that now hosts part of the industrial facility in the Tilenga Development Project in Buliisa District. He was not a primary resident and therefore was only entitled to Shs2 million in 2018, as compensation for his crops.

Onencan says he used Shs1.5 million to purchase two acres of land in his home district, Nebbi, and the balance to resettle in Kasenyi village where relatives gave him land to grow cassava and other crops. Beginning with one acre of cassava plantation, the farm has since expanded to more than 15 acres.

Onencan says he and his family of 15 people now produces enough cassava both for home consumption and for sale. At one time, he earned Shs 6million from selling cassava. Onencan has become a cassava cuttings supplier to CIDI for onward distribution of improved cassava cuttings to other PAPs.

TotalEnergies EP Uganda's agriculture livelihood restoration programme has seen more than 230 farmers receive improved cassava cuttings, 137 farmers receive seedlings and ten farmers each receiving 10 bee hives to improve their lives and livelihood.

The company supports them to grow fruits, tree nursery, and animal husbandry. They have formed farmer groups and support each other live a better life than before.





Farmers, businesses prepared for oil and gas business opportunities

With the oil and gas activities expected to grow, the population of the Albertine region to over a million people at the height of the development phase, business opportunities for farmers and other enterprises could not be greater





▶ **PAU signed a contract with Stanbic Incubator to train SMEs along the EACOP route**

The only challenge standing in the way of these opportunities was that locals lacked the skills and capacity to meet the standards of the oil and gas industry.

But over the last few years, as part of partnerships between the Petroleum Authority of Uganda, the National Oil Company (UNOC), and the Stanbic Business Incubator, businesses and farmers have been trained in simple, affordable, innovative methods of farming that have potential to boost their productivity. Small and medium business entrepreneurs in the region have also benefited from capacity building trainings.

The Stanbic Business Incubator runs these series of trainings at an Agribusiness Hub in Hoima.

The incubator partnered with celebrated veterinary Doctor Emma Naluyima, who runs One Acre Ltd, to train farmers in techniques like reducing chicken feed costs by 60% while raising high quality chicken and fish, simple and easy techniques to apply irrigation systems to enable farmers harvest very high yields (worth millions) from a small plot of 50by100, among others. Apart from this, farmers were also skilled to meet the high quality and quantity standards of the oil and gas industry and the export market that would open up to the region with the completion of the Kabaale International Airport in Hoima.

The farmers were also provided with a leading off taker, Pure Grow Africa, to buy their produce. Indeed, the very day the Incubator and PureGrow entered partnership that was witnessed by Petroleum Authority of Uganda (PAU) officials, among others, three tonnes of farmers' produce including watermelon, green pepper, tomatoes, pineapples, was shipped to the market.

200 businesses on EACOP route skilled

PAU also entered another partnership with the Stanbic Business Incubator and other partners to enhance business skills of Ugandan enterprises along the export crude oil pipeline route to compete for contracts to supply Uganda's oil and gas sector.

The project extended business training to over 200 enterprises in the ten districts along the East African Crude Oil Pipeline (EACOP) route, which include Hoima, Kikuube, Kakumiro, Sembabule, Kyotera, Kyankwanzi, Gomba, Mubende, Lwengo, and Rakai.

The business development training was one of the three major components of the business linkages project along the EACOP project being implemented by the PAU with support from the African Development Bank (AfDB). The project could not have been timelier coming after the announcement of the Final Investment Decision for Uganda's oil and gas projects on 1st February 2022.

500 smallholder farmers supported in **AGRO** project

The camps and offices of companies involved in Uganda's oil and gas sector are big and expected to grow bigger. In some cases, they could have up to 3,500 workers. These need to be fed. That is why the International Oil Companies (IOCs) are engaged in an Agricultural Development Programme (ADP) to build the capacity of farmers and their enterprises to meet the expected demand for quality agricultural products.

The Ministry of Agriculture Animal Industry and Fisheries (MAAIF) implemented the Agro-Economic Impact Deepening in the Albertine Basin (AIDA) Project in order to provide market opportunities to the local farming communities to develop sustainable systems for production and supply of food and agricultural services for oil camps, the community, and local and export markets.

This programme, which is promoted by the Government of Uganda, aims at addressing the challenges and making visible the opportunities and developments in the Albertine Region as a model of value-added commercial agriculture. It also serves as a stimulus for market-oriented agriculture development in the region and the country.

The project supported 500 smallholder farmers involved:

- piggery
- cassava farming,
- fish farming, and horticulture

It supports farmer associations, has constructed an abattoir, and trains them on food standards for the Oil and Gas sector.

The interventions are focusing on strengthening production services. It involves working directly with smallholder farmers and communities in the region to strengthen capacities for market-oriented production.

Farmers are trained to produce for large consumers; hotels, catering companies etcetera, and diverse business services providers like financial institutions, Business Development Services (BDS) providers, input companies etcetera, together with local, regional and international markets.





▶ Training in fish farming in Kikuube District



Oil companies make positive mark on communities

Since making inroads in the Uganda market in February 2012, CNOOC Uganda Ltd has undertaken a number of Corporate Social Responsibility (CSR) activities as a way of giving back to the communities in the districts of Hoima and Kikuube where the Kingfisher Field Development Area (KFDA) is located.

CNOOC Uganda Ltd has policies and implements practices designed to have a positive influence in the areas where it operates around the world. Often called Corporate Social Responsibility (CSR), the pro-social policies and practices are designed to advance economic and social conditions and enhance the competitiveness of local residents, partners, other stakeholders, and host country where it operates.







“Our approach to responsible development provides us with a competitive advantage by allowing us to maintain our social license to operate while also fostering support for our future growth,” said CNOOC media and publicity manager, Amina Bukenya.

CNOOC’s CSR activities cover sectors of education, health, environment, awareness, and relief aid, among others. They include:

- The CNOOC Best Performers Award: This is a scholarship programme that promotes sports talent through the CNOOC Bunyoro Kitara Cup for seven successive years.
- Vocational Skills Training
- Top Up pay for teachers and nurses in Buhuka, CNOOC’s operating area. This is critical because Buhuka was previously hard to reach due to the escarpment barrier and lack of a motorway, which always made it hard to retain teachers and nurses.
- Provision of relief aid to communities
- Refurbishment of the Uganda Museum
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- The company has also sponsored eight students to undertake Bachelors’ degrees and Masters degrees at university level, after which they have been employed in the company.
- Through environmental programmes, CNOOC has championed planting of more than 10,000 trees in Kikuube.
- CNOOC has also trained 30 welders and equipped them with necessary skills and certification to ably participate in the oil and gas industry.



▶ **J. L. Kwagala, the Land Acquisition Supervisor or as we commonly refer to her as “Land lady”. She has recently overseen the delivery of the resettlement houses to the project affected persons.**

Locals supply oil and gas sector

Many Ugandans and Ugandan enterprises are increasingly participating in the country's oil and gas sector. The Petroleum Authority of Uganda is reporting growth in the number of Ugandan companies registered on the National Supplier Database (NSD) and the services they offer. The final investment decision (FID) triggered commencement of the detailed Engineering, Procurement and Construction (EPC) stage for some of the projects which has led Ugandan companies to grab opportunities as Tier One and Two contractors.

The National Supplier Database, which was established by the PAU as a tool to monitor availability of companies with potential to supply the sector, has significantly grown. By April 2022, the system had over 2,020 registered companies, with 1,595 (79%) of these being Ugandan entities. Similarly, the number of Ugandans with potential to be employed in the Oil and Gas sector has also increased. Over 6,876 individuals had registered on the National Oil and Gas Talent Register (NOGTR). The register is a platform set up and managed by the PAU, where potential talent is encouraged to register.

Milestones on national content

Investment in the country's oil and gas sector grew from US\$ 180 million in 2020 to US\$ 500 million in 2021 and is projected to be US\$ 3 billion in 2022



2,020 companies registered on the national supplier database of which 1,595 are Ugandan companies



During 2021, Ugandan companies were awarded contracts worth US\$ 200 million in the oil and gas sector, an increase from US\$10.7 million during 2020



The value of contracts to be awarded to Ugandan companies during 2022 is expected to be in excess of

US\$1 billion



Over 6,876 individuals registered on the National Oil and Gas Talent Register (NOGTR)



CHICKEN DRINKER
NEW
WITH FACTORLOCKING
BASE FOR
GREATER STABILITY

CH

Project Affected Persons get houses

Under its Resettlement Action Plan following land acquisition for the Tilenga project, TotalEnergies EP Uganda ensured that Project Affected Persons (PAPs) have a better standard of life compared to before the project. One area to be improved is housing. Uganda is in need of better planned human settlements in both rural and urban areas.

The country's Vision 2040 and the National Housing Policy recognise the need for investment in decent housing in line with Sustainable Development Goal II of the UN which recognises the need to make human settlements inclusive, safe, resilient and sustainable. TotalEnergies EP Uganda came out to support this with the construction of resettlement houses for residents the project displaced.

Espiro Gipatio, 35, a widow and mother of seven is one of the beneficiaries. Gipatio, who initially lived in a grass thatched mud-and-stick hut with no electricity in Kijumbia Village in Buliisa Sub-County, Buliisa District, now owns and lives in a concrete block house with solar power. The house has two bedrooms, sitting room, stand-alone kitchen and a toilet. The land upon which the house sits on has a title as a proof of ownership. `My friends





now refer me as a rich man, Moses Musa Bedijjo, 40, another resident of Kijumbia village who secured a permanent house, said he is proud of the transformation. A father of nine, Bedijjo, says he no longer worries of accommodation for his family. "In fact, my friends now refer me to as a rich man," he says, adding that he has also benefited from TotalEnergies trainings in relation to modern farming methods especially vegetables and cassava growing and cattle keeping.

The 36 resettlement houses and relocation assistance were handed to displaced residents in the areas where Total Energies has its central processing facilities, well pads, flowlines, access roads, water abstraction facility and feeder oil pipeline components. Up to 200 displaced persons were to receive new houses.

“

“I am no longer worried of the rains as was the case in the previous house where we had to look for a specific position to stand to dodge the rain,” Gipatio said. “I wouldn’t have owned such a house without the oil and gas developments in our area and specifically by TotalEnergies.”

Project Affected Persons houses have modern facilities

CNOOC Uganda and TotalEnergies have constructed houses for Project Affected Persons (PAPs). These are people whose land and houses were acquired to pave way for construction of the oil and gas project infrastructure.

The replacement houses constructed by CNOOC have three bedrooms, living room, outdoor kitchen, and VIP latrine. Other facilities include rain water harvesting equipment and solar power for lighting and other light energy needs.

The houses built in phases are in the sub-counties of Kyangwali, Kabwoya, Buseruka in Hoima District and parishes of Buhuka, Kyangwali, Butoole, Kaseeta and Kabaale in Kikuube district.









PAPs in Buliisa get income generating tools

TotalEnergies EP Uganda is committed to supporting sustained and inclusive economic growth through income generating activities by the Tilenga project community. The company has provided start-up kits to Project Affected Persons (PAPs) under Resettlement Action Plan 1 (RAP 1) to setup income generating activities in a bid to elevate their ability to sustain their livelihoods.

The support rendered through the start-up kits follows the completion of various vocational skills training programmes by the PAPs. This support is provided as part of the Company's strategy and commitment to empowering the PAPs through a Global Livelihood Restoration programme aimed at restoring, transitioning, and improving their livelihoods by leveraging available household livelihood resources post-resettlement. This programme is also in line with the UN Sustainable Development Goals 1 (No poverty), 8 (Decent work and Economic growth) and 10 (reduced inequalities).

The start-up kits were identified and procured for 104 PAPs under the different categories of vocational programmes: 12 tailors, 5 Hairdressers, 70 mechanics, 5 plumbers, 6 caterers, and 6 Welders.

"TotalEnergies EP Uganda is conscious of its responsibility to support the economic upliftment of the Tilenga host community and most especially the project affected persons. Our commitment to fulfil this responsibility has consistently been showed through the delivery of various initiatives under our Global Livelihood Restoration programme that is consistent with international standards and requirements. The start-up kits are a symbol of this commitment and will go a long way in boosting the self-sustainability and household incomes of the PAPs," said Ms Mariam Nampeera Mbowe, Deputy General Manager, TotalEnergies EP Uganda.

TotalEnergies EP Uganda has also supported PAPs under RAP-1 with various agricultural programmes such as provision of high-yield cassava cuttings, beehives and harvesting gear to set up apiary projects, vegetable farming and enabled the formation of Village Local Saving Associations. This is in addition to other social programmes such as the construction of the Kirama water project and the construction of the new Avogera Health Centre III



CNOOC's positive mark on communities

Since making inroads in the Uganda market in February 2012, CNOOC Uganda Ltd has undertaken a number of Corporate Social Responsibility (CSR) activities as a way of giving back to the communities in the districts of Hoima and Kikuube where the Kingfisher Field Development Area (KFDA) is located.



CNOOC Uganda Ltd has policies and implements practices designed to have a positive influence in the areas where it operates and on the world. Often called Corporate Social Responsibility (CSR), the pro-social policies and practices are designed to advance economic and social conditions and enhance the competitiveness of local residents, partners, other

stakeholders, and host country where it operates.

“Our approach to responsible development provides us with a competitive advantage by allowing us to maintain our social license to operate while also fostering support for our future growth,” said CNOOC media and publicity manager, Amina Bukenya.





▶ Gravity water scheme in Kikuube district, funded by CNOOC Uganda Limited

CNOOC gives water to local communities

China National Offshore Oil Corporation (CNOOC), under its Kingfisher Development Area in Kikuube, has become a dependable partner in improving the livelihoods of the host communities.

CNOOC Uganda has implemented several Corporate Social Responsibility (CSR) initiatives in its operation area and nationally including in sports, health, education, culture, security, relief aid, vocational training, and road infrastructure.

In February 2022 it gave SAMKA Construction Company Ltd, a Ugandan entity, a contract to build the Buhuka Gravity Flow Scheme Rehabilitation Project. This is a community water and sanitation project providing safe and clean water to the five villages of over 13,000 residents of the water-stressed Buhuka area which has a busy landing site.

The project comprises a water treatment plant, a power house,

chemical house scheme and a distribution network made up of a 14km of High Density Polyethylene (HDPE) pipes. It supplies water to five villages in CNOOC's area of operation namely; Nsunzu A, Nsunzu B, Kyakapere, Nsonga A and Nsonga B. The project was completed and handed over to the community in August 2022.

Peter Banura, the Kikuube District LCV Chairperson who commissioned it in the company of the CNOOC Uganda President, Chen Zhuobiao, said the district leaders were happy that CNOOC had come in to help the people get access to safe and clean water.

CNNOC Uganda President Chen Zhuobiao thanked the leaders for supporting CNOOC's operations and projects aimed at improving the lives of the people.

"CNOOC Uganda Limited is committed to the efficient and effective development of the Kingfisher Development Area in a safe, environment friendly, and sustainable manner," he said.

Boosting health access

Marion Muyobo, Head of Social Affairs at TotalEnergies EP Uganda, says the company always stands together with the community where it operates. “This is the TotalEnergies spirit and our way of doing things,” she says. That is the spirit behind TotalEnergies reconstruction of Avogera Health Centre (HC) III Out-Patient Department as part of its livelihood restoration activities for project host communities in Ngwedo Sub-County in Buliisa District.



When designing the Tilenga Resettlement Action Plan (RAP), together with the local government officials of Buliisa District, they noticed that the nearest health centres were almost 4-6km away and lacked facilities required to serve the communities of Kasenyi, Kirama, Kisomere, Uduk II, Kibambura, Kilyango and Avogera villages. The Avogera catchment has an estimated 2,000 households.

The refurbished facilities consist of an Outpatient Unit consisting of: A block with 1 treatment room, 1 examination room, 2 washrooms, 1 counselling room, reception area, laboratory, pharmacy, and store, medical store and waiting



area. It has solar electricity and requisite plumbing systems.

The auxiliary facilities include an Incinerator and medical waste pit, a 5,000-litre ground tank, 1,000 litre stand tank, and a water pump that supplements the borehole, and a stance of VIP latrines. The facility is protected by a 1.5km long chain link fence. Everything is built to Ministry of Health standards for an outpatient unit.

The Avogera Health Centre is classified as a Health Centre III. TotalEnergies equipped it with an ultrasound machine, oxygen masks and kits, assortment of drugs, beds, chairs and tables and theatre kits among others to enable doctors give the patients' high quality attention supported by safe and modern equipment.

As part of the sustainability strategy, Buliisa District Local Government supports the facility in terms of staffing and provision of medical supplies and undertakes general repairs. The Tilenga livelihood restoration programme under which this project was undertaken aimed at sustainably improving and restoring the livelihoods and standards of living of Project-Affected Persons (PAPs).

The activities under the Tilenga RAPs were executed in line with national and international laws as well as international guidelines stipulated in the International Finance Corporation Performance Standard 5.





Protecting the environment and social impact

The three flagship projects of Uganda's oil and gas sector; Tilenga, Kingfisher and the EACOP, are being constructed in what conservationists insist are very sensitive ecosystems; including the Nile Delta. Under Ugandan law and regulation, implementers of major projects must undertake Environmental and Social Impact Assessments (ESIA) to define and evaluate the potential social, health, human rights and environmental impacts of the project.

The idea is to avoid these impacts where possible or identify adequate measures to mitigate the potential negative impacts on the environment and society as well as maximize and enhance the project benefits. Under Ugandan laws and regulations, public hearings are organized to enable citizens submit their views to guide the environmental regulator's certificate of approval or not to the project developer.

The Albertine region which is currently estimated to hold up to six billion barrels of oil beneath the surface also hosts a long stretch of the River Nile that is shared by Uganda, Rwanda, South Sudan,

Sudan, Tanzania, Burundi, Ethiopia, Kenya, DR Congo and Egypt. It also hosts some of the world's rare animal and plant life, much of which is categorised as endangered by the International Union for Conservation of Nature (IUCN).

The Albertine region hosts six oil fields and is expected to have 400 wells which will be drilled in 31 locations. The EACOP's 1445km path, right from Kabaale in western Uganda to the Tanzanian port of Tanga also traverses some environmentally fragile areas. The pipeline which will be buried will also meander through 10 districts, 22 sub-counties, four town councils, 41 parishes and over 170 villages in Uganda.







Improvements in Murchison Falls National Park with Wildlife Society

The Wildlife Conservation Society, Uganda Wildlife Authority and TotalEnergies EP Uganda have a long standing partnership on the elephant monitoring programme. In support of the company efforts to achieve measurable conservation outcomes for biodiversity and communities, this partnership was extended to include specific activities designed to help reduce human pressures and increase the ecological resilience of the park – one of the pillars under the Tilenga Biodiversity Programme.

The activity involved supporting existing efforts of the Uganda Wildlife Authority to increase the effectiveness of patrolling activities focused on reducing illegal activity within the park as well as rolling out a series of anti-poaching awareness campaigns with communities in the area.

The programme ran for 12 months in the beginning and encompassed a detailed needs assessment, equipment provision and refresher training on the use of Spatial Monitoring and Reporting software. This support allowed for targeted patrolling, increased intensity and effectiveness whilst providing a sound basis for accurate reporting and analysis of patrol data. This programme was specifically

designed to supplement existing law enforcement efforts of UWA to deal with increased activity brought about by the Tilenga project. Conservation education and awareness around Budongo Central Forest Reserve with the Chimpanzee Sanctuary and Wildlife Conservation Trust (CSWT)

TotalEnergies under the Tilenga Biodiversity Programme is committed to conserving and restoring forests and forest connectivity. The company supported the Chimpanzee Sanctuary and Wildlife Conservation Trust to roll out educational programmes with communities located around Budongo Central Forest Reserve.

Budongo Central Forest Reserve is the largest Mahogany Forest in East Africa and is home to the largest remaining population of critically endangered Eastern Chimpanzee. The programme focused on rollout of 30 episodes of a radio drama with emphasis on chimpanzee habitat restoration, behaviour and the co-existence of communities with other wildlife.

The programme ran for one year and also involved school educational element that involved designing learning sessions, teacher training and provision of educational materials for children.



NGO network works to conserve environment

Bunyoro Albertine Petroleum Network on Environment Conservation (BAPENECO) is the largest NGO network in Uganda's oil-rich Albertine region. It is an umbrella body working to ensure no NGO is left behind as the oil and gas sector transforms Hoima and the Bunyoro sub-region.

Formed in 2010, BAPENECO is a representative of NGOs on the Hoima district NGO monitoring committee. Through this, NGOs in Hoima have a common agenda, including on environmental conservation.

With support from World Wide Fund, BAPENECO has conducted capacity building sessions for the district environment and natural resources committee. It is involved in producing the state of the environment report which feeds into the national report produced by National Environmental Management Authority (NEMA). All the oil producing districts including Buliisa, Kikuube, Masindi, and Kakumiro have to take part in this report. It has trained officials and various stakeholders from the five districts.

"If you don't build capacity of these committees at the local government level, trust me you will not even know the air quality, water quality," says Dickens Amanyamba, coordinator of BAPENECO.

Amanyamba says due to capacity challenges there is no baseline on the environmental status of the Albertine



region. Instead each district has its own priorities regarding the environment. Some focus on deforestation, others on wetland degradation, or any other agenda.

Work on EACOP

Amanyamba says BAPENECO is the only body in the Albertine region that did stakeholder engagement on what people think can inform the legal framework for the East African Crude Oil Pipeline (EACOP) Special Provisions Act 2021. It took part in the review of the National oil and gas policy of 2008.

It is capable of offering input from different stakeholders in terms of recommendations at a regional level.

BAPENECO is building capacity for all NGOs even those outside of the petroleum sector in Bunyoro sub region. It offers cross-cutting training on environmental issues in oil producing areas. Amanyamba says basic things, such as calculating the royalties due to each region, are important for nascent NGOs.



Enhancing transparency and accountability in the petroleum value chain is one of the stated goals. Boosting advocacy is the other reason BAPENECO is bringing all NGOs in Bunyoyo onboard.

The organisation opened an information resource center near Hoima town where residents can access computers, different publications on petroleum, environment, land, human rights, and etcetera.

Kibiro spill

BAPENECO was the first resource to provide information on the Kibiro oil spill which happened in March 2020. It happened in Kibiro community, Kigorobya sub-county in Hoima and reached Hoima-Wanseko Road.

BAPENECO carried out an assessment of the environmental and socio-economic impact of the spill, ranging from readiness of government of Uganda to respond to oil spills to the delays and

laxity exhibited by concerned authorities in clean-up and remedial exercises of the affected area.

The major concern was whether the spilled material contained elements of petroleum hydrocarbons and heavy metals in excess of allowable national and 'world average' thresholds in water and surface soils. The study could be useful in providing baseline data that will help in determining the level of remediation of spill contaminated sites in Kibiro community.

As a result, there are quarterly update meetings with joint venture partners; TotalEnergies and CNOOC to compare notes and harmonise positions on contentious issues like mitigating spillovers.

BAPENECO works with the districts of Kikuube, Hoima and Buliisa to conduct joint environmental monitoring on the Central Processing Facility of Tilenga and the feeder pipeline of Kingfisher II-Kabaale.



Road Safety with Safe Way Right Way

With the increase in oil and gas activities, more vehicles are carrying equipment and materials into the region. This, coupled with the newly upgraded road infrastructure in the Albertine region, there has been an increase in road traffic, a development which has created the need to enhance road safety.

In line with its Corporate Social Responsibility (CSR) pillar of ensuring people's wellbeing through Road Safety initiatives, TotalEnergies EP Uganda, implemented the 'VIA Road Safety and Mobility programme in schools in order to provide solutions to this challenge.

The programme themed Road Safety at Heart prioritised road safety sensitisation and awareness in schools with specific emphasis on young children and youth in the Albertine Region. The programme sought to reach 100 schools, and over 38,000 students in Buliisa, Hoima, Kikuube, Nwoya and Kampala in the first phase of the programme.

The programme involved training the model teacher who in turn educates their students on fundamentals of road safety and

mobility followed by practical demonstrations.

The road safety programme helped to create awareness of the increased risks associated with the developments in the Tilenga area and instill a road safety culture among the young generation.

The initiative was undertaken in line with the UN Decade of Action and the Sustainable Development Goals and National Development Plan that aims at reducing road crashes by at least 50% by 2030 and 2040.

Similarly, as part of the community road safety initiatives being undertaken in line with ESIA requirements, we are working with Safe Way Right Way (SWRW) to increase awareness of road safety risks to all road users through various education programmes.

Culture and sports boosted in region

To promote culture and sports, CNOOC Uganda, in partnership with Bunyoro Kitara Kingdom, has been sponsoring the Bunyoro Amasaza Cup since 2014. The sponsorship is meant to demonstrate CNOOC's dedication to the growth of sport and culture in the places where they do projects.



CHAPTER

5

Future Outlook for the Oil and Gas Sector





The future of Uganda's oil & gas sector under Vision 2040

The future of Uganda's oil & gas sector is premised on the Government's policy objectives as outlined in the country's Vision 2040, which is the Comprehensive National Development Planning Framework. Its vision is "A Transformed Ugandan Society from a Peasant to a Modern and Prosperous Country within 30 years" starting in 2010.

The Vision is conceptualized around harnessing the opportunities, improving competitiveness and strengthening the fundamentals for transformation. The opportunities include oil and gas development and production.

Uganda has confirmed commercially viable oil and gas deposits in the Albertan Graben and more are expected to be discovered as exploration continues. The revenues from the oil & gas sector are expected to spur economic growth, create employment, foster technology transfer and generate revenues for investments in development of other strategic sectors.

The oil pipeline and refinery are prioritized as the large-scale investment projects to drive growth. Additionally, Hoima city is to be developed as a strategic city for supporting further development of oil infrastructure.





Value addition to these resources by refining will enable the country to achieve maximum multiplier effect through stimulation and strengthening the associated secondary and tertiary industries. The government will support the citizenry to take up the opportunities through enterprise development, strengthening the private sector associated with the oil and gas industry, capacity building and establishment of local area development fund. Secondary industries in the oil & gas sector will include plastics, agro chemicals, lubricants, paint, bitumen, thermal power generation among others. Tertiary industries that are likely to develop among others include machinery, transport, hotel, construction, real estate and communication.

“

A Transformed Ugandan
Society from a Peasant
to a Modern and
Prosperous Country
within 30 years



▶ Ms. Proscovia Nabbanja -CEO UNOC -(2nd from Right) receives the Exploration License for the Kasuruban Block from Hon. Ruth Nankabirwa (C)-Minister of Energy

Exploration continues for new oil

Exploration

There are four companies currently holding five exploration licences in the country. They are: Armour Energy of Australia and Atlas Oranto Petroleum Group of Nigeria. Oranto Petroleum holds the Ngassa offshore Lake Albert concession which comprises 410 sq. km. Armour Energy holds a license for the 344km² Kanywataba block in the Albertine rift basin near the border with Democratic Republic of Congo.

UNOC was licensed the Kasuruban block while DGR Global was licensed the Turaco block.

Over the next years, PAU will continue monitoring and regulating them as they drill exploration wells and discovers new oil and gas resources.

Development and production

The main activities are the Kingfisher Project which is operated by the China National Offshore Oil Corporation Uganda Limited

and Tilenga Project operated by TotalEnergies EP Uganda B.V. (TEPU), which are the country's two flagship petroleum production projects.

Investment over the next four years is estimated to be US\$2-\$3 billion and US\$5-\$6 billion for the Kingfisher and Tilenga projects respectively. This investment is mostly going to be in developing the infrastructure required for oil production and processing, together with drilling the wells required for the production of oil. The activities on the two projects are expected to peak by 2025.

The hundreds of wells, which are going to be drilled prior to the production of first oil, will provide a lot of additional information on the nature and type of petroleum reservoirs from which oil is to be produced. This information is going to be continuously analyzed and used by the PAU in regulating the production of oil and gas, with a view to achieve optimal production from each of the oil fields.

Key milestones into the future

The key milestones into the future of the oil & gas sector include:

Completion and commissioning of the oil field infrastructure



Completion and commissioning of the export pipeline



Completion and commissioning of the Uganda Oil Refinery together with production of first oil



Attracting investment and licensing in the oil and gas sector





Production of oil for the Kingfisher project will commence with the pumping of 40,000 barrels of oil per day. Production from the Kingfisher Oilfield is expected to take the project through the 5 years of plateau production. Production of oil for the Kingfisher project is subsequently planned to be supported by oil and gas produced from the Nzizi, Mputa and Waraga oil fields in the Kaiso – Tonya area.

The Tilenga project is expected to produce 190,000 barrels of oil per day, initially from the Jobi-Rii, Ngiri, Gunya, Nsoga, Kigogole and Kasamene-Wahrindi oil fields. Production from these oil fields is also expected to take the Tilenga project through the 5 – year plateau production period. This production will subsequently be supported with oil and gas produced from Ngara and Ngege oil fields.

The Petroleum Authority of Uganda will receive all the data and information being acquired and generated during the development of infrastructure and drilling of wells. This

information will be reviewed and analyzed to achieve cost efficient and optimal recovery of oil and gas from the oilfields.

In order to receive and adequately analyse the data to be received, the Authority has also completed putting in place a state-of-the-art data centre in which the large volumes of data expected to be received, will be stored. The Authority has completed the design of a Real Time Monitoring Centre (RTMC) whose development is due to commence before the end of 2022. The RTMC will enable PAU to receive, and analyze data and information from all the different projects and activities in the oil and gas sector, in real time.

Regulating the Midstream

The midstream segment of the petroleum value chain has two flagship projects; the East Africa Crude Oil Pipeline (EACOP) and the Uganda Oil Refinery. The PAU will regulate completion of the early project activities; land acquisition, setting up of the camps required along the pipeline corridor, and conclusion of contracts

required for the provision of goods and services for construction of the pipeline. Construction of the EACOP is expected to be completed before commencement of oil production in 2025.

Regarding the Uganda Oil Refinery, the PAU will regulate completion of the Front End Engineering and Design (FEED), the Environmental and Social Impact Assessment (ESIA) and the Final Investment Decision (FID). These activities will be undertaken by the investors, Albertine Graben Refinery Consortium (AGRC).

PAU regulates into the future

The mandate of the Petroleum Authority of Uganda (PAU) is transitioning from regulating largely oil and gas exploration activities in the country to regulating ongoing infrastructure development activities. In the end PAU will regulate oil and gas production and pipeline transport and refining operations. The PAU focus is on the technical work, safety of the operations, costs, impact on the environment, and participation of Ugandans in the planned and ongoing activities or local content.



Conclusion of contracts required for the provision of goods and services for construction of the pipeline. Construction of the EACOP is expected to be completed before commencement of oil production in 2025



Developing renewable energy projects

In February 2022 TEPU signed an MoU with GoU and in November 2022 signed a solar project agreement with GoU to explore opportunities and develop renewable energy projects in response to the global push for clean energy.

The Uganda government has been pushing for an increase in the share of energy mix to reduce reliance on fossil fuels and biomass. Integrating and designing an energy mix that is largely reliant on renewable energy was the only viable option to support strong growth, low emissions, and ecologically sustainable development.

The scope of the agreement between the government and TotalEnergies included development and distribution of energy products including liquified petroleum gas and electric charging, substituting LPG for burning biomass, renewable hydro-electricity generation, developing power storage solutions for the electrical network, developing nature-based solution for carbon storage, and implementing education and training programmes on new energies and the energy transition.

The energy company has carved out a position in this future energy supply and diversifying its energy mix accordingly, reducing the share of its petroleum products

and increasing natural gas, as a transition fuel, and renewable electricity. This means markets for low-carbon electricity and gas – natural gas, biogas and hydrogen – will need to grow while demand for oil needs to stabilise and then decline in the long run.

TotalEnergies and partners have laid down plans to produce more than 80,000 tons of LPG gas for the local and regional market. According to the Net Zero scenario from the International Energy Agency (IEA), renewable energies in the global energy mix is expected to increase from 16% in 2020 to 29.3% in 2030 and 63.5% in 2050. This will require working with various stakeholders including governments as well as developing new industries, new activities and cutting-edge technologies in renewable energies.

TotalEnergies in 2020 committed to pivot away from fossil fuels by cutting investments in new oil projects and instead putting more money into renewables in a global energy transition that aims to achieve net zero greenhouse gas emissions by 2050.







Soroti Solar photovoltaic power plant

The Soroti solar power plant is Uganda's first grid-connected solar plant and the largest in East Africa. It provides 40,000 homes, schools and businesses in the area with low-carbon and sustainable power. Developed under the GET FIT programme launched by the European Union and Africa Infrastructure Trust Fund, the solar photovoltaic power plant was partly financed by FMO and the Emerging Africa Infrastructure Fund (EAIF).

Future significance of oil & gas sector to Uganda's economy

Announcement of the Final Investment Decision (FID) on 1st February 2022 for the Tilenga, Kingfisher and East African Crude Oil Pipeline (EACOP) projects unlocked an investment of US\$ 10-15bn into Uganda's economy and de-risked new investment in all segments of the country's petroleum value chain.

Over 170 contracts valued at over US\$6.8 billion have been awarded after the announcement of FID. Out of these, contracts worth US\$1.7bn have been awarded to Ugandan companies, US\$933m through direct contracting at Tier 1 and US\$745m through subcontracting commitments at Tier 2. The estimated value to Ugandan entities to date is estimated to be 25%. The foreign companies, which have been awarded contracts at Tier 1 and Tier 2 levels are expected to sub-contract more work to Ugandan companies, at the lower levels of contracting and this is expected to increase the participation of Ugandan entities in the sector, towards the targeted 40% participation, which would be close to US\$7Bn out of the entire investment of between US\$15-20Bn.

This is in addition to opportunities for employment and capacity building of individuals and SMEs. Close to 6,500 Ugandans are estimated to be directly employed in the sector at the end of 2022, and this number is expected to grow to 13,000 at peak towards the end of 2023. The investments in the sector will also stimulate indirect and induced employment in the region, estimated at 35,000 and 100,000, respectively. These employment opportunities are valued at over US\$1Bn.

The oil and gas activities in the country are also expected to have a significant impact on investment in the other sectors of the economy. Studies have shown that every US\$ 1 directly invested in the oil and gas sector is expected to yield indirect growth of the GDP by US\$0.6. Therefore, a direct investment of US\$ 15Bn dollars (which is 33% of Uganda's current GDP, estimated at US\$ 45.7Bn) in the oil and gas sector is expected to yield indirect growth of the GDP by close to US\$ 9 Billion (which would be 20% of current GDP) before first oil is achieved. Implementation of national content in the sector and exploitation of sectoral linkages have the potential to significantly contribute to cementing the country's middle-income status even before first oil.

The sectors for which linkages with the oil and gas sector are already under implementation include education, transport and land use planning.

In addition to the non-fiscal benefits above, the petroleum reserves to be exploited are expected to earn the country an average of over US\$2.5Bn annually over the 25-30 years of life of the project. This is equivalent to about 45% of the projected domestic revenue for 2022/2023 (US\$6Bn).





Expected changes in Uganda's oil and gas sector

The growth and maturity of the Uganda National Oil Company (UNOC) as a full player in all the segments (upstream, midstream and downstream) of the petroleum value chain, is expected to be very well achieved in the next five years and perfected by the end of ten years.

UNOC's participation in the sector together with provision of goods and services by Ugandan entrepreneurs to the sector should enable the country to achieve over 70% national participation in the sector during the next 10 years.

The ongoing studies being undertaken by Government in the areas outside those that are currently licensed, together with the work being undertaken by the oil companies in the areas licensed to them, will enable an improved understanding of the country's petroleum potential and projected petroleum resource base. The information acquired during this work will contribute to improving the definition of a plan for the country's transition to clean energy.

(Excerpt from interview by PAU Executive Director Ernest Rubondo)

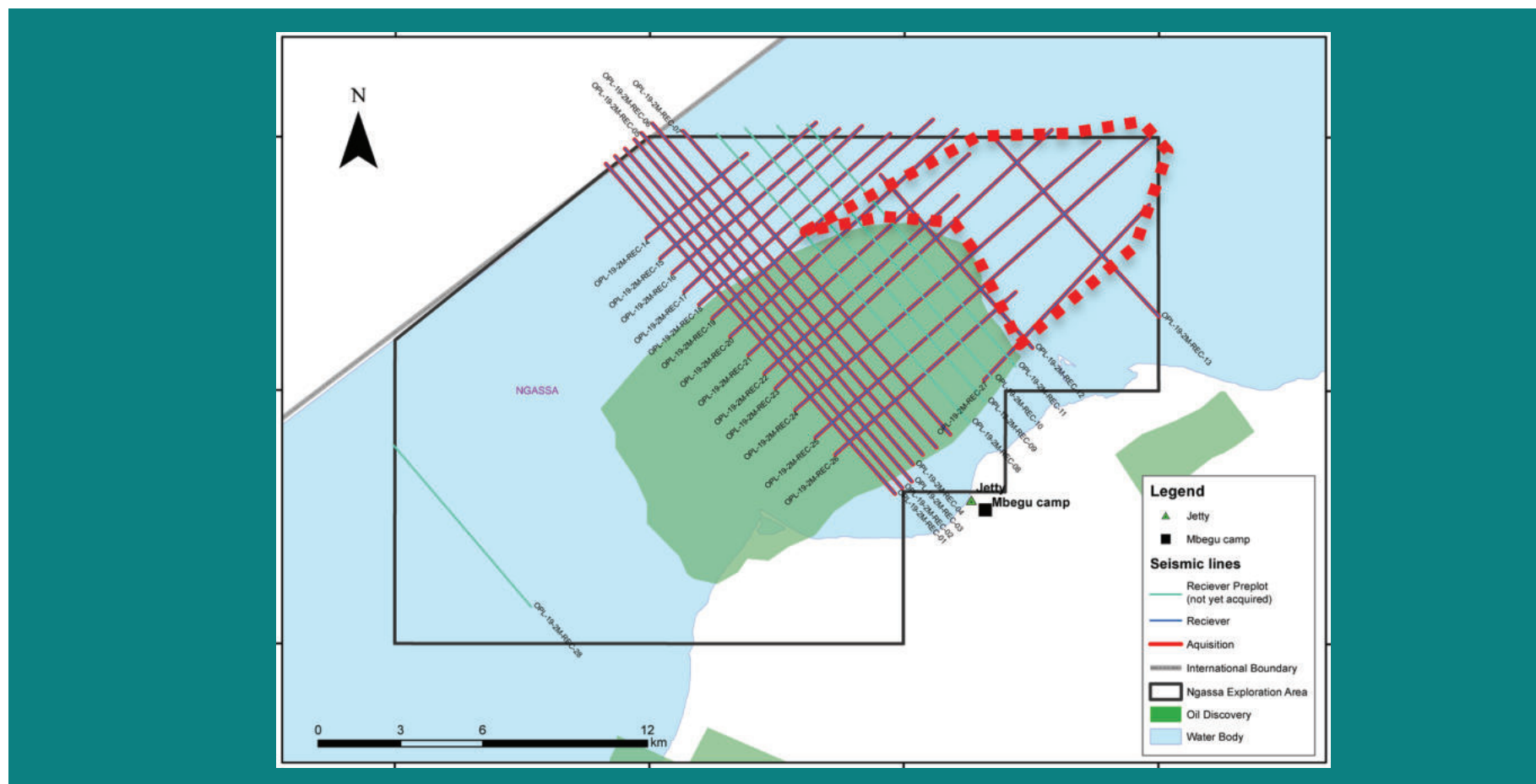






Growing new exploration capacity

China National Offshore Oil Corporation Uganda Ltd (CNOOC-U) and the Uganda National Oil Company (UNOC) are partners to jointly carry out oil exploration in the Albertine Graben as the area of the Lake Albert basin in north-western Uganda is known. The partnership Memorandum of Understanding (MoU) was signed in 2018 to ensure that more crude oil is discovered to support the projected production profile of already discovered resources that are under development. It is also to create an avenue for UNOC to grow its exploration capabilities. This will enable UNOC begin its journey towards a fully-fledged oil company able to perform operatorship roles.



The two entities will grow their partnership into other operations in and outside of Uganda with UNOC relying heavily on CNOOC's experience as an international oil company to grow its capabilities and expertise.

Dr. Josephine Wapakhabulo, the then CEO UNOC, and Mr. Fang Zhi, the then Chairman of CNOOC International in Beijing signed the agreement that was witnessed by President Yoweri Kaguta Museveni, Hon. Sam Kuteesa, the then Minister of Foreign Affairs and William Byaruhanga the then Attorney General.

Established in 2015, UNOC is mandated to handle Uganda's commercial interests in the petroleum sub-sector and to ensure state participation in petroleum activities. UNOC is also mandated to investigate and propose new upstream, midstream, and downstream ventures both locally and internationally.

CNOOC International, on the other hand, is the largest producer of offshore crude oil and natural gas in China and one of the largest independent oil and gas exploration and production companies in the world. Partnerships like these are very significant in terms of advancing oil industries, according to *Strategic alliances between National and International oil companies*, a 2011 paper by Robert A. James. While these partnerships may help IOCs access reserves (the World Bank estimates that NOCs control up to 90 percent of global oil and gas reserves), the latter also stand to access the better competitive advantages, technology, capital, and downstream markets that are usually dominated by IOCs.

"Both IOCs and NOCs need to take seriously the prospect of strategic alliances as a means for responsible and efficient development of the

world's most important hydrocarbon resources," the paper concludes.

Other experts note that emerging NOCs like UNOC have more to gain from IOCs' diverse asset portfolios, refining and marketing activities, and strong brands that transcend national boundaries. Following the MoU, CNOOC and UNOC applied in March 2022 for a joint exploration license on the Pelican/Crane block, which is one of the largest blocks in the Albertine Graben. CNOOC Ltd expects that the block will offer backup resources to its flagship oil and gas project, the Kingfisher Field Development Area.

The Pelican/Crane block is part of the five oil blocks that the Ministry of Energy put back to the market for the second licensing round, which was launched at the ninth East African Petroleum Conference and Exhibition held in the Kenyan coastal city of Mombasa in May 2019. Other blocks included Block 01 Avivi Area covering 1,026 kilometres, Block 02 Omuka covering 750 kilometres, Kasuruban covering 285 kilometres, Block 04 Turaco covering 637 kilometres and Block 05 Ngaji covering 1230 kilometres.

Further exploratory works on the blocks, once successful, are expected to add to Uganda's stock tank of oil currently estimated at 6.5 billion barrels with 1.4 billion barrels deemed recoverable. Only 15% of the Albertine Graben is currently under license.

Uganda's Albertine Graben acreage covers 23,918 square kilometres. To date, 116 wells have been drilled in the basin, of which 102 have encountered hydrocarbons, the petroleum and natural gas compounds, according to Uganda's Directorate of Petroleum.

The future of Liquefied Petroleum Gas

Among the main petroleum products expected to be produced from Tilenga and Kingfisher and the refinery projects is Liquefied Petroleum Gas (LPG). Production of LPG, which is to be mainly used in households, is one of the projects Uganda has planned to monetise its oil and gas assets.

The output of the Uganda refinery at peak will be 658 metric tonnes of LPG per day and 200,000 tons of LPG per year. This amount is close to the total amount of LPG currently being consumed in the whole of East Africa. The LPG production is part of the government's strategy of Sustainable Development of Petroleum Resources (SDPR) Programme which meets the National Development Plan III objective of enhancing value addition in key growth opportunities.

Household



PetroChemicals



Hotels & Restaurant



Industrial health



Agricultural Mechanization



Electricity Generation



Chemical Feed stocks



Glass Manufacture



Welding

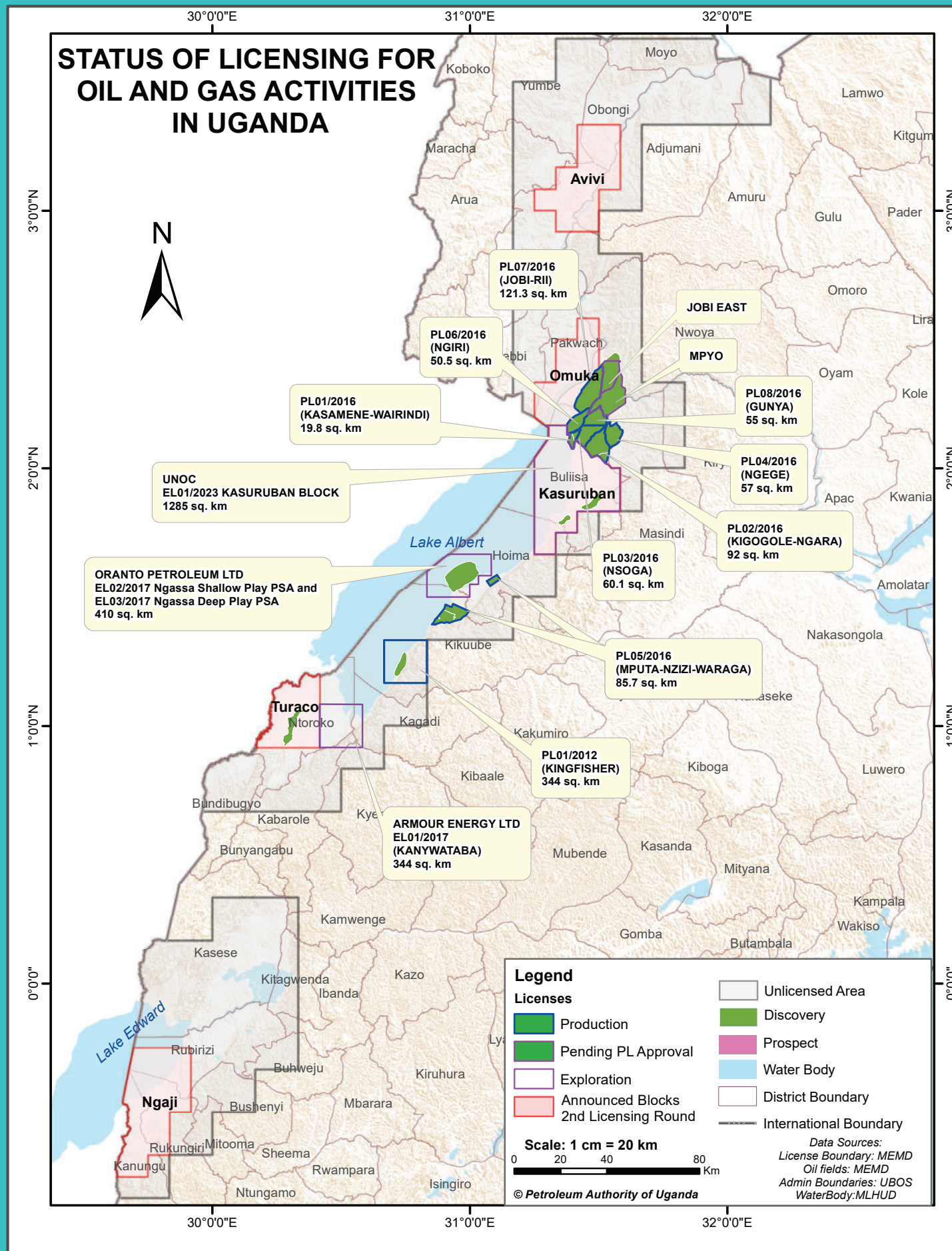


Synthetic Plastic



Motor Vehicles





Searching for new oil



Energy Minister Ruth Nankabirwa hands over the Petroleum License for Turaco Block to Ms. Pru Forgaty, the Executive General Manager of Armour Energy, as Finance Minister Matia Kasaija looks on

Some of the areas under new exploration are Kanywataba block, an area of 344sq.km in the Albertine region where Armour Energy Ltd, an Australian company, was granted the license for petroleum exploration, development and production.

The other is Ngassa, a 410sq.km expanse where the license for exploration was granted to Oranto Petroleum Ltd, a Nigerian firm. Two licenses were given out for Ngassa Deep and Ngassa Shallow to Oranto. There is optimism for more investment because the Petroleum Authority of Uganda (PAU) has not licensed 85% of the Albertine Graben.

Work in the licensed areas involves reprocessing of existing seismic data, carrying out studies on the data from existing

wells, environmental and social impact assessments for seismic acquisition, acquisition and processing of new 2D seismic data, petro-physical studies and geochemical analysis, and drilling of at least two exploration wells.

Some of this work is contracted to Ugandan firms. The Ugandan oil sector has been dominated by French giant TotalEnergies and the Chinese state-owned CNOOC has also been equally a major player. With their investments in the country, there have been openings for many Ugandan companies.

TotalEnergies moved early to select companies that would carry out the next big thing in Uganda's oil sector; the Engineering, Procurement and Construction (EPC) of the next projects.



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宏华集团
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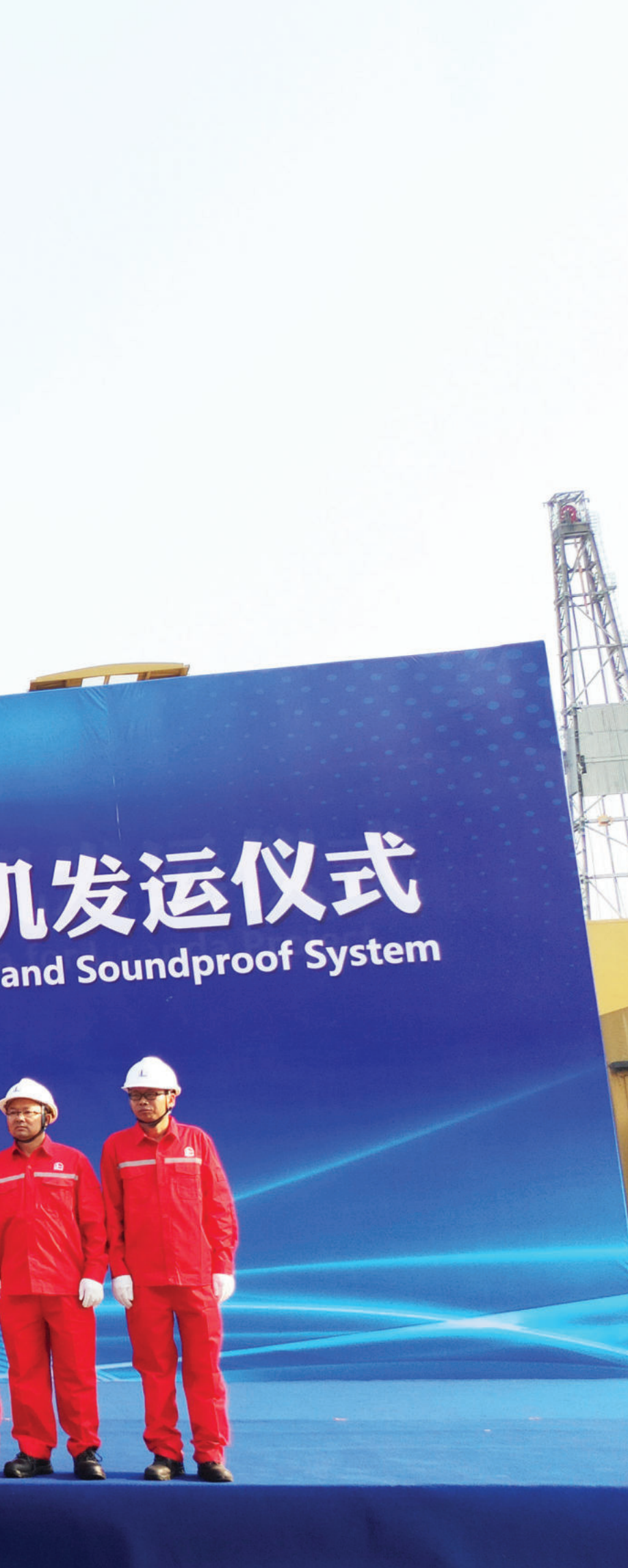
TotalEnergies

乌干达1500HP低排放自动化静音钻机

The Delivery Ceremony of Uganda Automated 1500HP Rig Project with Low Emission

宏华集团有限公司
Honghua Group Co., Ltd.
2022年8月22日
August 22, 2022

Group of workers in red uniforms and white hard hats standing on a blue stage.



Good time to invest in Uganda's petroleum industry

This is a very good time to invest in the petroleum industry in Uganda because the announcement of FID di-risked Uganda's petroleum projects and opened up immense investment opportunities.

Uganda currently has 6.5 billion barrels of discovered oil resources, out of which 1.4 billion barrels are recoverable. These resources have been discovered in only 15% of the Albertine Graben, the area with potential for petroleum production in the country. 85% of the Albertine Graben, which is a proved petroleum basin, is therefore still unlicensed. There are therefore, opportunities for new companies to join Uganda's oil and gas industry to undertake more exploration work in the Albertine Graben and in the other parts of the country.

In addition, Uganda is a secure country with a very conducive macroeconomic environment for investment and conducting business.

Uganda is now in a good position where the road to its oil and gas generating revenues is very clear with first oil planned for 2025. The clarity of this milestone, and its eventual achievement as projected, will increase acknowledgement of the value of the sector to the country and its economy. The key drivers of progress for the oil and gas sector in particular, and for the country in general over the last sixty years include:

- Good leadership and well-defined policy direction,
- Peace and security which has enabled implementation of projects and activities across the country,
- A stable macroeconomic environment, which has made investment and the conducting of business in the country predictable, and,
- A good educational background for many people in the country, which enables quick orientation for any desired skills.

These drivers have certainly been very useful in the growth of the oil and gas sector in the country.

Publisher's word

Uganda ensured oil industry meets the best international standards



Andrew Mwenda, MD, The Independent Publications Ltd

Uganda discovered oil in 2006. For poor countries, such discoveries cause excitement as governments move to put their fingers on oil revenue windfalls to meet their expenditure needs. The Uganda government has never seemed to be in such hurry.

Instead, it has spent years building the best and most patriotic institutional and oil policy infrastructure in Africa – and one that meets best international practice.

The President, H.E. Gen. Yoweri Kaguta Museveni and his government generally have consistently made decisions that ensured Uganda would not hand most of the benefits from oil to international oil companies (IOCs) and their local allies.

According to a study of Uganda's Production Sharing Agreements (PSAs)

by the International Monetary Fund (IMF), the average revenue share between IOCs and governments in newly oil producing countries is 48:52 in favour of IOCs. In mature oil producing countries (such as Nigeria and Angola), the average is 70:30 in favour of host governments. In Uganda it is 78:22 in favour of our government. How did this happen?

President Museveni did fundamental things for Uganda's oil industry. First, he created and/or backed a highly competent team of top civil servants at the Ministry of Energy led by its former permanent secretary, Fred Kabagambe Kalisa, working with Ernest Rubondo, Reuben Kashambuzi, etc. With donor support, they helped train Ugandan oil industry experts of high caliber.

Second, President Museveni insulated this team from political pressure, allowing them to do technical work without fearing political wheeler-dealers. Finally, President Museveni enabled these technocrats to develop a high degree of self-confidence, incorruptibility and patriotism.

The government has equally gone to great lengths to ensure that the exploitation of Uganda's oil meets the best international environmental, legal and social standards.

Each of the two oil projects; Tilenga and Kingfisher and the East African Crude Oil Pipeline (EACOP) underwent detailed Environmental and Social Impact Assessment (ESIA). The ESIA report was taken to district officials, civil society, and academia to ensure avoidance and mitigation measures agreed on and make comments. The public hearings are held in public and people come and make their contribution. A report is submitted to the National Environment Management

Authority (NEMA) whose experts make observations, sit with IOCs and the Uganda National Oil Company that represents government and negotiate the final documents. It is after this that NEMA approves the document and issues the IOC with a certificate of approval.

Then come in the financing institutions; export credit agencies, development finance institutions, commercial banks and insurance companies, that are sensitive to environmental and social issues.

Uganda has laws that ensure low carbon emissions from the projects, bans flaring or burning of unwanted gas. Uganda decided not to burn the gas but will convert it into 200,000 metric tons of Liquefied Petroleum Gas (LPG) per year.

The heat-traced EACOP will use 80% energy generated by four mega solar farms. Only 20% of electricity will come from the Ugandan grid, which is 80% hydro. UNOC will also plant 40 million trees to offset any carbon generated. The IOCs will equally plant millions of trees. Effectively, the project will be almost as carbon neutral as it can get.

The handling of Project Affected Persons (PAPS) has been audited and approved by the experts based on international standards. For compensation purposes, their assets – houses, trees, crops and more, including value of their land and a disturbance fee are processed by the Chief Government Valuer and beneficiaries given financial literacy training. The PAPS are trained and shown how not to squander their compensation. This same process was also conducted in Tanzania where it was easier because of their land tenure system. The result of these efforts have been remarkable.



The green transition must be made strategically and soundly, carefully considering the needs of the African people. Keep in mind that hundreds of millions of Africans have insufficient access to electricity in the current configuration, with hydrocarbons still in the mix. Take away what little availability they have to fossil fuels, and they will — quite literally — be left in the dark.

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of the African Energy Chamber.**

