GLOBAL BUSINESS REPORTS

AFRICA OIL AND GAS 2020

GEIL

GREEN ENERGY INTERNATIONAL LIMITED

INTEGRATION FOR SUSTAINABLE GROWTH

Green Energy International Limited is a proudly indigenous Nigerian integrated energy investment company focused on oil & gas exploration and production. The company was incorporated in 2006 and awarded the Otakikpo Marginal Field located on the NNPC/SPDC joint venture's OML 11 in Rivers State. We have a mandate to create a localized domestic market based on small-scale gas opportunities in Nigeria and Africa at large.

Our focus on health, safety, security and the environment guides our business decisions. A major contributing factor to our long term business success is the committment to all our personnel and stakeholders.

Our vision is to be an integrated energy company that ensures optimal utilization of hydrocarbon resources for the benefit of the nation and local communities.

Our mission is to develop the oil and gas field with Small Scale Utilization Project as the back bone for field development activities and to ensure compliance with the zero-gas flare policy of the Federal Government.

2020/2022 PROJECTIONS

- Production-20,000 bbl per day
- 1.3MM bbl onshore terminal
- 120,000bbl storage tank farm
- 12MMSFCD LPG extraction plant
- 50,000bdp flow station
- Drilling of 7 more wells
- 5000bpd modular refinery
- 40 MW power plant

We create shared prosperity with our communities.

CRUDE OIL PRODUCTION

- Otakikpo Upstearm Project
- 2 Onstream Wells
- Production: 6,000 bbls per day
- 56 MMbbls proven reserves
- 10,000 bpd production facility
- 70,000 bbl storage tank farm
- 6 km offhsore export pipeline

GAS PRODUCTION & UTILIZATION

- 12 mmscfd gas processing plant

POWER GENERATION

- 12 MW embedded power generation

LPG EXTRACTION

- Daily LPG Production
- LPG Bottling Plant

INDUSTRIAL PARK

www.greenenergy.ng

Executive Interviews

Leading industry and government figures from across Africa discuss industry trends with GBR

Editorial Analysis

GBR's reporters provide unique insights into the principle themes affecting Africa's oil and gas business

Factsheets, Maps and Data

Assembled data is presented as infographics and maps to present an overview of Afica's oil and gas industry

AFRICA OIL & GAS 2020
Industry Explorations
Global Business Reports

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A Global Business Reports Publication
For updated industry news from our on-the-ground teams around the world, please visit our website at gbreports.com, subscribe to our newsletter by signing up to our VIP list through our website, or follow us on Twitter: @GBReports

Welcome Letter

Welcome to Global Business Reports' (GBR) annual *Africa Oil and Gas 2020 Industry Report*, the second edition of a project that has conducted research and interviews over five Sub-Saharan countries in Africa. Our inaugural publication, launched at the 2019 Africa Oil Week (AOW) Conference in Cape Town, was distributed to over 1,800 senior decision makers, including ministers, CEOs and senior representatives from NOCs, IOCs and independent oil companies, GEOs, oilfield services and business service providers. The 2020 edition will be sent out online to a database of over 33,000 cross-industry executives, and will also have extended visibility through our partnerships with key industry events throughout 2020 and 2021.

When starting the research and interviews for our 2020 report in January, there was an air of cautious optimism surrounding the industry, with expected milestones including the approval of Nigeria's Petroleum Industry Bill (PIB), the ramping up of exploration in Angola after Eni's success in 2019, South Africa passing its upstream legislation, and the development of Rovuma LNG in Mozambique. Alas, the Covid-19 wrecking ball and Saudi/Russia oil price war that followed would rock the industry, causing severe delays across the continent. However, as countries have started to open up in the months since, demand has slowly picked up and pockets of activity in new oil and gas jurisdictions such as Namibia and Mozambique point to a brighter future.

This report also looks further ahead at the evolution of hydrocarbon production in Africa as the ongoing "Energy Transition" gathers pace. With majors committing to ambitious targets to reduce greenhouse gas emissions by 2050, a combination of LNG, non-associated gas, and renewables are transforming the energy production landscape in the continent.

Within the pages that follow, readers will encounter the perspectives of some of the industry's leading players through interviews conducted across the oil and gas value chain. Their insights form the basis of our independent analysis, which is supplemented by country factsheets, expert opinion articles and geological maps. This content is intended to guide the investment community and key industry stakeholders through the profiled countries and provide an understanding of the respective opportunities and challenges of doing business within their borders.

We would like to send a special thanks to all of the executives and industry professionals who shared their valuable time and insights with us to make this production possible. Please enjoy the read and we look forward to providing timely and valuable analysis on Africa's oil and gas industry in the years to come.

Alfonso Tejerina
General Manager and Director
Global Business Reports

INTRODUCTION TO AFRICA

"Regional integration is the only way to go if African countries want to develop their economies. If the countries are competing with each other instead of collaborating, this will be a race to the bottom."

- Gilbert Yevi,
Senior VP - E&P,
Sasol

Image courtesy of Eni

Africa weathers the Covid–19 storm

Oil and gas producers look to rebound after the crash

Just as Africa's oil industry was recovering from the aftermath of the 2014 oil price crash, another global crisis cast a thick shadow over oil markets worldwide. The Covid-19 outbreak stalled manufacturing activity and shut down air travel globally, causing the International Energy Agency (IEA) to announce that demand would fall to its lowest rate in almost 10 years. Country-wide lockdowns in the early months of the pandemic, together with a bleak outlook for the aviation industry, have led to a demand shock referred to as "the great compression". Demand levels will not recover until at least 2022, the IEA Oil Market Report indicated, subject to the successful control of the virus through a vaccination scheme or a track-and-trace program.

The crisis in demand was unexpectedly mirrored by a crisis in supply, leading to a price meltdown in April. When demand plunges, OPEC's response has been to curb production to avoid over-supply, but this measure backfired earlier this year: OPEC's call upon its members and non-members to cut production by 1.5 million barrels per day (bopd) was met with resistance by Russia, an informal OPEC ally since 2016. Russia and OPEC's largest member, Saudi Arabia, entered a price war which led to the biggest one-day oil price crash since the 1991 Gulf War. After pleas from Iraq, Venezuela, Mexico and the US, Saudi Arabia and Russia reached a historic deal that saw the OPEC+ alliance making the greatest production cuts ever agreed on: 9.7 million bopd in May and June, the equivalent of 10% of world supply. This cutback was extended in July for another 10 million bopd.

These measures brought some stability to the sector and, as lockdowns were gradually lifted, WTI and Brent prices recovered to trade above US$40. Even if the producing countries continue to adhere to the supply restrictions, demand risks are high due to the uncertain economic scenario for the upcoming months. A report by Deloitte suggests that the second half of 2020 promises little improvement for the oil industry. In light of the unstable demand-supply fundamentals, producers must prove agile to adapt their production capabilities to the market.

Upcoming milestones, such as the forthcoming approval of Nigeria's Petroleum Industry Bill (PIB), South Africa passing its long-awaited upstream legislation, Somalia's first ever licensing round in early 2021, and the rapid development of Rovuma LNG in Mozambique, point to a future of reliable energy production for Sub-Saharan Africa. However, governments will need to reduce cumbersome bureaucracy and adopt a more market-focused approach to unlock the significant potential held in the region.

Gas headlines the Energy Transition

Having garnered investor excitement most notably in Mozambique's Rovuma Basin, gas is gaining more traction across Africa. Cameroon launched its first floating LNG project in 2018, while Equatorial Guinea launched Africa's first offshore gas mega-hub last year, signing agreements with Marathon Oil, Noble Energy, Atlas Petroleum and Glencore. Meanwhile, Nigeria's Minister of State for Petroleum Resources, H.E. Chief Timipre Sylva, has declared 2020 "the year of gas" for the nation. With mounting pressure for decarbonisation, large companies like BP have already indicated ambitions to bring natural gas to the forefront of their businesses. CEO Bernard Looney expressed ambitions earlier this year to make BP a net-zero emissions player by 2050.

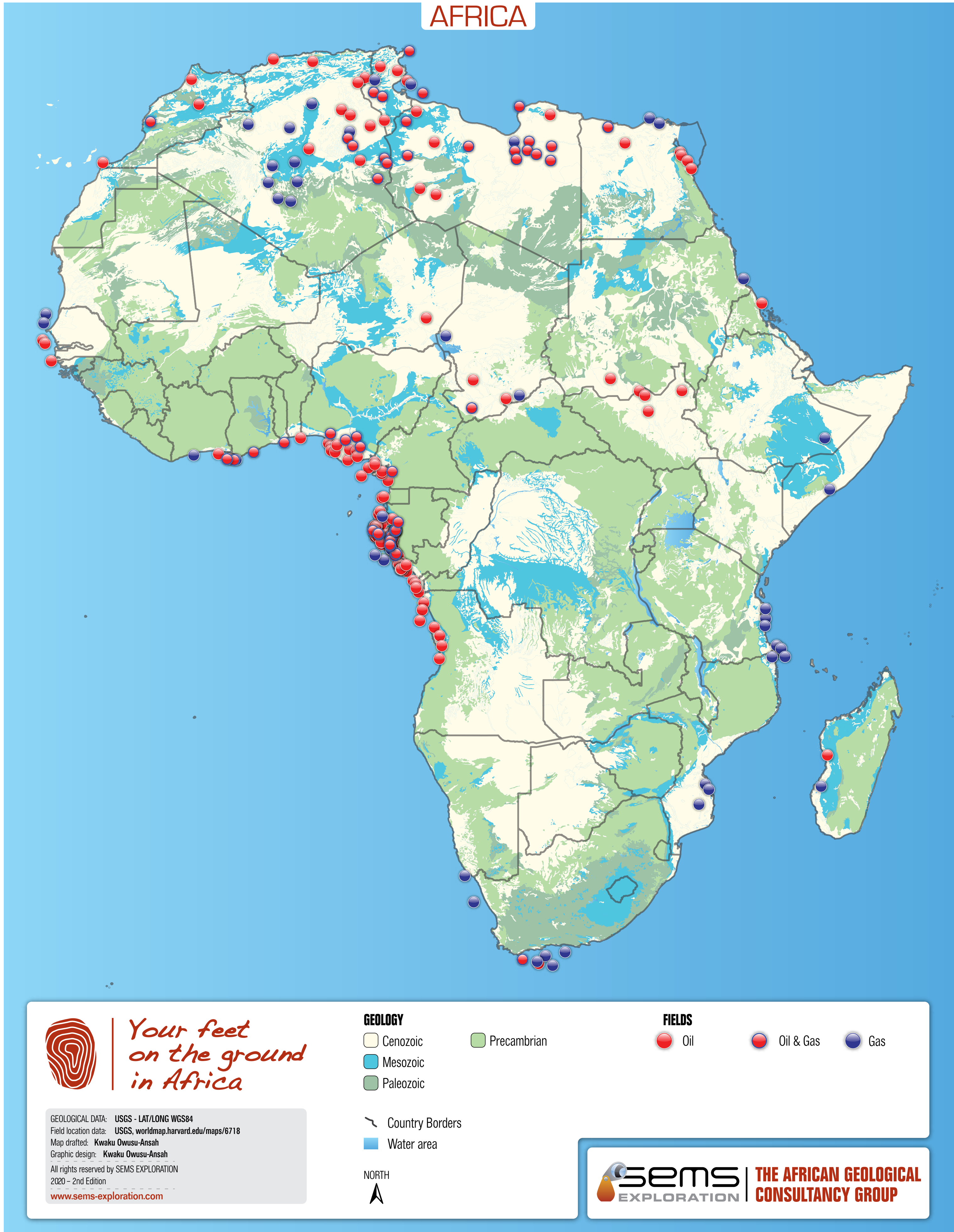
The leading international producer in the continent is Eni, with Africa providing more than half of all the Italian super-major's crude oil and natural gas. Lorenzo Fiorillo, Eni's EVP West Africa, detailed how the company restructured in 2020 to help implement a strategic energy transition roadmap the company has defined towards 2050, elaborating on the creation of two new integrated business units: "One is dedicated to natural resources, including the oil and gas portfolio, integration of the gas value chain, and environmental remediation. The other one is focused on energy evolution to create a circular economy, with a strategy to combine hydrocarbon production with power generation and more sustainable fuel."

An example of Eni's energy transition in Africa has been its involvement with Angola's new Gas Consortium for the country's first non-associated gas project. ENI as an operator holds a 25.6% stake, with Total, Sonangol, Chevron and BP as partners. "This was set up to develop gas resources to increase supply for Angola's Soyo LNG (ALNG) plant and promote the consumption for sustainable initiatives," explained Fiorillo, adding that ENI and Sonangol have created Solenova Ltd, a JV set up to assess and develop renewable energy opportunities in Angola. "The JV's first development will be a 50 MW solar power plant in the South of Angola to replace diesel power, which is in line with Angola's energy strategy that has a target of 800 MW installed renewable capacity by 2025."

Paul Eardley-Taylor, responsible for oil and gas coverage in the Southern Africa region for Standard Bank, weighed in on the subject: "We expect a combination of gas and renewables to really break through this decade, which is entirely in line the energy transition."

Mozambique is the country leading this transition, with natural gas and LNG contributing to the switch from coal to gas. "In time, we expect Mozambican natural gas to supply the region, with the bellwether example being the combination of the Matola FSRU and Rompco to supply South Africa – alleviating power shortages, replacing diesel and contributing two other options apart from coal," said Eardley-Taylor.

Furthermore, Eardley-Taylor believes Africa will see an increase in distributed and decentralized renewable energy, principally photovoltaic solar, concluding: "A mix of photovoltaic solar inland in many African markets, with LNG on the coast replacing diesel and HFO, looks to be a developing model throughout the rest of the decade." ■



Exploration: The emergence of Namibia

For the African oil and gas community to rebound from the economic devastation caused by Covid-19, exploration success will be key. Since the oil crash in 2014, a dearth of financing, high data costs, and excessive bureaucracy have created unfavorable conditions for all but the major E&P players already invested in the region. African governments would be wise to follow the lead of Guyana and Suriname in South America, which fast-tracked legislation to encourage an exploration boom headlined by an ExxonMobil-led consortium at the deepwater Stabroek Block.

Despite challenging market conditions, exploration activity has restarted in Africa, with the Southern Africa region holding potential in previously unexplored territories. In August 2020, Total's rig arrived in Cape Town to drill the Luiperd prospect in Block 11B/12B, on the back of South Africa's first deepwater discovery in 2019 – the Brulpadda gas condensate find off Mossel Bay.

Namibia has also received attention from an exploration standpoint, with Total's Venus delayed due to Covid-19 but due to start in 2020, and Exxon increasing its offshore acreage. One of the junior players active in Namibia is ReconAfrica, which formed in 2015 as a result of a search conducted by a group of investors and geoscientists who had been looking at shale opportunities around the world. The search led them to Namibia, where they found a high-resolution aeromagnetic survey over lands of interest within the government data bank that had not yet been interpreted. Upon interpretation of the data, they realized they had discovered a large, deep (up to 30,000 feet) sedimentary basin. ReconAfrica's founding shareholder, Craig Steinke, immediately licensed 6,300,000 acres (25,000 sq km) over the entire new Kavango Basin within the Namibian border, and proceeded to bring in a group of investors with expertise in finance, geoscience and petroleum regimes.

ReconAfrica went public on the TSXV (RECO.V) in September 2019, trading at C$0.20 initially – a figure that more than quadrupled a year later. Jay Park, chairman at ReconAfrica, provided details of the recent financing completed by the company, which has it fully funded to drill Namibia's first onshore wells since the 1980s: "On August 20th, 2020, we completed an oversubscribed C$23 million unit financing at C$0.70, that will provide the funds we need to drill three wells in the Kavango Basin. We intend to start in the drilling campaign in late Q4 2020."

Discussing the technical team behind the junior and potential they see in the Kavango project, Park revealed: "Upon conclusion of his aero-magnetic analysis of our Kavango Basin, Bill Cathey, president of Earthfield Technology, who has spent 30+ years evaluating sedimentary basins globally, stunningly concluded that "nowhere in the world is there a sedimentary basin this deep (30,000 feet) that does not produce commercial hydrocarbons."

Although Namibia does not have commercial discoveries producing oil and gas yet, Park cited the country's mining experience as giving it a solid understanding and regulatory framework for the extractive industries, and praised the governments swift actions during the pandemic, as the Namibian Ministry of Mines and Energy (MME) declared drilling an essential service. ■

Lorenzo Fiorillo

EVP West Africa
ENI

Can you elaborate on ENI's new business structure designed to accelerate energy transition?

ENI defined a strategic roadmap towards 2050 that will take our company through the energy transition, defining the evolution of our business in the coming 30 years, and setting ambitious carbon emission reduction goals. The structure of the company has changed, with two new integrated business groups: one is dedicated to natural resources, including the oil and gas portfolio, integration of the gas value chain, and environmental remediation. The other one is focused on energy evolution to create a circular economy, with a strategy to combine hydrocarbon production with power generation and more sustainable fuel.

What exploration progress has ENI made in Angola in the last 12 months?

Last year we made some important discoveries on Block 15/06: Agogo, Kalimba, Afoxé, Ndungo and Agidigbo. We started Agogo's early production phase in December 2019, only nine months after the initial discovery. We also have the Ndungu discovery. Of the over 30 exploration wells ENI has drilled in Angola, we have had a 90% success rate, finding about 5 billion barrels of hydrocarbon equivalent at a current rate of 150,000 bopd of oil.

We also made progress with Angola's New Gas Consortium for the country's first non-associated gas project. ENI as an operator holds a 25.6% stake, with Total, Sonangol, Chevron and BP as partners. This was set up to develop gas resources to increase supply for Angola's Soyo LNG (ALNG) plant, and promote the consumption for sustainable initiatives. ENI and Sonangol has created Solenova Ltd, a JV to assess and develop renewable energy opportunities in Angola. Its' first development will be a 50 MW solar power plant in the South of Angola to replace diesel power, which is in line with Angola's energy strategy that has a target of 800 MW installed renewable capacity by 2025.

How important is the gas market and development of Nigeria LNG for ENI's Nigerian operations?

Gas production makes up 75% of ENI's portfolio in Nigeria. In October 2019, ENI started gas and condensate production from the Obiafu 41 discovery in the Niger Delta, just three weeks after well completion. The discovery contains approximately 28 billion cubic meters of gas and 60 million barrels of condensate, and the gas from this discovery will largely be channeled to the domestic market. In December 2019, ENI and its partners in Nigeria LNG (NLNG) announced the FID for the expansion project of the liquefied natural gas (LNG) plant. This brownfield development, which is expected to start-up in 2024, will increase annual production capacity to more than 30 million mt/y from the current 22.5 million mt/y. 4.2 million mt/y of the new LNG will come from one new liquefaction train (Train 7), with the remaining 3.4 million mt/y coming from the debottlenecking of existing trains. From the export point of view, ENI has signed a long term contract for the purchase of 1.5 million mt/y of LNG with NLNG.

What milestones have been achieved at ENI's projects in Ghana and Congo in 2020?

Our flagship OCTP project in Ghana is producing 44,000 bopd oil, and gas production from this field is also increasing. Ghana's gas consumption trebled by the end of 2019, to 150 million mt/y, and has increased to 160 million mt/y in H1 2020.

In Congo, we completed the necessary work for the start-up of the 3rd turbine, which increased the electrical generation capacity at the Congo power station (20% owned by ENI) by 170 MW, in January 2020.

Can you provide an update on ENI's activities in Mozambique at the Coral South and Rovuma projects?

The Rovuma LNG project, which will include two LNG trains of 7.6 million mt/y each, is progressing. Within this project, ENI will operate the offshore part, which comprises 24 subsea wells. At the moment we are optimizing the development plan to create synergies with Area 1. The FID was expected by the end of 2020, but has been postponed. The updated project and a new FID date will be selected based on the result of the optimization phase.

The construction of the CoralSul FLNG for the Coral South project is progressing steadily, and was 70% complete in March 2020. By Q4 2021, the FLNG will be ready to leave the port, with planned start-up in H1 2022 and first cargo by H2 2022. ■

Jay Park

Chairman
RECONAFRICA

Can you introduce ReconAfrica and explain the circumstances surrounding the company's creation?
Dating back to 2013, ReconAfrica's founding shareholder, Craig Steinke, armed with an international data set, hired a group of international geoscientists who collectively completed an exhaustive worldwide search for prolific source rocks. Ultimately, this search led them to Namibia. More serendipitously, they found a high-resolution aeromagnetic survey over their lands of interest within the government data bank that had not yet been interpreted. Once they had the data interpreted in Houston Texas, by an expert in this field, they realized they had discovered a large, deep (up to 30,000 feet) sedimentary basin. Mr. Steinke immediately licensed 6,300,000 acres (25,000 sq km) over the entire new Kavango Basin within the Namibian border. There after Mr. Steinke brought in a group of investors with expertise in finance, geoscience and petroleum regimes (myself). The group then collectively, as part of the plan to open up the Kavango Basin, took ReconAfrica public on the Toronto Venture Exchange in September 2019 (TSXV:RECO).

» Upon conclusion of his aeromagnetic analysis of our Kavango Basin, Bill Cathey, president of Earthfield Technology, who has spent 30+ years evaluating sedimentary basins globally, stunningly concluded that "nowhere in the world is there a sedimentary basin this deep (30,000 feet) that does not produce commercial hydrocarbons. «

ReconAfrica's asset is described as an organic-rich Whitehill Permian source rock. Can you elaborate on this type of geology and how is differs to other deposits found in Southern Africa?
In the Kavango Basin, we anticipate organically-rich marine source rocks comparable to the Permian age Whitehill. Unlike the analog in South Africa, which is mostly gas, we believe that our source rock include content in the oil window and therefore we expect to establish a hydrocarbon kitchen that will generate oil. The presence of rift basin tectonics, unlike in South Africa, creates the potential for conventional resources.
In Namibia, the government owns the surface rights, and importantly these lands are endowed with a natural deep productive aquifer. Additionally, other excellent infrastructure includes good asphalt and gravel roads throughout the block. Consequently, we believe that operations in this area are going to be smooth.

How has the company financed operations, and where will the recently raised money be put to use?
In September 2019, ReconAfrica went public on the TSXV, (RECO) at C$0.20 per share, a figure that has more than quadrupled by September 2020, despite the challenging market conditions. On August 20th, 2020, we completed a twice upsized C$23 million unit financing at C$0.70, that will provide the funds we need to drill three wells in the Kavango Basin. We intend to start in the drilling campaign in late Q4 2020.
In an earlier financing in 2020, we raised funds to purchase a drill rig in Houston. It is currently being refurbished before being transported to Namibia. The rig will allow ReconAfrica to drill up to 12,000 feet (3,500 m) in depth, in order to test the presence of the working hydrocarbon system which we believe exists in the Kavango Basin. As a result, we are fully funded to drill Namibia's first onshore wells since the 1980s.

What would you like to achieve with ReconAfrica in the next two years, and do you have a final message for our audience regarding the Kavango Basin project?
In the first half of 2021, we will have the results of our first three tests as well as additional seismic information, and will be undertaking further drilling activities to evaluate the resource opportunities across the length and breadth of the Kavango Basin. Our initial goal is to prove an active petroleum system in the Kavango Basin.
We also expect to meaningfully advance partnering (farm-out) negotiations during 2021. By sometime in 2022, assuming drilling success, we believe it is distinctly possible that we could have initial production in the Kavango Basin. This would be a wonderful achievement for Namibia and for our investors.
I would describe ReconAfrica's Kavango Basin asset as unique kind of exploration opportunity – a big company play held by a small company. We have the team, experience, proprietary data and the funding to find out what's here. Since we have been demonstrating the execution of our plan, people are coming to have faith that this will happen, and I assure you it will. These are going to be some wells to watch! ■

Gilbert Yevi

Senior VP E&P
SASOL

Can you give a brief overview on Sasol Group and the structure of the company?
Sasol Group has approximately 30 000 employees operating in 31 countries. Sasol's main operating model entities (OME) consist of mining, exploration and production (E&P), energy and chemicals. Our energy division includes the transportation and distribution of gas and natural gas products. Our activities in the oil and gas sector fall under both the energy and E&P divisions. Sasol's turnover for the fiscal year which ended in June 2019 was approximately US$14 billion. Sasol E&PI, which is the OME responsible for developing and managing the group's upstream interests in oil and gas exploration and production contributed 2% to the group's total turnover for the fiscal year.

What are Sasol E&PI's main production centers?
On the E&P side, our main production center, which is the heartland of our upstream operations, is in Mozambique where Sasol E&PI produces 197 million gigajoules per annum. Our main fields are in the onshore region of Pande and Temane where we continue with investments to enhance reservoir deliverability in these fields. We have an 800-km pipeline coming down from the Pande and Temane areas down to one of our plants in Secunda, South Africa.
The Pande and Temane gas fields were discovered in the mid-1960s, but was only developed when Sasol came onboard in 2004. Through the cooperation between Sasol, the Mozambican government and the South African government, we were able to develop these fields which sparked the growth of the gas industry and industrialization in the Southern part of Mozambique. Gas production from the Pande and Temane fields started in April 2005 with gas processing taking place at the Central Producing Facility (CPF).

How important is Sasol's investment in Mozambique in terms of the development of the gas industry?
Overall, Sasol has invested over US$3 billion towards the development of the gas industry in Mozambique. We were a pioneer in an era when the country was just coming out of a civil war and the regulatory and fiscal environments where uncertain. We remain the only company that is producing oil and gas in Mozambique. The Rovuma discovery is significant, but will only start producing in the next three to four years. Sasol will also remain the biggest revenue contributor to the Mozambican government until 2028.
Thus far, we have contributed approximately US$1 billion to the Mozambique government in tax, royalties and through participation in various projects. We have contributed to the country's overall economic development by creating jobs and training locals. Since the beginning of our project in Mozambique, we have created 36,500 direct and indirect jobs. We are involved in communities where we run sustainable projects. We are also involved in education, training and water and sanitation projects.

Where else does Sasol see opportunities for growth?
Sasol has offshore operations in Gabon and we see significant potential in that country. Sasol holds a 27.75% interest in the Etame Marin Permit, which is operated by our partner, Houston-based Vaalco Energy. Gross oil production of sweet crude oil of about 14,500 to 15,000 barrels per day is realised from the Etame, Ebouri and Avouma oil fields. Together with our partners, we are progressing projects aimed at maturing and developing additional proven oil reserves to maintain and potentially boost production.
Looking forward, we have a three-pronged growth strategy. Firstly, we want to focus on the Southern cone of Africa looking for gas, not only to sustain our activities in South Africa, but to also contribute to South Africa's economy as well as the sustainability agenda of the country. Secondly, we are looking for growth opportunities in West Africa in the oil space. We also have a Canadian gas producing asset, where we are in 50/50 partnership with Petronas.

Do you believe that there is the opportunity in Africa for more regional integration?
Regional integration is the only way to go if African countries want to develop their economies. If the countries are competing with each other instead of collaborating, this will be a race to the bottom. Sasol has restructured its portfolio and we are open for business. We want to be the partner of choice for national oil companies as well as governments. Africa is our home and we understand the region better. ■

OPPORTUNITIES ACROSS AFRICA

"An EITI report stated that in 2017 Senegal produced approximately 17 million m3 of gas. Since then, there have been a few new developments and discoveries and we expect production levels to increase by 2022.. The Ministry of Petroleum and Energy has set up a Gas-to-Power strategy for the production of cheap electricity using natural gas as feedstock. We also expect to see an increase in FDI into the oil and gas sector in Senegal moving forward."

- Mamadou Faye, Managing Director, Petrosen

"The oil and gas industry is still experiencing volatility; however, we see positive signs in the horizon. The major change in Africa over the past few years has been the investment decision by operators to progress in Mozambique. Mozambique is currently receiving significant attention and has great potential for growth. Broadly speaking, in the short to medium term, Fugro sees opportunity in Mozambique, Senegal, Mauritania, Ghana, and possibly Angola. In the longer term, we hope that South Africa will gain traction and provide more opportunities for growth."

- Peter Boon, Business Development Manager Africa, Fugro

"Twenty years ago it was impossible to think about an off-grid natural gas network. Today, Africa can build it with our innovative and efficient technologies, which work very well both in large producing countries and those looking at gas imports or monetizing small gas fields."

- Gabriel Lorenzi, Vice President of Sales, Galileo Technologies

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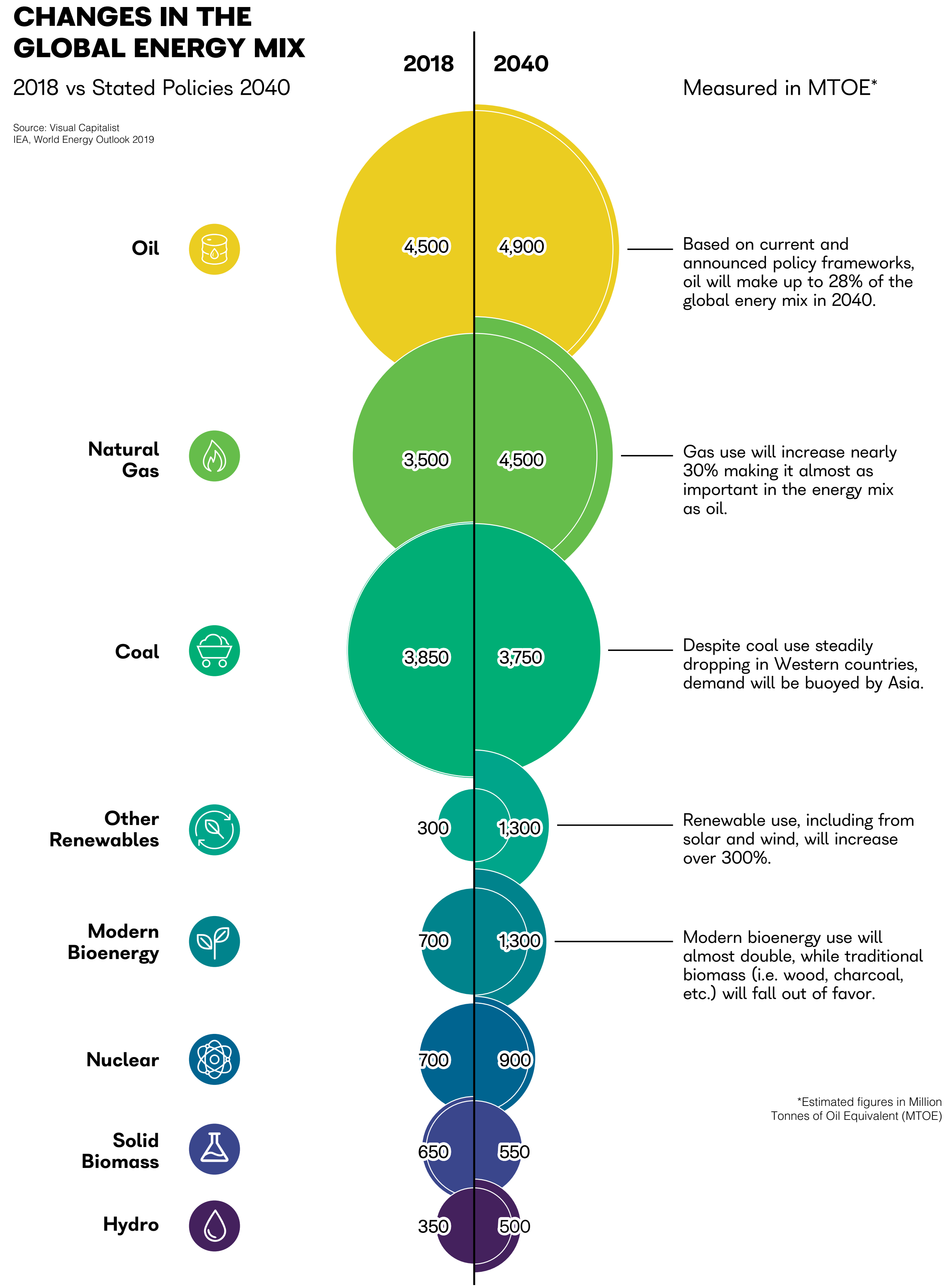
"We see that South Africa has a disproportionally large fleet of trucks on the road relative to its economy. In our phase two, 'blue sky' scenario we would be covering just 0.7% of the demand coming from trucks alone. So, the market is extremely big and every litre of diesel that you replace with LNG has the potential to reduce carbon emissions by up to 90%."

- Stefano Marani, Managing Director and CEO, Renergen



VISUAL CAPITALIST
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NIGERIA

"The last 20 years have seen significant development in local content. Today, a characteristic of Nigeria is that it is a country that has both the competence and the history for oil and gas exploration and production. It is also recognized that the gas resources in Nigeria are vast, but yet underexplored and underutilized."

- Heine Melkevik,
VP and Managing Director,
Equinor Nigeria

Image courtesy of Equinor

Number	Name	Owner
1	Ajapa	Britannia-U Nigeria Ltd
2	Akepo	Sogenal
3	Amoji	Chorus Energy
4	Aroh	Chevron Nigeria, NPDC
5	Asaramatoru	Prime Energy, Suffolk Petroleum
6	Atala	Bayelsa Oil Company
7	Dawes Island	Eurafric Energy
8	Delta South	
9	Ebendo	Energia, Oando
10	Ebok	Oriental Energy Resources
11	Egbaoma	Platform Petroleum
12	Ekeh	Movido Exploration and Production
13	Eremor	Excel Exploration and Production
14	Forkados	
15	Ibigwe	Waltersmith
16	Igbolo	Chorus Energy
17	Igbuku	Pillar Oil, Seplat Petroleum Development
18	Imo River	
19	Ke	Del-Sigma Petroleum
20	Matsogo	Chorus Energy
21	Meren	
22	Nembo Creek	
23	Obagi	
24	Obdenti	Energia, Oando
25	Ofa	Independent Energy
26	Ogbelle	Niger Delta Exploration and Production
27	Ogedeh	Bicta Energy, James Bay Resources
28	Oghareki	Chevron Nigeria, NPDC
29	Okan	
30	Okwok	Oriental Energy Resources
31	OML 18	Etron JV
32	OML 26	NPDC/ First Hydrocarbon Nigeria
33	Oriri	Goland Petroleum Development
34	Orogho	NPDC, Seplat Petroleum Development
35	Ororo	Guarantee Petroleum, Owena Oil and Gas

Number	Name	Owner
36	Otakikpo	Green Energy, Lekoil
37	Oza	Millennium Oil and Gas
38	Qua Iboe	Network Exploration and Production, Oando
39	Stubb Creek	Universal Energy, Sinopec
40	Tom Shot Bank	Mira Resources, Associated Oil and Gas, Dansaki Petroleum
41	Tsekelewu	Sahara Energy Field, African Oil and Gas
42	Ubima	AllGrace Energy, Wester Ord Oil & Gas
43	Umuseti	Pillar Oil, Seplat Petroleum Development
44	Umutu	Platform Petroleum
45	Uquo	Frontier Oil, Seven Energy
46	Utapete	NPDC, Shell

Production Levels
(barrels per day)
1,955,000
OPEC

Africa Production Rankings
1st
U.S Energy Information Administration (EIA)

Proven Crude Oil Reserves
(million barrells)
36,972
OPEC 2018

Proven natural gas reserves
(billion cubic metres)
5,675
OPEC 2018

Marketed production of natural gas
(million cubic metres)
44,250.80
OPEC 2018

Refinery capacity (1,000 bpd)
745
OPEC 2018 and PwC

Standard Corporate Tax
30% large companies
20% small companies

Petroleum Profit Tax
50% for PSC contracts,
65.75% for non–PSC operations (including JVs) in the first 5 years, 85% for non–PSC operations after the first 5 years

Royalties
JV operations
Onshore production: 20%
Offshore beyond 100 metres depth: 16.66%
PSCs
201–500 metres water depth: 12%
Areas in excess of 1,000 metres water depth: 0%
Marginal field operations royalty rates
Production below 5,000 bpd: 2.5%
Production between 15,000–25,000 bpd: 18.5%
Gas royalty rates:
Onshore: 7% / Offshore: 5%
PwC

GDP per Capita
(nominal)
$2,222 / 138th
IMF

GDP per Capita
(Power Purchasing Party)
$6,055 / 131rd
IMF

GDP growth
(PPP 2018)
1.9%
World Bank

Public Debt as % of GDP
16.2%
CEIC

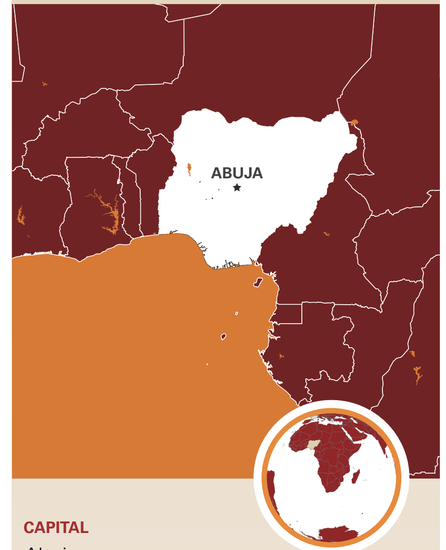
Inflation Rate Forecast
Q1 2020
11%
National Bureau of Statistics

Value of Exports
(millions)
$63,400
OPEC 2018 / Observatory of Economic Complexity (OEC) 2018

Value of petroleum exports
(millions)
$51,371
OPEC 2018 / OEC 2018

Current Account Balance
(millions - as of Dec 2019)
–$6,953.30
Central Bank of Nigeria

NIGERIA



CAPITAL
Abuja
LAND MASS
918,768 km2
POPULATION SIZE (as of 1 April 2020)
204,814,077
POPULATION GROWTH
2.60%
OFFICIAL LANGUAGES
English
HEAD OF STATE (as of 3rd october 2019)
President Muhammadu Buhari
HUMAN DEVELOPMENT INDEX (2018 REPORT)
(out of 189 countries)
0.534 / 158th
EXTREME POVERTY RATES
(income of less than $1.90 a day)
51.4%
DEMOCRACY INDEX RANKING 2019 (out of 167)
109th
ECONOMIC FREEDOM (out of 180)
111th
EASE OF DOING BUSINESS RANKING (out of 190)
131th
MAIN EXPORTS
Crude petroleum, petroleum gas, refined petroleum, cocoa
TOP 3 EXPORT DESTINATIONS
India, Netherlands, Spain

SOURCES:
United Nations Human Development Programme Report (2019)
Economist Intelligence Unit
Doing Business 2020 World Bank Report
OEC 2019

Nigeria: The troubled giant of Africa

Nigeria's prominence on the African stage is credited to its giant population and its international role in the energy market. The country's swelling population, expected to reach 500 million by 2050 (according to UN estimates), exacerbates its socioeconomic challenges, experiencing acute inequality, poverty, and increasing youth unemployment. The fraud and corruption that are so often associated with the controversial curse of the "black gold" has prevented the Nigerian government from fostering a just and sustainable development.

Tormented by multiple insurgencies, Nigeria has survived two military coups and Africa's bloodiest civil war of the 20th century, while emerging as the 13th largest oil producer in the world and the first in Africa. Prior to independence, agriculture was the mainstay of the Nigerian economy and, between 1962 and 1968, it was the leading global exporter of palm oil. The discovery of oil in 1956 by Shell D'Arcy (later known as Shell-BP) at Oloibiri in the Niger Delta changed everything. From contributing an insignificant 0.1% to the Nigerian economy in 1959, the petroleum industry today represents over 60% of the country's annual budgetary income, in addition to employing over 250,000 Nigerians due to the sector's dependence on local service providers.

In an attempt to control oil resources, in 1970 the Federal Government of Nigeria (FGN) initiated its resource nationalist agenda by establishing the Department of Petroleum Resources (DPR) to supervise and regulate the industry. Today, the industry is characterized by numerous institutions and governing bodies that are led by the Nigerian National Petroleum Corporation (NNPC) formed in 1977, which undertakes a commercial and regulatory role. The long-awaited Petroleum Industry Bill (PIB) should address and re-evaluate the role of each institution, while the Petroleum Industry Governance Bill (PIGB) aims to bring about more certainty and transparency in an effort to boost investor confidence. The PIGB was, however, refused presidential assent towards the end of 2018.

In addition to addressing the overlaps in the petroleum industry's institutions, the PIB will recognize host communities in the Niger Delta, who have a fraught relationship with oil companies due to their interests being neglected, as well as update bidding processes and the fiscal framework. With royalties and petroleum profit taxes as the largest contributors to the Nigeria's revenues, it is unclear whether these will be altered under the PIB. The delay in the PIB is estimated to have cost the nation an estimated US$15 billion of held back investments annually, according to the United States Energy Information Administration in its 'Nigeria Brief'. Projects including Shell's Bonga South-West/Aparo, for example, are yet to reach a FID due to the unstable regulatory and fiscal framework.

The delay to the PIB is also keeping the nation from exploiting its gas resources. Home to an estimated 200.79 trillion cubic feet (cf) of natural gas, Nigeria has the capacity to power Africa, yet currently, gas production stands at only 8.5 billion cf/d. "There are a lot of technical, social and economic reasons for the inefficiency of Nigeria's energy supply. There is a controlled price on energy output, which affects power supply to the entire population. There are also challenges with the logistics of power supply and distribution. Often the gas reserves cannot reach the power plants that are already available. The challenges include the need for infrastructure development and prevention of pipeline vandalism," stated Mauro Bartezzati, managing director at Elper Oilfield Engineering, a specialized Nigerian EPC firm.

The fiscal and regulatory infrastructure to support the gas industry is also lacking. H.E. Chief Timipre Sylva, Minister of Petroleum Resources, announced 2020 as the 'year of gas' in Nigeria: "Natural gas has the capacity to transform an economy. Qatar has the world's highest GDP per capita – its growth anchored in natural gas," he stated.

To this end, Nigeria has launched the Gas Master-Plan Policy initiative. Tackling the issue of gas flaring also remains a priority that has been on the Buhari administration's agenda since 2016, when the Nigerian Gas Flare Commercialization Program (NGFCP) was launched setting a target to eliminate flaring by 2020. Approximately 40% of gas from crude oil production is flared according to the NNPC, across 178 flaring sites in the Niger Delta. The DPR states that the flared gas could produce 600,000 metric tons (mt) of liquefied petroleum gas (LPG), create 300,000 jobs and attract US$3.5 billion in investment.

Nigeria's interest in gas will not, however, steal the spotlight away from its core focus on producing its high value, low sulphur, light crude oil, but it will struggle to meet its 2020 production target of 2.18 million bopd if OPEC maintains its current state of oil caps and if there is no major rehabilitation of existing domestic refineries. Crude oil production averaged 1.92 million bopd in the fourth quarter of 2019, and reached its maximum in March 2019, averaging 2.02 million bopd. Production increased relative to 2018 due to the decline in incidences of pipeline vandalism. Before the coronavirus outbreak, it was expected to experience a more notable increase by 2023, with 11 new pipelines expected to come on stream.

Exploration, on the other hand, has decreased. Bank-Anthony Okoroafor, president of the Petroleum Technology Association of Nigeria (PETAN), suggested: "The uncertainty fueled by the PIB, which has been up in the air for the last two decades, is deterring exploration."

Lekan Akinyanmi, CEO of Lekoil, a Nigerian E&P company operating four assets, suggested a remedy to promote exploration: "The government must improve fiscal terms. The challenge is that when our fiscal terms are priced based on existing production, it is not attractive enough for exploration. There also has to be sanctity of contracts to make exploration more attractive."

Over recent years, Nigeria has become less competitive in attracting foreign investment compared to its West African neighbors, especially Ghana. Even though FDI in Africa rose by 11% last year, it shrunk by 43% in Nigeria, according to the United Nations Conference on Trade and Development (UNCTAD), mainly due to the protectionist policies of the current administration. The continued failure to utilize its resources domestically hinders Nigeria's economic growth. "Nigeria's gas to power journey is another example of failure to optimally utilize its resources whereby the country continues to rely on generators even though it has over 200 trillion cf of gas reserves," said Abiola Ajayi, managing director of Energy and Mineral Resources.

Local refining capacity is insufficient to meet domestic demand, leaving 80 mil-

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Heine Melkevik

VP and Managing Director
EQUINOR NIGERIA

Can you give an overview of Equinor and the company's operations in Nigeria?

Equinor Nigeria started operations in 1992, just as the first deep-water round came about in Nigeria and is the world's largest offshore operator, but we define ourselves as a broad energy company. Through exploration the company has made a couple of significant discoveries; one of them turned into the Agbami field as well as two deep-water gas discoveries, which are non-associated gas fields called Nnwa-Doro and Bilah. Further down the value chain, the company is active on the marketing side and is involved in both importing products (gasoline, diesel, etc.) to Nigeria, and trading Nigerian crude in the international oil market.

Equinor has a production sharing contract with the Nigerian government. As we are operating in deep-water, the agreement is different from a joint venture. Essentially, Equinor is a contractor for the Nigerian government with responsibility for producing oil and gas resources.

In your opinion, what is the current state of the Nigerian oil and gas industry?

The last 20 years have seen significant development in local content. Today, a characteristic of Nigeria is that it is a country that has both the competence and the history for oil and gas exploration and production. It is also recognized that the gas resources in Nigeria are vast, but yet underexplored and underutilized.

Reforms are ongoing in the upstream oil and gas sector. It is going to be crucial to see the reforms coming out in a way which is conducive and competitive for investment, and which creates a win-win situation for the investors, host communities and Nigeria. Nigeria is a country that has developed great capability in the oil and gas sector, but there is still room for much more gas utilization as well as oil production.

What role can Equinor play in the move towards natural gas in 2020?

The development of gas resources normally takes around five to six years from investment decision to first production. Equinor wants to be the catalyst and force for engaging with those interested in really moving forward on deep-water gas development. We want to make gas, whether it is as LNG, LPG or domestic gas, a viable investment proposition for Nigeria. We want to end up in a situation where there are numerous gas projects which are to the benefit of Nigeria's industrialization and economic growth.

There is some fiscal uncertainty with regards to operations in Nigeria, especially with the delay in the PIB. How is this affecting your operations?

Oil and gas investments are long term and therefore investors want to have certainty. Your counterpart i.e. the host country, can do a lot to alleviate your uncertainty by showing consistency. Certainty, trust and consistency very often goes hand in hand. This is the same wherever we operate in the world. Countries that can provide a consistent policy package with good engagement with the stakeholders generally attract more capital at lower rates of return than countries that cannot provide consistency.

What is Equinor's experience with local content?

The oil and gas industry in Nigeria is going to be here for a very long time and there is certainly the need to ensure that the people of the country are part of the growth of the industry. It is important to have a policy around local content, but it is also important to know that there is a limit and a balance that should be struck. Nigeria has taken good steps to ensure that the supplier market is competitive, transparent and fair, which is a prerequisite for local content.

As we operate in deep-water, our host communities are conceptually all of Nigeria. Equinor is engaging with authorities to understand where the community needs are and where we can contribute the most. Our sustainability focus is on education, access to energy, health and equality and we match this with the pressing needs of Nigeria.

What are Equinor's objectives moving forward?

Equinor aims to become a broad energy company. We are considering how we can compliment what we do offshore with what is potentially possible onshore. We have been operating in Nigeria for a significant time and the plan is to continue operating in this market for many years to come. We aim to contribute positively to Nigeria's future growth and development. ■

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There is the potential for Nigeria to grow, but the speed at which the country can grow is a limitation on its own. Looking at the estimated volume of fabrication which is expected to happen in the next three years, Nigeria does not yet have the capacity.

- Ese Avanoma, CEO, Brade Group

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lion Nigerians without access to power and forcing the largest oil producer in Africa to import US$8.1 billion worth of petroleum products annually. Many businesses are forced to rely on generators which increase operational costs. Ekemini Thompson Amos, director of projects and technical services at Thompson and Grace Investments, a local mechanical manufacturing service company, identified corruption as the reason behind Nigeria's addiction to generators as opposed to finding other solutions such as renewable energy: "The corruption embedded in Nigeria's history and government is fueling the country's dependence on generators, since the government officials are on the payroll of the generator companies."

The privately owned Dangote refinery, set to be the largest in Africa and the largest single train petroleum refinery in the world when completed and operational by Q1 2021, could be the answer to local supply issues, particularly if the state chooses to subsidize Dangote to sell at a lower price, ensuring that production is not exported at the international price.

2021 carries with it high expectations with the increasing presence of private refineries as well as the renewed hope in the PIB and the rise of Nigeria as a gas nation. "There is the potential for Nigeria to grow, but the speed at which the country can grow is a limitation on its own," explained Ese Avanoma, CEO of Brade Group. "Looking at the estimated volume of fabrication which is expected to happen in the next three years, Nigeria does not yet have the capacity." ■

2020: The year of natural gas?

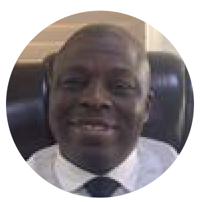
The Minister of State for Petroleum Resources, H.E. Chief Timipre Sylva, declared 2020 as 'the year of gas for the nation,' an announcement that set the theme for the year and chronologically coincided with the FID on the Train 7 project by the NLNG (Nigeria Liquefied Natural Gas Ltd).

"Nigeria has enormous potential to diversify the economy away from crude oil, which has overshadowed the gas in Nigeria's oil and gas industry. The country is struggling to exploit its natural gas resources, which rank among the 10 largest worldwide," stated Gbite Falade, managing director and chief operating officer of Oilserv, a leading Nigerian EPC company.

According to the DPR, in April of 2019, of the 1.2 billion cf/d of gas produced locally, approximately 41% was exported, only 48% used domestically, meanwhile the remaining was flared. Underlining the move towards gas is the Nigerian Gas Flare Commercialization Program (NGFCP), which aims to provide oil and gas companies an alternative to gas flaring, which continues increasing notwithstanding the nation's target to eliminate flaring by 2020, which is currently being adjusted. The program aims to reduce waste as well as promote the monetization of natural gas. Between September 2018 and September 2019, more than 276.04 billion cf of natural gas was flared, which exceeded 275.31 billion cf – the volume of gas supplied to local power generation, which remains intermittent despite successive governments' focus on deepening domestic gas penetration. Flared gas in Nigeria is enough to generate 2.5 gigawatts (Gw) of power, which would rid the country from its reliance on diesel generators. In 2018, the government increased the fine for flaring to US$2 per 1,000 cf. Nonetheless, the opportunity cost companies bear for the penalty of flaring remains low, therefore financial incentive is lacking to utilize the gas as opposed to flaring it.

Nigeria has enormous potential to diversify the economy away from crude oil, which has overshadowed the gas in Nigeria's oil and gas industry. The country is struggling to exploit its natural gas resources, which rank among the 10 largest worldwide.

- Gbite Falade, Managing Director and COO, Oilserv



"One of the challenges with gas in Nigeria is the lack of infrastructure. The government is addressing this issue and gas is being channeled for power and other derivatives," explained Professor Anthony Adegbulugbe, chairman of Green Energy International, operators of the OML30 block. "The second is the issue of pricing. Gas has not been priced very well for the past few years. There has also been a problem with tariff collection and companies are forced to sell power to the national grid. I believe that we are now at a stage where these issues are being addressed."

The lack of investment in power and gas distribution infrastructures hampers gas distribution to householders and industrial plants more than flaring. The government recognizes this infrastructural deficit and is therefore responding with projects to stimulate Nigeria's gas economy summarized in the table: highlighting Nigeria's most critical gas projects.

"The catalyst to upstream gas supply is the LNG Train 7 project that reached a FID in Q4 of 2019," highlighted Tony Osuagwu, managing director at Calaya Engineering, a local oilfield service provider.

Nigeria requires more action as opposed to catchy phrases such as 'the year of gas'. The country could have established two more LNG plants (Brass and Olokonla) but failed to do so, again because of politics.

- Olufemi Abegunde, Partner and Leader of the Energy and Resources Industry, Deloitte Nigeria

The Train 7 project is led by the NLNG, which supplies 40% of domestic LPG consumption and is comprised of the NNPC as a majority shareholder (holding 49% of shares), followed by Shell (25.6%), Total (15%) and Eni (10.4%). After a delay of 12 years, mainly attributed to a lack of consensus among shareholders and an uncertain investment environment, the project finally reached a FID on the 19th of December 2019, after seven consecutive meetings held by the shareholders. "This brownfield development, which is expected to start-up in 2024, will increase annual production capacity at the site to more than 30 million mt/y from the current 22.5 million mt/y," stated Lorenzo Fiorillo, EVP West Africa at ENI, who explained that 4.2 million mt/y of the new LNG will come from Train 7, with the remaining 3.4 million mt/y coming from the debottlenecking of existing trains. "From the export point of view, ENI has signed a long term contract for the purchase of 1.5 million mt/y of LNG with NLNG," he added, noting that gas production makes up 75% of ENI's portfolio in Nigeria.

The project will generate US$20 billion in revenue to the Federal Government of Nigeria and create 10,000 direct jobs and 40,000 indirect jobs for Nigerians, according to Mele Kyari, the NNPC's group managing director. With a value amounting to US$12 billion, the project will increase domestic supply of LNG and pave the way for Train 12, aligning with President Muhammadu Buhari's vision.

Other ambitious projects, such as the Nigeria-to-Morocco gas pipeline, which was pledged to be delivered in record time, lack funding. On the other hand, Shell's Bonga South-West/Aparo, expected to reach 270 million cf/d of gas at peak production by 2022, is yet to reach a FID, delayed due to the uncertainties of the legal and fiscal framework. Meanwhile, 45% of the population remains without access to electricity. "Our population is growing faster than the infrastructure can handle," affirmed Bayo Ige, managing director of International Energy Services, a Nigerian specialist energy and engineering service company.

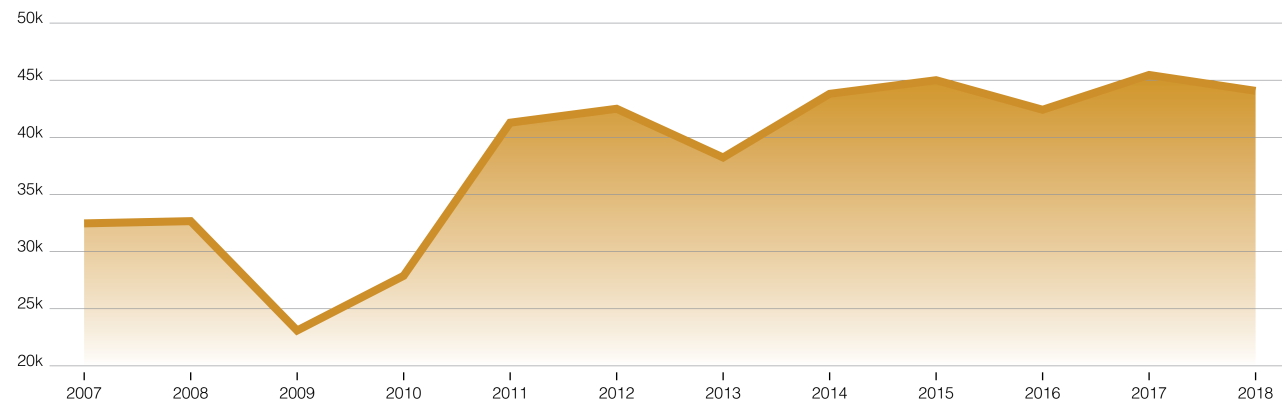
"Nigeria requires more action as opposed to catchy phrases such as 'the year of gas'. The country could have established two more LNG plants (Brass and Olokonla) but failed to do so, again because of politics," commented Olufemi Abegunde, partner and leader of the energy and resources industry at Deloitte Nigeria.

"The Gas Master Plan Policy was another catchy phrase initiative announced in 2008, highlighting major gas infrastructure expansion and integration, to initiate gas monetization as well as gas supply development," explained Godwin Izomor, group managing director of MG Vowgas, an indigenous oil service company offering EPCI services since 2006.

Nonetheless, Nigeria has yet to achieve a secure and efficient domestic supply of energy, nor is it positioned competitively in natural gas exporting markets. ■

NIGERIA NATURAL GAS PRODUCTION

Source: OPEC



Prof. Anthony Adegbulugbe

Chairman
GREEN ENERGY INTERNATIONAL LIMITED (GEIL)

Can you give a brief overview of Green Energy and the company's role in the oil and gas industry in Nigeria?
Green Energy was established in 2006 as an integrated energy company and is the current operator of Otakikpo Marginal field, OML 11, which lies approximately 60 km south east of Port Harcourt, producing approximately 6,000 bopd since 2017. Exporting is conducted via an innovative evacuation system by the use of a 6 km offshore export pipeline to shuttle tanker and onward export to third party FSO at Ima Terminal. Due to its efficiency, our losses are less than 1% which is rare in the industry where evacuation losses are over 25%.
Our main focus is on being environmentally friendly in all our operations and our sustainability strategy. Our mission is to develop all our assets with gas utilization projects as the backbone of our operations to ensure compliance with the zero-gas flare policy of the Federal Government and build an integrated energy company.

How do you believe your clients and host communities perceives Green Energy?
We have been fortunate to have very cooperative host communities. Being a fully Nigerian-owned and controlled company gives us advantages in terms of community acceptability and favorable regulatory incentives. A significant portion of GEIL's employees are drawn from the host communities.
We have a moral duty to extend the benefits of our operations to other stakeholders, particularly our host communities. The commitment of significant resources to improve the lives of the immediate host and neighboring communities through articulating, formulating, implementing and monitoring our corporate social responsibility interventions is crucial. Some of our interventions include infrastructure development, women and youth empowerment, entrepreneurship development, human capacity building through scholarships/bursaries at secondary and tertiary levels, medical and health outreaches etc.. Green Energy has a partnership with John Hopkins University who run health programs in Nigeria for the host communities and we also grant scholarships to students. We have just concluded the 2019/20 award to 340 students on a merit based selection process, from the secondary to graduate and post graduate levels. The communities are pleased with our developmental efforts.

Nigeria has challenges with gas utilization. The late president Yar Adua had the idea to establish small power plants to supply local communities. Do you believe this idea is still feasible?
That is exactly what is being done today. The gas that is produced can generate approximately 40MW of power, which can be significant in powering local communities and the State. The era of building large power plants is over and the government is putting policies in place which allows willing sellers to sell to willing buyers.
One of the challenges with gas to power in Nigeria is the lack of infrastructure. The government is addressing this issue and gas is being channeled for power and other derivatives. The second is the issue of pricing; gas has not been priced well for the past few years. There has also been a problem with tariff collection and the fact that companies are forced to sell power to the national grid. At the moment, these issues are being resolved and the environment for gas utilization is improving. Infrastructure is being developed and gas prices have improved. Companies are no longer required to sell to only the national grid and can sell to any willing buyer.

Does Green Energy have any expansion plans?
Green Energy is looking to scale up production operations from 6,000 bopd to 30,000 bopd, which will be financed through international banks after further discussions, and assisted by a reputable international service provider. If all goes well, financial closure will be obtained in the near future.
In the more long-term, I can see Green Energy expanding and taking on larger projects. If production is increased we cannot continue with our current evacuation method that relies on third party FSO. We are thus planning to build a one-million-barrel crude oil onshore terminal and become the first indigenous company to do so in 50 years. We expect the terminal to be completed in Q2 2021. In addition to that, GEIL is investing in a small modular refinery. ■

Anita Omoile

Managing Director/President
DEEP BLUE ENERGY SERVICES

Can you give an overview of Deep Blue Energy Services and the company's role in the industry?
Deep Blue Energy Services (Deep Blue) was established in 2009 as a reaction to the increased local participation the Nigerian government was emphasizing at the time. The motivation for establishing Deep Blue was to form a company with an understanding of the only standard in the oil and gas sector, which is best practice on a world class standard. Our aim is to bridge the gap between the use of local resources and global best practice. To become an international locally grown service provider is the goal which maps our strategy.

How did the 2016 recession impact Deep Blue's operations?
The oil and gas industry is volatile with a slump every decade. Deep Blue has been very fortunate to have had progressive growth since 2009 by constantly studying the market and responding accordingly. We make a conscious effort to ensure that we are ready for the dip in the market. In difficult times, we look to offer services that would be in demand, irrespective of oil prices.

What is Deep Blue's experience with regards to access to capital and the struggle to attain financing?
Since establishment, Deep Blue has had a good relationship with Zenith Bank as well as First Bank of Nigeria and have had a fantastic experience with both who are always excited to facilitate our growth and progress. We are very transparent with our bankers and consult with them for every project we embark on. Unfortunately, local contractors are bidding themselves out to the detriment of their own survival. For every project, Deep Blue decides to bid on, the necessary calculations are conducted to ensure how it will benefit the business. ■

Dayo Okusami

Partner
TEMPLARS

2020 is the year of natural gas in Nigeria. With regards to flaring, do you believe that increasing the penalty would decrease flaring?
Increasing the penalties for flaring was a step in the right direction. There is currently a gas flare commercialization program to further promote the commercialization of natural gas which allows the government to take any gas that would have been flared for free from the IOCs to commercialize. I am cautiously optimistic that this time the government will win in their efforts to encourage natural gas commercialization.
The legal and fiscal frameworks of gas are slowly coming into place. In February 2020, the government released a methane gas policy, which if implemented, will encourage gas utilization in Nigeria. They are also releasing a transport code in the near future. The government is slowly preparing the frameworks to enable gas utilization in Nigeria.

How will the current pandemic impact the Nigerian economy in your opinion?
Covid-19 has effectively suspended almost all commercial activities in the country. On the good side, we have seen the private sector rally to assist with hospitals being built, equipment and hundreds of millions of dollars being donated to fight the spread of the disease. On the other hand, the suspension of all but essential economic activities has led to early signs of a recession, a devaluation of the Naira and our foreign exchange reserves hitting its lowest level in decades. It will take months, if not years, to assess and recover from the economic damage.
As for the oil and gas sector, even though the government is trying to maintain business as usual, it is difficult to see the likelihood of continued, uninterrupted operations. If you couple an already shaky start to 2020 with oil prices tanking even before Covid-19 and a further slide in prices due to the pandemic, it is hard not to see a negative impact on future CAPEX and OPEX spending and operations which will lead to jobs losses and reassessment of future projects. ■

The jinx of the Petroleum Industry Bill (PIB)

Security, crude oil theft, marginal fields bidding rounds and domestic gas utilization are all on the agenda for 2020, as announced by H.E. Hon. Timipre Sylva, Nigeria's Minister of State for Petroleum Resources, in his first press conference of the year. What tops his list, however, is the long-awaited omnibus law that will update the regulation of the industry; the Petroleum Industry Bill (PIB). Nigeria's journey to create a comprehensive petroleum industry legislative framework has been a long and bumpy ride, as two decades have passed without completing the PIB. "The uncertainty is harming the development of the industry. If the bill had already passed, it would have radically changed the fiscal outcomes of the industry and helped the government to achieve a better share of profits. Since it has not passed, the oil companies negotiate lower taxation rates by highlighting the uncertainty in the country, which the government must accommodate for," elaborated Chiagozie Hilary-Nwokonko, partner at Streamsowers & Köhn, a leading Nigerian law firm.

This delay is costing the economy approximately US$200 billion annually, according to the Nigeria Extractive Industries Transparency Initiative (NEITI), in addition to US$15 billion lost due to decreased investments, especially in exploration since no licensing round has occurred since 2007. However, 42 oil block licenses held by IOCs and NOCs were renewed in 2019 by the government, 35 of which are oil mining licenses (OML), in addition to seven oil processing licenses (OPL). Civil groups criticized the government's decision to renew these licenses, claiming that it is a setback for Nigeria since it allowed oil and gas companies to negotiate a lower tax rate due to the regulatory uncertainty in which they are forced to operate. "Oil and gas investments are long term and therefore investors want to have as much certainty as possible. Your counterpart, i.e. the host country, can do a lot to alleviate your uncertainty by showing consistency. Countries that can provide a consistent policy package with good engagement with the stakeholders generally attract more capital at lower rates of return than countries that cannot provide consistency," clarified Heine Melkevik, vice president and managing director of Equinor Nigeria.

The lack of consistency due to the stalled reforms has stunted the growth of the oil and gas industry in Nigeria at a time when jurisdictions such as Ghana and Angola embark on industry reforms that make them more favorable investment destinations. In Nigeria, projects such as Shell's Bonga South/West Aparo project – expected to add 143,274 bopd and to be the largest deep-water project since Total's Egina, are yet to reach an FID, in addition to ExxonMobil's Bosi project and Chevron's Nsiko, estimated to boost production by 126,784 bopd and 95,685 bopd respectively. At the fourth Sub Saharan Africa International Petroleum Exhibition and Conference (SAIPEC) in February 2020, Mike Sangster, managing director of Total Nigeria, identified the PIB as a catalyst that will drive investment in Nigeria's oil and gas industry and increase Total's investments in Nigeria – which currently represent only 16% of the US$160 billion Total invested in deep water projects in Africa over the last decade.

The federal government of Nigeria is aware of the urgency of passing the PIB, notwithstanding it remains a work in progress due to the lack of harmony over the last two decades between the legislative and executive arms of the government. According to Sylva, there is now accord between the two, hence the aggressive promotion of the bill tops his agenda for this year. The legal framework governing the industry has not been updated since the Petroleum Act of 1969 was enacted, and the industry has undergone a huge transformation since then. "In 2000, the Nigerian government established the Oil and Gas Implementation Committee (OGIC), which had the mandate to identify how to privatize the industry. I had the privilege of being on that committee and, over the course of the committee's deliberations, the mandate of the OGIC evolved. The OGIC ended up reviewing the legal and regulatory framework for the entire industry, and produced a draft of a new law which later became the PIB," stated Sola Adepetun, senior partner at ACAS-Law, a leading law firm in Lagos.

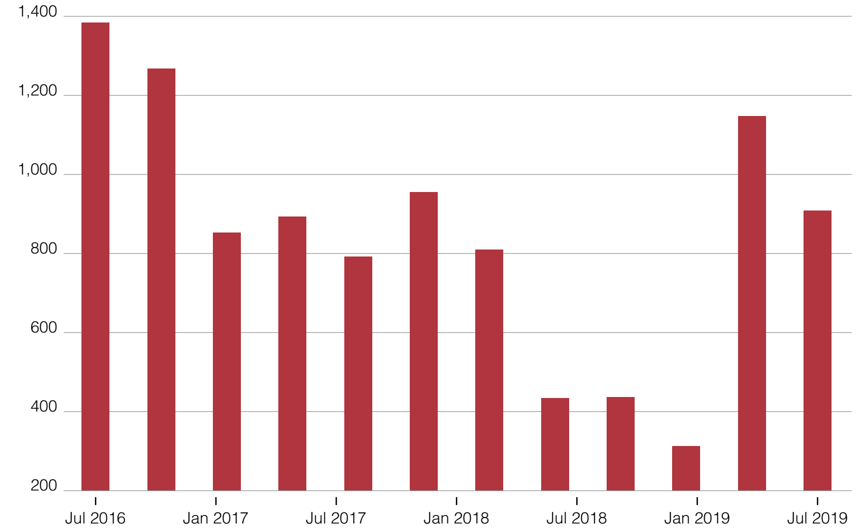
The PIB was split into three parts for easier passage. "The former Minister came from a legal and petroleum background, so he tackled the issue of the bill aggressively by breaking the PIB into different pieces of legislation guiding specific aspects of the industry: the petroleum industry governance bill (PIGB), the Petroleum Industry Fiscal Bill (PIFB) and the Host Community Bill," commented Abiodun Adesanya, CEO of Degeconek, a geoscience and engineering consulting company, and the former president of the Nigerian Association of Petroleum Explorationists (NAPE). "The PIGB passed the National Assembly in 2016, however, it was refused ascent by the President, his reasons being that his powers – i.e. those of the Minister of Petroleum, would have been reduced. The industry's leadership lies with the Minister of Petroleum, who is also the President, and the Minister of State for Petroleum Resources, who oversees day-to-day activities. When the bill intertwines with politics it is difficult to reach a decision."

The politicization of the PIGB prevented its passage and quelled the industry's renewed optimism after almost two decades of deadlock. This first series of the PIB, the PIGB, seeks to alter the framework of the Nigeria's energy governance as is analyzed in the table below. In an effort to enhance transparency and efficiency, the industry's powerful behemoth, the NNPC, wiould be divided into smaller entities and be replaced by the NPC, which will oversee the nation's joint venture assets and refineries. The NRPC will act as a single regulatory and supervisory body for the industry funded by the federal government's annual budget, replacing the DPR and the Petroleum Products Pricing Regulatory Agency (PPPRA).

Nonetheless, what concerns investors is the PIFB, which will alter the existing fiscal terms of production sharing contracts (PSCs), joint ventures, royalties and taxes. Even though the PIFB has yet to pass, the Deep Offshore and Inland Basin PSC Act (DOIBPSCA) was amended in the fourth

NIGERIA FOREIGN DIRECT INVESTMENT (JULY 2016-JULY 2019)

Source: Central Bank of Nigeria



quarter of 2019. Dayo Okusami, partner at Templars, one of the leading full service law firms in Nigeria, explained: "With regards to the PSC Amendment Act, the original act came out in 1993 and provided for periodic reviews of the PSCs, taxes and royalties that are supposed to apply to these upstream assets. In spite of these provisions, no review has been done since the act was passed, which has resulted in the government's recent amendment of the act. In the short term, the amendments significantly increase the government's share from the increase in royalty rates. However, this will have a detrimental effect on operating companies as they have invested in their projects based on certain economics which have now changed."

The Amendment Act introduced a new royalty regime, highlighting a baseline royalty of 10% for condensates and crude oil produced in deep offshore, and 7.5% for the frontier and inland basin. An additional royalty will be applied if the crude oil price exceeds US$20 per barrel. "The lack of clarity regarding the fiscal terms of deep-water projects is significantly affecting investment due to fiscal uncertainty," affirmed Olajumoke Ajayi, managing director of Asharami Syenergy, a Sahara Group integrated downstream and E&P company with operations across West Africa.

Changes in the DOIBPSCA in 2019, coupled with further amendments under the PIB if it passes at the end of 2020, create confusion. Meanwhile, disagreements between stakeholders on the regulatory frameworks, such as the power of the Minister, ownership and control of the resources, as well as host community benefits, are the main reasons behind the current setback and delay. However, regardless of these disagreements and the certainty the PIB should bring, the bill remains inherently vague to some extent, lacking important clarifications. The power it grants to the NRPC, for example, remains broad and not well defined. It also fails to acknowledge the conflict of interest that arises when the NRPC is granted the authorization to charge fees for 'services rendered' to players. The bill also lacks provisions to ensure stable tenures for executive directors that could insulate them from the political dynamics. Even though the broader aim of the PIB is to introduce deregulation, one of the NRPC's functions is to compute a fair market value for petroleum products and tariffs for gas transport and processing. This somewhat increased regulation could reduce incentives for private oil and gas companies to develop power plants and distribution networks as the price could be fixed at an economically unviable level. Finally, further uncertainty is introduced with the new entity, NAPLMC, due to the lack of clarity regarding which liabilities of the NNPC it will receive.

According to Sylva, the petroleum industry in Nigeria is undergoing a makeover: "On the upstream side, we are coming up with more robust fiscal provisions, acreage management, drilling-or-drop programs, etc. We are not only going to retain investors; many new entities will join the league of high-value operators," he explained at the beginning of 2020.

> **In 2000, the Nigerian government established the Oil and Gas Implementation Committee (OGIC), which had the mandate to identify how to privatize the industry. I had the privilege of being on that committee and, over the course of the committee's deliberations, the mandate of the OGIC evolved. The OGIC ended up reviewing the legal and regulatory framework for the entire industry, and produced a draft of a new law which later became the PIB.**
>
> **- Sola Adepetun, Senior Partner, ACAS-Law**

The PIB will rationalize the industry and provide certainty for IOCs and NOCs to explore, develop the nation's refining capacity and ignite its gas revolution with a new regulatory and fiscal framework that replaces the industry's outdated regulation with a more comprehensive industry law that aligns with global standards. To that extent, the expectation that the PIB will finally be delivered brings much needed hope and, even if a cloud of skepticism hovers around, the majority of industry professionals that we met with were optimistic that the ninth National Assembly will likely break the jinx this time around. ■

Nigeria's security challenges

Resource allocation in Nigeria has been unfair to the host communities who should come under the local content initiative. The increased violence in the Nigeria Delta since 2005 can be traced back to these communities trying to draw government attention to their plight.

- Atamuno Atamuno, Managing Director, Midis Energy

Given Nigeria's economic, cultural and demographic hegemony, its elusive quest for stability has inextricable consequences across the African continent. Unfortunately, Nigeria has become an incubation center for violence fueled by poverty, incompetent institutions and rampant corruption as a result of political unaccountability. The nation's oil wealth is associated with great risk that negatively impacts investment due to the unpredictable nature of its multifaceted security problems, from Boko Haram to piracy and militancy in the Niger delta. "The spectra of corruption, violence, insecurity and sabotage are the most important hindrances to the industry's and the country's social and economic development," maintained Tunde Ajala, founding executive director of Dovewell Oilfield Services, a Nigerian-owned oil and gas service company.

The constant clashes between the government and Boko Haram have exposed the weakness of the Nigerian security forces and alienated local populations. It also has detrimental effects on the petroleum industry. In July 2017, the government had to halt exploration in the north after Boko Haram terrorists attacked and killed dozens of NNPC oil contractors in an ambush. President Buhari is leading an aggressive campaign to bring an end to the national suffering they cause.

Nonetheless, the pain inflicted by Boko Haram on the nation's petroleum industry is less severe than that caused by the militants in the oil-rich Niger Delta. "In the Niger Delta, also known as the South-South, the government has made a choice to turn a blind eye to oil theft," said Tunde Aleye, senior partner at SBM Intelligence, a local geopolitical macroeconomic research firm operating in Lagos.

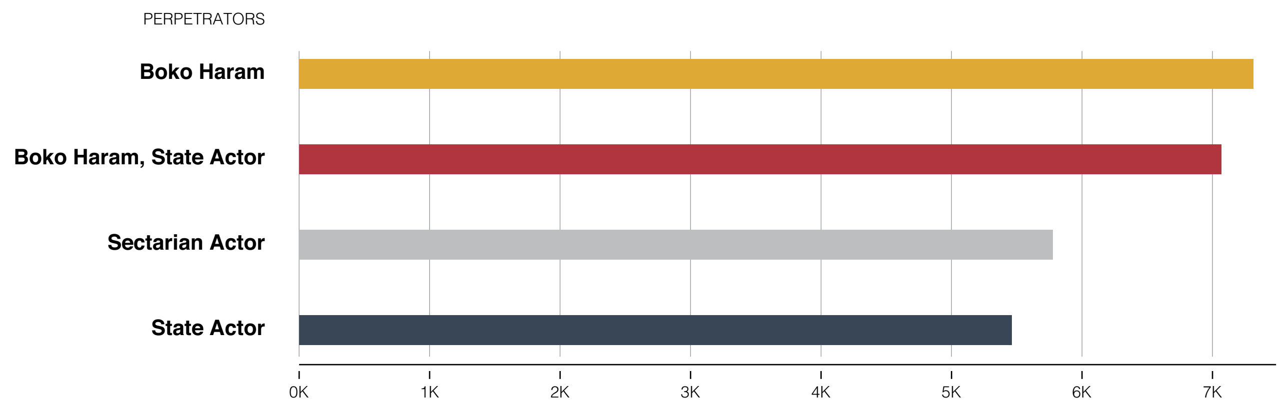
Militancy in the Niger Delta developed as a result of grievances arising due to the exploitation of the region in the quest for oil. Despite its oil wealth, the people of the Niger Delta remain deeply impoverished. "Resource allocation in Nigeria has been unfair to the host communities who should come under the local content initiative. The increased violence in the Nigeria Delta since 2005 can be traced back to these communities trying to draw government attention to their plight," explained Atamuno Atamuno, managing director of Midis Energy, an indigenous oil and gas service company.

The violence began in 2005, when a group known as the Movement for the Emancipation of the Niger Delta (MEND) attacked key oil installations and conducted high profile kidnappings. MEND is the most organized militant group in the Niger delta, however, acts of violence are also committed by a loose network of individuals and smaller groups of host communities in the Delta region. For example, in April 2019, two foreign oil workers were kidnapped from an offshore oil rig and their police escorts killed.

In addition to kidnappings, acts of vandalism and theft also prevail. According to the NNPC, a total of 2,146 vandalized points in pipelines have been recorded between September 2018 and September 2019. Blessing Ayamhere, managing director of Umugini, a local pipeline infrastructure service company, described the unfortunate consequences faced by the midstream sector due to pipeline vandalism: "It leads to the intermittent shutdown of our pipelines, loss of revenue to crude oil producers who depend heavily on the evacuation of their product through the use of the pipelines, and effectively reduces government revenue, as well as increasing security, surveillance and maintenance costs. Pipeline vandalism pollutes and degrades the environment where these activities

DEATHS BY PERPETRATOR MARCH 2015 - MARCH 2020

Source: Council on Foreign Affairs



take place, which in turn becomes hazardous to the people that live in the affected communities."

However, the upstream sector faces more adverse costs relative to the midstream. As the IOCs moved offshore, they handed over the burden of addressing host communities' violence, and especially oil theft, to the National Oil Companies (NOCs) that bought their oil mining licenses (OML). "Theft is significantly impacting our cash flow as we are losing approximately 20 - 30% of our production. We are working on improving community engagement to prevent illegal bunkering," said Dr. Ladi Bada, managing director of Shoreline Natural Resources, holder of the OML30.

According to Reuters, oil theft cost Nigeria US$1.39 billion in lost revenue in the first six months of 2019 alone. Meanwhile, the Nigeria Extractive Industries Transparency Initiative (NEITI) revealed that between 2009 and 2018, Nigeria lost approximately US$42 billion to crude theft as well as domestic and refined petroleum products losses. Oil theft begins with hot tapping, then connecting a secondary pipe to an illegal refinery where the crude oil is refined and smuggled out of the country. Ajayi recognizes the root of oil theft as being unemployment. "When trust exists between operating companies and host communities, it significantly decreases security risks. At Asharami Energy, we have a very cordial relationship with our host community, a development that makes our operations seamless. We involve the community in what we do and create employment opportunities for them through our projects. We have also laid electric poles from our station to the community as we have the objective to use the gas from our flow station to power the entire community."

The IOC's, meanwhile, face the new challenges of piracy in open Nigerian waters. According to the International Maritime Bureau, Nigeria witnessed 48 piracy attacks in 2018, a twofold increase since 2017. "The porous nature of Nigeria waters results in quite a number of piracy activities, which is a great threat to Nigeria's maritime economy and offshore operations," explained Damilola Owolabi, managing director of Dreg Waters Petroleum and Logistics, an indigenous oil and gas servicing company established in 2015.

In such a context, services offered by maritime security companies, such as Aquashield Oil and Marine Services, become essential to reduce the risk by escorting vessels to and from terminals or through patrols to secure the deep-water wells. Ahmad Ojeh, executive technical director at Aquashield, gave an insight into the dangers of Nigerian waters: "Militants in Nigerian waters are well equipped. Their goal is not theft but the kidnapping of the highest-ranking officer or engineer on

Theft is significantly impacting our cash flow as we are losing approximately 20 - 30% of our production. We are working on improving community engagement to prevent illegal bunkering.

- Dr. Ladi Bada,
Managing Director,
Shoreline Natural Resources

board for a ransom. They take them to secluded areas such as mangroves and jungles where they cannot be found. A vessel coming into Nigerian waters without security is exposed to high risk, however, the militants do not approach a vessel when it is escorted by security, especially if the Nigerian navy is present on board."

Greg Ogbeifun, the chairman of Starzs, operators of a ship repair yard in Nigeria, suggested a less aggressive manner to address piracy issues that threaten Nigeria's maritime economy: "It is necessary to conduct a study to understand why piracy occurs. The ecosystem of the people has been destroyed and degraded and the people in the region have not been carried along in the development of the oil and gas industry. Developing human capital and integrating communities into operations and the industry will significantly alleviate the piracy issue."

Nigeria's unemployment rate, which sat at 21.7% end the end of Q2 2020 and is expected to reach 33.5% by the end of the year, according to the federal government, is the main factor breeding poverty which leads to theft. "The root behind cases of pipeline vandalism is the lack of proper security surveillance and poverty fueled by unemployment which pushes these communities towards oil theft," confirmed Mondale Okoro-Igbinedion, general manager of Atlantic Bluewater Services, an indigenous EPC company specializing in pipelines. As long as a market for stolen crude oil exists, theft will persist if sanctions and surveillance remain weak and inadequate.

The downstream sector is just as exposed to risk as the midstream and upstream, as highlighted by Abayomi Awobokun, CEO of Enyo Retail, a technology-driven fuel retail company: "Enyo operates out of 19 states and there are security risks both for the trucks in transit and at the operations. We have put a lot of thinking into how we can keep our staff and sites protected. We keep very little cash on the forecourt, if at all, and are deeply invested in cashless sales. We do a significant amount to educate the public and our customers to be vigilant. We are also working with technology partners to ensure cybersecurity."

Due to the financial burden of pipeline vandalism and theft on all sectors of the industry, Chief Sylva prioritized addressing security challenges around oil and gas installations on his agenda for 2020. Companies are resorting to the use of technologically advanced leak detection mechanisms and must invest in training and hiring unemployed youths from host communities. "A more permanent solution, however, is needed to untangle the complex roots of the Niger Delta involving the three tiers of government, the petroleum industry and Niger Delta communities who must communicate and collaborate to reduce tensions," highlighted Chinedu Maduakoh, managing director of Topline, a Nigerian process engineering company specializing in pipeline construction.

The Petroleum Host and Impacted Communities Development Bill attempts to do just that, with an objective to foster sustainable, shared prosperity amongst the oil and gas companies and host communities. It stipulates that an annual contribution of 2.5% of the actual operating expenditure (opex) of the producer will be placed into a fund. 70% of the fund will be allocated to a Board of Trustees for projects in each host community; meanwhile 10% will be used to support the impacted communities. If the PIB passes in 2020, it will contribute to lowering the oil theft rates if host communities are satisfied. "We remain hopeful that upon conclusion of the legislative process, the provisions of the PIB will be implemented and ultimately, this will transform the sector and further deepen the market for accelerated growth and development," affirmed Ajayi. ■

Security in the Niger Delta

An expert opinion article provided by SBM Intelligence

At the end of February, oil prices were down 27% from the previous month – mostly due to reduced demand as rising coronavirus cases forced authorities around the world to limit human activities. A few months down the line, many countries, including Nigeria, relaxed restriction orders. By the end of August, Brent crude has recovered somewhat to US$46.2 per barrel but the plunge had exacted a heavy price; Nigeria's statistics agency said GDP declined 6.10% in the second quarter, the worst since 2004 and ending a 3-year run of low but positive real growth rates recorded since the 2016/17 recession. The oil economy contracted even further (-6.63%) and unemployment has risen to 27.1%.

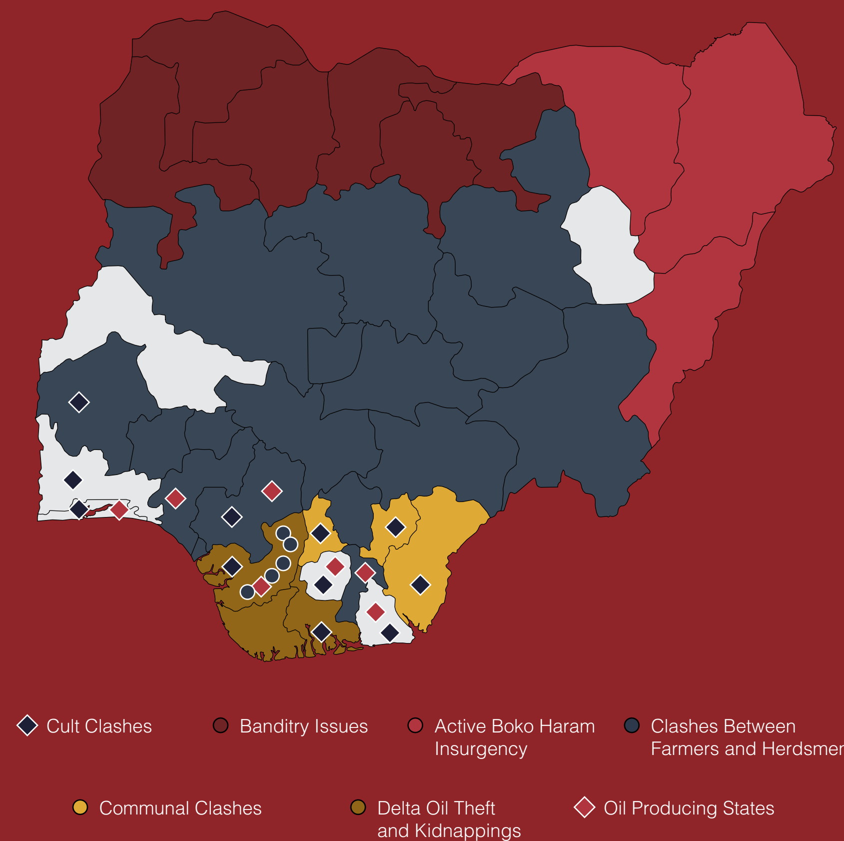
OPEC data show that Nigeria's oil industry is a mere tenth of the overall economy - the least within the bloc. However, oil income contributes more than 70% to government revenue, one of OPEC's highest. This is raising concern that patronage flows in the oil-producing Niger Delta might dwindle, potentially unleashing new episodes of sabotage and violence and upend the relative calm the region has enjoyed since the Niger Delta Avengers stopped targeting vital export infrastructure in 2016.

However, the key risks to Nigerian oil and gas production is not a general rise in insecurity, but a deterioration in economic conditions as this allows oil theft to continue unabated. Infrastructure tends to be relatively well protected in urban and semi-urban areas. Flow stations and manifolds which house field personnel working to keep the country's oil flowing are well secured by both military and police forces while personnel training to facilitate local dispute resolution when tensions risk boiling over is rising. If all fails, reinforcements are never far away.

However, the same cannot be said of oil theft which is facing challenging headwinds. Bunkering or oil theft is a practice federal authorities continue to turn a blind eye to in an effort to keep the peace in the Niger Delta, and they are unlikely to change their approach in the near term. However, facing a world in which oil prices have dropped below US$50/bbl and a global oversupply of crude oil, the economics of the bunkering trade are such that margins are likely to come under pressure. While the trade might be able to withstand a short period of low prices, a long drawn out period of low prices - as the pandemic looks almost certain to guarantee - will deal a real blow. There is also a likelihood that the Nigerian government may turn up the heat on the oil thieves in a bid to shore up dwindling revenues if the oil price continues to stay below the budget benchmark of US$57/bbl.

Active participants in the trade without an alternative income source may want to force additional amnesty payments from federal authorities and may resort to attacks on infrastructure to stake this claim. It is uncertain that Nigeria - under pressure from a record 2019 fiscal deficit of US$13 billion (on the back of total spending of US$25 billion) - will be able to afford these additional payments given the fiscal pressure that low oil prices are already creating in the form of reduced revenues. ■

SECURITY CHALLENGES IN NIGERIA 2020
Source: SBM Intelligence



The champion of local content

Nigeria has grown to master the practice of local content, to the extent of mentoring other resource-rich countries such as Uganda in promoting their own industries. As one of the few countries to have enacted a primary regulation dedicated to it, Nigerian local content policy has the broad objective to domicile a share of the US$18 billion average annual spending on exploration and production by IOCs. Nigeria's pursuit of local content has greatly facilitated the growth of local service providers and contractors, as well as fostering a mutually beneficial relationship between international and local companies. "Sometimes there are no local companies with the required level of experience and a partnership is then created between a local company and an international company. This allows for knowledge transfer and the local company gains necessary experience," highlighted Seni Edu, CEO of Eko Support Services, a leading logistics solutions provider.

A major milestone was the divestment of IOCs from onshore and swamp fields. "The real game changer for the indigenous industry is the divestment of the IOCs where locals actually acquire these oil fields," explained Nicholas Okafor, partner at Udo Udoma & Belo Osagie, a Nigerian full service law firm.

The Nigerian Oil and Gas Development Act was signed into law in March 2010 by president Goodluck Jonathan. The law gives Nigerians the opportunity to be considered in the awards of oil blocks, oil field licenses and oil lifting licenses under its emphasis on increased entrepreneurship and domestic assets. It set a target to increase the use of indigenous labor, materials and resources to 70% in all oil and gas projects in the country, as opposed to the previous 28%. Contracts between IOCs and the government include local content provisions ensuring that Nigerians hold 75% of managerial positions within the first 10 years from the date that the contract was granted. 15 and 20 years after the contract, the percentage should increase to 80% and 85%, respectively. The act requires all operators of oil field licenses to submit a Nigerian content plan at the time of their bidding, showing how they will give first consideration to local companies and services, as well as a training and employment plan. With regards to procuring of goods and service, preference should be given to bids from indigenous companies if it does not exceed the lowest bid by 10%. The table below summarizes the details of the law and its provisions.

To facilitate the implementation of the law, the government relies on its industry watchdog, the Nigerian Content and Development Monitoring Board (NCDMB), headed by executive secretary Simbi Wabote. It documents the short, medium and long-term targets on its 10-year roadmap, which rests on five pillars: technical capability development; compliance and enforcement; enabling business environment; organization capability and sectorial and regional market linkage. The NCDMB is targeting the creation of over 300,000 jobs by 2027. "The NCDMB, in conjunction with stakeholders, has put together a 10-year strategic road map aimed at developing and utilizing local capacity and capabilities, driving domiciliation and the growth of O&G activities and ensuring incremental retention of oil and gas annual spending in-country," stated Chief Dr. Davies Ikanya, managing director of Hopeup Integrated Industries, an indigenous gas and barite producer.

The NCDMB established a Nigerian Content Intervention Fund (NCIF), in addition to a Nigerian content consultative forum. The fund is financed via a sum of 1% of any contract awarded to any operator, contractor, subcontractor, alliance partner or any other entity involved in any project. The objective of the NCIF is to provide accessible credit to oil and gas service companies at a single digit interest rate for a period of five years, with a single obligator limit of US$10 million. "The NCDMB has been instrumental in nurturing local companies by providing funding options to indigenous companies at competitive rates," elaborated Kayode Adeleke, CEO of RusselSmith, an integrated oil field service provider.

Companies must submit annual reports to the NCDMB, known as Nigerian Content Performance reports, showing their compliance. Non-compliance is punished through penalties consisting of either the project cancellation or a fine that is equivalent to 5% of the project sum for each project in which the offence is committed. Such penalties are rare due to the high rate of compliance, hence the law is praised for its effectiveness and the NCDMB is widely respected and appreciated for its monitoring efforts. "The number of local players in the industry prior to the local content initiative was minute. The law facilitated the growth of the industry and allowed the local community to benefit from this growth," stated Ohioze Unuigbe, managing director of Bureau Veritas in Nigeria.

Such has been its success that the National Assembly is considering the law's extension to other industries, such as information and communication technology, power, solid

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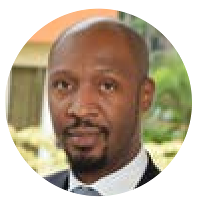

minerals and construction, through the Nigerian Content Development and Enforcement Bill (NCDE), which commenced its first reading in December 2019. "It is important to note that legislation is not the key, but rather implementation and execution," highlighted Dr. Timi Austen-Peters, chairman of Dorman Long Engineering, an indigenous EPC service provider.

The law's current implementation must be strengthened before extending it to other sectors. For example, the NCDMB is not as transparent as it should be with regards to accessing its fund. "There is a process to access funds from the NCDMB and companies have to demonstrate their readiness. There is probably not enough understanding on how this process works and how to access these funds," stated Michele Branco-Aiyegbusi, principal consultant at SLC Resources, a management consulting firm.

Many businesses still rely on borrowing from banks at double-digit interest rates. The high cost of funding jeopardizes indigenous oil service companies' abilities, as Foluso Aribisala, CEO of Workforce, a Nigerian human resources consulting firm, explained: "Over the last few years, there have been several interventions and a significant emphasis on making capital more easily accessible to local entrepreneurs. However, there is still a bit more that can be done about the tenure and conditions attached to such funds."

Nonetheless, fostering a relationship with the banks seems to be a strategy that works for service providers such as Deep Blue Energy Services, as highlighted by Anita Omoile, managing director and president of the consultancy and engineering company: "Since our establishment, Deep Blue has had a relationship with Zenith Bank as well as First Bank of Nigeria and we have had a fantastic experience with both. We are very transparent with our bankers and for every project we embark on, we will first have a meeting with our bankers who have never turned us down and are always excited to progress with us."

The reason behind the NCDMB's inability to effectively communicate the availability of the fund could be credited to its over-involvement in other aspects of the industry, such as licensing and certifications, which are already undertaken by the DPR and the Ministry of Petroleum Resources. "The NCDMB seems to be overwhelmed, as their activities continue to grow daily and overlap with other institutions, which is time consuming," confirmed George Okoyo, managing director of Point Engineering, a wholly-Nigerian engineering consultancy firm. "It is my opinion that NCDMB should instead focus solely on monitoring and compliance, ensuring that the local content act is enforced without creating so many hurdles for smaller companies."

The NCDMB is currently working alongside the NLNG to ensure local participation on the Train 7 project. "The success of Trains one to six did not echo to local service providers due to the weak emphasis placed on local content, which is not the case with the Train 7 project," stated Patricia Simon-Hart, managing director and CEO of AFTRAC, a specialized well-service company.

The NLNG and the NCDMB signed the Nigerian Content Plan for the Train 7 project in March of 2019. The project's total in-country engineering man-hours is set at 55%, which exceeds the minimum level stipulated in the Nigerian Content Act. According to Tony Attah, CEO of the NLNG: "Train 7 is anticipated to create over 10,000 jobs and stimulate capacity building of local industries along the LNG value chain." ■

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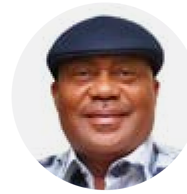

Private refineries to the rescue

One of the key objectives of local content is the integration of the oil and gas industry into the mainstream economy through local refineries and petrochemicals. The NCDMB is supporting private refineries by providing equity investment. Two modular refinery projects, the Waltersmith refinery in Ibigwe, Imo state, and the Azikel Petroleum refinery in Obunagha Gbarain, Bayelsa state, are on track for completion. Meanwhile, Niger Delta E&P's mini refinery in Ogbele produced 1,000 bopd for over eight years and is upgrading to a capacity of 11,000 bopd. The industry's biggest project is the 650,000 bopd Dangote refinery, currently under construction to start production by 2022 on the outskirts of Lagos. The refinery will assist the implementation of local content as Dangote Group announced the award of a US$368 million contract for 120 local contractors at the site. At the peak of construction, 65,000 workers are on site to build the mega-refinery.

The nation's dilapidated state-owned refineries continue to run far below their capacity, with a combined production of 445,000 bopd. They made a loss of US$745 million from 2017 to 2018, according to the NNPC. The federal government faced a backlash after announcing to spend US$1.25 billion on fuel subsidies in 2020, which is another consequence of its ailing refineries that continue to deepen the country's reliance on imported fuel products. They will undergo major rehabilitation in the coming years, so that the refineries can work up to 90% of their installed capacity by 2025. "Nigeria's four inefficiently managed state-owned refineries – Port Harcourt I and II, Warri and Kaduna – are unable to meet the increasing domestic demand so the country has to import petroleum products," stated Tayo-Adiatu Adeyemi, managing director at Tulcan Energy, an independent oil and gas company operating in the downstream, midstream and upstream sectors.

The NNPC's renovation of the current four refineries should add 215,000 bopd to their existing capacity. However, it is private refineries that are expected to spur on power across West Africa, and the NNPC should consider holding a bidding round for its refineries to private investors. "PETAN's values are based on Nigerian entrepreneurship, therefore we believe that the role of the government is a purely regulatory one as opposed to a commercial one," affirmed Okoroafor. "Privatizing the refineries is the best way to ensure their profitability and efficiency. A private refinery will be led by its profit-motive and ensure a return on investment to its stakeholders. With the coming of the Dangote refinery, we hope to see increased privatization of the state-owned refineries." ■

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**- Anthony Okoroafor,
President,
PETAN Bank**

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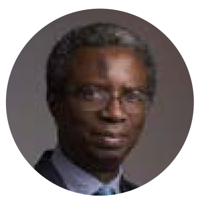
Bracing for the future

Image courtesy of GEIL

Concerted government coordination and action is needed to develop nation-wide physical, legal and fiscal infrastructure to utilize Nigeria's resources efficiently for the nation's shared prosperity. More importantly, persistent neglect of the importance of integrating the petroleum industry into the mainstream economy through local refineries is preventing Nigeria from realizing its potential, coupled with increasing security threats and corruption.

2020 has brought a new set of challenges to the Nigerian petroleum industry, as oil-producing countries embark on weathering the perfect storm of the coronavirus crisis that brought business to a standstill, and the impacts of the price war between Saudi Arabia and Russia. OPEC and IEA warned in March 2020 that developing countries might lose up to 85% of oil and gas income this year, if current market conditions persist. "Nigeria is blessed in that even if it drops to US$30 per barrel, the majority will continue producing due to

The ICT sector is larger than the oil and gas sector, representing 13% of GDP as opposed to oil and gas, which represents 9-10%. Oil is the second largest source of foreign currency, after remittances. The economy is being diversified and I believe that this trend will continue in the future.



- Gbolahan Elias, Partner, G. Elias & Co

The strength of an economy lies in diversification. Nigeria could become one of the technology hubs of Africa. One needs to diversify one's economy when there is money to do so. I hope that Nigeria uses the time while the oil and gas prices are reasonable to invest in those areas.

- Huub Stokman, CEO, OVH Energy

the low cost of operation compared to elsewhere," highlighted Wale Adelaja, managing director/CEO of Ashbard Energy, an indigenous engineering services provider operating in the energy sector.

The cost of producing one barrel of oil in Nigeria is US$15-17. By the end of August, crude futures had settled at US$45 per barrel, a reassuring rebound from a low of US$20 in April, but still significantly below the US$57 per barrel benchmark that the government anchored its budget on.

According to Kyari of the NNPC, Nigeria has about 50 stranded cargoes of crude oil and 12 of LNG that have not found landing due the low demand in March 2020. As it struggles to find buyers, Nigeria is facing a crisis as revenues from oil production fall. The downturn does, however, offer some opportunities, suggested Kayode Thomas, managing director at Substrata Oil and Gas, a local oilfield service company: "The industry is aware that volatility and downturns can be used to its advantage by conducting exploration activities which should be undertaken in the downturn phase of the cycle, as it is cheaper due to lower cost of services."

Nigeria's over-reliance on petroleum hurt the economy in 2014, and will likely do so again in 2020. "The strength of an economy lies in diversification. Nigeria could become one of the technology hubs of Africa," stated Huub Stokman, CEO of OVH Energy, an Africa-focused downstream company. "One needs to diversify one's economy when there is money to do so. I hope that Nigeria uses the time while the oil and gas prices are reasonable to invest in those areas."

Gbolahan Elias, partner at G. Elias & Co, an indigenous law firm, believes that Nigeria is already diversifying: "The ICT sector is larger than the oil and gas sector, representing 13% of GDP as opposed to oil and gas, which represents 9-10%. Oil is the second largest source of foreign currency, after remittances. The economy is being diversified and I believe that this trend will continue in the future."

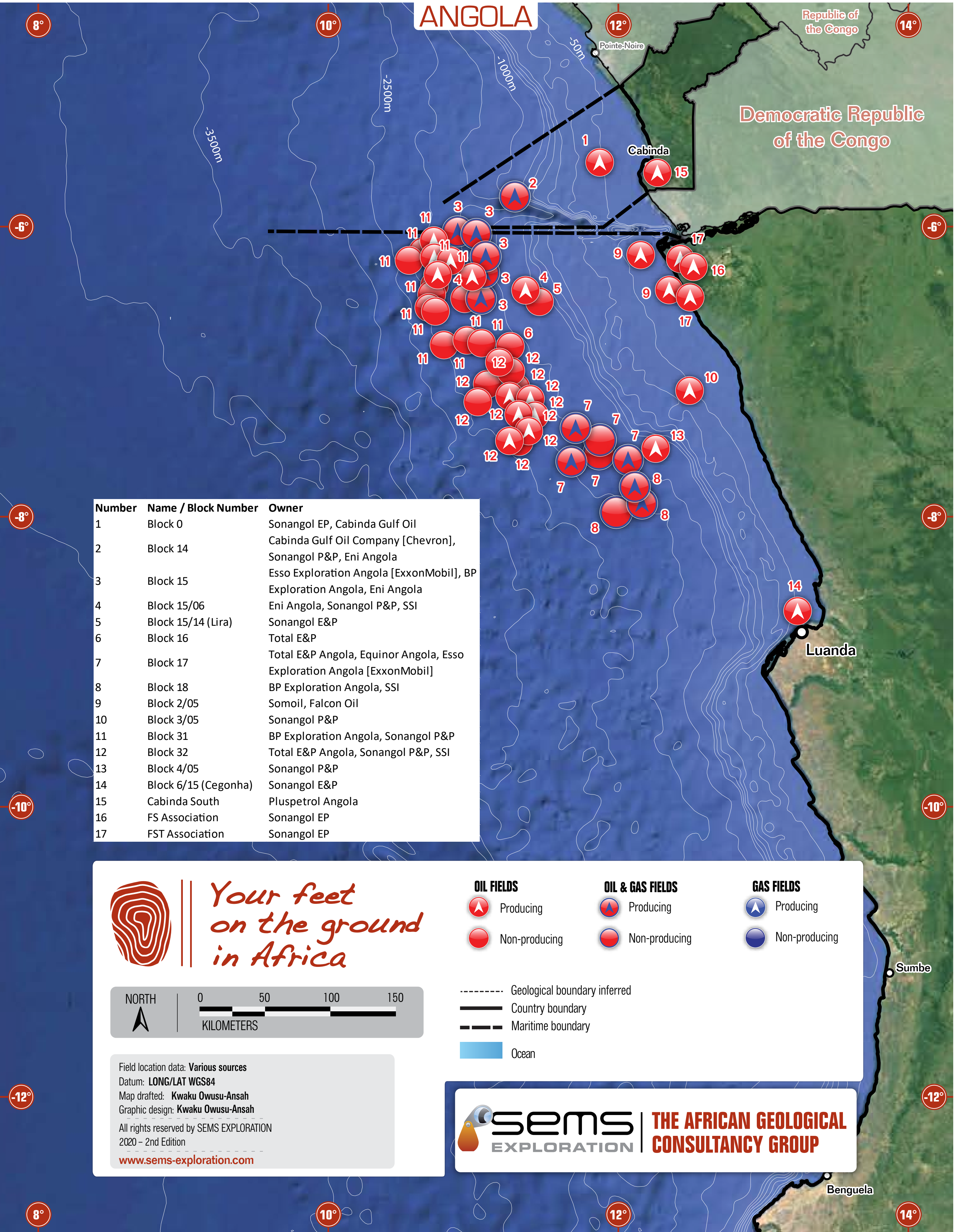
The extent to which the economy diversifies can increase its immunity against the volatility of the petroleum industry; however, it is unlikely to shield it against the Covid-19 wrecking ball that is continuing to take its toll on industries nationwide. While diversification is a positive for Nigeria, the successful development of its oil and untapped natural gas will be the key drivers to stimulate economic recovery in the wake of the pandemic. ■

ANGOLA

"ENI and Sonangol have created Solenova Ltd, a JV set up to assess and develop renewable energy opportunities in Angola. The JV's first development will be a 50 MW solar power plant in the South of Angola to replace diesel power, which is in line with Angola's energy strategy that has a target of 800 MW installed renewable capacity by 2025."

- Lorenzo Fiorillo,
EVP West Africa,
ENI

Image courtesy of Eni



Number	Name / Block Number	Owner
1	Block 0	Sonangol EP, Cabinda Gulf Oil
2	Block 14	Cabinda Gulf Oil Company [Chevron], Sonangol P&P, Eni Angola
3	Block 15	Esso Exploration Angola [ExxonMobil], BP Exploration Angola, Eni Angola
4	Block 15/06	Eni Angola, Sonangol P&P, SSI
5	Block 15/14 (Lira)	Sonangol E&P
6	Block 16	Total E&P
7	Block 17	Total E&P Angola, Equinor Angola, Esso Exploration Angola [ExxonMobil]
8	Block 18	BP Exploration Angola, SSI
9	Block 2/05	Somoil, Falcon Oil
10	Block 3/05	Sonangol P&P
11	Block 31	BP Exploration Angola, Sonangol P&P
12	Block 32	Total E&P Angola, Sonangol P&P, SSI
13	Block 4/05	Sonangol P&P
14	Block 6/15 (Cegonha)	Sonangol E&P
15	Cabinda South	Pluspetrol Angola
16	FS Association	Sonangol EP
17	FST Association	Sonangol EP

ANGOLA

Production Levels
(barrels per day)
1,769,615
OPEC

Africa Production Rankings
2nd
U.S Energy Information Administration (EIA)

Proven Crude Oil Reserves
(million barrells)
7,783
OPEC 2018

Proven natural gas reserves
(billion cubic metres)
343
OPEC 2018

Marketed production of natural gas
(million cubic metres)
10,546.1
OPEC 2018

Refinery capacity (1,000 bpd)
80.3
OPEC 2018 and PwC

Oil revenue as % of GDP
33%
World Bank

Standard Corporate Tax
30%
Deloitte

Royalties
10%
Deloitte

GDP per Capita
(nominal)
$2,973 / 127th
IMF

GDP per Capita
(Power Purchasing Party)
$6,250 / 130rd
IMF

GDP growth
(PPP 2018)
–0.1%
World Bank

Public Debt as % of GDP
111%
CEIC

Inflation Rate Forecast
Q1 2020
19%
National Bureau of Statistics

Value of Exports
(millions)
$33,755
OPEC 2018 / Observatory of Economic Complexity (OEC) 2018

Value of petroleum exports
(millions)
$32,246
OPEC 2018 / OEC 2018

Current Acount Balance
(millions - as of Dec 2019)
–$5,137
The World Bank

CAPITAL
Luanda

LAND MASS
1,246,700 km2

POPULATION SIZE (as of 11 September 2020)
33,079,236

POPULATION GROWTH
3.27%

OFFICIAL LANGUAGES
Portuguese

HEAD OF STATE (as of 11 September 2020)
President João Lourenço

HUMAN DEVELOPMENT INDEX (out of 189 countries)
0.574 (medium), 149th

EXTREME POVERTY RATES (income of less than $1.90 a day)
32.3% (2019)

DEMOCRACY INDEX RANKING 2019 (out of 167)
119th

ECONOMIC FREEDOM (out of 180)
154th

EASE OF DOING BUSINESS RANKING (out of 190)
177th

MAIN EXPORTS
Oil, diamonds, minerals, coffee, fish, timber

TOP 3 EXPORT DESTINATIONS
China (61%), India (12%), United States (7.9%)

SOURCES:
UN Figures
United Nations Development Programme's Human Development Report (2019)
(latest ¬figures recorded by the World Bank)
Economist Intelligence Unit
2020 Index of Economic Freedom
Doing Business 2020 (World Bank 2020)
OEC 2019

Angola: Political reforms aim to reverse oil output decline

The years since the collapse of the oil boom in 2014 have been arduous for Angola, as low oil prices were compounded by the hangover of systemic corruption that was commonplace under former president, José Eduardo dos Santos. When João Lourenço was elected in 2018 with a mandate to clean up entrenched political embezzlement and open up a previously state-dominated economy, the task at hand was daunting. However, swift reforms such as the abolishment of the regulation requiring local ownership of private companies, and the conviction of numerous allegedly corrupt officials, offered glimmers of hope that Angola was on the path to redemption. 2019 started brightly, as Eni announced a major oil discovery in Block 15/06 in the Agogo exploration prospect, estimated to contain between 450 and 650 million barrels of light oil, followed by Total starting production at its second FPSO on Kaombo Sul in Block 32 in April. In an effort to help stimulate investor confidence and replace the country's reserves, the National Agency for Petroleum, Gas and Biofuels (ANPG) unveiled a new oil-licensing strategy to put up 55 blocks for public bidding or direct negotiation by 2025, and published Executive Decree 157/19 for the exploration and exploitation of marginal fields. This promising groundwork had seemingly set up Africa's second-largest oil producer for a prosperous 2020, but it was merely the calm before the storm.

Carlos Amaral

General Manager
ACREP ANGOLA E&P

» Angola should follow the model made successful by countries such as Timor-Leste and Namibia where recognized companies are allowed to apply for exploration licenses in a wider variety of locations and create their own data. «

To what extent has Covid-19 impacted Acrep Angola E&P?

We have been working online since February. The biggest impact, however, has been the delays to projects that were supposed to start earlier in the year, as almost no international service providers are travelling to Angola. Acrep had three developments scheduled to start late 2020, and while they are still in the budget and business plan, they have all been postponed for at least six months. Furthermore, the oil price took a hit, but at least now in August it seems to have settled at US$40 per barrel.

Covid-19 has also impacted the way the majors are operating with remote work becoming the preferred option and workforces may not return to their previous capacity.

Can you provide an update on Acrep's operations in Angola?

Acrep has just signed a deal to join Block 1/14 with ENI as the operator together with Equinor and Sonangol P&P. We have two developments assumed for Block 4/05, which have been delayed but are still in the pipeline. For Block 17 with Total as operator we have two or three interesting developments in the pipeline that will ideally be on-stream in the next three to four years. The shallow area at Block 2 has been delayed but is also on our budget. In Cabinda North with ENI we confirmed some reserves which would be interesting for a junior company. A 200 million barrel STOOIP reserves field is a good asset, but the actual cost of drilling and operating makes development of this onshore size asset not possible in Angola.

How do you view the climate for smaller operators in Angola's oil and gas industry?

The bigger international companies are able to reduce costs by sending people home, while they keep the local staff here. For local companies, the climate is challenging due to the costs involved. For example, last week Acrep was invited to the agency data room for onshore blocks. This was supposed to attract juniors or small to medium-sized international companies. However, the minimum entry fee to acquire data is US$1 million, whereas Nigeria is asking US$50,000 for similar data. Angola lacks reserves, banks are not open to financings and the big majors are not going to spend on capex for new projects in the coming years. Onshore holds potential, but this potential will not be realized with such a high entry point and the approach needs to be changed. Instead of relying on old and expensive data, the smaller companies should be allowed the time and access to look for new discoveries.

Which measures do you think the government should focus on to help revive Angola's onshore oil production?

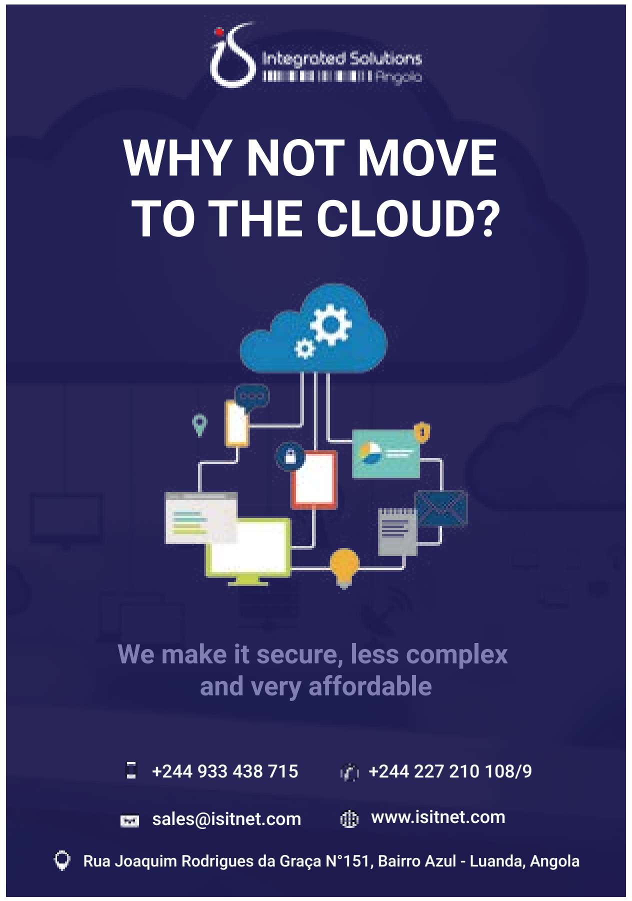
Onshore must be a new open book where exploration has to be stimulated and promoted. For a start, the data should be quasi-free for onshore. Secondly, there should not be imposed programs, instead Angola should follow the model made successful by countries such as Timor-Leste and Namibia where recognized companies are allowed to apply for exploration licenses in a wider variety of locations and create their own data. The high costs in Angola are also a major issue. For example, Acrep has participated on the drilling of three shallow wells in Cabinda in the last three years at a total cost of US$90 million. US$30 million per well is not sustainable for onshore exploration with the oil prices we have seen since 2015. Considering the economic constraints brought on by the pandemic, if a company is willing to bring a drill rig to explore, it should be encouraged to do so, as many of these areas which have been closed for 45 years can be revisited successful.

Where would you like to see Acrep E&P in the next two years, what would you like to achieve in that timeline?

Progress at Block 1/14 is important for Acrep, and we look forward to developing this with our partners. We would like to be more involved onshore, but governmental reforms need be made to make it more attractive for all operators. We also intend to sell some assets to focus and fund the higher potential projects and increase profit margins. Acrep Angola E&P intends to list on the Angola Stock Exchange and Derivatives in the next two years to help raise the profile of the company. ■

The industry was looking at 2020 as the year of recovery, as oil prices had recovered and exploration campaigns were planned. Then came the perfect storm of the Saudi/Russia oil war and Covid. "The Covid-19 pandemic has had a significant impact on the sector, beginning in March with the oil-price volatility and then followed by the plummeting demand for fuels. As expected, the oil and gas industry in Angola was impacted with a significant reduction in output," said Valter Escórcio, country leader in Angola for Baker Hughes. However, on a more positive note, Escórcio, related that the context was slowly improving: "As we start to see less volatility in the global economy, the demands on energy production will begin to increase globally, including Angola."

OPEC+ agreed to cut oil output from May by a record 9.7 million barrels per day (bopd) after the coronavirus crisis destroyed a third of global demand. However, a Reuters report from July suggested that some OPEC members, including Angola, had not fully complied with their agreed production quota, and would have to make up for May and June overproduction by cutting more from July to September. Considering that Angola depends on the off-shore petroleum industry for 37% of its GDP, 75% of government revenues and 90% of exports, avoiding sanctions from OPEC's Joint Ministerial Monitoring Committee (JMMC) should be high on the agenda for a nation in dire need to increase its oil output.



E&P in Angola: A climate that favors majors

Before the pandemic, Eni had been the most active of the E&P players in Angola, making the Agogo, Kalimba, Afoxé, Ndungo and Agidigbo discoveries on Block 15/06 in 2019. While lockdown measures forced the Italian super-major to scale back its operations and delay new projects, having its headquarters in one of the first countries after China to be severely impacted by the virus resulted in preventative action as early as February, according to the company's EVP West Africa, Lorenzo Fiorillo. Fiorillo was bullish on Eni's outlook in Angola, highlighting the quick transition from exploration to production at Agogo on Block 15/06, only nine months after the initial discovery, as testament to the company's approach of de-risking prospects to increase exploration success. "Of the over 30 exploration wells ENI has drilled in Angola, we have had a 90% success rate, finding about 5 billion barrels of hydrocarbon equivalent at a current rate of 150,000 bopd," he said.

One of Eni's Angolan partners is Acrep Angola E&P Company, which recently signed a deal to join Block 1/14 with ENI as the operator together with Equinor and Sonangol P&P. Acrep also has two developments for Block 4/05, three developments for Block 17 with Total as the operator, as well as a shallow area on Block 2. Despite this promising pipeline, the issue for local E&P companies such as Acrep, according to general manager Carlos Amaral, is the financial implications of lengthy delays. Moreover, the challenging climate for smaller players due to the costs involved with operating in Angola hinders their development. Amaral gave the example of Acrep's visit to the agency data room for onshore blocks: "Ideally this was supposed to attract juniors or small to medium-sized international companies. However, the minimum entry fee to acquire data is US$1 million, whereas Nigeria is asking US$50,000 for similar data."

With Angola lacking reserves, banks reluctant to make financings, and the big majors yet to give the go-ahead to large capex for new projects in the coming years, the development of the country's onshore reserves should be a priority, according to Amaral, who lamented that this potential will not be realized with such a high entry point, and the government approach needs to change. "Onshore has to be a new open book where exploration must be stimulated and promoted," he stated, suggesting the data should be quasi-free for onshore, and the government should not impose programs. "Instead, Angola should follow the model made successful by countries such as Timor-Leste and Namibia where recognized companies are allowed to apply for exploration licenses in a wider variety of locations and create their own data."

Even with an exploration license and data in-hand, the cost to drill is also a deterrent to small and medium-sized players, as Amaral related the three shallow wells Acrep drilled in Cabinda in the last three years cost US$90 million. "US$30 million per well is not sustainable for onshore exploration with the oil prices we have seen since 2015," he said, before concluding: "Considering the economic constraints brought on by the pandemic, if a company is willing to bring a drill rig to explore it should be encouraged, as many of these areas have been closed for 45 years."

Paul Eardley-Taylor, responsible for oil and gas coverage for the Southern Africa region at Standard Bank, agreed that governments have to put their best foot forward, make data more affordable, and reduce bureaucracy. "In Angola, pretty much every concession that gets amended needs to go to the top of the political power structure for approval. This is a little crazy," he said, suggesting that due to the limited number of bureaucrats available to deal with 30 blocks in Angola, there needs to be more outsourcing.

Eardley-Taylor also echoed the sentiment that financial policy should be designed to stimulate industry, rather than stifle it, giving the example that Angolan authorities still do not allow oil companies to borrow in practice from local banks. "This is very common in places like Nigeria," he added.

In August 2020, the news that Qatar Petroleum had signed a farm-in agreement with Sonangol and Total to acquire a 30% participating interest in offshore Block 48 offered renewed hope to Angola's oil and gas industry. Drilling is scheduled for 2020-2021, and the deal marks Qatar Petroleum's first foray into Angola's deepwater acreage, with H.E. Saad Sherida Al-Kaabi, Minister of State for Energy Affairs and president and CEO of Qatar Petroleum, commenting that the "exciting opportunity" was aligned with the state-owned company's journey to "build a world-class exploration portfolio, by securing interests in promising exploration blocks in diverse geographies." ■

Msuega Tese

Executive Director
INTEGRATED SOLUTIONS ANGOLA (ISA)

What advice would you give to companies looking to adapt their operations so employees can work remotely?

My general advice is a hybrid solution. Some can work from home, others, it may not be possible to do so. You cannot eliminate the office environment completely. Less experienced employees benefit a lot from more experienced ones by watching them work. The informal interactions facilitate knowledge sharing a lot. So office will always be needed but there is going to be a fundamental shift – in the end, I believe, it will be a hybrid solution for most organizations.

Have you noticed improvements in internet connectivity in Angola now online work has become essential to business?

There have been a lot of efforts to modernize Angola's internet connectivity. For example, the South Atlantic Cable System (SACS), a submarine communications cable in the South Atlantic Ocean linking Angola with Brazil, has improved things to some extent. However, local connectivity is still more of an issue than international bandwidth, and there is still a lot to be done to make it more accessible cheaply.

How much of an issue do you think cyber security is going to become in the coming years?

It already is an issue that companies have to take seriously. Generally, crime and concentration of population go together. Think about cities that have a high concentration of inhabitants – they usually have more crime that sparsely populated rural areas. Now consider the situation of the pandemic where everywhere has been shut down, and people are now interacting mostly online rather than in person… It is no surprise that cybercrime is gaining some notoriety. If an oil company moves its data to the cloud it is a necessity to protect it, and it is worth speaking to us at ISA. We are here to help out. ■

Valter Escórcio

Country Leader – Angola
BAKER HUGHES

To what extent have external factors such as the Saudi/Russia price war and Covid-19 pandemic impacted Baker Hughes' operations in Angola?
The Covid-19 pandemic has had a significant impact on the sector, beginning in March with the oil-price volatility and then followed by the plummeting demand for fuels. As expected, the oil and gas industry in Angola was impacted with a significant reduction in output. However, as we start to see less volatility in the global economy, the demands on energy production will begin to increase globally, including Angola.
Baker Hughes is well positioned as a company to support our customers in Angola; not only do we have a diverse and robust technology portfolio; we also have experience managing tough market cycles.

How do you view the short- and medium-term outlook for the Angolan oil and gas market?
The next two to three years should focus on ongoing remedial work to keep the fields that are already on-stream optimized and FPSOs (floating production storage and offloading) full. What remains uncertain at this point is investments in new fields, as we are still waiting to see operators make firm commitments for the next five to seven years. In 2019, the marginal fields in Angola were approved with a specific law to promote development, but with the current industry downturn, we anticipate some delays.
In the last five years, exploration has been almost nil in Angola. With that, operators have a desperate need to get back to activity and drill wells to stem the steep rate of decline in oil production. This is now starting to kick off again, with Total on Block 48 and Exxon having acquired blocks in the Namibe Basin. However, with the early success, we anticipate it will be about five years before new discoveries can be developed.

Since Baker Hughes Angola consolidated its four product companies into a multimodal facility inside Sonils port in Luanda, what have been the benefits?
The Luanda facility comprises our product company capabilities in oilfield services, oilfield equipment, turbomachinery and process solutions, and digital solutions. The strategic location for this multipurpose facility puts Baker Hughes in close proximity to serve important projects in the sub-region. It has also allowed us to be more efficient in responding to requirements on customer sites and allowed us to reduce product and service delivery costs.

Can you give some examples of Baker Hughes' latest technologies that have been in high demand?
Regarding Baker Hughes' hard equipment environment, we have Subsea Connect, which links the entire subsea development process to reduce life-of-field development costs by 30%. The Subsea Connect business model helps our customers accelerate time to production, maximize recovery over the life of the field and reduce their total expenditures (TOTEX).

Considering the travel restrictions in recent months, how important has Baker Hughes' local content development been in 2020?
The Angolan Local Content framework is very manpower centered with requirements for domiciliation of facilities and technology. With or without the framework, the Baker Hughes local content strategy has been focused on the transfer of knowledge and domiciliation of technology. With the help of technology, we deploy skills and experience to help train local workers remotely. Beyond meeting domestic needs, we are already exporting Angolan talent to other countries like Mozambique to develop projects.

Which growth areas have you identified for Baker Hughes in the coming years?
With the restrictions prompted by the Covid-19 pandemic, the industry is increasing its use of remote operations technologies. Globally, more than two-thirds our second-quarter drilling activity was supported by remote operations. We are always innovating and developing new technologies. In 2019 alone we invested US$678 million in research and development and were granted 2,700 patents.
We have developed technology such as smart helmets for remote monitoring capabilities, additive technology which has evolved from prototype-building to production-scale manufacturing, and drone compatible technology to detect methane leaks. As the operating landscape changes significantly, we expect the demand for these technologies to grow. ■

Angola's service sector adapts

In times of economic adversity, the ability of service companies to adapt to a rapidly changing context is key, and while the unprecedented impact of the coronavirus has rocked the industry, the financial crisis in 2008 and oil crash in 2014 have nurtured resilience among Angola's oil and gas service sector.
For the bigger international players, such as Baker Hughes, consolidation in recent years has created more efficient operational practices. Valter Escórcio, Baker Hughes' country leader in Angola, explained how the move to a multimodal facility at Sonils port has allowed the company to maintain the capabilities of its four business units in a more concentrated, streamlined footprint. "The investment in the multimodal facility has led to us becoming more sustainable and resilient and has given Baker Hughes an optimistic outlook in Angola, setting us up for the long haul."
For local players, such as Petromar, the construction and maintenance oil and gas service company founded by Sonangol and Saipem in 1984, adaptation has come in the form of diversification. In the past year, Petromar adapted its Ambriz yard into a commercial port. Frédéric Heintz, the company's deput general manager, elaborated: "We are not competing with the Sonils or Soyo ports, but we are giving the possibility to other players to maintain vessels, to use sections of our workshops, to benefit from our expanding storage area and to organize their crew change using our accommodation Base in Ambriz."
Since March, innovation and diversification have been key to survival, but they cannot fully protect the industry from the significant damage the pandemic has inflicted. In the case of Petromar, delays to new projects and rising costs due to quarantine periods for workers have caused the company to demobilize more than 70% of his staff in Cabinda and 40% in Soyo, with a further demobilization plan underway for Ambriz.
Maritime service companies, such as Octomar, have also had to adapt. After one of the company's key contracts was suspended for four months at the end of March, Octomar made the decision to continue paying salaries, paying suppliers, and renegotiate contractual terms and conditions with some stakeholders to ensure a positive cash-flow, according to general manager Ricardo do Amaral. "Today, in July 2020, we are back in full operation with all our contracts having resumed," he stated, mentioning that optimism was slowly returning to the sector, with the belief drilling and exploration should rebound in 2021.
As companies reevaluate business strategies for the coming years, what guarantee is there that the industry can move from a context of survival to a period of growth? For Baker Hughes' Valter Escórcio, the near and mid-term future can be divided into two chronographic slices: "The next two to three years should focus on ongoing remedial work to keep the fields that are already on-stream optimized and FPSOs (floating production storage and offloading) full," he said, confident that this is pretty much assured because the ongoing structures need to be maintained. However, the second phase – fresh investment in new fields – is causing uncertainty, as operators remain reluctant to make commitments for the next five to seven years. "In the last five years, exploration has been almost nil in Angola. With that, operators have a desperate need to get back to activity and drill wells to stem the steep rate of decline in oil production," observed Escórcio, acknowledging that this is now starting to kick off again, with Total on Block 48 and Exxon having acquired blocks in the Namibe Basin. "However, with the early success, we anticipate it will be about five years before new discoveries can be developed."

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In January 2021, Consper will start courses in geology, geophysics, drilling, finance and economy, to train the next generation of Angolan talent in the extractive industries.

- Gonçalo Janota, General Manager, Consper Lda

«

The importance of local content and move to remote operations

Investment into local content has been high on the agenda for the African oil and gas community in recent years, from the establishment of 'Project 100' in Nigeria to provide institutional and financial support to 100 Indigenous oil and gas service companies, through to the US$5 billion of local content touted to support development at Area 1 and 4 of the Mozambique LNG projects. However, nothing has highlighted the importance of local content as much as Covid-19, with expatriate workers being repatriated leaving a void behind them. "It is evident that increasing local content has numerous advantages for Angola's oil and gas industry, not only for service providers, but also for operators," commented Octomar's Ricardo do Amaral, who stated that Angolan content has proved it can deliver in challenging times. "It was this local content that ensured we overcame these challenges, and it is the companies that have invested in local content that are doing well today," he added.

From a logistical standpoint, those with in-country capacity have benefitted, as many companies in Angola have had challenges mobilizing equipment and personnel, and foreign suppliers without an established base in Angola have basically been unable to perform. To illustrate this, Amaral gave the example of a competitor contacting Octomar to assist them on one of their spot, short duration interventions, as they could not mobilize equipment from outside the country.

Petromar's Frédéric Heintz echoed this sentiment, adding that in some cases, clients have been requesting Angolan workers as many expatriates had to leave the country or could not come back easily. Referencing a project Petromar was awarded with Eni at Ambriz towards the end of 2019, Heintz related: "Part of the scope of the project is the fabrication of a quad joint pipe that required some highly specialized man-power from abroad. Due to the lockdown it was not possible to bring in many expatriates, so we agreed to do most of the work manually with Petromar's Angola welders and workers. With minimum supervision from a couple of European specialists, our Angolan workers have already completed half the work very successfully."

The pandemic has also seen the rise of remote work, with office staff forced to work from home and field operators relying on technical support from experts stationed abroad. For some companies, such as Integrated Solutions Angola (ISA), the wholesale move to work online has offered significant opportunity. ISA provides maintenance and support to critical IT systems both onshore and offshore for several oil and gas companies, namely, Total, Angola LNG, Sonangol, and experienced the company's best quarter in its 15 years' of operation in Q2 2020, according to executive director, Msuega Tese. In 2019, ISA migrated 100% of its data to the cloud to ensure that its employees could have access to ISA's systems when they are outside the office, and Tese has noticed that productivity has actually gone up during the pandemic, crediting the elimination of the commute time resulting in more rested employees.

Unfortunately, working from home is not an option for some office workers, particularly in low GDP countries where access to the basic conditions necessary to perform is limited. Regarding how business can approach such a context, Tese recommended a hybrid solution, with some employees working from home, and others working from safe, less-crowded work spaces. "You cannot eliminate the office environment completely. Less experienced employees benefit a lot from more experienced ones by watching them work. The informal interactions facilitate knowledge sharing a lot," he added.

The impact Covid-19 has had on the way majors operate is indicative of a near-term future where remote work will increasingly become the norm, according to Carlos Amaral, general manager of Acrep Angola E&P: "Workforces may not return to their previous capacity. Equinor, the third or fourth biggest producer in Angola with around 160,000 bopd, has only seven people in their operating office," he observed.

Valter Escórcio revealed that Baker Hughes has identified remote operations as a big growth area for the company, giving the example of a technology called the Smart helmets for remote monitoring capabilities. "Smart helmets are additive technology which has evolved from prototype-building to production-scale manufacturing, with unprecedented speed and unimagined flexibility the wind at its back and drone compatible technology to detect methane leaks," he explained, adding that, as the operating landscape changes significantly, Baker Hughes expects the demand for these technologies to grow in the coming years.

"Even if or when a vaccine is found, I believe we will travel less for work than we did previously, with more remote business increasing efficiency and saving costs," reflected Escórcio, concluding that while we do not know exactly what the future of work will look like, the pandemic has accelerated the transition to digital. ■

Frédéric Heintz

Deputy General Manager
PETROMAR

Which of Petromar's two main business lines – maintenance of oil and gas facilities and construction – have been in higher demand in the last twelve months?

The most active one in recent years has been maintenance – servicing clients operating plants or platforms.

Our construction business line, which involves the fabrication of subsea structures needed for offshore developments at Petromar's yard in Ambriz, has fortunately continued, but at a lower volume of work due to some projects being delayed. However, all of the new projects have been suspended until 2021.

Petromar has also diversified in the last year, adapting our Ambriz yard into a commercial port.

Do you think the lockdown showed the importance of a robust local value chain?

I believe so, yes, and having a strong local workforce is one of Petromar's strengths. We were awarded a project with ENI at Ambriz towards the end of 2019, part of the scope of which is the fabrication of a quad joint pipe, that required some highly specialized manpower from abroad. Due to the lockdown it was not possible to bring in many expatriates, so we agreed to do most of the work manually with Petromar's Angola welders and workers. With minimum supervision from a couple of European specialists, our Angolan workers have already completed half the work very successfully.

What would you like to achieve with Petromar in the next 12 months?

For the fabrication and off-shore development business line the target is to retain the skilled workforce and maintain our assets to be able to offer the strongest possible service when construction hopefully returns in H2 2021. Regarding the maintenance activities, we want to ramp up our workforce later this year in accordance with the needs of our clients. We also plan to complete the expansion of our Ambriz yard by another 33 hectares in 2021, mainly for storage purposes, but also to further opportunities regarding the use of Ambriz as a port. ■

Ricardo do Amaral

General Manager
OCTOMAR

How has Covid-19 impacted Octomar's operations in Angola?

It has had a negative impact on logistics, making it a costly challenge to mobilize personnel for offshore operations given the procedures under the both government and oil and gas industry Covid-19 protocol that must be followed to transport expatriates and the requirements for quarantine periods in Angola. One of Octomar's key contracts was suspended for four months at the end of March. However, we continued paying salaries, paying suppliers and renegotiated contractual terms and conditions with some stakeholders to ensure we remained with a positive cash-flow and continued operating. Today, in July 2020, we are back in full operation with all our contracts having resumed.

Has the disruption to international logistics shown the importance of developing local content?

The Covid-19 situation has proven that local content is essential. It is evident that increasing local content has numerous advantages for Angola's oil and gas industry, not only for service providers, but also for operators. A lot of expatriate workers left Angola at the start of the pandemic and have not returned. Angolans have filled their positions and business is going on as usual, proving that Angolan content can deliver in challenging times. It is the companies that have invested in local content that are performing well today.

Octomar is part of AECIPA – the Association of Oil and Gas Sector Service Providers in Angola. What kind of support has the association given the industry in 2020?

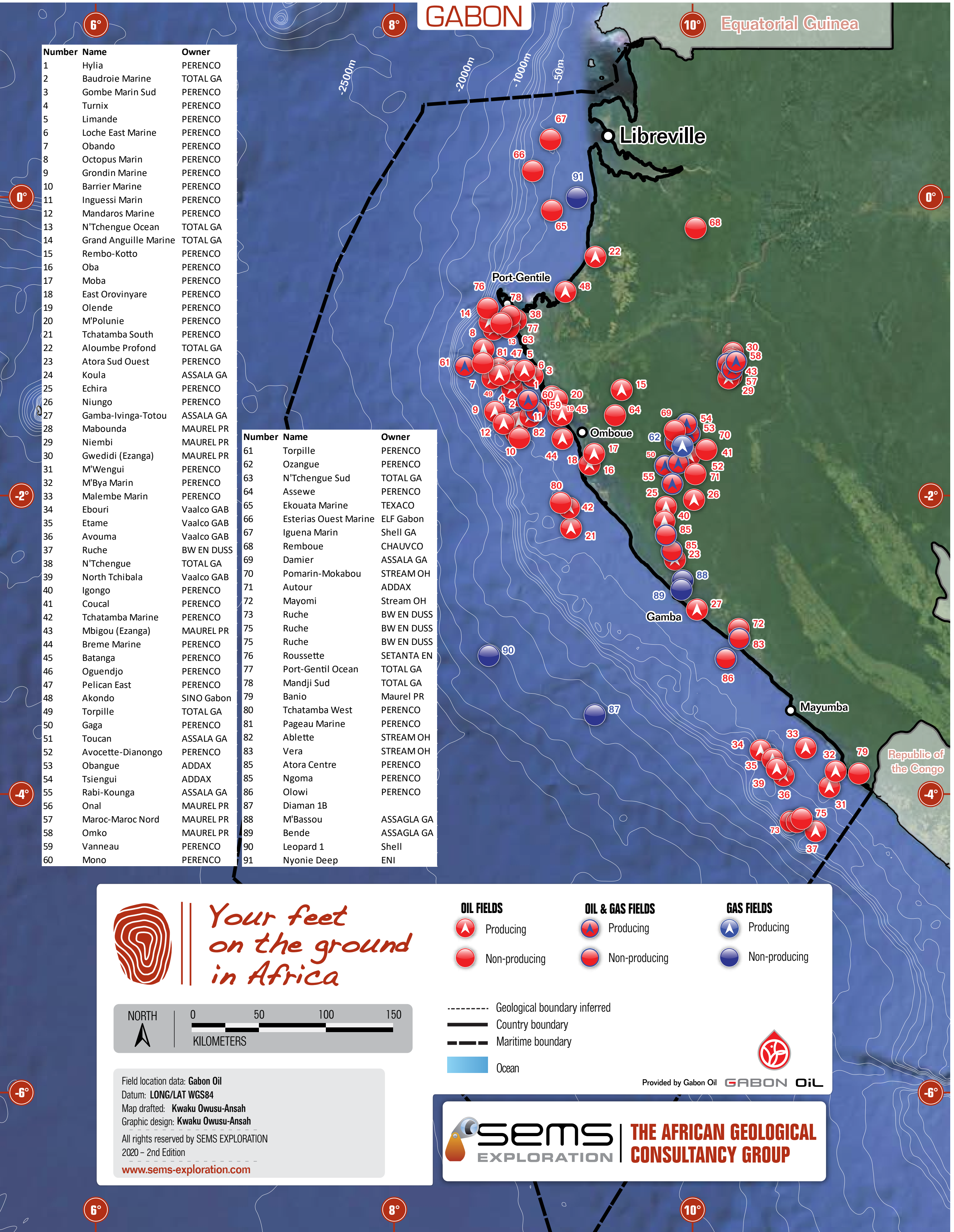
AECIPA's support has been timely and essential. They have been particularly helpful in terms of facilitating all the Covid-19 protocols and respective procedures established by the Angolan government and that must be fulfilled to mobilize personnel from abroad into Angola. We have been able to perform crew changes on vessels that are operating offshore with the support of the association who facilitated all of the authorizations and permits required. ■

GABON

"If we manage to secure higher production levels, the rest of economic activity will also be boosted. Mining, agriculture and the exploitation of timber present appropriate potential and I hope these will be neck-to-neck or even surpass the oil industry, but it will take time. For now, oil remains the precursor of economic growth."

**- Hon. Vincent de Paul Massassa,
Minister of Petroleum,
Gas, Hydrocarbons and Mining**

Image courtesy of Bourbon



Number	Name	Owner
1	Hylia	PERENCO
2	Baudroie Marine	TOTAL GA
3	Gombe Marin Sud	PERENCO
4	Turnix	PERENCO
5	Limande	PERENCO
6	Loche East Marine	PERENCO
7	Obando	PERENCO
8	Octopus Marin	PERENCO
9	Grondin Marine	PERENCO
10	Barrier Marine	PERENCO
11	Inguessi Marin	PERENCO
12	Mandaros Marine	PERENCO
13	N'Tchengue Ocean	TOTAL GA
14	Grand Anguille Marine	TOTAL GA
15	Rembo-Kotto	PERENCO
16	Oba	PERENCO
17	Moba	PERENCO
18	East Orovinyare	PERENCO
19	Olende	PERENCO
20	M'Polunie	PERENCO
21	Tchatamba South	PERENCO
22	Aloumbe Profond	TOTAL GA
23	Atora Sud Ouest	PERENCO
24	Koula	ASSALA GA
25	Echira	PERENCO
26	Niungo	PERENCO
27	Gamba-Ivinga-Totou	ASSALA GA
28	Mabounda	MAUREL PR
29	Niembi	MAUREL PR
30	Gwedidi (Ezanga)	MAUREL PR
31	M'Wengui	PERENCO
32	M'Bya Marin	PERENCO
33	Malembe Marin	PERENCO
34	Ebouri	Vaalco GAB
35	Etame	Vaalco GAB
36	Avouma	Vaalco GAB
37	Ruche	BW EN DUSS
38	N'Tchengue	TOTAL GA
39	North Tchibala	Vaalco GAB
40	Igongo	PERENCO
41	Coucal	PERENCO
42	Tchatamba Marine	PERENCO
43	Mbigou (Ezanga)	MAUREL PR
44	Breme Marine	PERENCO
45	Batanga	PERENCO
46	Oguendjo	PERENCO
47	Pelican East	PERENCO
48	Akondo	SINO Gabon
49	Torpille	TOTAL GA
50	Gaga	PERENCO
51	Toucan	ASSALA GA
52	Avocette-Dianongo	PERENCO
53	Obangue	ADDAX
54	Tsiengui	ADDAX
55	Rabi-Kounga	ASSALA GA
56	Onal	MAUREL PR
57	Maroc-Maroc Nord	MAUREL PR
58	Omko	MAUREL PR
59	Vanneau	PERENCO
60	Mono	PERENCO

Number	Name	Owner
61	Torpille	PERENCO
62	Ozangue	PERENCO
63	N'Tchengue Sud	TOTAL GA
64	Assewe	PERENCO
65	Ekouata Marine	TEXACO
66	Esterias Ouest Marine	ELF Gabon
67	Iguena Marin	Shell GA
68	Remboue	CHAUVCO
69	Damier	ASSALA GA
70	Pomarin-Mokabou	STREAM OH
71	Autour	ADDAX
72	Mayomi	Stream OH
73	Ruche	BW EN DUSS
75	Ruche	BW EN DUSS
75	Ruche	BW EN DUSS
76	Roussette	SETANTA EN
77	Port-Gentil Ocean	TOTAL GA
78	Mandji Sud	TOTAL GA
79	Banio	Maurel PR
80	Tchatamba West	PERENCO
81	Pageau Marine	PERENCO
82	Ablette	STREAM OH
83	Vera	STREAM OH
85	Atora Centre	PERENCO
85	Ngoma	PERENCO
86	Olowi	PERENCO
87	Diaman 1B	
88	M'Bassou	ASSAGLA GA
89	Bende	ASSAGLA GA
90	Leopard 1	Shell
91	Nyonie Deep	ENI

GABON

Production Levels
(barrels per day)
195,444
OPEC 2019

Africa Production Rankings
5th
U.S Energy Information Administration (EIA)

Proven Crude Oil Reserves
(million barrells)
2,000
OPEC 2019

Proven natural gas reserves
(billion cubic metres)
26
OPEC 2019

Marketed production of natural gas
(million cubic metres)
464.0
OPEC 2019

Refinery capacity (1,000 bpd)
24.0
OPEC 2019

Oil revenue as % of GDP
45%
World Bank

Standard Corporate Tax
30%
PwC

Royalties
20%
PwC

GDP per Capita
(nominal)
$7,952
World Bank

GDP per Capita
(Power Purchasing Parity)
$14,869.8
Trading Economics

GDP Growth
(PPP 2018)
–1.2%
World Bank

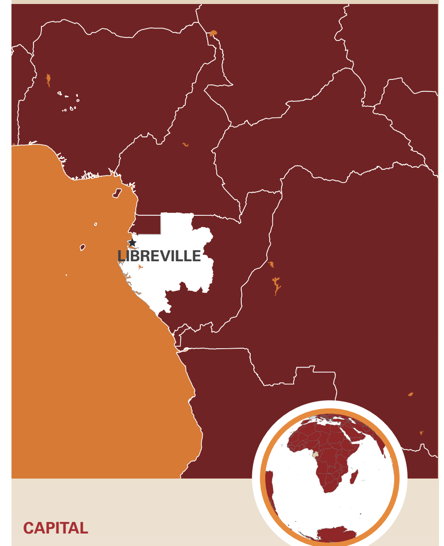
Public Debt as % of GDP
60.66%
CEIC

Inflation Rate Forecast
Q1 2020
3%
National Bureau of Statistics

Value of Exports
(millions)
$6,467
OPEC 2019

Value of petroleum exports
(millions)
$4,767
OPEC 2019

Current Acount Balance
(millions - as of Dec 2019)
–$278
OPEC 2019



CAPITAL
Libreville
LAND MASS
267,667 km2
POPULATION SIZE (2018)
2,119,275
POPULATION GROWTH
2.60%
OFFICIAL LANGUAGES
French
HEAD OF STATE (as of August 2009)
President Ali Bongo Ondimba
HUMAN DEVELOPMENT INDEX (out of 189 countries)
0.702 (medium), 115th
EXTREME POVERTY RATES (income of less than $1.90 a day)
32.4% (2019)
DEMOCRACY INDEX RANKING 2019 (out of 167)
121th
ECONOMIC FREEDOM (out of 180)
118th
EASE OF DOING BUSINESS RANKING (out of 190)
169th
MAIN EXPORTS
crude petroleum, manganese ore, sawn wood
TOP 3 EXPORT DESTINATIONS
China, Australia, EU

SOURCES:
UN Figures
United Nations Development Programme's Human Development Report (2019)
(latest ~figures recorded by the World Bank)
Economist Intelligence Unit
2020 Index of Economic Freedom
Doing Business 2020 (World Bank 2020)
OEC 2019

Gabon
Is oil still the way forward?

Image courtesy of Bourbon

Gabon, a former French-colony, has a long history of producing oil, which was first spotted in 1931 in the vicinity of the capital-city, Libreville. Following a series of discoveries made in the 1950s, including the Ozouri field discovery made by French oil company CFP (today's Total), and Shell's Gamba discovery of 600 million barrels, Gabon experienced an oil boom that made it one of the wealthiest countries in the region. Soon, Gabon's economy was fully revolving around oil. The trade of crude petroleum helped Gabon maintain a special relationship with France, a main export destination before the Chinese superpower took over as the top oil consumer. France, on the other hand, remains to this day the principle importer of goods to Gabon.

For the majority of its modern history, Gabon has comfortably relied on crude oil exports as its main revenue stream; half of Gabon's GDP is sourced from oil. However, events during the past five years have signaled fundamental changes to the country's future. Following the US shale revolution, the oil price crisis of 2014 destabilized Gabon's economic foundations and, in 2015, the country recorded the first fiscal deficit since 1998 as exports declined by more than 10% annually. As a consequence, Gabon became a net receiver of loans from the World Bank after the country's debt reached a five year high in 2019. Then came 2020, with the global paradigms of a health crisis foreboding widespread recession.

Gabon's maturing fields and decreasing production levels, together with the low price regime over the past five years, have brought the country's oil industry to a turning point which has materialized in different ways. First, the oil sector, no longer taken for granted, was revitalized through ground-breaking regulatory changes, including a revamped oil code adopted in 2019. Second, new market conditions triggered a reshuffle and displacement in the holdings of the main players, some of whom left the country after 50 years of continuous operations. Third, the question of economic diversification is becoming urgent. However, the coronavirus has reopened the scars left from the 2014 oil price shock, casting doubt on the future and hindering any ambitious plans to invest in economic diversification.

In July, coronavirus cases in Africa reached one million. The continent has been the least affected by the pandemic, but Gabon finds itself among the countries with the most cases per number of inhabitants. Travelling within the country's borders resumed in June and, by the end of August, flights to Gabon had started operating again on a limited basis. While talk of diversification points to a future less dominated by hydrocarbons, the road to recovery in a post-Covid context will be slow, and Gabon is likely to hold on tightly to its oil industry.

Gabon is OPEC's smallest member, having re-joined the cartel in 2016 after a breaking away from it in 1994. By re-joining, Gabon sought closer international cooperation and protection in the volatile environment. Although currently contributing less than 1% of total global output of oil, Gabon fully bears the consequences of global events. The country's tender for 12 conventional and 23 deep offshore blocks, initially scheduled to close on April 30th, 2020, was indefinitely postponed in light of the pandemic. The postponement of the auction, known as the "12th Licencing Round," buys the country more time to convince investors of the value of these blocks. ■

Hon. Vincent de Paul Massassa

Minister of Oil, Gas, Hydrocarbons and Mines
GABON

The oil sector has played a significant role in Gabon's development. Could you share with our readership what have been the key developments at the heart of the industry's evolution?

During the 1950's, SPAEF, which is today's Total Gabon, discovered the Ozouri field in Port-Gentil and approximately 10 years later, the Gamba field was discovered by Shell. These fields remained central for many years, with the Gamba field still producing today. Gabon's reservoirs could be classified in pre-salt and post-salt, both entailing different interests. While the first discoveries were pre-salt, as was the case for Gamba, activity moved post-salt, which led to others discoveries including Anguille, Torpille. During the 1970s, Gabon saw a boom of E&P activity, which led to significant increases in oil production. Rabi-Kounga, Gabon's biggest discovery, was made in 1985, and in 1997, national production reached a historical peak of 375,000 bopd. Since then, production has either staggered or declined and minor, ancillary discoveries only helped to stabilize or reduce decline.

What potential for future discoveries still exists in Gabon?

What the history of oil discovery in Gabon is teaching us time and again is that the level of reserves has been repeatedly underestimated and findings often exceeded expectations. When the first oil discoveries where made, people were thinking about small, non-commercial to very marginal fields, but decided to go into production anyway. More than 50 years after first oil, some of these fields are still producing and turned out to be among the biggest fields south of the Sahara. Initial production lifetimes have been revised on many occasions.

From the original expectancy of five to 10 years, we see many fields still in production after 30 years. Gabon's rich multiple reservoirs plays and source rocks never ceased to surprise.

Moreover, geology is connected, and seeing discoveries being made both in the south (Congo, Angola) and the north (Equatorial Guinea, Nigeria), Gabon is located right in the middle. The change is that most discoveries until now have been located in onshore and shallow waters, but today we need to focus on the deep and ultra-deep water.

The new oil code which came into effect in 2019 considerably improves the fiscal conditions for E&Ps. Does this come at the right time for investors?

The new oil code offers some of the best fiscal terms in the region in the hope to attract investors to green areas; this requires the imagination and willingness of investors and, on our side, we needed to make sure that they are confident of getting returns on their investments. This is why the code was reviewed. The new code brings all the incentives, investment conditions and fiscal terms that investors look out for. It has introduced a longer exploration period, more relaxed economic and fiscal terms and is generally more flexibility in the execution of contracts. In terms of legal aspects, the Gabonese government has introduced an exploitation agreement with the idea to promote the development of marginal or mature fields which are not always economically under the classic Production Sharing Contract (PSC) conditions.

Gabon needs a renewal of its reserves, which can only be achieved through exploration. For too long, we have been dealing in the conventional zones of known potential, but today we need to move forward to frontier unexplored areas and face new challenges. The right incentives will make this transition easier. All the terms are made available on our website (htpp://gabon12thround.com), preparing investors for the licensing round.

The Gabonese government aims to invest more in other sectors of the economy. How important will oil be as we move along and to what extent can the country lean towards other sectors?

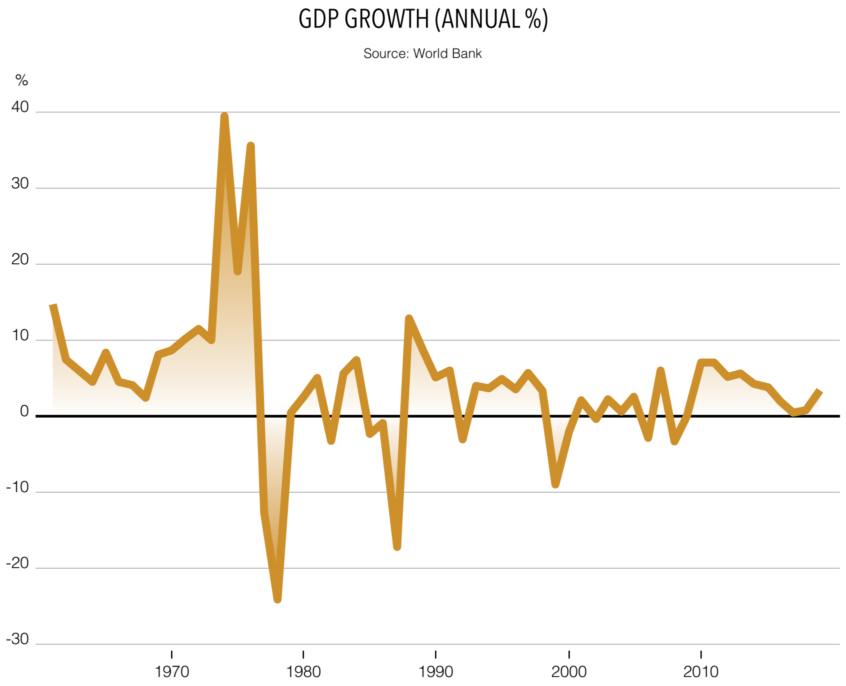
The oil sector will continue to be the primary driver of growth for the country. If we manage to secure higher production levels, the rest of economic activity will be also boosted. Having said that, oil is a finite resource and economic diversification is necessary for a sustainable future. Mining, agriculture, and the exploitation of timber present appropriate potential too, and I hope these will be neck-to-neck or even exceed the oil industry, but it will take time. For now, oil remains the precursor of economic growth. ■

Economic and political overview

Gabon's economic and political life has been markedly influenced by its oil reliance. Known as a stable country which had a lucky break through its discovery of oil, the beautiful promenades along the shorelines in the capital city are testament to Gabon's good fortune. An upper-middle-income country, Gabon's annual GDP per capita has often exceeded US$10,000, an unusually high figure for a West African nation. The revenues coming from oil, in rapport to a population of just over two million inhabitants, are responsible for this, but like so many oil-rich nations in Africa, these riches have rarely been distributed fairly throughout the population. The level of urbanization could also be mistaken as a sign of prosperity, obscuring the sharp divide between the urban and rural population, amongst which poverty prevails. According to the IMF, a third of the country's citizens live below the poverty line.

Decades-long reliance on oil came at the cost of other economic sectors, resulting in the secondary and tertiary sectors being underdeveloped. Crucially, oil reliance also came at the detriment of agriculture. Gabon is an unlikely mixture of fossil fuel richness and untapped natural bounty. While it chose to exploit the former, Gabon has not taken advantage of its promising climate and fertile lands. Oil production afforded the country the luxury to import 80% of all its foods, turning Libreville, the capital, into one of the most expensive cities in Africa.

Less than 200 km south of Libreville, but reachable only by plane or ferry, lies the oil-capital of the country, Port-Gentil. The road that would unite the country's two most populous cities has been in the pipeline for many years, like other infrastructure projects that are yet to see the finish line. "The plentiful years of the oil boom did not result in infrastructure development, as foreign oil producers and the government alike adopted a strictly extractive business model that did not seek to strengthen logistics networks," said Theophile Mboumba, managing director of maintenance service provider Sigma Offshore.



The oil boom did not translate into more jobs either, according to Sylvain Mayabi, general secretary of workers' union Organisation Nationale des employés du Pétrol (ONEP): "The oil and gas industry has always been the biggest contributor to Gabon's budget revenue, but without being the biggest employer in Gabon."

With GDP growth reduced from a whopping 7.1% in 2010 to a meagre 1.2% in 2018, due largely to the depressed oil prices and dwindling production, the same chance to invest in development does not seem likely to return soon. Public debt doubled between 2014 to 2017, and, in 2019, the IMF agreed to disburse US$123.5 million as part of a three-year arrangement in support of macroeconomic stability.

Covid-19 further destabilizes the economic outlook of the country: Gabon's GDP growth projection was reduced from 3.7% to -1.2% for 2020, according to the African Development Bank. Assuming that the pandemic will come under control by the end of the year, 2021 and 2022 growth projections stand at 2% and 3.2% respectively for Gabon. In April of this year, the IMF agreed to another loan in aid of the country.

Throughout the years, the country's steady oil-derived incomes have also left the political life unchecked. Gabon's political stability consists of the continual leadership of the Bongo family, which has presided over the country for more than 50 years. If observers may think the corridors of power have been occupied by the same names for too long, the industry's worry is not the political overstay, but the possibility that the president could be challenged and the instability such a power void could cause. The President's authority was, for the first time, contested openly in the 2016 elections, when Ali Bongo won by a razor-thin margin of just 6,000 votes, amid political apathy and a voter turnout of 59%. Rumours of the President's ill-health still have many questioning his fitness to rule. In a country where most generations have never known any rule but that of the Bongo's, the anxiety is palpable. In July this year, the President selected the first female Prime Minister, Rosa Ossouka Raponda, to lead the Gabonese economy through the pandemic. ■

Business cannot go on as usual: Restructuring in the sector

The E&Ps

The sharp drop in oil prices in 2014 represented a big shock for Gabon's economy as half of its GDP had depended on oil production for decades. From yielding around 10,000 direct jobs before the crisis, the oil sector now employs around 7,000 people directly, according to ONEP's general secretary, Sylvain Mayabi. Over 3,000 redundancies came as long-standing producers like Shell and Marathon Oil, as well as service providers like Halliburton, pulled out of the country. Others scaled back considerably, having to let go of people and rethink their operations.

The E&P sector underwent the most spectacular transformation. Large companies found no benefit in holding on to marginal fields in a low-price environment, and thus chose to either leave Gabon altogether or focus on selected assets. Shell sold all of its assets to Assala Energy in 2017, which took over Gabon's largest fields; Rabi Kounga and Gamba. Assala immediately became the second largest producer after Perenco. The independent Perenco, which has made aggressive acquisitions worldwide, bought the Gabonese Grondin and Coucal fields from Total in 2018, applying secondary recovery techniques to increase the life of the fields. Going against the trend in the sector, Perenco increased production from the modest 8,000 bopd in 1992, to reach 90,000 bopd in 2018, and invested over US$1 billion in infrastructure development during 2014 and 2015. The two biggest producers, Total and Shell, were thus replaced by Perenco and Assala.

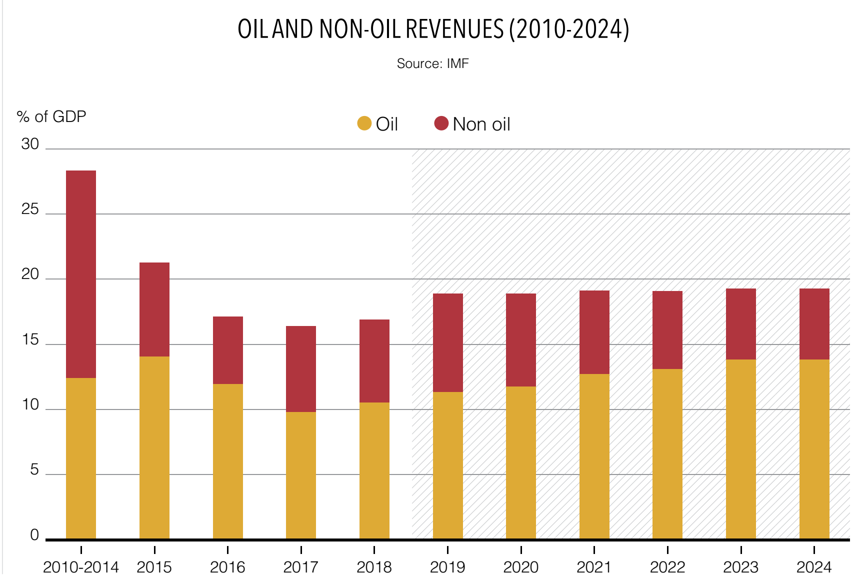
Although it hasn't signed a new PSC in a long time, Total remains the third-largest producer, having downsized to a mid-tier after 85 years in the country. At present, Total's assets are all offshore and of smaller sizes, including Anguille, Torpille and multiple small fields in Mandji Island. Most recently, Total sold stakes in seven of its mature fields to Perenco for over US$290 million.

The retreat of the majors has allowed for newcomers to take a bigger share of the pie. The latest arrival in Gabon is BW Energy, the subsidiary of BW Offshore, a Norwegian FPSO. BW Energy bought the majority shares of the Dussafu field from Harvest Oil for US$32 million in 2017. Production for the Dussafu license is today at 11,000 bopd and results from the drilling campaign suggest this number will grow.

Replacing the monopoly of the majors, smaller, international companies including French oil company Maurel and Prom, Malaysian Petronas, Libyan OLA (Oil Libya Group) and Chinese Addax (a subsidiary of Sinopec) make up a more competitive and diverse market. By the end of the blocks' auction, it is hoped that more players will join. ■

» **By reducing size, Total is today taking what I would call a breathing time after the past few years, which have not been free of challenges. As we move forward, the main goal is to preserve our infrastructure and also maintain the short-term cycle projects which bring immediate production and value. Once we get a sense of market stabilization, we can then launch bigger projects as we did in the past.**

- Sebastien Cane, CFO, Total Gabon «



Nicolas Balesme

Managing Partner and O&G Leader
DELOITTE GABON & CENTRAL AFRICA

Could you give us a brief overview of Deloitte's operations in Gabon?
Deloitte Gabon is part of the Deloitte Francophone Africa cluster and it relies on over 100 professionals across its two offices in Libreville and Port-Gentil. We offer our clients tailored support via a thorough understanding of the immediate challenges in terms of audit, consulting, financial, risk advisory, accounting, business process services, tax and legal services. Deloitte Gabon is the hub for our Central African regional platform. Deloitte has invested directly creating offices in Equatorial Guinea (Malabo-2005), Congo-Brazzaville (Pointe-Noire – 2007), and finally to Chad (N'Djamena – 2014).

How has the oil price crisis affected competition among E&P players in Gabon?
The steep drop in oil prices hit the industry worldwide, and Gabon E&P was no exception. After 50 years of operating in the country, Shell production sold its onshore assets to Assala Energy. CNOOC International has executed agreements to become the 100% working interest owner and operator of the BC9 and BCD10 licences.
Together with Shell, Total and Perenco used to be the three biggest producers, together accounting for more than 75% of total output. This ranking has changed drastically: Total sold some of its mature assets to Perenco in 2017. Perenco has become the largest producer, followed by Assala and Total. For the past three to four years, drilling offshore and deep offshore has been at a stand- still.
The crisis affects also governmental efforts to promote the Gabonese sedimentary basin. The closure of the 12th bidding round for the allocation of 35 oil blocks, launched in November 2018, has once again been postponed due to the serious obstacles players are facing in relation to the COVID-19 pandemic and the containment measures locally introduced. The lack of visibility in this health crisis prevented the government from engaging on a new deadline .

What are the prospects for the Gabonese oil industry in the future?
Since the onset of the COVID-19 crisis, lower oil prices have reduced the attractiveness of E&P operations, especially for deep-water drilling, which is much more expensive. The new oil code becomes incredibly strategic in this context. We are waiting on the results of the 12th bidding round which will be seen as a signal of Gabon's attractiveness compared to competing countries in the region also calling for O&G tenders. Although the government's priority has been to diversify the economy into mining, forestry, and agriculture, the oil industry remains the main economic contributor for the years to come. Prospects for the oil industry are positive, but these are contingent on three factors: the attractiveness of the regulatory framework, which was realized through the new hydrocarbons code; exploitation of deep-water and pre-salt offshore deposits; and the promotion of local content to create value for the population.

What benefits does the new oil code bring to potential investors?
Compared to the previous legislation, the new hydrocarbons code is a clear positive evolution, improving the licensing and fiscal terms for O&G companies. The government ownership threshold was reduced from 20% to 15% carried interest in discoveries. Royalty rates were set between 7% to 15% for oil, and between 5% to 10% for gas in conventional offshore areas, with even lower rates in ultra-deep offshore. Profit from oil is to be set at 45% in conventional zones (40% in deep-water offshore and ultra- deep-water zones) and it now includes the corporate income tax due by the contractor (meaning the transfer to the State of its share in profit from oil is in full discharge of corporate income tax).

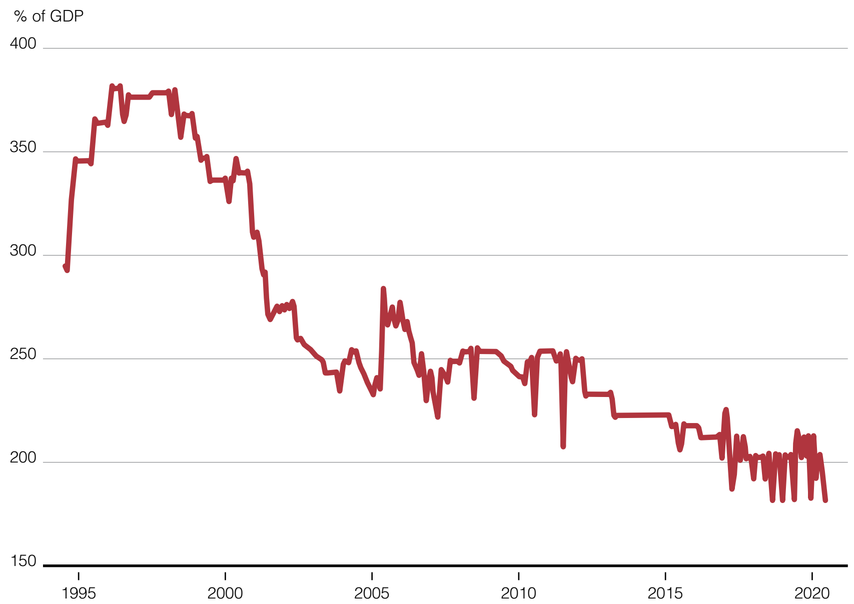
How is Deloitte assisting its private and institutional clients to navigate regulatory challenges in the country?
Our understanding of the O&G industry enables us to deliver solutions that suit our clients' needs across the value chain, supporting them to capitalize on the opportunities and manage the challenges. Through our consultancy and risk advisory wing, Deloitte Consulting helps companies build value by taking a risk-intelligent approach. Within the legal and tax services, Deloitte offers clients specialized tax advisory tailored to local regulation. We also help clients address fraud, forensic investigations, litigations, and re-organizations through our financial advisory arm. We provide support for strategic investments, M&As, divestments, capital planning, due diligence, and vendor assistance. Finally, our BPS arm (Business Process Services) is an outsourcing service for accounting, financial reporting, payroll, and tax compliance. The whole scope of these professional services is supported by our Deloitte global network. ■

The Service Providers

Mostly based in Port-Gentil, Gabon's oil and gas service sector went through a difficult period following the price crash, and is facing another crisis now. With only nine companies in production and 11 in exploration, the battle for contracts became fiercely competitive post 2014: many addresses are ghosted, left by companies that either moved location to reduce rent costs, or closed down operations entirely. Transocean, the world's largest offshore drilling contractor with operations in Gabon for 35 years, had to close its doors. For Benjamin Ewouba, who has been heading the Gabon office, sending off the remaining equipment to Houston and Congo was a hard task: "We couldn't do anything; the crisis was not coming from the country itself," he said.

OIL PRODUCTION DECLINE

Source: Trading Economics



For those that remain active, contracts are scarce. Sigma Offshore, the Aberdeen-based turret mooring and fluid transfer systems provider, has all activity on stand-by until April, when the company is commissioned to conduct maintenance work for Total.

Learning from the previous crisis, Bourbon completely recalibrated its offering from a vessel renter to an integrated service provider with three capabilities: mobility of personnel, maritime logistics and subsea services. "What we learned in 2014-2015 is that the crisis is different from any others we faced and that the market will never return to the pre-2014 numbers. Aware of this, Bourbon could not continue with the old model either," said Gildas Courau, managing director of Bourbon Gabon.

Bourbon sought to limit liabilities and make more cost-effective use of its assets. Rather than renting the full vessel with the crew at a premium price as they once had, Bourbon broke down its service into specialized units, as well as tailoring it to carry personnel from different oil platforms and different companies too, almost like a hop-on, hop-off service. Moreover, it implemented fuel incentives for the client, who is reimbursed half the value of the fuel savings.

Gabonaise de Chimie, a chemicals merchant in the oil industry, survived the previous crisis thanks to its wide portfolio in other industries. Besides the solvents for oil liquefication and other products provided to the oil industry, the remaining 75% of the business is represented by the agriculture and chemicals industry. This broad portfolio helped them buffer the downturn. "Business improved but the boom of 2010 has not returned; those four years were a bubble waiting to burst and what we see today is another downcycle episode," said Dominique Grimaldi, managing director of Gabonaise de Chimie, Libreville branch.

Besides competing against each other, service providers are also up against a very challenging business climate. Poor logistics and infrastructure favor those that have both a strong network outside the country, as well as deep roots in the country. The contractors that survived the difficult business climate over the past few years are those who could count on a global apparatus to overcome everyday challenges, such as equipment supply. Frederic Ceccaldi, managing director of Aeroflex, a hydraulic tubes merchant, highlighted how issues of equipment failure can stall projects more harshly than they would elsewhere because of the complexity of procurement chains: "It can take up to three weeks to source a replacement part," he said.

Companies with international affiliates are better prepared to overcome such challenges, helped by their international ties. At the same time, having a solid local footing is as important. If the E&P space favoured new entrants, in the services sector it is the well-known players with expertise and longevity in the country that are most likely to be contracted. As an example, Perenco's upcoming renewal of its fleet is likely to be awarded to a well-established contractor with a long reputation both inside and outside of Gabon.

Service providers play a pivotal role in helping producers navigate the logistical and business challenges. Théophile Mboumba, the founder of Gabonese Sigma Offshore, a diving services company based in Port-Gentil, expressed the importance of establishing local partnerships to ensure business continuity: "The ecosystem of service providers has been key in ironing out the creases of unpredictability and to ensure the smooth running of operations. A local partner with experience and a solid network in the country is an important asset for investors." ■

In need of fresh discoveries

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What the history of oil discovery in Gabon taught us time and time again is that the level of reserves has been repeatedly underestimated and findings often exceeded expectations. When the first oil discoveries where made, people were thinking about small, non-commercial to very marginal fields, but decided to go into production anyway. More than 50 years after the first oil discovery, some of these fields are still producing and turned out to be the biggest fields south of sub-Sahara.

- Vincent de Paul Massassa, Minister of Hydrocarbons, Government of Gabon

«

Since Gabon's biggest discovery at Rabi-Kunga in 1986, and subsequent record production in 1996 of 365,000 bopd, production has declined significantly. Based on the most recently available sources, production is currently at 210,000 bopd, with expectation that this number will halve by 2025 should no new discoveries be made. Between 2014 to 2019, there were no exploration contracts signed in Gabon.

However, Gabon managed to increase its crude oil daily output by 11.9% in 2019, reversing years of production decline and considerably improving the fiscal stance in the country. Two significant offshore discoveries, namely BW Energy's Dussafu and Vaalco's South East Etame projects, have made the overturn possible: BW Energy also produced its first oil from Tortue Phase 2 field development this March, while Vaalco completed subsequent drilling at Etame, as part of its decade-long tenure to 2028. Besides this, French producer Maurel and Prom is planning a second exploration well on its Nyanga-Mayombe licence, after drilling at Kama-1 yielded disappointing results.

Funding exploration worldwide is an uphill battle in the current market, but Gabon has experienced an even more challenging investment climate, precisely because of its limited recent discoveries. FDI flows into the country fell from US$1.5 billion in 2017 to US$846 million in 2018. Furthermore, results from recent drilling campaigns do little to reanimate hope. Ophir spent over US$500 million on a drilling campaign before leaving the country. Marathon Oil also gave up on Gabon after coming across only one reservoir, which was not profitable. The notable exception is the BW Energy-operated Dussafu field, whose estimated reserves have tripled through development.

Fresh-in-office, Minister of Hydrocarbons Vincent de Paul Massassa believes that Gabon hides unexpected reserves: "What the history of oil discovery in Gabon taught us time and time again is that the level of reserves has been repeatedly underestimated and findings often exceeded expectations. When the first oil discoveries where made, people were thinking about small, non-commercial to very marginal fields, but decided to go into production anyway. More than 50 years after the first oil discovery, some of these fields are still producing and turned out to be the biggest fields south of sub-Sahara".

The Ministry hired international companies Spectrum and CGG to undertake a geo-seismic survey of the country to give a more concrete overview of the resource potential. Spectrum prognosed that the North Basin area might contain pre-salt reserves. Together with the extension of the 12th Offshore licencing round, and in a bid to further incentivise investors, Gabon recently expanded its 3D seismic access as part of a MegaSurvey coverage of 65,000 square km which allows investors to visualise the geology of the plays.

In 2019, all major producers ran drilling campaigns with few encouraging results, but the authorities believe Gabon has more up its sleeve. What gives the Minister and others confidence is that the exploration done so far has been onshore and in superficial waters only, and it is time to focus efforts on the offshore and deep waters where pre-salt discoveries might be made. However, offshore oil extraction comes with its own set of challenges, putting an end to the "easy oil" resulting from cheap extraction. So far, only Petronas has the capacity to operate offshore in deep water. In August 2019, Petronas signed an agreement for two exploration blocks, the country's first such contract in the past five years. Onshore exploration, on the other hand, is difficult due to swamp areas. To explore these areas, new players need to be brought into the country.

Some companies are also exploring avenues in gas. Gabon's gas reserves currently stand at 26 billion cubic meters. While companies have come across gas in their search for oil, the discoveries made were not deemed commercially viable. It is only Perenco that operates a 511 million-cubic metre gas reservoir, while Eni and CNOOC (China National Offshore Oil Corporation) are in the process of obtaining permits for their gas discoveries in shallow and deep pre-salt, respectively. However, poor LNG infrastructure in the Sub-Saharan region, together with Gabon's lack of a legal and tax regime to incentivize gas exploration, makes gas production a far-fetched pursuit. ■

12th Licencing Round: Mapping the regulatory field for investors

In a bid to attract investors to its unexplored fields, two years ago Gabon launched its 12th Licencing Round, which was extended until April 30th, 2020. The Minister went on a roadshow to the US and Europe to promote the 12 conventional and 23 deep offshore blocks, together spanning over 17,000 square km. In addition to these, there are another 20 mature blocks offered to direct negotiators in onshore and shallow waters, for which special incentives are granted. The success of the bidding round is subject to many external factors, most notably the global oil price. Even if this improves, Gabon needs to grab investors' attention, which is solicited by other countries running live bidding rounds, including Egypt, Nigeria and Senegal. At the same time, Gabon needs to tackle its own business-climate shortcomings to make the case that it is an attractive jurisdiction.

The 2019 hydrocarbons code

Gabon's previous bidding rounds were unsuccessful largely due to the previous oil code. It took Gabon a crisis to make its fiscal regulation friendlier to investors, but has this come too late? The new hydrocarbons code came into effect in July 2019, to make up for the shortcomings of the former 2014 code, most importantly by eradicating a system of double taxation for the upstream sector: the corporate tax of 35% has been removed. Royalty rates are also cut from 13% to 7% in conventional waters, and from 9% to 5% in deep water. Furthermore, the lifespan of Production Sharing Contracts (PSC) has been extended by two years, to allow bidding companies 10 years for exploration and 15 years for production under fixed terms for the specified period. The new legal basis is hoped to galvanize investment, which proved particularly sluggish over the past five years.

The new code introduces special provisions for gas too. The exploitation period granted for gas starts with 15 years in conventional areas and 20 years in deep and ultra-deep offshore areas, both periods extendable. In shallow water, gas royalties were dropped from 12% to 4%, while in deep water these came down to 2% from 9%. Erik Watremez, partner at EY Gabon, believes the new code makes the transition from one of the least attractive legislations in Africa to one of the most competitive. The strongest feature of the new code, in his view, is its flexibility: "If the framework changes repeatedly and is inconsistent in the long-term, investors are likely to hold back. In Gabon, negotiations are open around the new guidelines, especially when it comes to specific conditions such as onshore and offshore extraction differences. It is important to keep in mind that the code is not set in stone, especially as oil investors have immense financial leverage." ■

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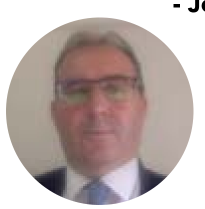
Gabon needs to re-start exploration, improve the production of existing wells and strike new discoveries to increase its production. To achieve these, oil and gas investors need strong incentives, and the hydrocarbons code is elementary in the incentives package.

- Jean Pierre Bozec, Founder, Project Lawyers



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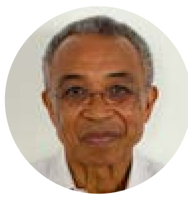
The code was proposed by the industry and reflects the views of the private sector, both in economic terms and in its general philosophy. Following the period starting with 2014, it has been difficult to promote Gabon because the fiscal terms have not been appealing to companies interested in exploration. The new petroleum code was updated as a means to encourage exploration. The code is very attractive but there are still some roadblocks on the path to foreign investment.

- Charles Tchen, Founder, Independent Petroleum Consultants (IPC)



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CEMAC 2018 Regulation

Image courtesy of Bourbon

The most talked about regulation issue is, surprisingly, not the oil code, but CEMAC or BEAC regulation. The new regulation launched by the Central African Economic and Monetary Union (CEMAC) in 2018, with effect on all francophone countries using the CFA franc, requires any operator registered in Gabon to keep a bank account in the country and pay all suppliers from the resident account, thus setting up oil revenues in the CFA zone. This measure was taken in an effort to replenish the currency reserves.

Initially considered a temporary measure, a renewed exchange regulation came into force in March 2019, catching everyone unprepared. The reinforced regulation takes no account of the oil and gas companies' promises and special clauses agreed with the State through previous PSCs. These normally include guarantees of free disposal of export proceeds, free offshore accounts and free movement of capital. What this means is that investors spend their foreign money in Gabon for exploration and development, and are then forced to repatriate earnings in Gabon and convert these incomes into the local currency. Therefore, the repatriation of incomes in CFA franc contravenes many PSCs.

At the moment, the oil and gas companies are in a transitional period extended to December 31st, 2020, to allow foreign companies to accommodate the new regulation. The new rules cannot be overridden by the PSC agreements, as neither BEAC (Bank of Central African States) nor the State can derogate from the new regulation. "Ultimately, this issue could lead to international arbitration as most CEMAC States guaranteed oil and gas companies advantages for foreign exchange and stability of the regulations enforced at the time of PSC signature," believes Jean Pierre Bozec, founder of Project Lawyers.

It is feared that the CEMAC 2019 requirement will cancel out the advantages of the 2019 oil code. While the newly issued oil code is more flexible, the new currency exchange rate encumbers the industry. For Jacqueline Bignoumba-Ilogue, president of petroleum association UPEGA, the CEMAC regulation is the most serious detractor to investment in the current environment, and the oil code is failing by not addressing the issue: "The new oil code leaves investors reserved and even confused on the matter," she said. UPEGA's main mission for 2020 is to lobby for oil operators to be exempted. Without this exemption, majors are unlikely to risk their money in Gabon. Gabon, on the other hand, cannot risk losing its prospective investors.

The 12th Licensing Round had been extended multiple times to incorporate changes in the regulatory framework, including the new oil code. Rapid regulatory changes and poor institutional governance are some of the main factors that place Gabon 169th out of 190 in terms of ease of doing business, according to the World Bank. "You need to know the country to operate here," said Daniel Cormouls-Houles, director of Gabonaise de Chimie, Port-Gentil branch, as he reflected on the constant policy changes. ■

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The oil code is attractive, but it still has some way to go before it fully meets industry expectations. The main issue that we find is that the oil code makes no provision for BEAC regulations, which leaves investors reserved and even confused on the matter

- Jacqueline Bignoumba-Ilogue, President, UPEGA

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Developing the infrastructure for diversified growth

Considerations of decreased resource potential and an unattractive regulatory framework have turned the narrative around for Gabon, challenging its economic identity as an oil producer as well as its attractiveness as an investment destination. Talks of economic diversification have intensified over the past decade and, for the first time, have been communicated in a formal manner through the Emerging Gabon Strategic Plan/Plan Strategique Gabon Emergent (PSGE). Referred to as "Emerging Gabon", the government has announced goals for the economic diversification of the economy by 2025, drawing up strategies for the mining industry, the services sector, agriculture and fisheries. Assigned with the task of promoting investment in non-oil sectors is the National Agency for the Promotion of Investment/ Agence Nationale de Promotion des Investissements du Gabon (ANPI).

Nevertheless, the reality facing Gabon is that any major investment to boost its under-developed sectors relies on cash flows coming from oil. That is to say, a diversified economy is inclusive of the oil sector: "To finance diversification, Gabon needs its extractive industries. The economy should be diversified, but it is not about selecting one path amongst others but bringing all these sectors together," said Erik Watremez, partner at EY Gabon.

Although not ready to embark on a full project of economic diversification, Gabon is starting to see oil production not as an end goal, but a means to more sustainable growth. To be able to aspire to a broadened economic base, Gabon needs to develop its infrastructure, whether it is soft or hard, for the benefit of all sectors. Oil companies are already asked to pay a small percentage of their revenues towards economic diversification as part of a CSR-type contribution. For Benjamin Ewouba, director at Transocean Gabon, infrastructure is an empty buzzword, a bleak view he has adopted after seeing many of the running public projects halted due to lack of funds.

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Many international companies will keep small teams in each country, and if the climate turns negative, they simply leave. By contrast, we embed our operations in each country. Logistics are a heavy challenge for service providers like us in Gabon, but we benefit from having well-established processes to overcome such issues.

- Gildas Courau, Managing Director, Bourbon Gabon

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Starting with the hard infrastructure, Gabon has one of the worst road densities in the world, which isolates it from global supply networks. Only 12,000 km of paved road cross the 260,000 square km country. The administration is yet to inaugurate the first trans-country road to connect the landlocked Franceville to the capital of Libreville. Also under construction is the first road link between the country's two largest cities, Libreville and Port-Gentil, although progress on this project remains uncertain after seven years. "Road infrastructure is a very relevant issue and a real brake for the country's economy. Existing infrastructure projects have not been devised in consideration of the heavy rainfall that challenges constructions in Gabon, and this has taken a toll on the sustainability of existing infrastructure. Operational costs are higher for everyone due to the lack of infrastructure," highlighted Jacqueline Bignoumba-Ilogue, president of UPEGA.

Nonetheless, Gabon made strides with its first SEZs; one dedicated to the oil industry in Mandji Island, near Port-Gentil, and another in Nkok, Libreville. The IMF also shared that the official 2020 State budget defines a series of mega infrastructure projects, including social spending. Ranking 110th out of 189 countries according to the 2019 UNDP Human Development Index, one of the main priorities for Gabon is the development of its soft infrastructure, especially when it comes to education and health.

Soft infrastructure: Is the young local talent prepared to take on the country's new challenges?

Between 2015 to 2019, 30% of all oil-related jobs were lost due to the economic crisis. In an economy where the dominance of oil is starting to dissipate, economic uncertainty meets an unprepared local workforce. Gabon did not have a university until 1978, instead sending pupils abroad to Europe, Nigeria or South Africa with scholarships. Professional skills have been informally attributed to the foreigners coming to Gabon: For instance, the Senegalese have a reputation for being electricians. The immigrants have been doing the jobs that the Gabonese were not trained for, while the Gabonese became known for their expertise in oil.

In oil-cities like Port-Gentil, people are so accustomed to working in the industry that shifting to other sectors would be difficult, believes Daniel Cormouls-Houles, director of Gabonaise de Chimie, Port-Gentil branch: "The Gabonese are well-ingrained in oil; they cannot see themselves taking to the field in agriculture, for example… they have been in the petroleum industry for 50 years, but what they may not see yet is that 20 years from now, the petroleum sector will not be the same. A shift in mentality is due."

Owing to the country's inadequate educational infrastructure, it has been difficult for the Gabonese to obtain certified training. "The problem is not one of talent, but of training and certifications," said Gildas Courau, managing director of Bourbon Gabon.

Bourbon, a company that employs over 8,400 employees worldwide, trains 10 Gabonese pilots for their fleets every year. When it comes to specialist training, oil companies played a key role in training personnel by creating private schools for industry-related professions, such as schools for electricity, pipes production or welding. However, during the years of crisis, continuing the professional development programs became a hard decision, even for Bourbon, and some have been halted.

Sylvain Mayabi, general secretary of workers' union ONEP, believes the oil industry has not contributed proportionally to the development of the real economy and local employment: "Foreign companies have not adhered to the 10% maximum cap of foreign workers stipulated by law," he said.

Local companies find that local personnel with the right qualifications are sometimes not available. For instance, maintenance company Amosco's entire team is made of expats for its operations in Port-Gentil, having not found locals qualified for the job.

To respond to these gaps, the new Hydrocarbons code includes new recommendations for local content, setting a minimum requirements to hire locally and penalizing non-compliance. Nicolas Belesne, managing partner at Deloitte Gabon, believes these are progressive provisions for the country's socio-economic development, which can also benefit the majors: "O&G companies should engage with local communities, authorities and stakeholders from an early stage to lay the foundation for long-term and meaningful relationships. By embracing localization policies, multinationals can lower supply chain costs, boost local skills development, reduce risk and enhance their reputation in the country."

Companies like EY have purposefully strived to increase local content, and its Libreville-based office hires the lowest rates of expats of the Big Four. EY partner Erik Watremez is hopeful in regards to Gabon's local talent, having noticed a remarkable change while sitting on the Board of Junior Achievement: "The spirit of entrepreneurship is arriving in Gabon, and it is not arriving from the outside, but from within the youth who are not expecting anything from the government and take responsibility upon themselves".

If decades ago, public sector jobs were the most appealing, today's youth takes a different view. With one in two Gabonese aged under 20, the country's young population means that many are still undergoing training and, with the right policy framework, their skills can be modelled to face the evolving labour needs of the country.

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Gabon is a stable and peaceful country with a small population congregating in the urban areas. Ethnic and religious divides are no cause for conflict; people are mixing from school through adult life. The country is changing and, even though change can be scary for investors, I believe it is now that investors need to come to the country to establish their leadership for future years.

- Erik Watremez, Partner, Audit, EY Gabon

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Concluding Remarks

The past five years have demanded that Gabon must reinvent itself amid plummeting oil prices. The country has also been grappling with its internal barriers to business, together with political uncertainty, a dearth of investment and a lack of recent discoveries. Between looking deeper offshore and looking into other economic sectors, the industry has found no shortcuts. The Covid-19 crisis has restated the need for change but leaves the country no respite before being put to the test once again.

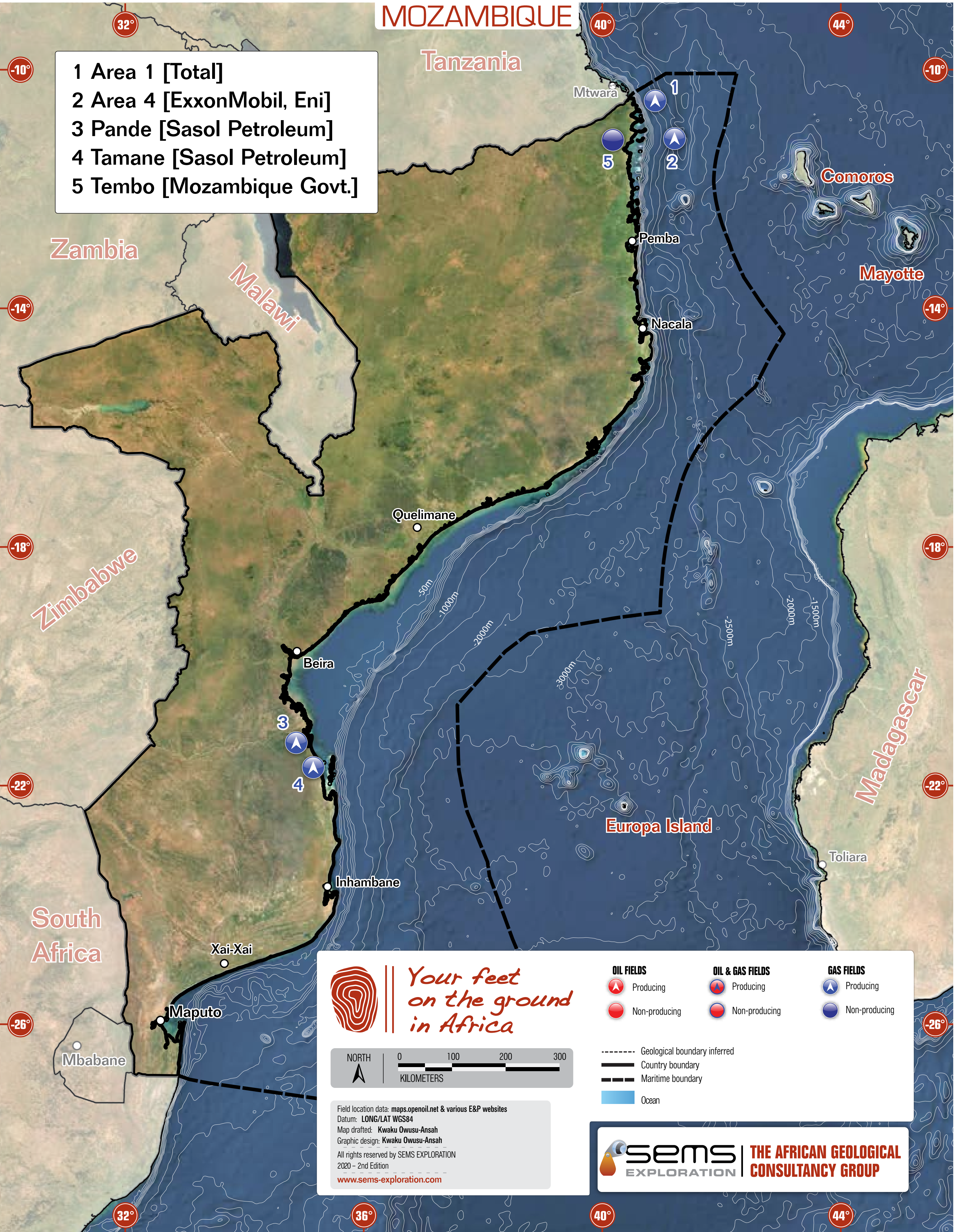
Gabon may not be moving directly towards a post-oil economy, but it is coming to terms with the idea that oil can no longer remain the only economic driver. The transition away from oil will manifest itself in the economic, political and social fabric of the country, but for now, these transformations will have to wait as the pandemic calls for a conservative approach to investment.

If played well, the regulatory, market and policy changes of the past few years can be looked back at as necessary reforms both because of, and in spite of, impending challenges and crisis. Regardless of the outcomes, Gabon can no longer be easily described as oil-rich nor oil-dependent without certain caveats. Investors, public officials and industry executives are legitimised in asking themselves whether the future of Gabon is still in oil. At the same time, external conditions to forge a different economic path have rarely been so inauspicious. ■

MOZAMBIQUE

"We have been very clear that there will be a Qatari style value chain created in Mozambique in the coming years. It is public domain that there is US$5 billion of local content as an opportunity from the first two onshore projects alone. Standard Bank believes there is an enormous prospect to build a very large industrial complex in Northeastern Mozambique along the lines of a Ras Laffan."

- Paul Eardley-Taylor,
Oil & Gas Coverage – Southern Africa,
Standard Bank



Production Levels
(barrels per day)
0

Africa Production Rankings
–

Proven Crude Oil Reserves
(million barrells)
0

Proven natural gas reserves
(trillion cubic feet)
100
EIA 2020

Marketed production of natural gas
(billion cubic feet)
212
EIA 2020

Refinery capacity (1,000 bpd)
–

Oil revenue as % of GDP
–

Standard Corporate Tax
32%
Deloitte

Royalties
20%
Deloitte

GDP per Capita
(nominal)
$587 / 180th
IMF

GDP per Capita
(Power Purchasing Party)
$1,280 / 180rd
IMF

GDP growth
(PPP 2019)
2.22%
The World Bank

Public Debt as % of GDP
2019
118%
CEIC

Inflation Rate Forecast
Q1 2021
3.8%
Trading Economics

Value of Exports
(millions)
$5,196
The World Bank

Value of petroleum exports
(millions)
$415
EIA

Current Acount Balance
(millions - as of Dec 2019)
–$1,012.70
The World Bank

MOZAMBIQUE

CAPITAL
Maputo
LAND MASS
786,380 km2
POPULATION SIZE (as of 14 September 2020)
31,449,073
POPULATION GROWTH
2.91%
OFFICIAL LANGUAGES
Portuguese
HEAD OF STATE (as of 14 September 2020)
President Filipe Nyusi
HUMAN DEVELOPMENT INDEX
(out of 189 countries)
0.446 (low) / 180th
EXTREME POVERTY RATES
(income of less than $1.90 a day)
62.4% (2019)
DEMOCRACY INDEX RANKING 2019 (out of 167)
120th
ECONOMIC FREEDOM (out of 180)
160th
EASE OF DOING BUSINESS RANKING (out of 190)
138th
MAIN EXPORTS
Seafood, cotton, coal, aluminum, tobacco
TOP 3 EXPORT DESTINATIONS
India (27%), Netherlands (21%), South Africa (17.2%)

SOURCES:
UN Figures
United Nations Development Programme's Human Development Report (2019)
(latest ~figures recorded by the World Bank)
Economist Intelligence Unit
2020 Index of Economic Freedom
Doing Business 2020 (World Bank 2020)
OEC 2019

Mozambique
Cooking with gas: Rovuma LNG ramps up

If ever a nation deserved a change of fortune, it was Mozambique. The US$2 billion Tuna Bonds scandal in 2016 plunged the Southeast African republic into its worst financial crisis since independence in 1975; in 2019, tropical cyclones Idai and Kenneth destroyed large parts of the city of Beira and the province of Cabo Delgado; and 2020 needs no explanation.

However, the development of vast deposits of non-associated gas in the Rovuma Basin has positioned Mozambique for a brighter future of economic growth. Having an asset is no guarantee of success, as illustrated by Tanzania, which found a minimum of 30 tcf (trillion cubic feet) of gas months after the Rovuma discovery in 2010 – a project that remains undeveloped. Indeed, Rovuma was not built in a day, but the July 2020 announcement that Total had secured US$15.8 billion to fund development at Area 1 is a tangible landmark.

To put the scale of Mozambique's LNG development into perspective, the funding secured by Total in July represents the biggest foreign direct investment in Africa to date, which is larger than the entire GDP of Mozambique (US$14.93 billion in 2019, as per the World Bank). Furthermore, when factoring in Exxon's Area 4 FID, which is expected to arrive in 2021, and Eni's investment into the Coral South project, a total figure more than triple the nation's GDP is a conservative estimate.

Total's project includes the development of the Golfinho and Atum fields in the offshore Area 1 concession, containing more than 60 tcf of gas, and the construction of a liquefaction plant with a capacity of 13.1 million tons per annum. Initial production is expected by 2024.

In July, Standard Bank announced it had invested US$485 million in the Mozambique LNG project. Paul Eardley-Taylor, responsible for oil and gas coverage for Standard Bank in the Southern Africa region, detailed that the bank is lending money in two tranches: the ECIC (Export Credit Insurance Corporation of South Africa) facility for South African content that will be used in the project, and the overall commercial lending facility. "We hope this sort of financing will be the template for Rovuma LNG in the next 12 months and future projects going forward," he revealed.

Despite the obvious challenges 2020 has brought to the development of Rovuma LNG, including a lack of demand that has caused gas prices to fall and investment capital across the industry to be reduced, Eardley-Taylor believes the outlook started to improve from July. "Some big green shoots of recovery have emerged. If you cut global capex out of the industry, which has happened, EPC prices drop for both onshore and offshore work. Therefore, we expect the target prices for both elements to be reevaluated and requot-

Paul Eardley-Taylor

Oil & Gas Coverage – Southern Africa
STANDARD BANK

In July, Standard Bank announced it has invested US$485 million in the Mozambique LNG project. Where is this money going?

Standard Bank is lending money in two tranches: the ECIC (Export Credit Insurance Corporation of South Africa) facility for South African content that will be used in the project, and the overall commercial lending facility. Across the board the debt facilities will fund offshore and onshore kit and services with a view to the LNG project being online by 2024. We hope this sort of financing will be the template for Rovuma LNG in the next 12 months and future projects going forward. The US$15 billion financing already committed to Mozambique LNG is approximately the same amount as the country's GDP and, as such, has been getting a lot of media attention.

To what extent do you think the development of Rovuma LNG is predicated on higher gas prices?

When Rovuma LNG were working on the financing they were caught in the cross fires of COVID in China and Korea in February and March, which put them on the back foot. Then the wider pandemic hit, prices fell and investment capital across the industry was reduced. However, some big green shoots of recovery have emerged. If you cut global capex out of the industry, which has happened, EPC prices drop for both onshore and offshore work. Therefore, we expect the target prices for both elements to be reevaluated and requoted during the course of 2020, before FID in the second half of 2021. As well as oil prices, a key issue for Rovuma LNG is not so much the prevailing price, it is the COVID situation. People need to fly back to Mozambique to work on the project, and fly around the world to execute the contracts. We have full confidence that Rovuma will go ahead as the project is too big to be stopped.

What type of ecosystem and value chain will need to be created to aid oil and gas development in Northeastern Mozambique?

We have been very clear that there will be a Qatari style value chain created in Mozambique in the coming years. It is public domain that there is US$5 billion of local content as an opportunity from the first two onshore projects alone. Standard Bank would encourage global companies with experience in LNG projects to move to Mozambique where we would be happy to help you and believe there is an enormous prospect to build a very large industrial complex in Northeastern Mozambique along the lines of a Ras Laffan.

There is a lot of talk about energy transition. Do you think we will see a noticeable shift in the type of energy used in Africa this decade?

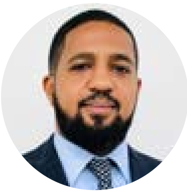
From a Southern Africa point of view, we expect a combination of gas and renewables to really break through this decade, which is entirely in line the energy transition. Mozambique is middle of the fairway in this regard, with natural gas and LNG contributing to the switch from coal to gas. The gas going to Europe will allow people to top up their portfolios which are diminishing through production. In time, we expect Mozambican natural gas to supply the region, with the bellwether example being the combination of the Matola FSRU and Rompco to supply South Africa – alleviating power shortages, replacing diesel, and contributing two other options apart from coal. We will also see a lot of distributed and decentralized renewable energy, principally photovoltaic solar. A mix of photovoltaic solar inland in many African markets, with LNG on the coast replacing diesel and HFO, looks to be a developing model throughout the rest of the decade.

What would you say are the areas of highest potential for oil and gas development in Southern Africa in the next five years?

The poster children of either existing production or projects that have taken FID are Angola and Mozambique. Mozambique's role in unlocking the region in terms of gas supply is going to be extremely exciting. It should be able to supply the islands and the inland countries. The combination of exploration on the West coast, bureaucracy changes in Angola and the bellwether of Mozambique could lead to most markets having some access to hydrocarbons, probably through LNG, within about five years. ■

There has been a huge increase in terrorism in the Northern region, but even with this, work has continued. The issue for many services providers now is that everybody seems to be coming back to the table for repricing and hopes for a good margin are getting lost.

- Chivambo Mamadhusen, CEO, Grupo Videre



ed during the course of 2020, before FID in the second half of 2021."

Lorenzo Fiorillo, Eni's EVP for West Africa, provided an update on the company's activities at Rovuma LNG, where Eni will operate the offshore part of the project, which comprises of 24 subsea wells. "At the moment we are optimizing the development plan to create synergies with Area 1," he said, adding that the updated project and a new FID date will be selected based on the result of the optimization phase.

Regarding Coral South, Fiorillo related that the project is progressing steadily, with the construction of the CoralSul FLNG 70% complete by March 2020. "By Q4 2021, the FLNG will be ready to leave the port, with planned start-up in H1 2022 and first cargo by H2 2022. At 3.4 million tpa LNG over a period of 25 years, it is a significant project and the first one to put in production Mozambique's gas resources."

Militants threaten LNG development

On August 12th, 2020, Ahlu Sunnah Wal Jammah (ASWJ) militants captured the port of Mocimboa da Praia, according to a report from Moz24Horas. This was the third time militants had seized the port, situated 60 km south of the Afungi peninsula, and a key logistical piece for the development of Mozambique LNG. The seizure was indicative of a rising extremist insurgency in the north of the country, where the sophistication and resilience of ASWJ continues to stifle an ill-equipped and underfunded Mozambican military. "The momentum is firmly with ASWJ and without significant regional assistance, substantial financial commitments and major structural reform it is unlikely that the Mozambican army will manage to substantially turn the tide in their favor in the next six months," stated Alexandre Raymakers, senior Africa analyst at Verisk Maplecroft.

Having claimed over 1,000 lives since 2017, ASWJ have grown in strength in 2020, with opportunistic attacks on operators and suppliers at Mozambique LNG now becoming a distinct possibility. To what extent has this impacted project development? "There has been a huge increase in terrorism in the Northern region, but even with this, work has continued," said Chivambo Mamadhusen, CEO of Mozambican firm Grupo Videre, observing the ramping up of activities at Area 1, with Total chartering multiple Solenta flights in July to take workers from Maputo to Pemba and Pemba to site.

Although work has continued, terrorism in Northern Mozambique has become the elephant in the room that should concern all stakeholders involved in the project. Considering the scale of the investment and its importance to the region, a more coordinated effort between the government and private industry is required to stamp out an insurgency that is threatening to derail progress at Mozambique LNG. In a statement, Minister of Mineral Resources and Energy, Ernesto Max Tonela, affirmed that security measures will be bolstered to create a safe operating environment for partners like Total, enabling ongoing investment into

João Sacadura Botte

Country Leader – Mozambique
BAKER HUGHES

Can you provide the latest updates from Baker Hughes' Mozambican operations in the last twelve months, including work at Area 1, Area 4 and Coral South?

We are working with the operators in Area 1 and Area 4. As part of the Coral South project, Baker Hughes has deployed the first development well in Mozambique. We recorded a major industry landmark: delivering the first ever X-tree in the country – a large part of the subsea production system. Our core competence in gas and LNG makes us well positioned in Mozambique, as we are also supplying the liquefaction equipment for the FLNG.

To what extent has COVID-19 impacted the country's LNG development projects, and how has this evolved as lockdown measures have been lifted?

Like other basins across the globe, Mozambique has felt the negative impact of the pandemic. For a start, the operators of the new offshore concession blocks have delayed exploration activities. For example, the much-anticipated Area 4 FID has also been delayed. Likewise, Coral South operations have been suspended until 4Q 2020/1Q 2021. However, as lockdown measures progressively ease, key personnel are returning to Mozambique in order to plan the restart of operations. A piece of welcome news: Area 1 operator, Total, has confirmed that the Mozambique Area LNG project is going ahead as planned.

How is Baker Hughes contributing to local content development in Mozambique?

Our commitment to Mozambique is demonstrated by our long-standing investments in facilities, people and communities. For example, we have invested in our new country HQ in Maputo, built and equipped a world-class facility in Pemba for Oilfield Services (OFS) and Oilfield Equipment (OFE), plus a temporary subsea equipment testing facility in Nacala to support our customer operations. We have also trained Mozambican employees in leadership, recruited in-country for a range of diverse management roles and technical positions, including over 38 engineers. Many of these employees have received training in global locations such as our own Oil & Gas University in Florence, Italy. Finally, our internal sourcing department has onboarded well over 100 local suppliers in Maputo, Nacala and Pemba and we are engaging with a local company to further assist in enhancing a supplier development program.

What are the principal objectives and milestones Baker Hughes would like to achieve in Mozambique in the next five years?

Mozambique, although a new frontier country in the energy industry, it is already a very important location in our regional footprint, and we want it to continue this way. We believe Mozambique is on the road to becoming one of the major global LNG producers and we are excited to be a part of this. As we continue to invest in Mozambique and the Mozambican workforce, my desire is that our contribution will be positively felt by many Mozambicans. ■

Image courtesy of Grupo Videre

Mozambican industry. The hope now is that rhetoric will be backed up with action so that the tide can turn against the increasing terrorist threat.

Creating a US$5 billion service ecosystem

With Area 1 FID in place and Area 4 expected in the next 12 months, it is no longer in doubt that a robust value chain able to support gas development in Mozambique will be required. The question now is what type of ecosystem will be created and what will it look like once its finished?

"We have been very clear that there will be a Qatari style value chain created in Mozambique in the coming years. It is public domain that there is US$5 billion of local content as an opportunity from the first two onshore projects alone," stated Standard Bank's Eardley-Taylor, with reference to Qatar's industry-leading Ras Laffan gas complex.

According to Chivambo Mamadhusen, CEO of Mozambican firm Grupo Videre, the commitment to local content is sincere: "At least for the preliminary works so far, the IOCs have been taking local content into account. For Area 1, all the aggregate has been awarded and is coming from Mozambique, a lot of the logistics will be provided by local companies, and at least 90% of the preliminary employment (such as drivers and security) is Mozambican."

Indeed, the sudden disruption to international logistics in March underlined the importance of being able to rely on suppliers in the local value chain. However, there have been and will be business casualties because of the pandemic and market weakness: "Many local companies will have lost contracts in 2020, but I do not believe this is through bad faith or a lack of commitment," related Jacinto Mutemba, CEO of Mozambican company Belutécnica, which is due to complete its new workshop in Maputo in 2020.

Rather than hand out contracts on the basis of a simple local content quota, Mutemba thinks the government needs to focus on building a robust platform and climate for local players to grow: "The central bank's role on monetary policy must ensure you do not have small companies sourcing financing at 20% interest rates in Mozambique, competing in the same market as US or European companies working with 0% interest rates," he said.

Mamadhusen related how in March, Grupo Videre had been negotiating to confirm partnerships for Area 1 where Total is the main operator, and Area 4, where Exxon is the main operator. However, delays were incurred due to the coronavirus. "We are now expecting an FID in late 2021," he said, adding: "Regarding the delays at Area 4 on the Exxon side, most of the expats did not leave because of Covid-19, but because they were fired."

Even Area 1, which has continued, will likely be less profitable for suppliers than first thought: "The issue for many services providers now is that everybody seems to be coming back to the table for repricing and hopes for a good margin are getting lost," concluded Mamadhusen.

During our 2020 research and interviews in Nigeria and Angola, nothing pricked up the ears of service providers as much as the mention of Mozambique LNG development. For a nation starting from scratch, the opportunity for experienced service companies from abroad to open up entities with Mozambican partners and share industry expertise with local knowledge offers a tantalizing opportunity. Considering its proximity and trade ties with Mozambique, South Africa has the most to gain, but taking into account cultural ties and oil and gas know-how, Angola is perhaps the best fit to assist the burgeoning service sector in northern Mozambique.

One of the Angolan players making headway in Mozambique is maritime services company Octomar, which is taking an aggressive approach to developing the Mozambican arm of its business, called M-Octo, according to general manager, Ri. "M-Octo has pre-qualified with various companies with the objective of participating in oil and gas tenders that are due to be launched in the next three months," elaborated Ricardo do Amaral, general manager of M-Octo, adding that the company has established a partnership with a Mozambican company to penetrate the market more efficiently, and is in the process of shipping some assets from Angola to Maputo, with the potential of moving them to Pemba. "Octomar wants to replicate its Angolan business in Mozambique and we see it as a key area for growth," concluded Amaral, commenting that Mozambique is easier to operate in than Angola from an oil and gas standpoint, as it is currently less regulated as a new player in the industry.

Foreign service companies can also rely on the support of a banking system keen to get involved with the highest potential regional development, as Eardley-Taylor illustrates: "Standard Bank would encourage global companies with experience in LNG projects to move to Mozambique. We would be happy to help you and believe there is an enormous prospect to build a very large industrial complex in Northeastern Mozambique along the lines of a Ras Laffan."

As both the African continent and the oil and gas industry look to recover from the impact of Covid-19, progress at the generational Mozambique LNG project offers a timely beacon of hope. ■

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- Jacinto Mutemba,
CEO,
Belutécnica

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Ricardo do Amaral

General Manager
OCTOMAR

Can you provide an update on Octomar's plans to develop business in Mozambique?

We are taking an aggressive approach to developing this side of the business and we now have a registered company in Mozambique: M-Octo. Furthermore, we have been able to pre-qualify M-Octo with various operating companies in Mozambique with the objective of participating in oil and gas tenders that are due to be launched in the next three months. We have established a partnership with a Mozambican company to penetrate the market more efficiently and we are in the process of shipping some assets from Angola to Maputo with the potential of moving them to Pemba.

I would say that since the oil and gas sector in Mozambique is now gaining momentum, experienced service companies may gain advantage and reap benefits, just like the Mozambican oil and gas industry may benefit from this experience to create policies that will facilitate companies operating in Mozambique and attract foreign investment. Octomar wants to replicate its Angolan business success in Mozambique and we see it as a key for our growth.

What are the main priorities for Octomar in the next twelve months, and what can the company offer potential partners in Angola or Mozambique?

The main priorities are to maintain current operations, add new contracts in Angola and embrace M-Octo's development in Mozambique. Although drilling and exploration has come to a standstill, we believe this will rebound in 2021 and we have the experience and capacity to work in this sector. Octomar has managed to overcome three crises that have had a direct impact on our industry: the financial crisis in 2008, the oil crash in 2014/15, and now the force majeure crisis as a result of the Covid-19 pandemic. We have had to restructure and reinvent ourselves during each of these periods and have remained operational to satisfy all of our stakeholders' needs. ■

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