GLOBAL BUSINESS REPORTS

INDUSTRY EXPLORATIONS

SUB-SAHARAN AFRICA OIL AND GAS HANDBOOK

2015

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Sub-Saharan Africa Oil and Gas Handbook Pre-Release 2015

This research has been conducted by Sharon Saylor, Katie Bromley, Nathan Allen, Laura Brangwin, Molly Concannon, Josie Perez, Lubo Novak, Harriet Bailey, Meredith Veit, and Neha Premjee

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Dear Readers,

Global Business Reports (GBR) and the South African Oil and Gas Alliance (SAOGA) are honored to announce their partnership for the production of The Sub-Saharan Africa Oil and Gas Handbook, a definitive source of information on Africa's oil and gas sector.

Sub-Saharan Africa is home to long established hydrocarbon-producing countries, including Angola and Nigeria, as well as exciting new discoveries of onshore and offshore oil and gas, most notably the gas finds in the Rovuma Basin off the coast of Mozambique. Africa is also arguably the most culturally, politically and geological diverse continent in the world. Given the lack of infrastructure, regulatory challenges, and shifting paradigms that govern policy and national oil companies, Africa's oil and gas sector remains significantly under-explored. Therefore, the *Sub-Saharan Africa Oil and Gas Handbook* seeks to guide the global oil and gas and investment community through the challenges and opportunities across the continent's different jurisdictions and to highlight those governments that welcome its investment.

In the *Sub-Saharan Africa Oil and Gas Handbook*, we explore how Africa's oil kings, Angola and Nigeria, both of which are highly dependent on oil revenue for their economic growth and development, are addressing the twin challenges of calls for greater transparency and plummeting global oil prices. Moving to Central Africa, the Republic of Congo is blessed with a prolific coastline and yields 254,000 barrels per day at 2015 production rates from the country's offshore oil fields. It plans to ramp up production and move the country up the ranks from the fifth largest oil producer in Sub-Saharan Africa to the third, as many new projects are coming online. In Eastern Africa, we look at Kenya, which is taking significant steps to attract exploration dollars and already enjoys a strategic regional location that is close to ports and export markets. Finally, we analyze the South African marketplace, not only its exploration prospects but also its burgeoning role in servicing the growth of nascent oil and gas industries both at home and across the continent.

We would like to thank all of the company and association leaders who generously donated their time and insights. We look forward to meeting with many more industry players in the coming months. We will release our final report of the *Sub-Saharan Africa Oil and Gas Handbook* in October 2015 at the 22nd Africa Oil Week in Cape Town, South Africa.

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THE AFRICAN QUEST

Oil and Gas in the Twenty-First Century

For centuries, Sub-Saharan Africa has attracted explorers looking for commodities such as diamonds, gold, and other minerals, but the continent has not garnered the same level of attention for its oil and natural gas, outside of Nigeria and Angola. Traditional production centers in the Middle East and the Western Hemisphere sustained world oil demand during the Cold War, and the opening of Central Asia after the fall of the Soviet Union offered a new bonanza for international oil companies (IOCs) to replace their hydrocarbon reserves.

Since the beginning of the twenty-first century, however, IOCs have trained their focus on Sub-Saharan Africa's hydrocarbons, catalyzed by high oil prices, declining production from conventional fields, and strong demand growth in China, which has been met partly by the efforts of Chinese national oil companies acting as IOCs and prospecting in Africa's most politically challenging jurisdictions. With the help of improved technology, IOCs have made a host of new investments in offshore oil and natural gas exploration.

Even without new exploration, Sub-Saharan Africa is already a major contributor to world oil production, and oil has allowed a handful of countries to expand state services and spur economic growth. As of January 2014, it had 63.1 billion barrels of crude oil reserves, or roughly 4.3% of global reserves, and produced nearly 6 million barrels per day (mbpd), which was roughly 6.5% of global production. China alone received 22% of the Sub-Saharan Africa's exports in 2012, a figure that will likely stay the same or grow, as oil demand in Western Europe and the United States is expected to remain flat in the coming years.

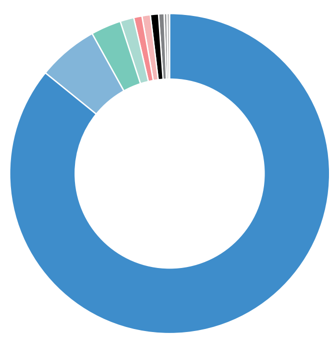
	PRODUCTION/ RESERVES	SHARE OF WORLD
Oil Production	5.7 million barrels per day	6.5%
Proven Oil Reserves	63.1 million barrels	4.3%
Natural Gas Production	104 billion cubic meters per year	3.2%
Proven Natural Gas Reserves	6.1 trillion cubic meters	3.3%

Source: SAOGA

Natural gas is less abundant and its production less developed than oil, but offers larger potential rewards for the continent in powering homes and industries. As of January 2014, Sub-Saharan Africa had 6.1 trillion cubic meters (cm) of proven natural gas reserves, which is 3.3% of global reserves, and 107 billion cm of production, which was roughly 3.2% of global production. Between 2002 and 2011, natural gas production grew by an annual average of 10%, with Nigeria, Equatorial Guinea, and Mozambique leading the way. Nigeria is currently the only major exporter of liquefied natural gas (LNG) on the continent and was the fourth largest exporter of LNG in the world in 2012, a figure that could be higher in light of the fact that the country flares 20% to 25% of its production. The U.S. Energy Information Administration forecasts that Nigeria will account for 81% of the region's natural gas growth from 2010 to 2040.

NATURAL GAS PRODUCTION, SUB-SAHARAN AFRICA (2014)

Source: SAOGA



	MILLION CUBIC METERS PER YEAR	%
Nigeria	92,000	86.0%
Equatorial Guinea	6,740	6.3%
Mozabique	3,120	2.9%
Ivory Coast	1,600	1.5%
South Africa	970	0.9%
DRC	930	0.9%
Tanzania	780	0.7%
Angola	734	0.7%
Gabon	80	0.1%
Others	70	0.1%

Despite Nigeria's forecasted leadership, the geography of Africa's natural gas production has expanded in recent years. Along the Atlantic coast, Angola, Equatorial Guinea, the Democratic Republic of the Congo (DRC), Gabon, and Ivory Coast all offer new offshore natural gas plays. On the Indian Ocean, the Rovuma Basin that borders Mozambique and Tanzania offers the greatest immediate potential. Both countries have signed exploration agreements with several major Western IOCs for onshore and offshore natural gas exploration and production and have ambitions to become exporters of LNG. Building the proper export infrastructure will be a challenge, though, as will the uncertainty about global demand for LNG. There are already several countries exporting large amounts of LNGs, including Qatar, Malaysia, and Australia, that are closer to the center of gravity for hydrocarbons demand, the Asia Pacific region, and may crowd out emerging African exporters. Moreover, the largest gas producer in the world, the United States, is set to begin LNG exports by the end of 2015, lifting a decades-old ban on exports of oil and natural gas.

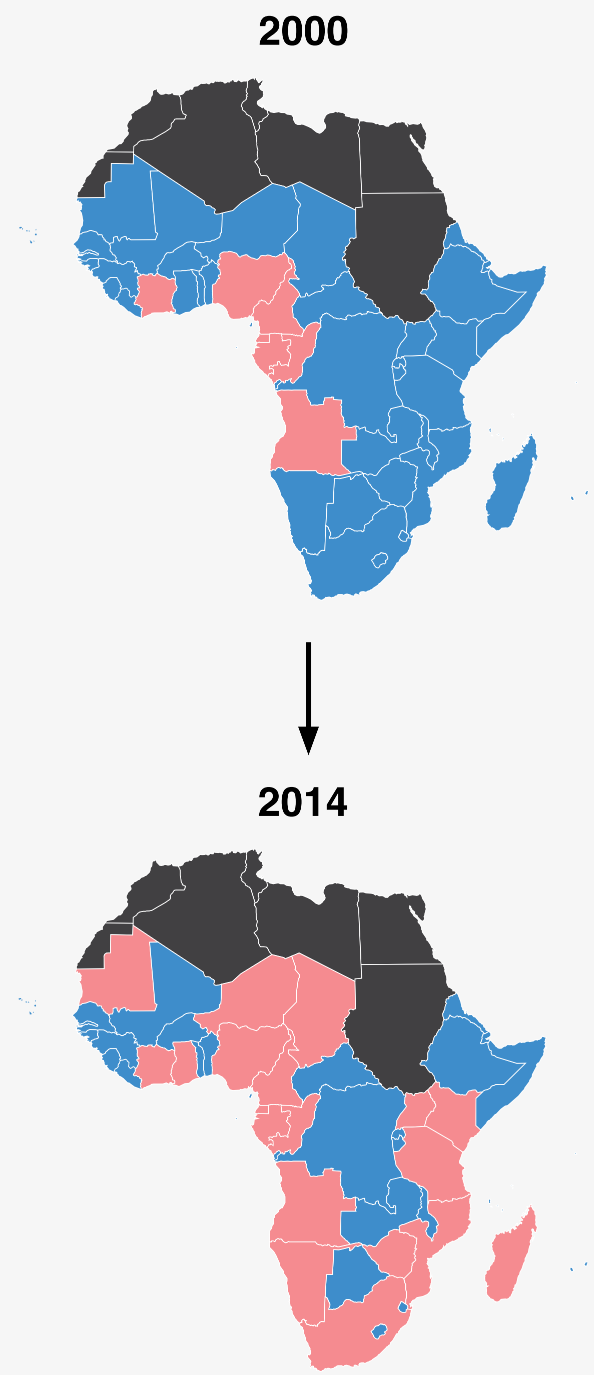
The surge in U.S. tight oil and gas production will restrain production growth in Sub-Saharan Africa in other ways. First, the U.S. domestic production will reduce imports and force those countries that have historically exported heavily to the United States to compete for export markets elsewhere, mostly in Asia. The loss of the U.S. market is compounded by the fact that Africa's oil is predominantly light and sweet, which are same qualities that the majority of U.S. tight oil has. Second, American oil supplies have caused prices to plummet, which in turn will reduce the incentives for IOCs to invest in expensive offshore or tight plays. In the long-term, hydrocarbon demand is likely to rise again and prices will follow, but timing the market cycles is never easy, particularly in an industry as capital-intensive as oil and gas.

One advantage for Sub-Saharan Africa is that South Africa, the continent's largest and most developed economy, appears poised to lead the way. Major discoveries have brought major oil companies to the country eager to apply their technologies and experience in offshore and shale plays in the Karoo. South Africa played a leading role on the continent in creating a renewable energy program, which applied international best practices to the local context, and officials and citizens hope that the country can again use its capital markets and innovation to create a favorable

SUB-SAHARAN AFRICA OIL & GAS (2000 TO 2014)

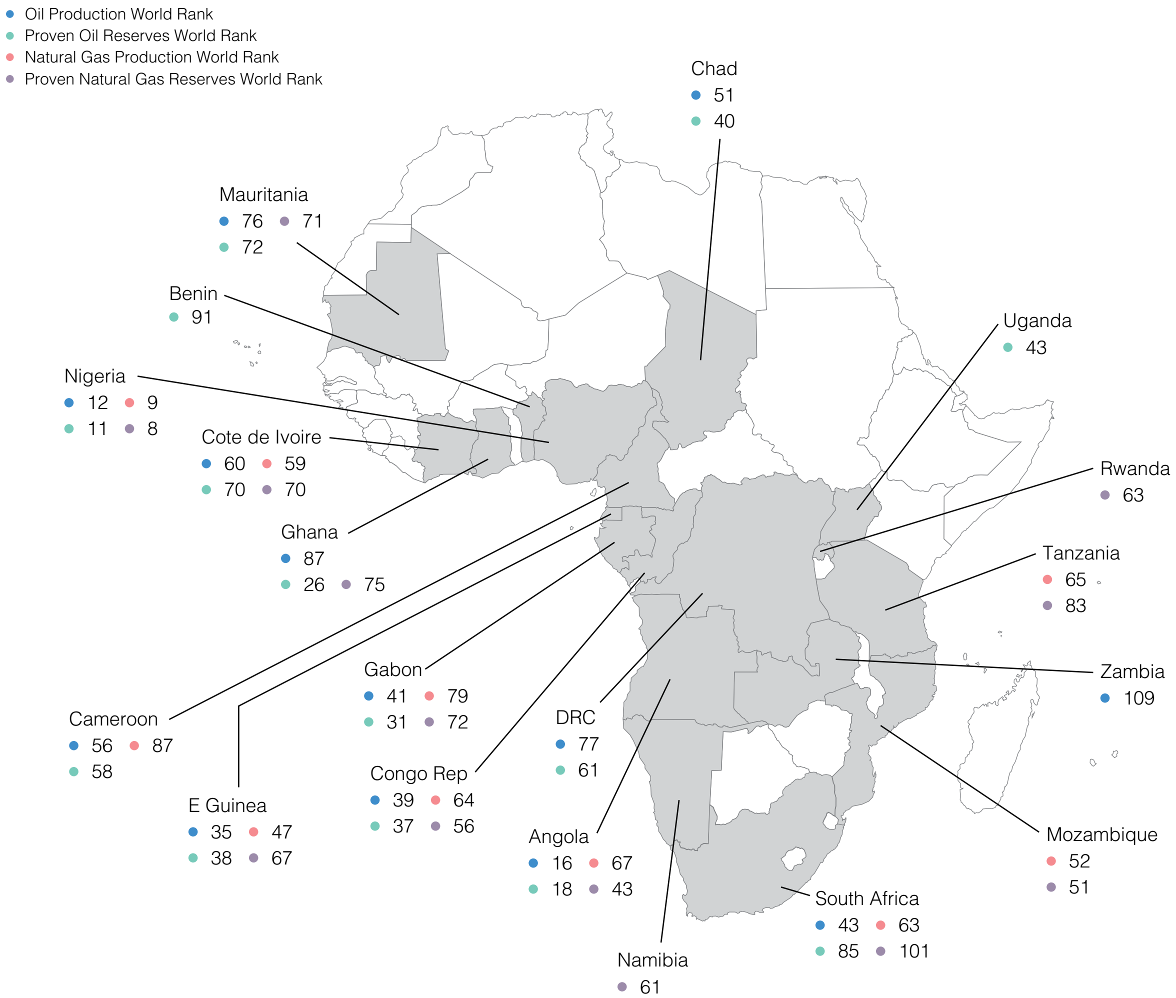
Source: SAOGA

Since 2000, exploration activity has confirmed that many countries (in red below) have oil and/or gas reserves.



SUB-SAHARAN AFRICA'S OIL & GAS POTENTIAL

Source: SAOGA



environment. The country's experience in the mining industry bodes well for its leadership in developing Sub-Saharan Africa's oil and gas. Now a hub of mining services and engineering, South Africa could play a similar role in helping nurture a nexus of downstream companies in the country, from where they can more easily expand into the rest of the continent. Whether the country can replicate its past successes remains to be seen and will depend on how the South African government crafts policies to govern the sector.

The largest threats to nascent oil and gas industries across Sub-Saharan Africa may be the lack of clarity around regulatory frameworks and, most importantly, unattractive fiscal terms. The low price environment will incentivize large IOCs, which are spearheading much of the exploration around the continent, to wait until prices return to more attractive levels. Royal Dutch Shell's recent purchase of BG Group for $70 million signaled the multinational's intent to develop gas plays further afield in Australia, Brazil, and Sub-Saharan Africa, but three weeks earlier, Shell had pulled out its shale gas personnel from exploring in the Karoo, citing the low price environment. South Africa is not the only country to see its shale gas prospects stumble, but this was due to domestic opposition to fracking, at least in the period from 2012 to 2014. Shell's decision to wait until prices rose again means that African governments will have to be aggressive in incentivizing companies to explore; otherwise, they will find jurisdictions with more competitive terms or simply sit on the sidelines.

While the low price environment may dissuade governments from investing too heavily, the time to build these nascent industries is now. Low oil prices mean that government coffers will not fill up as quickly as they would with high oil prices, but oil revenues are not going to change countries' fortunes immediately, regardless of price. These are long-term investments in the future, and the most immediate goal is to generate more affordable sources of domestic energy production, which can catalyze economic growth. Solar and other renewable energies could make a serious contribution to raising levels of accessibility to electricity, but natural gas appears to be the future of industrial power generation. The quest to develop African's nascent oil and gas industries will be full of snags and its pace may be sporadic, but the commitment to do so must be resolute in the competitive energy marketplace of the future. •

Sanjiv Save

Global Director
HATCH LTD.

Can you please provide a brief summary about the origin and evolution of Hatch?

Originally established as Atkins & Associates in 1955, now known as a legend in the metallurgical industry, Dr. Gerald D. Hatch joined the company in 1958. Four years later, thanks to Dr. Hatch's expertise in metallurgy, the company expanded and Hatch was formed. Hatch was created to solve the mining industry's problems through technology focusing on metals and mining. Although sadly, Dr. Hatch passed away last year, he has left behind a legacy of innovation.

Hatch has grown from a mining consultancy to a comprehensive and multidisciplinary EPCM that offers both technical and strategic services. Branching out from its roots 60 years ago in Toronto, Canada, to other parts of the world, Hatch now covers more than 150 countries. The company has grown from six people in one office to over 10,000 employees across 65 offices worldwide.

Originally created to serve the mining sector, when was Hatch's energy division initiated and how is it structured?

In 2000, Hatch moved into the energy sector, encompassing both the power (i.e. nuclear, thermal, water, wind, solar, hybrid and power distribution and integration) and oil and gas sectors. Hatch operates globally from over 60 permanent locations including Calgary, renowned as a center of excellence for the oil and gas industry.

However, the company's oil and gas expertise is not just concentrated in Alberta, which caters more towards the province's oil sands. Through its sister company and joint venture partner based in Houston, Hatch Mott MacDonald and Hatch broadly serve North America's oil and gas industry, paying particular attention to oil and gas pipelines and respective infrastructure. Hatch has several key oil and gas offices around the globe, which specialise in LNG projects, hydrocarbons and gas monetization, including our offices in Australia, Brazil, South Africa and Canada.

Over the past eight years, Hatch's sector mix across the company's main pillars has moved more away from mining and metals, and diversified to incorporate more infrastructure and oil and gas projects. Today, Hatch's sector mix is 60% mining and metals; 20% infrastructure; and 20% energy. Moving forward, the oil and gas sector will continue to grow and represent a more significant portion within Hatch's portfolio.

Why has Hatch decided to be more bullish in the oil and gas sector?

Over the last six years, global oil prices have been dropping and gas has overtaken oil in exploration activity. Gas processing is increasing and is set to dominate in the foreseeable future. One of Hatch's key company strengths is its front-end designs and its niche in gas monetization (both LNG and gas to liquid). Hatch is particularly strong in gas processing and will therefore benefit from the shift from oil to gas: this is one of the principal reasons the company has decided to be more bullish in oil and gas.

Furthermore, some of Hatch's mining clients such as BHP Billiton and Glencore are diversifying into oil and gas. It will therefore be a natural progression for Hatch to follow its long-standing mining clients into the industry.

In Sub-Saharan Africa, the oil and gas market is predominantly driven by exports rather than by local consumption. The volume of mega projects is increasing, which require more comprehensive and better oil and gas infrastructure. Being very strong in infrastructure, Hatch is perfectly placed to assist with the industry's construction demands, which is one of the main reasons that Hatch has chosen the Sub-Saharan region.

What percentage of Hatch's oil and gas business can be attributed to Sub-Saharan Africa?

Although large projects can easily skew the percentage, the Sub-Saharan region currently accounts for approximately 20% to 30% of Hatch's portfolio overall. This figure, however, is predicted to increase to over 50%.

Preferably, countries such as South Africa, Mozambique, and Tanzania are easily the most attractive oil and gas jurisdictions for Hatch, but the company's business model is to follow the client, i.e. to places such as Chad, Gabon, Mauritania, Madagascar, and Nigeria.

Who will Hatch serve in the Sub-Saharan oil and gas sector?

Globally, Hatch's genre of clientele varies from local companies to multinational companies, spanning the upstream and downstream sectors. However, in Sub-Saharan Africa, Hatch's primary focus will be reputable oil and gas companies, as a number of international players are now entering Sub-Saharan Africa. Within the majority of countries, the oil and gas industry still has to evolve via legislation framework. Growth for third-tier companies and similar will take some time due to complexities of the jurisdiction's natural resource sector and capital liability. However, second-tier companies such as Hatch will grow.

In an ever-growing competitive environment, how will Hatch expand in the Sub-Saharan oil and gas market?

Hatch's market entry strategy is twofold: to go where it is distinguished from its competitors and carve a specific niche in the industry; and be the best and largest local partner to the main project operator(s). Whilst Hatch specializes in LNG, hydrocarbons, gas monetization, pipelines and oil and gas infrastructure, amongst other areas within its energy service offering, the company excels in two key services in Sub-Saharan Africa: large project infrastructure and technology that embraces innovation. •

TAKE YOUR PICK

Southern Africa Offers a Variety of Oil and Gas Plays

The region of Southern Africa, with the exception of region's energy giant Angola, has traditionally been better known for its mineral exploration and production than for its oil-producing prowess, which has been associated with Western Africa. However, large-scale gas discoveries off the coast of Mozambique and shale gas in South Africa's Karoo along with Namibia's anticipated new large-scale offshore oil and gas discoveries and further development of the upstream portion of the Kudu Gas Field could be a potential game changer for each jurisdiction and for the wider region. The exact scope of the impact will be likely be determined over the next few years as governments thrash out legislative frameworks and new investors continue exploration. In the long term, it may be that Angola will have to compete to stay ahead of its regional neighbors in production.

For this reason we have spent significant time on the ground in Angola, meeting with key leaders across the value chain to bring you a comprehensive overview of one of Africa's largest oil-producing countries. Albeit the most challenging jurisdiction in the region, Angola is undoubtedly one of those jurisdictions that can be characterized as high-risk, high-reward. This description contrasts with many of Angola's regional counterparts such as Botswana, Namibia, South Africa and Mozambique, which offer lower-risk, more stable political environments and less corruptive policies to date, but which also have yet to yield the returns remotely close to what Angola has produced.

In Angola, oil accounts for over 50% of the country's GDP, 80% of the government's revenues, and 90% of exports. A member of the Organization of the Petroleum Exporting Countries, Angola's goal to increase oil production and reach 2 million barrels per day (bpd) by 2015 will likely only be realized in 2017. In addition, Angola possesses abundant natural gas reserves estimated at 11 trillion cubic feet (tcf). While largely unexplored, these reserves could spell a positive future for Angola's liquefied natural gas (LNG) capabilities.

In contrast, South Africa is the most developed economy in the region and in Sub-Saharan Africa, but has fewer reserves of proven reserves of oil. The rainbow nation has also had a tough couple of years, as labor disputes and falling production in its mining sector have weighed down the economy. More recently, major legislative roadblocks have emerged, and the Mineral and Resource Petroleum Development Act (MPRDA II) was sent back to the National Assembly for review. Issues surrounding free carry, beneficiation, agreed terms for increase in equity stakes and the empowerment numbers are at play, and have raised the specter of regulatory uncertainty, which, along with environmental concerns related to hydraulic fracturing (fracking) and water usage, has delayed exploration activity. Despite these challenges, South Africa holds the fifth to eighth largest gas reserves in the world, and the World Shale Gas Resources report from the U.S. Energy Information Administration estimates that South Africa has more than 390 tcf of technically recoverable shale gas as well as offshore potential, which could change the face of the energy landscape in the region. South Africa maintains its position as a regional resource hub with a well-established service and support sector and many of the continent's industry, financial and technological leaders can be found in South Africa. South Africa itself offers access to skills and general infrastructure, including port facilities. There is no dispute about the potential impact that the production of oil and gas in South Africa can have on the country and its neighbors.

In addition to gas, oil deposits amounting to an estimated 11 billion barrels were found off the coast of Namibia in 2012. This discovery has spurred further exploration along the west coast of South Africa in the Orange River basin, an extension of the Namibian fields. Namibia's oil reserves have sparked enthusiasm as theoretically Namibia's offshore basins should be comparable to Brazilian massive oil basins at Santos and Campos.

Exemplifying the exciting new developments taking place is the Rovuma basin, a resource-rich geological structure located along the border of Tanzania and Mozambique that could potentially hold up to 100 tcf of gas, enough to supply the combined energy needs of France, Germany, Britain, and Italy. Between the two major companies involved in discoveries on the Mozambican side of the basin, Anadarko and Eni, there are currently 77 tcf to 112 tcf of declared reserves. Mozambique's government has more direct opportunities to capitalize on the gas found off its shores. Supplies are already set for export, with Anadarko and Eni preparing two LNG liquefaction facilities. However, the real development opportunity for Mozambique is the potential for bringing gas onshore—both for energy generation and liquid fuels and chemicals manufacturing. The imperative for the government is to make sure that it explores all possible opportunities and puts in place policy and investment frameworks that are needed to promote that development.

The full potential of oil and gas in the Southern African region remains uncertain and, as time progresses and further exploration begins and current exploration advances, the estimated volumes of technically recoverable resource will become proven reserves. The region's other contentious issues include high extraction costs, as most of the region's oil and gas field are either deepwater resources, off the coast of Mozambique for instance, or unconventional plays, such as Karoo's shale gas and Botswana's coal-based methane. One thing, however, is certain: recent discoveries of major gas and oil deposits in Southern Africa could dramatically improve the prospects for all countries in the region by reducing imports, driving economic growth, and lowering reliance on dirty coal fired power generation. The challenge is for those involved, both public and private sector, to find the best way to take advantage of these opportunities. A collaborative effort is needed to drive long-term development of the region. •

South Africa is not a big player in the oil and gas industry in the global market, so nothing done here will affect the market globally. South Africa has upside in both downstream and upstream. It is extending its borders beyond land and into sea, creating a tremendous potential for future oil and gas developments. The country has a viable refining industry that will satisfy the domestic market needs. The government needs to determine the best option for the country by considering the upstream opportunity and taking into account the jobs and local businesses that rely on local refining. Initiatives such as Operation Phakisa indicate that the government is determined to take advantage of these opportunities, but the value of the initiative can only be maximized with a strong refining sector. The government must therefore provide regulatory certainty on key issues.

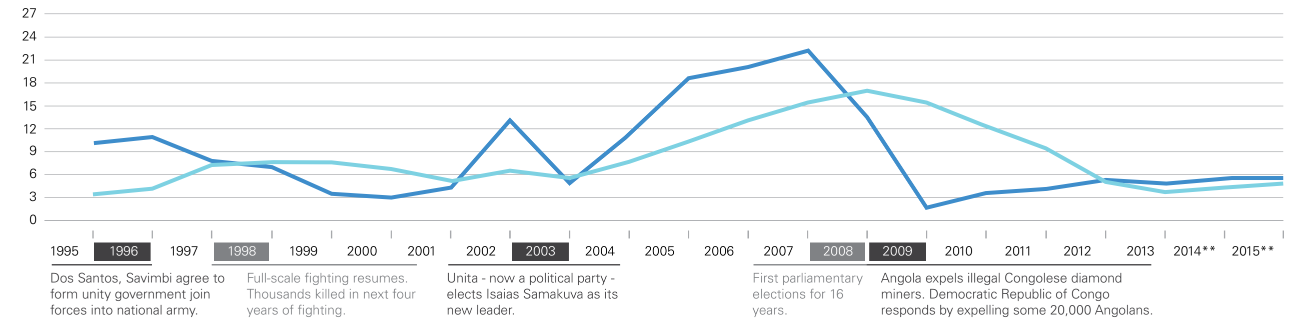
*- Nobuzwe Mbuyisa,
Chairman,
Chevron South Africa (Pty) Ltd.
and Chairman,
South African Petroleum Industry Association (SAPIA)*

From the Southern African region, we are not particularly affected by the oil price falls be-cause there are very few producers of note at the moment; however, this is expected to change dramatically in the next few years with the Mozambique LNG project, the largest project in Africa's history, coming online. In the long-term, there is significant potential for shale gas in South Africa and possibly offshore.

*- Paul Eardley-Taylor,
Head, Oil and Gas Southern Africa,
Standard Bank*

Image: South African Oil and Gas Alliance (SAOGA)

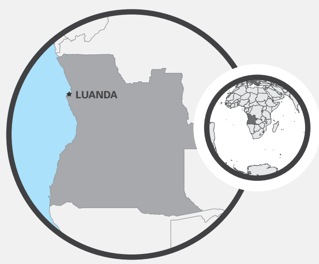
GDP GROWTH (%)
SOURCE: WORLD BANK, EIU



Angola

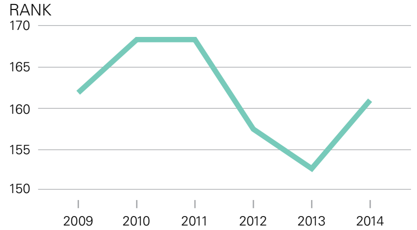
Angola officially the Republic of Angola is a country in south-central Africa bordering Namibia to the south, Democratic Republic of the Congo to the north, and Zambia to the east, and with a west coast along the Atlantic Ocean. The exclave province Cabinda has a border with the Republic of the Congo and the Democratic Republic of the Congo.

Source: UCLA African Studies Center



Population: 19,088,106 (July 2014 est)
Land Area: 1,246,700 sq km
Official Language(s): Portuguese
Capital: Luanda
Chief of State: President Jose Eduardo Dos Santos
Head of Government: President Jose Eduardo Dos Santos
GDP (PPP): $131.8 billion (2013 est.)
Growth Rate: 5.6% (2013 est.)
GDP per Capita: $6,300 (2013 est.)
Economic Sector Breakdown: agriculture: 10.2%, industry: 61.4%, services: 28.4% (2013 est)
Exports: $70.84 billion (2013 est.): crude oil, diamonds, refined petroleum products, coffee, sisal, fish and fish products, timber, cotton
Imports: $26.09 billion (2013 est.):machinery and electrical equipment, vehicles and spare parts; medicines, food, textiles, military goods
Major Trade Partners: China, United States, South Africa, India, Portugal, Brazil

TRANSPARENCY INTERNATIONAL CORRUPTION PERCEPTIONS INDEX
Source: Transparency International



TOTAL PRIMARY ENERGY CONSUMPTION (2013)
Source: U.S. EIA

Solid Biomass and Waste	49
Oil	40
Natural Gas	4
Hydro	6

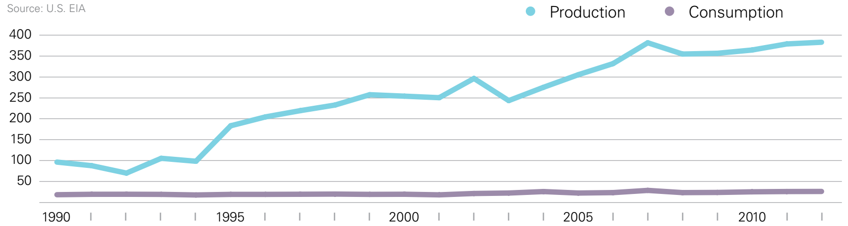
TOTAL PROVEN NATURAL GAS RESERVES (2015)
Source: EIA

9.711
trillion cubic feet

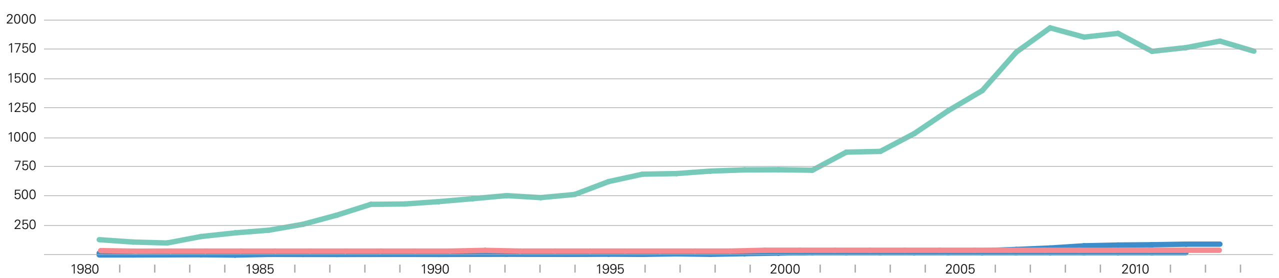
TOTAL PROVEN OIL RESERVES (2015)
Source: EIA

9.011
billion barrels

NATURAL GAS (billion cubic feet)
Source: U.S. EIA



PETROLEUM (thousand barrels per day)
Source: U.S. EIA



RESILIENCY AND RETRENCHMENT

Angola's Oil and Gas Industry Forges Ahead

Due to a protracted and devastating civil war, Angola's agricultural and industrial activities have struggled to develop, but one industry bucks this trend: Angola is a major oil-producing nation. Oil accounts for over 50% of the country's GDP, 80% of the government's revenues, and 90% of exports.

The biggest player in the industry is Sonangol, a government-owned entity that, along with its subsidiaries, operates, produces and explores oil fields onshore and, increasingly, offshore. Due to the fact that Angola shares similar coastline geology as Brazil, there are hopes that pre-salt deposits similar to those in Brazil might yet be discovered - a tantalizing lure for international oil companies. "Angola is the largest, deep-water market in Africa, which makes it extremely important for Weatherford's global strategy. It represents the largest country across our entire sub-Saharan regional operation. From a corporate perspective, Angola has been identified as a strategic growth market so we expect to see continued expansion moving forward," said Domingos Freitas, an Angolan national and the newly appointed country director at Weatherford, a major oil field service provider.

Image: Anton Ivanov - Shutterstock

New technology is here to make sure the industry does not continue to make the same mistakes and as is designed to assist and be more efficient, spend less and impact positively on the environment.

- Raphael Vietra Da Cruz, Vice President, Friburge Oil & Gas

After gaining independence from Portugal in 1975, Angola descended into a bloody civil war that lasted until 2002. When a peace agreement was finally signed, Angola set out to rebuild its battered economy. Thanks to enormous oil riches, it prioritized investing in oil-related infrastructure and sought to attract foreign players to develop this potential. Quickly, Angola became one of the fastest growing economies in the world. From 2005 to 2007, the average GDP growth rate was 20%, but this has slowed to 4.7% in 2014 as a result of falling oil prices.

Economic growth has been highly uneven, with the majority of the population still living in poverty while a small section of the population enjoys immense wealth. Luanda, the capital, reflects this, with two-thirds of its inhabitants inhabiting slums while other parts of the city are witnessing a construction boom of gleaming new office and luxury condo towers.

Angola's biggest trading partner is China, followed by the United States. China is also Angola's largest export destination, mostly importing oil and diamonds, while Angola imports mechanical, electrical and construction products from China. As everything from food to clothes to durable goods has to be imported, Luanda is one of the most expensive cities in the world.

Angola became a full member of the Organization of the Petroleum Exporting Countries in 2007 and has concentrated on increasing its production of oil with a stated goal of reaching 2 million barrels per day (bpd) by 2015. This, however, will not be possible until at least 2017, according to the latest estimates, as new projects are not being implemented quickly enough to boost declining production. A number of important players—Somoil, Total, BP, ExxonMobil, Chevron, ConocoPhillips, Eni, Petrobras, Cobalt, Statoil, and Repsol—are present in Angola as operators. Block Zero, nearly 40%-owned by Chevron, makes up the bulk of Angola's oil production.

There are two different sets of contractual regimes in place. The blocks that were developed earlier, mostly fields on land or in shallow water, are governed by a joint venture structure between private oil companies and Sonangol. The more recently developed fields in deeper waters, on the other hand, are organized by production sharing contracts, in which public and private companies divide up the oil produced. These have proved popular with Chinese oil companies and are exemplified by the production sharing contract between Sinopec and Sonangol, which acquired large shares in important deepwater fields.

Sonangol's role is to act as the concessionaire and regulator overseeing the majors as well as running its own operations through its numerous subsidiaries. Sonangol controls the largest share in the joint venture blocks and markets the oil produced in the production sharing agreement blocks.

Another major development is the ongoing construction by Sonangol of the Lobito Refinery to reduce Angola's reliance on imported fuels and to increase its ability to process its crude oil domestically,

At the moment there is an opportunity to enter markets like oil and gas that were difficult to access in the past. The oil and gas sector is now more attentive to prices and we believe that local companies that can demonstrate and prove their capability are presented with a good opportunity to enter this industry.

- Paula Dantas, Administrator, Iberafrica; Managing Partner, Prometim; and Managing Director, Prospecta

with production expected to start in phases in 2015 and 2016.

Additionally, Angola also possesses abundant natural gas reserves estimated at 11 trillion cubic feet. While largely unexplored, these reserves could spell a positive future for Angola's liquefied natural gas (LNG) capabilities. Already in existence is the 5.2-million metric ton per year LNG plant in Soyo that is operated by Angola LNG. The plant is the world's first to be supplied only with associated gas and produced its first shipment in 2013, but experienced a failure in 2014 forcing a temporary closure. LNG production will restart again toward the end of 2015 according to Chevron, which has a 36.4% stake.

Global Challenges, Local Solutions

An immediate issue affecting the industry worldwide is the fall in oil prices. In Angola, as elsewhere, this has led to urgent efforts at cost cutting. Even Sonangol has set a goal of reducing costs by 25%, or by $1 billion, by the end of 2015. Yet not all companies are experiencing hardship. As production levels are more or less steady, niche service providers continue to thrive offering their specialized capabilities. "Certlift has recently received numerous discount requests from clients due to the current oil price to sustain the level of business. We are fortunate enough not to have seen a decline in our business. In the last six months, Certlift has increased its business turnover by about 20%," said Mike Shand, director of Certlift, a provider of lifting services to the industry.

The low oil price environment represents an interesting opportunity for local firms to bid competitively and enter the sector with their service offerings. "At the moment there is an opportunity to enter markets like oil and gas that were difficult to access in the past. The oil and gas sector is now more attentive to prices and we believe that local companies that can demonstrate and prove their capability are presented with a good opportunity to enter this industry," said Paula Dantas, the administrator at Iberafrica, managing partner at Prometim and managing director of Prospecta.

Global Business Reports
EDITORIAL

Technology often offers the best solution for cutting costs and for tackling concerns about the environmental degradation brought on by the industry. The government is taking the lead here and recently passed a Zero Discharge law to ensure more sustainable drilling. "The law is quite an important development for Angola's oil and gas industry and OPCs understand that the zero discharge standard represents an important condition to opening new acreage to oil and gas exploration and so are looking for the best technology to satisfy this stringent but necessary requirement for disposal of drilling waste. New technology is here to make sure the industry does not continue to make the same mistakes and as is designed to assist and be more efficient, spend less and impact positively on the environment," said Raphael Viera Da Cruz, vice president of Friburge Oil & Gas, an Angolan company providing services to the industry.

By readjusting their service offerings, companies are learning to adapt to the new landscape that the lower price regime has engendered. "We are diversifying our portfolio offering within Angola. In broad terms, we will be looking to help our clients optimize their current operations through a range of innovative technologies," said Domingos Freitas, the new country director at Weatherford Angola.

The construction sector has also experienced a slowdown in its business. AC Angola, a local construction company, is one example. "AC Angola was affected by the low oil prices to a great extent. The oil company's business has slowed down and thus AC Angola's services are not as in demand as before. All the projects that AC Angola is working on with the oil companies have been postponed," said Júlio Ferreira, the general director.

As the country diversifies, so do the companies operating here. "Apart from the oil and gas industry, AC Angola is already involved in some agriculture and mining projects. The company thus already has the resources to service the mining industry. AC Angola is also prepared to work in the industrial sector of Angola," explained Ferreira.

As the country's economy diversifies, the need for private development projects will continue to thrive. There are a number of companies interested in pursuing these opportunities. MCA Group Angola, a Portuguese company that expanded to Africa in 2005, is looking forward to using its full service capabilities in this respect. "We operate here as an Angolan company, with over 85% of our team being from Africa we have a natural inclination to partake in public tenders for the betterment of our communities and job creation. That being said, it is not strategic to be dependent on these projects. So we have implemented a strategy to source private projects that require the capacity MCA can provide on a local level. We have an abundance of capabilities and services that are not currently being utilized that the private market could benefit from, so we actively seeking opportunities to demonstrate our quality in these areas," said Paulo Aparicio, administrator of MCA.

Angola remains an important oil-producing nation and despite the challenging times, maintains a steady output. With further large-scale discoveries likely, and if revenues are used wisely, Angola's oil industry can continue its development and hopefully all Angolans can reap the benefits of their country's riches.

The growth in oil revenues, however, has contributed to a commensurate increase in corruption in a country that has long struggled with such problems. In 2014, Transparency International ranked Angola 161st out of 175 countries on its Corruption Perception Index. Human Rights Watch recently reported that $32 billion went missing and could not be accounted for in government accounts from 2007 to 2010. Deeply rooted corruption is something companies in Angola must grapple with on an almost daily basis. In 2014, Angola ranked 181st out of 189 countries on the ease of doing business index, another indication that, despite is natural wealth, Angola has much work to do to properly benefit from it.

Foreign Exchange Regulations and Investment Climate

Transferring money and making payments is business as usual for companies around the world, but not in Angola. The country has imposed a foreign exchange (FX) transfer regime to limit income generated domestically from being sent abroad. While the intentions behind the regime were good, problems have emerged. With delays to making payments to foreign partners, a country that imports almost everything it consumes places unnecessary burdens on its budding economy. "The foreign exchange regime does currently have a negative impact on the economy and companies operating in Angola, but it is reasonable that all business in the country is done through local currency and regulations. The current law and the aim of the law make sense in terms of the development of Angola. I would be very surprised if there is a change in the near future," said Sarju Raikundalia, assurance partner and oil & gas leader at PwC Angola.

The foreign exchange regime requires companies to make payments to their suppliers from bank accounts denominated in Kwanzas and based in Angola. The aim of the law was to stabilize the Kwanza and to begin a process of internationalization and convertibility of the currency to enable free exchange in markets around the world. The Angolan government and central bank took these steps to stem the flow of dollars and increase the money supply of Kwanzas in the economy. Hogan Lovells, a law firm, summarized the goals of the 2013 law as follows: "This new FX regime aims at contributing to the development of the banking and finance sector in Angola in the medium and long term. However, it will certainly have a huge impact on the Angola economy in general and on the petroleum sector in particular."

Overall, Angola offers high rewards, but also presents high risks for potential investors. The investment climate is difficult given the many issues present in the country like corruption, high costs and bureaucracy, but the potential returns can be quite sizeable. The National Private Investment Agency (ANIP) used to be the government arm responsible for facilitating foreign investment into the country under the 2003 Basic Law for Private Investment. The law aims to streamline the rules behind investing in Angola, but this is complicated by the fact that separate laws exist governing investments in oil and gas, diamonds, banking sector and telecommunications. Recently, ANIP has been rebranded as APIEX and will act primarily as an agency responsible for the promotion of Angola as an investment destination. Ministries themselves approve investments and are also responsible for investments requiring concession rights. Investors must also register their company, apply for a business license and register with the tax authorities. The government has aimed to speed up the process of issuing business licenses by creating an umbrella agency run by the Ministry of Justice, but the procedures are still time consuming. "Angola is not the easiest environment in which to start a business. One needs to be committed and have a plan. Knowing the country and its challenges is crucial," said Mike Shand, director of Certlift.

In 2014, Angola introduced major changes to its tax code. These are not meant to directly affect oil and gas companies, but to generate more tax revenues from the non-oil sectors. "The changes include a new corporate income tax code for non-oil and gas companies, a new personal income tax code, a new consumption tax code and a new investment income tax code. The consumption tax code did in fact influence the oil and gas industry, as an indirect cost. The

Domingos Freitas & Scott Gilbert

DF: Country Director Angola
SG: Former Country Director
WEATHERFORD SERVICES LTD. ANGOLA

Domingos Freitas is the newly appointed country director for Weatherford Angola. He is an Ango-lan national with many years of experience in the oil and gas industry. Most recently, Freitas has served as Weatherford's deputy country director. Now, he is eager to take on this new role with strong leadership.

DF

Weatherford is ranked as one of the largest oilfield services providers in the world. How does Angola fit into this panorama?

Weatherford has been present in Angola for over a decade. The bulk of its operations are based in Cabinda, where it has a long-term contract with the major operator in the area, while its adminis-trative headquarters are in Luanda. In 2013, it embarked on a strategy to strengthen its position in the Angolan market that has been very successful. Angola is the largest deep-water market in Afri-ca, which makes it extremely important for Weatherford's global strategy. It represents the largest country across our entire sub-Saharan regional operation. From a corporate perspective, Angola has been identified as a strategic growth market, and continued expansion is expected. Sub-Saharan operations are coordinated from our Johannesburg hub and the regional head office pro-vides general support to our country team.

How does your client profile in Angola compare with that in other African nations? What kind of role does Sonangol EP play on the market, both as concessionaire and operator?

The majority of our clients in Angola are international operators such as Esso, BP, Chevron and To-tal to name a few. Angola is clearly a very attractive market for international players. That being said, Sonangol EP, as the national concessionaire, plays a major role in the country's oil and gas industry. All of our International Oil Company (IOC) clients maintain some kind of partnership with Sonangol EP. However, Sonangol EP does have an operating division (Sonangol PP), with whom we occasionally work directly. Obviously, these contracts are as important to us as any of our interna-tional clients and we strive to provide them with the same high level of service and customer sup-port.

Weatherford offers a wide range of services that cover the entire lifecycle of a well. Within this mix, what services have seen highest demand in recent years?

Over the past few years we have seen huge demand for drilling-driven services due to the height-ened exploration activity in the country. Our core business has been focused on the well con-struc-tion side of the drilling cycle. Right now we are in a slightly different environment as the oil price has dropped considerably. As such, we are diversifying our portfolio offering within Angola. In broad terms, we will be looking to help our clients optimize their current operations through a range of innovative technologies.

As Weatherford has been in the country for over a decade, what recruitment strategies do you work with to build up your national workforce?

When we began to rebuild our Angolan operations in 2013 after several years supporting just one contract, we made it a priority to develop our national workforce. The company invested heavily to recruit and train Angolan professionals and we are proud to say that approximately 75% of our team today are Angolan nationals, including our core managers. We make use of various training programs. Typically, a new employee will first go through basic online training that covers safety, ethics and compliance. Depending on which department they are entering, they will go onto specific training that is applicable to their role. Training is divided between in-country courses and specialized units at our global training hubs. Many of our employees are sent to our training center in Houston and other parts of the world to boost their competencies before they enter the field.

Could you discuss a contract that best demonstrates Weatherford's capabilities in Angola?

Our long-term presence in Cabinda supporting a major operator demonstrates our technical capa-bilities to the fullest, as well as the trust that the client places in Weatherford. This is a sound en-dorsement of our quality service and support. It is a competitive environment but we are able to thrive thanks to our focus on complying exactly with our clients' expectations and the Angolan government's expectations. We deliver the best service quality that we can and we employ the best people in the industry. This has built us a solid reputation in the market. Our recent efforts to boost our national employment and training also serve to put a positive stamp on Weatherford's Angolan operation.

While other OPEC nations have seen production levels fall along with the oil prices, Angola has managed to lift its total output. What makes the country's hydrocarbons sector so resilient?

Today Angola benefits from generous levels of production that are the result of substantial explo-ration conducted in previous years. There is a clear intention to increase production and this serves as an incentive for international companies such as Weatherford to stay in Angola and re-main in a position to support the future development of the industry and the people of Angola. Angola has a lot of potential for future growth and is a very attractive destination for international companies, regardless of global volatility in oil prices.

As oil and gas is an industry that requires long-term planning, where would you like to see Weatherford in five years?

In terms of Weatherford's future development, we believe that the sky is the limit. There is a huge amount of work in Angola. Five years from now I would hope to see the company continuing down the path of strong growth that we have been following for the past few years. I hope to see us providing increasing levels of employment to Angolan nationals and still delivering the highest lev-el of service quality to our clients.

Image: PROMETIM performing a hydrostatic high pressure test at Luanda Refinery in Angola.

In Ghana we have recently signed an agreement with Mimshach Group in order to extend our services to the country's new exploration projects, with plans underway to do the same in Nigeria. This is done in the form of a joint venture between our company and the local partners where we are deeply involved and working together on expanding our core business, as part of our expansion in Africa. Equatorial Guinea is next on our expansion plans, followed by Benin, Gabon, Senegal, and the entire African west coast.

- Miguel Dos Santos,
President,
Friburge Oil & Gas.

approval of the new Statute of Big Taxpayers also affects the level of tax obligations as all the oil and gas companies are treated as big tax payers and are closely monitored by the tax authorities. These companies now have new obligations to prepare and file a transfer pricing file. The oil and gas industry is also affected as most of the oil company contractors became subject to consumption tax on their services. This increases the costs of production and development," said Luís Marques, the managing partner for tax at Ernst & Young in Angola.

"Temporary exemption for the oil and gas companies was created so as to not increase costs during the development and exploration stages. Oil and gas companies will only be liable for consumption tax on the services they purchase when they start to produce. The exemption is not automatic and the companies need an exemption certificate from the Minister of Finance. Until now, the exemption has not had practical effects as companies were not able to get an exemption certificate. According to the tax authorities, tax exemption certificates will become a reality shortly," added Marques.

Local Content Requirements and Angolanization

Local content policies (LCPs) are government regulations meant to encourage local goods and services to be used in the value chain of the oil and gas industry. The Petroleum Activities Law of 2004 sets out the rules for companies to encourage them to cooperate with local players to increase the social and economic benefits to the country.

Establishing a joint venture as a form of new market entry is a respected strategy across emerging markets, especially in Africa due to the varying policies, cultures, and government frameworks across the continent. Angola is no exception, presenting an abundance of entry barriers and a need to develop local content, the country has progressed at creating regulatory obligations for multinationals investing to form joint ventures. Sonangol, the NOC, demonstrates this through its stake in oil production endeavors but also extending its reach to service providers across the value chain. Pedro Godinho Domingos, president of Prodiaman, a local company successfully operating in Angola's natural resource sectors since 1995 through a portfolio of strategic joint ventures, explained: "The idea of

Sarju Raikundalia

Partner, Assurance and Oil & Gas Leader
PwC ANGOLA

PwC is widely known as a global leader in auditing. What are you doing to localize your presence and operations in Angola?
Before 2002, PwC provided services in Angola on a local level by using a structured and flexible workforce that was based in Portugal. The company was involved with many projects, mainly in the oil and gas industry. In 2002, PwC Africa Central was the owner of the "PwC brand" in Angola and the company started an office in the country to base people in Angola. The reason for opening an office in Angola was so that we could address effectively all the opportunities in the country after the war.
The office started with six employees and the main focus was tax and insurance audit. From 2002, PwC significantly invested in Angola year after year. The office has now grown to employ about 150 people, but we still have a flexible workforce. Whenever PwC has specific needs in terms of expertise and skill, the company sources staff from other PwC offices around the world.
In 2014 there was a change in the organization with a joint venture being put in place between PwC Africa, which previously owned 100% of the office, and PwC Portugal. Both PwC Africa and PwC Portugal now have a 50% share in the Angolan office. PwC's approach in the market is to have a fully Angolan based workforce that has knowledge of the local environment and can serve the needs of the market.

How does PwC incorporate local Angolans in the services that the company provides?
The business model of PwC around the world is very similar and this strategy has been used since 2002. PwC recruits new graduates from universities in different areas of expertise. These recruits are then trained and the company invests in their career at PwC. The company focuses on local graduates, but also brings in expats with the required skill sets to coach the graduates through the process. Our staff goes through an extensive training program every year. A significant portion of our revenues is invested in training and education of our staff, which is our greatest asset. We need them to be robust enough in terms of potential and knowledge, since this is what we provide to our clients.
One scenario of investment is to provide scholarships for university students. PwC also has an agreement with some universities to have a mandatory internship included in the course. Within universities, the company also invests in awards that enable people to join PwC. The company also fully financially supports its staff to get all their additional and supplementary qualifications, for instance the ACCA qualification. International exposure is also important to the company, and some staff members are placed in other countries (PwC offices elsewhere) for some periods of time in order to gain quickly an appropriate set of skills and experience that is relevant for our clients at a local level in Angola.

In 2014 a new tax code was introduced in Angola. What are the main changes?
The legislation is now clearer, but it is still not clear enough. The new tax code will not only impact the oil and gas industry, but other sectors as well. The oil and gas regulations are challenging and having supplemental taxations makes it difficult for the players in the market.

In terms of the foreign exchange regime, the oil and gas payments are being prioritized. Is there any expectation that this will change?
The foreign exchange regime does currently have a negative impact on the economy and companies operating in Angola, but it is reasonable that all business in the country is done through local currency and regulations. The current law makes sense in terms of the development of Angola. It is unlikely to change in the near future.
My view is that the government experienced some inefficiency while implementing the new laws and regulations. The local content regulations enable the country to benefit more from the resources available.

There is a need to diversify the mineral exports of Angola. In what sectors does PwC see opportunities for investment?
PwC still sees opportunities in the oil and gas sector, but the attractiveness of the sector is different. Angola has significant potential and we expect substantial development in the agribusiness sectors. There are also prospects in the service areas, as Angola has good tourism fundamentals. What is still missing for diversification to take place is appropriate infrastructure. The challenge now is to acquire funding for the new developmental projects.

Given the current difficulties in the market stemming from a low oil price, what are PwC's plans for the year ahead?
Currently it is an interesting time that the industry is facing especially in Angola as the country is very dependent on oil and gas revenues. Apart from the challenges, one should look at Angola as a country with significant opportunities. PwC's strategy is in place in Angola and the company is still investing significantly in the country. •

joint ventures was one of the best strategies put forward by the Angolan government. The government's push towards local content gave local businesses a chance in the domestic market. Normally, Prodiaman has a 49% share in a joint venture and the partners have a 51% share. The dividends are divided according to the contribution of each partner. These partnerships are one of the best experiences that we are having as a local company. By having these kinds of opportunities, Prodiaman can strengthen its position in the market, create job opportunities and help the economy grow."
"Foreign companies must come to Angola with the mindset to introduce quality standards; the standard that is applicable in their home country should be respected and implemented while operating here in Angola for the beneficiation of the country. One must be open to forming joint ventures with local companies and those with experience," said Manuel Couto Alves, president of the administrative council of MCA Group Angola.
Local Angolan companies like Friburge Oil & Gas have been implementing this strategy across their African operations. "In Ghana we have recently signed an agreement with Mimshach Group in order to extend our services to the country's new exploration projects, with plans underway to do the same in Nigeria. This is done in the form of a joint venture between our company and the local partners where we are deeply involved and working together on expanding our core business, as part of our expansion in Africa. Equatorial Guinea is next on our expansion plans, followed by Benin, Gabon, Senegal, and the entire African west coast," explained Miguel Dos Santos, president of Friburge Oil & Gas.
Moreover, Angola spells out the need for companies to employ at least 70% of Angolans of their total workforce. Only when no Angolan is deemed qualified for a particular job can a foreigner be hired. "In Angola, companies are required to contribute US$0.15 for every dollar per barrel of oil produced each year towards the training of Angolan personnel, with companies in the exploration stage being obliged to contribute a fixed amount of US$200,000 each year," said Jubilee Easo and Angela Wallace of Andrews Kurth law firm.
In this context, companies strive to create training programs to help train Angolan nationals and facilitate a skills transfer from expatriates.
One example of a company making a difference is Ernst & Young. Having traditionally relied on foreign experts, the firm is now fully engaged in the Angolanization process and aims to raise home grown talent. "EY has established a protocol with the Catholic University of Angola where the company is paying the expenses of 20 students for the period of their studies. EY is looking forward to bring these students into our organization and for them to take on leading roles in the future," said Luís Marques.
Paula Dantas' group of companies offers diversified services such as safety and firefighting equipment, oil equipment maintenance and consulting and auditing of offshore terminals. "Over more than 20 years, our long term strategy and commitment allowed us to un-

Certlift has recently received numerous discount requests from clients due to the current oil price to sustain the level of business. We are fortunate enough not to have seen a decline in our business. In the last six months, Certlift has increased its business turnover by about 20%.

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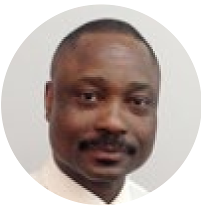


- Pedro Godinho Domingos, President, Prodiaman

derstand how to overcome difficult periods, transforming challenges into opportunities. This can only be achieved through significant investment into local staff, a culture of training and development and a culture of communication with local communities and institutions. In partnership with the National Fire Department we created the CFI-Iberafrica Training Center, located in Luanda and certified by INEFOP. This training center is unique in Angola and has excellent infrastructure, training equipment and highly qualified instructors," added Dantas.

Greater local participation in the industry is desired, but sourcing skilled human resources from the local community can be difficult. Local content regulations and private sector initiatives attempt to transfer skills and to develop the indigenous workforce. "Weatherford invested heavily to recruit and train Angolan professionals and we are proud to say that approximately 75% of our team today are Angolan nationals, including our core managers," said Freitas of Weatherford. "Training is divided between in-country courses and specialized units at our global training hubs. Many of our employees are sent to our training center in Houston and other parts of the world to boost their competencies before they enter the field," added Freitas.

One problem that firms are having with training locals is that they tend to take their new qualifications and move on to greener pastures, or to oil companies offering more money. This has been bought up specifically by testing and inspection companies operating in Angola such as Bureau Veritas, ISQApave and SGS. "To counteract a lack of local expertise, ISQApave is training Angolans mainly in NDT and in welding inspections; with the exception of some supervisors, all personnel are Angolans. However, there is some leakage of supervisors to clients, including Sonangol. ISQApave cannot match the financial packages that are offered," said Miguel Dias Correia, CEO of ISQApave.

SGS concurs: "We provide on the job training as well as job shadowing to locals both in Angola and South Africa. When the market is doing well, a lot of SGS trained staff tend to jump to other companies in the oil and gas sector. In this respect, we are a training ground for oil and gas firms operating in Angola," said Jorge Correia, managing director of SGS Angola.

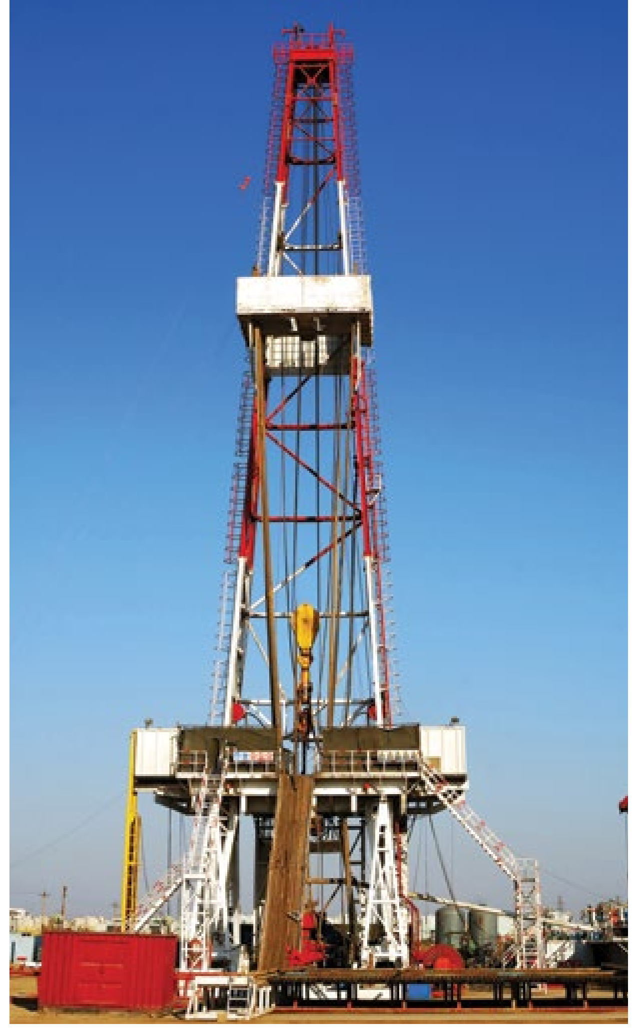


Image: South African Oil and Gas Alliance (SAOGA)

Angolans benefit not only by receiving training for the purposes of staying in Angola, but opportunities are also present in other countries. "Angolans trained in the country have an opportunity to work for other SGS offices in other parts of the world, so it is not only expats coming to Angola, but Angolans being able to contribute their skills abroad," added Correia. Additionally, it appears that the slowdown of the oil sector may have positive effects on the Angolanization process. "To counteract price reductions and a slowing of business, ISQApave is reducing its expatriate contingent, and increasing the training of nationals. The difficulty is to accommodate the demands of our clients for higher technical expertise and certification and the lack of experience of local operators; but step by step, the company shall reach a fair balance," added Miguel Dias Correia general manager of ISQApave.

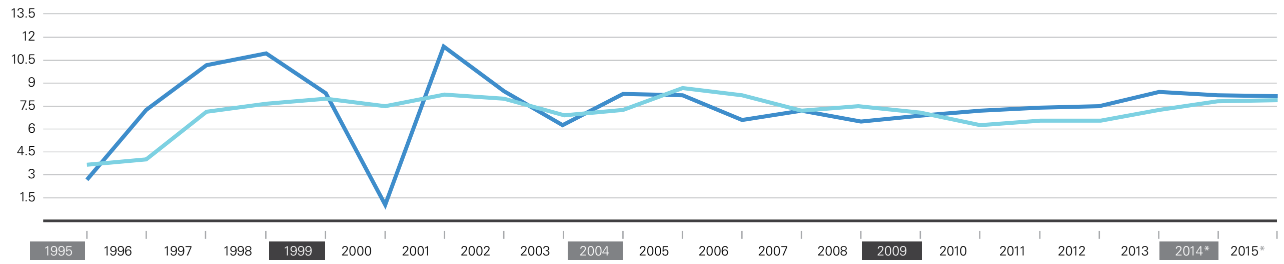
Companies interested in investing in Angola should keep in mind that having a local partner is key and be aware that the foreign exchange regime will pose certain challenges. The process of Angolanization is also something that is taken seriously so training programs will need to be designed and implemented. What matters most are people; Angolans with the right skills can help to make Angola a prosperous nation. The fundamentals are there, it is now up to the country's population to realize their ambitions. •

GDP GROWTH (%)

BY YEAR · 5-YEAR AVERAGE

Source: World Bank, Eiu

*projected



The last UN peace-keeping contingents leave the country. Mozambique joins the Commonwealth of Nations.

Chissano wins a second term. Opposition RENAMO claims fraud and threatens a return to civil war, but backs down.

Chissano declines to run for a third term and elections are won by Armando Guebuza of FRELIMO

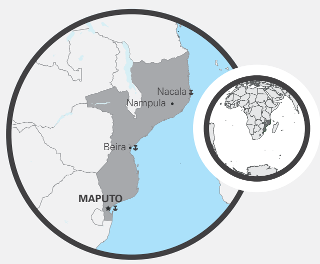
Chissano wins a second term with 75% of the vote. SADC calls the result "a true reflection of the will of the people"

The Mozambique Democratic Movement, formed out of RENAMO in 2009, may slightly shift dynamics in October elections.

Mozambique

Mozambique officially the Republic of Mozambique is a country in southeastern Africa bordered by the Indian Ocean to the east, Tanzania to the north, Malawi and Zambia to the northwest, Zimbabwe to the west and Swaziland and South Africa to the southwest.

Source: UCLA African Studies Center



Population: 24,692,144 (July 2014 est)
Land Area: 799,380 sq km
Official Language(s): Portuguese
Capital: Maputo
Chief of State: President Armando Emilio Guebuza
Head of Government: Prime Minister Alberto Clementino Vaquina
GDP (PPP): $28.15 billion (2013 est.)
Growth Rate: 7% (2013 est.)
GDP per Capita: $1,200 (2013 est.)
Economic Sector Breakdown: agriculture: 28.7%, industry: 24.9%, services: 46.4% (2013 est)
Exports: $3.92 billion (2013 est.): aluminum, prawns, cashews, cotton, sugar, citrus, timber, bulk electricity
Imports: $7.068 billion (2013 est.): machinery and equipment, vehicles, fuel, chemicals, metal products, foodstuffs, textiles
Major Trade Partners: South Africa, Belgium, China, India, United States

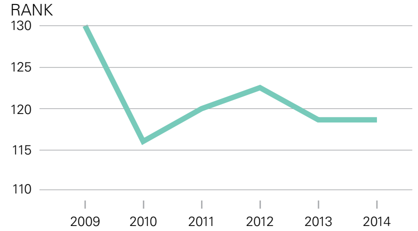
TOTAL PROVEN NATURAL GAS RESERVES (2015)

Source: EIA

100
trillion cubic feet

TRANSPARENCY INTERNATIONAL CORRUPTION PERCEPTIONS INDEX

Source: Transparency International



RECENT OFFSHORE NATURAL GAS DISCOVERIES IN MOZAMBIQUE

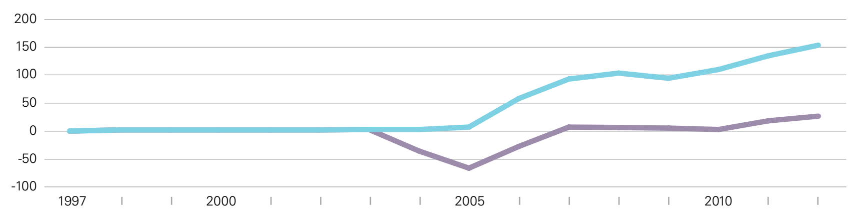
Source: U.S. EIA

LICENSE	NAME	DISCOVERY DATE
Prosperidade Complex operated by Anadarko		
Area 1	Windjammer	Feb. 2010
Area 1	Barquentine-1	Oct. 2010
Area 1	Lagosta-1	Nov. 2010
Area 1	Tubarao	Feb. 2011
Area 1	Barquentine-2	Aug. 2011
Area 1	Camarao	Oct. 2011
Area 1	Barquentine-3	Nov. 2011
Area 1	Lagosta-2	Jan. 2012
Area 1	Lagosta-3	Feb. 2012
Area 1	Barquentine-4	Apr. 2012
Golfinho/Atum Complex operated by Anadarko		
Area 1	Golfinho-1	May. 2012
Area 1	Atum	Jun. 2012
Area 1	Golfinho-2	Jun. 2012
Mamba Complex operated by Eni		
Area 4	Mamba South-1	Oct. 2011
Area 4	Mamba North	Feb. 2012
Area 4	Mamba Northeast-1	Mar. 2012
Area 4	Mamba Northeast-2	Aug. 2012
Area 4	Mamba South-2	Dec. 2012
Coral finds operated by Eni		
Area 4	Coral-1	May. 2012
Area 4	Coral-2	Dec. 2012
Area 4	Coral-3	Feb. 2013

NATURAL GAS (billion cubic feet)

Source: U.S. EIA

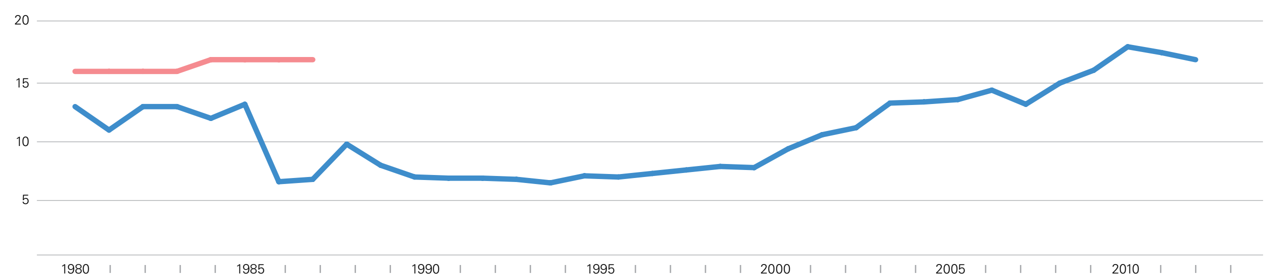
Production · Consumption



PETROLEUM (thousand barrels per day)

Source: U.S. EIA

Production · Consumption · Refining Capacity

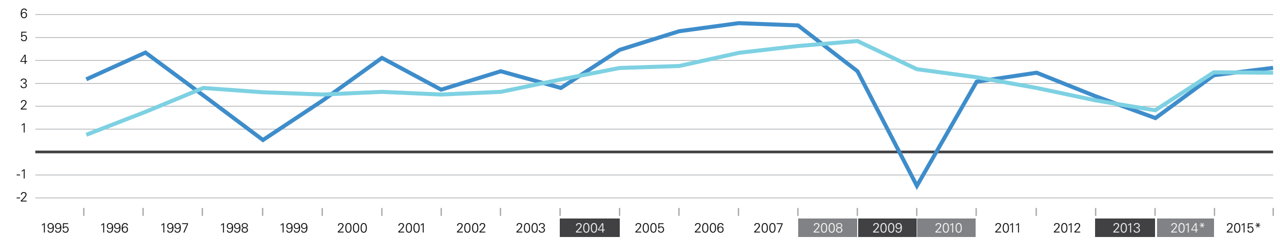


GDP GROWTH (%)

BY YEAR · 5-YEAR AVERAGE

Source: World Bank, Eiu

*projected



Mbeki is reelected with 70% of the vote, and the ANC wins 279 seats in the National Assembly (out of 400).

Mbeki resigns as president due to accusations of political interference. Motlanthe becomes caretaker president.

Jacob Zuma of the ANC replaces Mbeki as the ANC's candidate and wins 66% of the vote to become president.

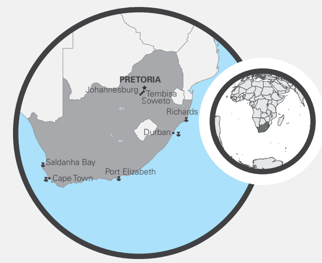
South Africa becomes the fifth member of the BRICS. South Africa hosts the 2010 FIFA World Cup, the first time it is hosted in Africa.

A number of labour disputes and strikes affect a number of sectors, including mining.

General election scheduled for April-July. Although the ANC is expected to win, they face growing competition.

South Africa

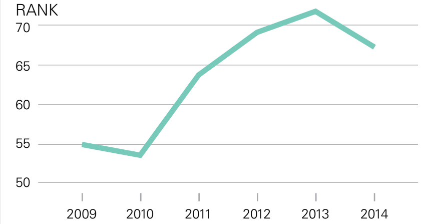
The Republic of South Africa is a country located at the southern tip of the continent of Africa. The South African coast stretches 2,798 kilometres and borders both the Atlantic and Indian oceans. To the north of South Africa lie Namibia, Botswana, Zimbabwe, Mozambique and Swaziland, while the Kingdom of Lesotho is an independent enclave surrounded by South African territory. Source: UCLA African Studies Center



Population: 52,981,991 (July 2014 est.)
Land Area: 1,219,090 sq km
Official Language(s): IsiZulu, IsiXhosa, Afrikaans, Sepedi, English, Setswana, Sesotho, Xitsonga, siSwati, Tshivenda, isiNdebele
Capital: Pretoria
Chief of State: President Jacob Zuma
Head of Government: President Jacob Zuma
GDP (PPP): $595.7 billion (2013 est.)
Growth Rate: 2.0% (2013 est.)
GDP per Capita: $11,500 (2013 est.)
Economic Sector Breakdown: agriculture: 2.6%, industry: 29.0%, services: 68.4% (2013 est.)
Exports: $91.05 billion (2013 est.): gold, diamonds, platinum, other metals and minerals, machinery and equipment.
Imorts: $99.55 billion (2013 est.): machinery and equipment, chemicals, petroleum products, scientific instruments, foodstuffs.
Major Trade Partners: China, Germany, United States, Japan, Saudi Arabia, India

TRANSPARENCY INTERNATIONAL CORRUPTION PERCEPTIONS INDEX

Source: Transparency International



TOTAL PRIMARY ENERGY CONSUMPTION (2013)

Source: BP

TOTAL PROVEN NATURAL GAS RESERVES (2015)

Source: EIA

390
trillion cubic feet

TOTAL PROVEN OIL RESERVES (2015)

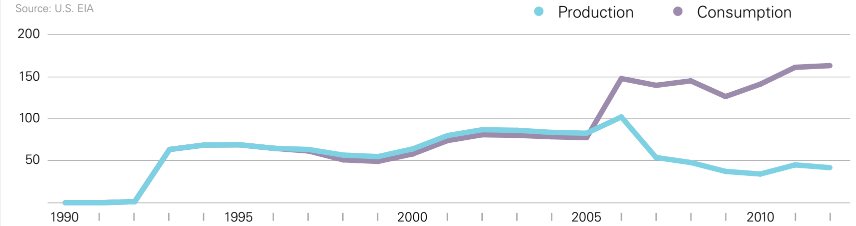
Source: EIA

15
million barrels

NATURAL GAS (billion cubic feet)

Source: U.S. EIA

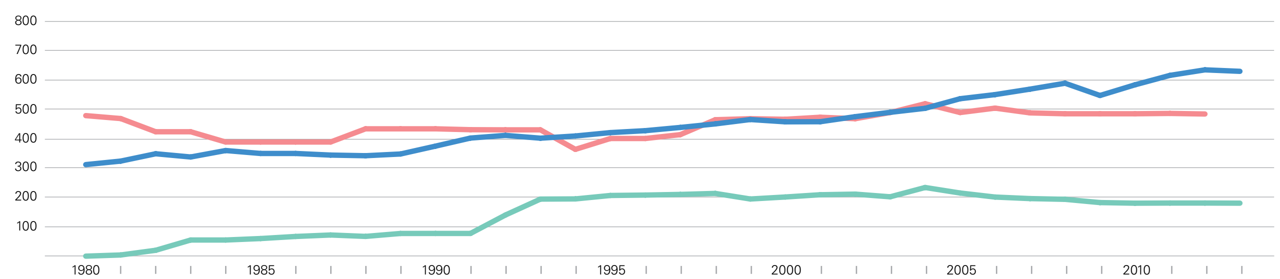
Production · Consumption



PETROLEUM (thousand barrels per day)

Source: U.S. EIA

Production · Consumption · Refining Capacity



Ebrahim Takolia

CEO

SOUTH AFRICAN OIL AND GAS ALLIANCE (SAOGA)

The South African oil and gas Alliance (SAOGA) is dedicated to promoting the upstream and midstream sectors of the oil and gas value chain, primarily in South Africa and regionally in Southern Africa. As chief executive officer, what are your key objectives for 2015?

The key objective of 2015 is to help the industry navigate the current low-price environment in energy, while continuing to focus on the long-term potential of the oil and gas industry in Sub-Saharan Africa. In order for Africa to realize its true economic growth potential, the continent will require energy. The key constraint is getting energy from where it is located to markets in Africa. Proven reserves of oil and gas continue to increase in Sub-Saharan Africa, with two of the largest recent gas discoveries having been made in Mozambique. At the same time, as Africa's economies grow and a middle class slowly emerges, energy bottlenecks are emerging. Liquid fuels and electrical energy shortages are now the norm rather than the exception on the African continent. Whether its diesel and electricity constraints in South Africa, or limited electricity supply in Nigeria, these shortages arise due to the lack of infrastructure to move hydrocarbon energy from where it is located to where it can be utilized. Investments in infrastructure are required to meet Africa's future energy requirements.

Low oil prices coupled with uncertainty in government regulation have resulted in the scaling back or shelving of several upstream exploration ventures in South Africa. What legislative changes need to be put in place to promote growth in the sector?

Government policy at present is to regulate and control an industry that is at its infancy, which has created uncertainty and has driven away much-needed investment in exploration that can confirm whether South Africa has offshore or onshore oil and gas potential.

At the end of the day, exploration is a calculated role of the dice: the greater the amount of exploration taking place, the greater the likelihood of discovery. And, even if exploration determines that South Africa does not have commercial quantities of oil and gas, the country can move forward with other strategies for energy security. Delaying exploration renders every decision on South Africa's energy policy and any discussion on energy security incomplete.

Had Mozambique not opened its exploration licensing to facilitate exploration, it would have not unlocked what is surely one of the greatest gas discoveries of recent times. Expected investments in gas processing and support facilities are expected to exceed the GDP of Mozambique, which was $14.6 billion in 2013.

Exploring off the cost of South Africa is a costly affair, with an average exploration project requiring risk capital in excess of R$20 billion. A midsize onshore exploration project for shale gas will require R$10 billion. International oil and gas companies are driven by reserves replacement and are keen to invest such risk capital into South Africa. This would raise foreign investment in the country at a time when other sectors of the economy are under pressure. Utilizing South Africa's domestic capital stock for such ventures is risky and could reduce the availability of capital into other less risky, more productive sectors of the economy. In short, South Africa cannot afford to take high risks with its limited capital resources

Should exploration offshore or onshore prove successful with a discovery of at least five trillion cubic feet or one billion barrels of oil equivalent, it will change the country's energy dynamics. Research suggests that a find of 10 trillion cubic feet or two billion barrels of oil equivalent would eliminate the country' budget deficit. The domestic benefits in terms of the generation of local economic activity will be significant and could be used to drive a new wave of economic development, notably around power generation, liquid fuels and industry.

The pricing regulations set by the National Energy Regulator of South Africa are impeding investment in the oil and gas sector. These structures should be feasible and encourage investment into midstream activities. Delays in current storage and pipeline projects could also arise due to a lack of long-term clarity on tariff structures, which allow investors to fund large projects.

Despite South Africa' s nascent upstream industry, the country has well developed midstream and downstream operations. What trends can you highlight about South Africa's strategic position in the oil and gas industry?

In March 2015, SAOGA completed the pilot project, which aimed to map and profile companies that deliver goods and services into the upstream and midstream oil and gas markets, according to their geographical presence, capacities and capabilities, position in the value chain, and local content and skills requirements. More than 217 companies were mapped and profiled, which demonstrated the depth and spread of the current participants in the oil and gas sector and that South Africa has a robust cluster in this space. •

AN INDUSTRY IN ITS INFANCY

The Future of Oil and Gas in South Africa

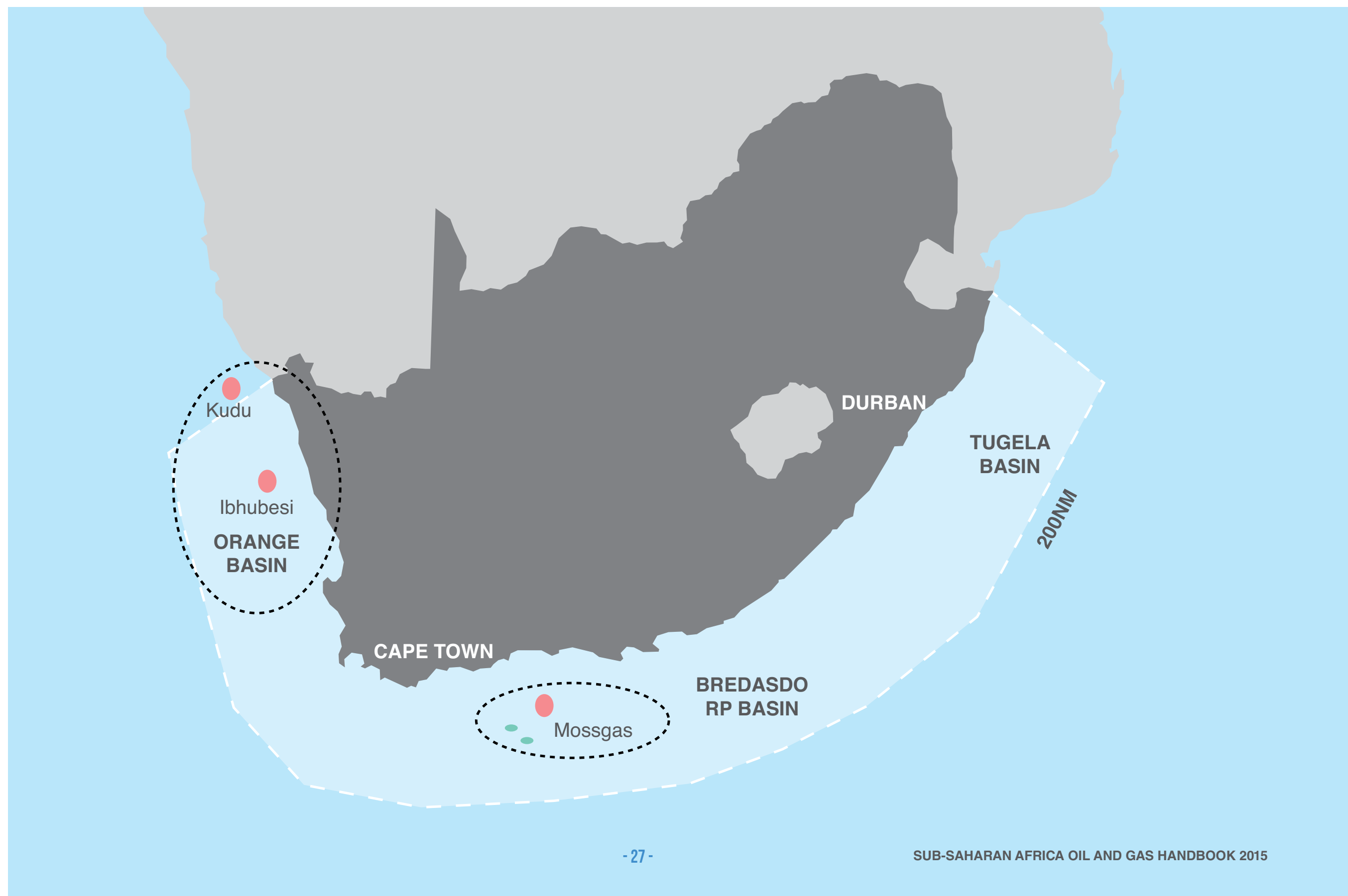
With limited proven reserves of oil and natural gas, the most developed African economy is highly dependent on its coal deposits to meet the rainbow nation's energy intensive needs. As a result, the country is now the leading carbon dioxide emitter in Africa, according to the United States Energy Information Administration (U.S. EIA). South Africa's current role in the oil and gas sector is small, especially in the sub-Saharan African context, with major oil producers such as Nigeria and Angola and new gas opportunities in the Rovuma Basin. However, South Africa's fate is set to change with major potential in offshore oil and gas as well as shale gas in the Karoo, which can transform the nation's energy matrix and meet South Africa's electricity challenge in the future.

Leading the way

As a net importer, most of South Africa's oil comes from the Middle East and West Africa and, due to a well-developed downstream industry, is refined locally. As electricity parastatal Eskom battles to keep up with electricity demand, South Africa has once again reverted to load shedding to prevent a national blackout, which is the same load shedding that crippled the mining sector in 2008 and stunted economic growth. Now more than ever, South Africa needs to tap into its heritage of innovation and think long-term about using alternative energy sources, natural gas, and synthetic fuels to power the nation's future. → 29

PETROLEUM AGENCY MAP OF OFFSHORE AND ONSHORE OIL AND GAS AREAS

Source: SAOGA



Paul Eardley-Taylor

Head, Oil and Gas Southern Africa
STANDARD BANK

How would you describe today's lending and financing trends within the oil and gas sector in the Southern African region?
From the Southern African region, we are not particularly affected by the oil price falls be-cause there are very few producers of note at the moment; however, this is expected to change dramatically in the next few years with the Mozambique LNG project, the largest project in Africa's history, coming online. In the long-term, there is significant potential for shale gas in South Africa and possibly offshore.

Looking at the potential of shale gas in South Africa, how do you foresee this playing out and what impact can this have on the South African economy?
We have been looking at the potential impact of shale gas on South Africa for several years. The World Shale Gas Resources report from the U.S. Energy Information Administra-tion estimates that South Africa has 390 trillion cubic feet (Tcf) of technically recoverable shale gas. Standard Bank uses the Wood Mackenzie estimate, which is 128 Tcf. Regardless of the reserves, there is an immense need for kilowatt hours, which can come from shale gas and would be transformational for South Africa.
There are three issues that are in flux for shale gas in South Africa. The first issue is the Mining and Petroleum Resources Development Amendment Bill (MPRDA), which was re-ferred back to parliament in January 2015. The second is drilling regulations. The third is the environmental arrangements surrounding the pre-work that needs to be done and the later hydraulic fracturing itself. Assuming that these issues are worked out by 2016, some core holes will likely be drilled relatively quickly and potentially the first fracking jobs would come online within a year or two after that. If things move quickly, we could see pi-lot projects generating power by 2018.

Amendments to the MPRDA have been highly controversial. How would you describe the legislation and regulatory framework for oil and gas in South Africa?
The President made a wise decision with the MPRDA, which demonstrated that South Afri-ca is a democracy and that civil society, including industry groups and other interested par-ties, can contribute to positive legislative change and, in this case, stop an act that was badly designed.
The various elements of the MPRDA that raise concerns are well known. We hope that when the legislation is crafted again, it demonstrates better awareness of what resources the country has and differentiates between them. Offshore oil and gas is very different from shale, for example, which is different from CBM. Different types of resources require different treatment.
Stakeholders can have assurance that South Africa does have resources. All the major E&P companies are present. The question will be to make sure that the above issues can be fi-nalized, so that these companies can do their technical work as soon as possible.

What impact does a rand-based economy have on foreign investors?
In theory there is nothing stopping a rand shale gas price in South Africa, particularly if the gas is routed to the power market. Offshore oil and gas is globally traded in U.S. dollars, but, if associated gas were discovered and produced, it is not clear how it would be priced. The pricing of offshore, non-associated gas is also unclear. Regardless of pricing, South Africa is an investment grade economy with a huge need for hydrocarbons based on the long-standing issues surrounding Eskom and the lack of indigenous oil production.

How do you expect the industry to evolve in the next few years?
We will see a lot of 3D seismic upstream activity in South Africa, as well as a couple of ex-ploration wells by the leaders. In Mozambique, we would expect to the have the closure of trains one and two, and, possibly, the floating LNG scheme. There will be good progress towards the domestic gas projects, certainly fertilizers and power. We will see the start of GTL and petrochemicals planning. Ideally, Tanzania LNG will be moving towards financial closing.
Across the downstream space, we will see the continuing growth of the trading companies in terms of owning assets. New oil refineries will not be built or financial investments tak-en, but there will be an increase in import storage terminals.

What is your final message about Standard Bank and your involvement in the sector?
Across Sub-Saharan oil and gas, we are the market leader of the African banks. We have regularly closed transactions in Mozambique and with some of the major players in Nige-ria. We have recently increased our corporate presence in South Africa. Standard Bank completed the macro economic study for Anadarko in Mozambique LNG, which led direct-ly to the passing of the decree law in the past few months.
In Africa, exploration is easy but production is difficult. With the fall in prices in recent times, we will have greater focus on appraised assets, some of which might be subject to M&A cases, but in every case, the priority will be to get into production as soon as possi-ble. This is applicable for the Rovuma basin, the pipeline across East Africa, Uganda oil and gas, or indigenous producers in Nigeria. •

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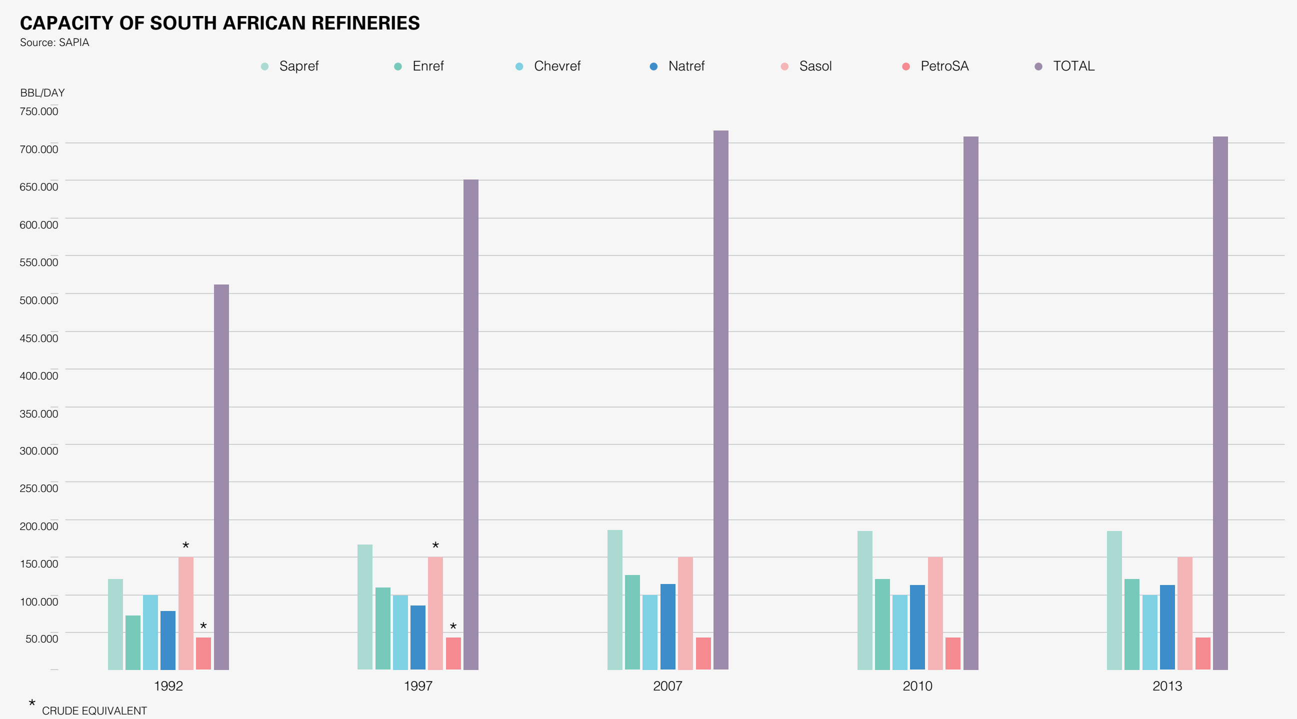
South Africa already has a sophisticated synthetic fuels industry, producing gasoline and diesel fuels from the Sasol's Secunda coal-to-liquids (CTL) and South Africa's national oil company Petro SA's Mossel Bay gas-to-liquids (GTL) plants, the third largest GTL refinery in the world. The synthetic fuels industry accounts for nearly all of South Africa's domestically produced petroleum, as domestic crude oil production is very small. Meanwhile, interest in exploring for coal bed methane continues to grow, as companies have been awarded more than 20 exploration rights to date and others are applying for production new rights.

From Oil to Gas

As energy demand increases, gas continues to emerge as a preferred fuel source, burning cleaner than coal and oil. Oil giant Royal Dutch Shell's global acquisition of BG Group, a $70-billion deal, certainly forecasts its future focus on gas. However, Shell South Africa recently pulled one of its top people in shale gas, as a result of low oil prices and uncertainty in government regulation. In a world where capital is mobile, governments are under pressure to make timely and transparent decisions, and South Africa must follow suit.
South Africa's Karoo, a semi-desert region, holds the fifth to eighth largest gas reserves in the world, and World Shale Gas Resources report from the U.S. EIA estimates that South Africa has more than 390 trillion cubic feet (Tcf) of technically recoverable shale gas. "The initial study we did with econometrics showed that if we bring only five percent of this gas to production, it will help create 300,000 sustainable jobs in the region while adding R80 billion to the fiscal returns and contributing to GDP growth in the order of 3.3%. South Africa will not have another opportunity as great as the one presented in the Karoo now for another 20 years. The prospects of Shell gas discovery in the Karoo will mean indigenous gas in the country for the first time in history," said Shell South Africa's chairman, Bonang Mohale.
There is no doubt that shale gas would be transformational for South Africa, but government delays over shale-gas legislation have increasingly frustrated the industry. Six years on, no licenses have been issued.
More recently, another stumbling block has shaken the industry: the amendments to the Mineral and Resource Petroleum Development Act (MPRDA II). These amendments proved highly controversial, and the bill has been sent back to the National Assembly for review. Some argue that this proves that South Africa is a democracy, as the government is willing to listen and react to industry voices. However, issues surrounding free carry, beneficiation, agreed terms for increase in equity stakes and the empowerment numbers are at play and have raised the specter of regulatory uncertainty, which, along with environmental concerns over hydraulic fracturing (fracking) and water usage, continues to delay exploration activity. South Africa previously demonstrated its ability to transfer international best practices into the South African context by creating a revolutionary renewable energy program, but only time will tell if the country can do the same for shale gas.
South Africa's offshore exploration was previously minimal, limited both by the depth of the potential resources as well as ocean



currents. However, new technology has helped made new discoveries, which have in turn increased interest in exploration activity. Today, more than 20 exploration licenses have been issued, with interest in the Tugela Basin off the Durban coast, and Bredasdo RP Basin and Orange Basin off the cost of Cape Town, to name a few. South African petrochemicals giant Sasol recently announced plans to explore for oil and gas along South Africa's east coast, and Australian company Sunbird Energy is pushing ahead with the development of a major gas project off South Africa's west coast. French giant, Total, launched their drilling program in the Outeniqua Basin in 2014 before the fall of the oil price.

A previously nascent industry has now seen a flurry of new investment, but the timing of their development programs may lead to some being pushed back. Nonetheless, this emerging, upstream oil and gas industry has great potential to contribute to future economic growth and job creation.

In the meantime, companies like Novo Energy are benefitting from the developing gas market. "The challenge is to bring the gas to market with a lack of infrastructure.

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Bonang Mohale

Chairman and Vice President
SHELL SOUTH AFRICA ENERGY (PTY) LTD.

Shell has been active in South Africa for over 110 years. Can you provide us with an over-view of Shell South Africa and your key objectives as Chairman?

Shell has been in South Africa for 113 years. We started as Shell Coal out of Witbank and the head office was in Cape Town until 2008. Since then, we moved the head office to Johannes-burg, from where we run 33 of the 54 African countries. Our presence in South Africa was always in downstream, from refining to the customer at the pump. Shell manages the largest refinery in Africa, Sapref, which is jointly owned by Shell and BP. We are in oils, chemicals, aviation, ma-rine, lubricants and our LPG business. We aspire to conduct a midstream business that is driven by LNG imports so that a gas market can be created. In this way, the country would be familiar with gas for heating, cooking, cooling, etc. by the time we started producing indigenous shale gas in the Karoo. We started our upstream business in 2008.

There is immense energy demand in South Africa, but delays over legislation have frus-trated the development of shale gas. What is the future of shale in South Africa?

The Karoo holds huge potential. The U.S. Energy Information Administration (EIA) estimates it to be the fifth to eighth largest gas reserve in the world, providing anything from 390 to 485 trillion cubic feet of gas. We're excited because the initial study we did with econometrics showed that if we bring only five percent of this gas to production, it will help us to create 300,000 sustainable jobs in the region, add R$80 billion to the fiscal budget, and contribute 3.3% to GDP growth. South Africa will not have another opportunity as great as the one presented in the Karoo for another 20 years. The prospects of shale gas discovery in the Karoo will mean indigenous gas for the first time and could serve five uses: electricity generation, liquid fuels and petroleum, manu-facture of chemicals (especially fertilizers), mass transportation, and piping gas for entire com-munities.

The government said that they would issue exploration rights agreements by the end of this year. We are concerned about the delays, as it has been six years, and we still do not have a license in the Karoo. Government chose a complex way of dealing with this industry by reviewing and amending the Mineral and Petroleum Resources Development Act (MPRDA) 2002, considering we are in a world where capital is mobile and is looking for the best commercial and technical terms. We are hoping that all prospects will be allowed to come to fruition.

Why did Shell recently pull out one of its top shale gas personnel from South Africa?

In a $50 oil price, oil majors have made to revert to a low cost holding position. We had to reduce our staffing resources to a manageable number, at least until we get a license.

In upstream, Shell holds an exploration right in the Orange Basin Deep Water area. What potential exists in the Orange Basin?

In the Orange Basin, we put in a fully compliant bid and government kept their side of the bargain by issuing the licenses within the prescribed period. We have now completed the acquisition of 3-D seismic, have mapped the sub surface, and have a good idea of where we are going to drill a few holes. However, Royal Dutch Shell wanted to make one final investment decision for both Orange Basin and the Karoo, but because we are reviewing our global portfolio, the decision has not been made. Still, the potential remains unbelievable.

How do you expect to see Shell South Africa in three years?

Our downstream business has been doing very well. Of the 94 countries where Royal Dutch Shell has a presence, our marketing business has always been in the top 10 and convenience retail has been in the top five. South Africa is a one of the few growth markets. North America and Europe have struggling since the 2008 global recession, but we have been growing by an average of 4% per year. Even 1.4% GDP growth in 2014 was positive. South Africa has 52 mil-lion people, ten million of whom have no access to any form of energy whatsoever.

What shape will South Africa's oil and gas industry take over the next ten years?

When the government has issued the exploration rights agreements and if we discover shale gas in commercially viable quantities in the Karoo, this country will be resource-rich with its own in-digenous crude oil and gas for the first time. We need to grow at seven percentage points GDP so we can absorb the 150,000 graduates who enter the job market, often with inappropriate skills, so we can double the size of the economy. The future is so bright.

Global Business Reports

Image: South African Oil and Gas Alliance (SAOGA)

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NOVO Energy, an integrated gas company, developed a business case for using compressed natural gas (CNG), a very fast way to take gas to market. Despite the barriers to entrance, we have seen very competitive pricing even with South Africa's high local gas prices. It is a challenging business model to build infrastructure, use expensive gas and build the base load of market," explains Andri Hugo, NOVO Energy's chief executive officer.

Prime Position

Like the mining sector, which quickly established itself as a service hub for companies looking to move north, the same potential exists for South Africa to position itself as a hub for the oil and gas sector on the continent. Of course, the challenge requires significant investment from government, private sector and training institutions to develop the required skills. The government's Operation Phakisa program envisages transforming Saldanha Bay into a one-stop rig repair and oil services hub. The tenders have already been released for the two major oil services infrastructure projects, collectively valued at around R$10 billion with plans to see it come to fruition by 2018. The developments are being packaged as build, own, operate and transfer concessions and are being marketed jointly by the newly established Saldanha Bay Industrial Development Zone Licensing Company and Transnet National Ports Authority.

Several sub-sectors across the value chain in South Africa already have well-established expertise, including South Africa's track record in Conceptual Design and Front End Engineering Design (FEED). South Africa's ports with deep-water access and dry dock facilities have facilitated the emergence of a well-developed pool of skilled marine engineers that is nourished by South Africa's role as the logistic hub for both East and West Africa.

Established in South Africa and new to the African upstream sector, Accessential is an equipment provider with a nuanced, technological prowess. Accessential engineers design custom drones and virtual reality solutions that alleviate unwanted health and safety risks on the ground. "We are not eliminating human resources; we are simply relocating people to areas where they can remotely, and safely, operate our machines," notes Ryan Beech, managing director. The most popular product at the moment is the pipeline inspection rover, which is a compact, durable robot that crawls through narrow and unreachable crevasses. Meanwhile, the operator is wearing 3-D virtual reality goggles, which "creates the feeling of actually walking down the pipeline, with a moving image, allowing the user to bend down and get a closer look at a crack or defect inside the pipe," explains Beech. With its headquarters in Johannesburg, Accessential is using South Africa as the key to unlocking opportunities across the continent.

Downstream

South Africa's well-established downstream industry is home to six refineries, four located on the coast and two situated inland (see Figure 1). The first refinery, Enref, was commissioned by Mobil in 1954 and the jointly owned Shell-BP Sapref refinery is the second largest in Africa. The dominant petroleum companies in South Africa include BP, Chevron, Engen, PetroSA, Sasol, Shell and Total SA. As major distributors of petroleum products, they operate storage terminals and distribution facilities at the major ports and have distribution facilities throughout South Africa.

History and politics have resulted in the industry being owned and operated mostly by multinational oil majors. Only a very insignificant portion rests in the hands of historically disadvantaged South Africans, but as time progresses, a shift has been emerging. "One of the main changes was that the then new idea of a wholesaler was brought into legislation, creating a middle man between the refinery and the commercial users. At the same time, there were efforts to grow black owned businesses in South Africa through Black Economic Empowerment. However, we still had to work very hard considering that we were entering a previously white-dominated industry where relationships were already well established," explained Juneas M Lekgetha, the executive chairman at Borutho Gas Supply.

The 2000 Petroleum and Liquid Fuels Charter set a target to place 25% of the oil industry (across all facets) in the hands of black-controlled energy companies. In 2013, nine companies were collectively awarded the R$15.5-billion Transnet contract as part of an empowerment deal to foster growth among previously disadvantaged players. For pioneering BBBEE companies in the liquid fuels industry in South Africa this was pivotal.

Maja Mahlohonolo, chief executive officer of NRW Trading and Logistics, a 100% black-owned and female-managed company, was one of the nine companies that

The most popular product at the moment is the pipeline inspection rover, which is a compact, durable robot that crawls through narrow and unreachable crevasses. Meanwhile, the operator is wearing 3-D virtual reality goggles, which "creates the feeling of actually walking down the pipeline, with a moving image, allowing the user to bend down and get a closer look at a crack or defect inside the pipe.

- Ryan Beech, Managing Director, Accessential

Image: Accessential

were part of the Transnet contract. "It has given us great exposure and credibility, which opened the door to other opportunities in targeted markets. I think we were chosen because of our experience....what really gave us a competitive edge was our partnership with Sasol and backing from ABSA bank. It goes a long way to partner, versus compete, with the majors. We have been able to successfully service a huge parastatal like Transnet by leveraging our relationships and partnerships with the existing oil majors, capitalizing on the resources and expertise of the giants in the business that have gone before us. That puts us in good stead to compete in the market."

South Africa's downstream industry faces several pressing issues, including security of fuel supply, transformation, clean fuels and climate change. Tseke Beny Nkadimeng, chief executive officer of Afric Oil, the first BBBEE fuel distribution company in South Africa, explained the challenge of being a newcomer: "Trust is an issue in this industry; security of supply is critical. When you enter as a BEE and an independent there is often uncertainty as to whether you will provide high quality product, deliver punctually, etc. When Transnet opened up contracts to other emerging entities they effectively said, 'we think these guys are able to do it and we trust them'; that was important for us. There is still stigma attached to smaller BEE companies. It is not necessarily a racial stigma but more about being an emerging player and needing to establish trust. Transnet has provided us with good volumes and money in the bank."

Afric Oil is the only emerging oil company to consistently transport refined product through Transnet's Durban-to-Johannesburg pipeline.

Threatening the security of supply and the long-term sustainability of South Africa's refining sector in the future, according to Chevron South Africa's chairman, Nobuzwe Mbuyisa, "is the importing of clean fuels which can affect the viability of domestic refineries, their employees and the industries that support local manufacturers."

South Africa was set to implement its policy on clean fuels by 2017, but legislative delays have caused the implementation of the program to come to a standstill. As part of the clean fuels project, South African refineries were to upgrade their plants, which consisted of investments of R$40 billion to Euro IV standard fuel. However, the industry has requested a cost recovery mechanism from the government to recoup the investment costs, since companies cannot control the price of fuel. The Ministry, after all, sets South Africa's fuel price. Discussions are currently underway, but uncertainty continues to hover over the industry.

Chevron's worries stem from the hotly debated issue of a new entrant to the liquid fuels storage and distribution market, the Burgan Cape Terminals. They plan to build a new fuel storage facility in Cape Town, which industry believes could result in the importation of clean fuels, having a massive ripple down effect on local manufacturing, employment and essentially security of supply from local refineries. Gulfstream Energy, a leading BBBEE fuel distribution player, has already partnered with Burgan.

From a policy perspective, South Africa's import guidelines limit imports to demands that cannot be met by local refineries, but these guidelines do not include clean fuels.

Although companies await further developments up north, new entrants across the value chain are entering the South African marketplace. We need the prospecting and the platforms to be well advanced before companies require the suite of SICK products... we realize it will be a timely process and we need to establish a strong network to prepare for the growth.

- William Madeley, Managing Director, SICK Automation Southern Africa

SICK is one of the world's leading manufacturers of sensors, safety systems and automatic identification products for factory automation, logistic automation and process automation applications.

Conclusion

Although South Africa is a net importer of oil, its educated workforce, developed infrastructure, and world class financial institutions have ensured that the country plays an integral role in the development of the continents' oil and gas industry. The Rovuma basin, a resource-rich region located along the border of Tanzania and Mozambique, offers exciting potential.

Nevertheless, standing in the way of the industry's development, is the lack of infrastructure and technical knowhow in the region. Ideally nestled between western and eastern Africa, South Africa's upstream industry should look to take advantage of its enviable position, taking part in the remarkable growth that the continent's energy sector is experiencing. With some of the largest refineries in the world, South Africa's downstream industry is well poised to benefit from these developments should government continue to nurture its relationships with those already here.

As the country deals with the challenges that accompany an industry in its infancy, stakeholders can rest assured that the prospects are real. The major oil companies, including Chevron, Shell, Engen, BP and Total, have established their presence and downstream operations to push forward the industry's growth. How the government deals with the imminent issues facing the industry will dictate its long-term development and sustainability. South African companies will have to move quickly and operate efficiently, outmaneuvering competitors, and, in turn, solidifying the leading role of their nation on the continent. •

EAST AFRICA EMERGES

Hydrocarbon Hopes in the Horn of Africa

Tanzania in particular is an attractive destination for gas exploration. Aside from the country's political stability, it has a huge and rising demand for domestic gas and has a chronic shortage of electricity supply. Gas via the transnational pipeline will primarily solve the power shortage. Gas will be used to fire power generation facilities to generate electricity to help solve the crisis.

- Geoff Bury, Managing Director, Wentworth Resources Ltd.

East Africa is often touted as an emerging hydrocarbon province, and the designation appears apt; in 2015, an estimated capital expenditure of $4.19 billion was made on oil and gas exploration and production (E&P) and downstream development in the region. As a region that some view as the final frontier, many companies are aggressively trying to enter these markets early so that they can capitalize on the projected growth. Those interested in oil have trained their sights on Uganda and Kenya, while Mozambique, Tanzania and Ethiopia are attracting companies exploring for natural gas. These five countries represent the most promising investment destinations in the region.

The road to discovering oil and gas in East Africa, however, was more arduous than most may realize, which makes the recent findings more of a relief than a sudden surprise. The British East African Syndicate's camp at the Ugandan Kibio oil seep in 1913 and Anglo-American's Dudley Expedition to Abyssinia (modern day Ethiopia) in 1921 are the first-recorded attempts at oil and gas exploration in East Africa. In the 1950s, the Horn of Africa was thought to be an extension of the Arabian oil province, prompting British and American companies such as BP, Royal Dutch Shell, Mobil, and Sinclair to drill 36 wells during the exploration boom that followed the Second World War. After over seventy years of unsuccessful exploration, Uganda captured the world's attention with the discovery of oil at Hardman's Mputa-1 block. After Hardman's announcement, 25 of the 28 wells surrounding Uganda's Lake Albert basin also touted valuable finds. The suspense surrounding the region's potential continued to build with Tanzania's offshore gas discoveries a few years later, leading to a massive surge in permitting and drilling in the region. Most recently, Kenya found oil in the Lokichar basin in 2013, and again in 2015.

To date, fewer than 600 wells have been drilled in East Africa. Over the past five years, reserve estimates have increased markedly, yet only a fraction of the territory has been adequately explored. The harsh reality of low oil prices has caused companies to press pause on many E&P projects, but all those involved present in these markets believe that lucrative returns on investment are coming. Four of Africa's seven largest economies are located in East Africa, and many companies are deciding on which they should choose as a regional hub, with Tanzania and Kenya being apparent favorites. The general consensus is that anyone who can survive the current low price environment with a holding in East Africa will reap a high reward.

In 2014, the World Bank, in partnership with the African Development Bank, the IFC and other civil service agencies, pledged to provide more than $8 billion towards infrastructure development across eight countries in the Horn of Africa, including Kenya, Ethiopia and Uganda. This initiative included enhancing cross-border transport routes, strengthening broadband connectivity, and building international oil and gas pipelines. The IFC's pledge specifically outlined its commitment to build a pipeline that link Uganda and Kenya, as part of the Lamu Port Southern Sudan-Ethiopia Transport (LAPSSET) project. An agreement was signed in August 2015 that delineated the route of the 1,500-kilometer oil pipeline, which would become the longest heated oil pipeline in the world.

Kenya has been creating the most buzz, with its persistent attempts at both onshore and offshore exploration and infrastructure development. Commercial oil production is projected to begin as early as 2018—with Kenya entering the global market before Uganda, which discovered hydrocarbons six years earlier—but in light of the market downturn, delays are expected. Regardless, the government is spearheading the LAPSSET Pipeline project in anticipation of eventual oil production. LAPSSET will connect the oil fields of South Sudan, Kenya's Turkana Basin, and Uganda's Lake Albert to what will be the largest port on the East African coast. Due to increased FDI, Kenya is predicted to experience a compound annual growth rate of 36.5% in the next five years. As a result of Kenya's prominence in potential, GBR sent a team to investigate on the ground to uncover if tangible changes were being implemented. (See Waiting for a Piece of the Pie: Kenya's Nascent Oil Industry).

The Kenyan government is also integrating a refinery upgrade into the LAPSSET blueprint. Mombasa's Kenya Petroleum Refinery Limited (KPRL) is the only refinery in the region—producing liquefied petroleum gas, petrol, diesel, kerosene, and fuel oil—but has since shut down due to differences between the government and the private sector. Essar Energy acquired a 50% interest in KPRL in 2009, coupled with an announcement of investing over $400 million towards an upgrade. This past year, Essar began negotiations with the Kenyan Treasury to exit their joint ownership, leaving many unanswered questions as to the 54-year-old facility's operational ability. The Kenyan government has agreed to pay $1.7 million to gain full control of the asset.

It is hard to claim with certainty, but increased government attention to oil and gas in Kenya seems to be heightened by the competitive finds of its economic rival, Tanzania. On March 30, 2015, Statoil announced its discovery of an additional 1 trillion cubic feet (tcf) to 1.8 tcf of gas, making an updated total of 21 tcf under Statoil's purview. The Tanzanian government posits that there are 53.2 tcf of recoverable natural gas reserves available for exploitation, causing other international drilling majors—such as ExxonMobil and BG Group—to attempt at uprooting the rest. Tanzania, however, also serves as a case study for how institutional insecurities can plague nascent industries. Unclear or out of date regulations nurture corruption, which led to the arrest of two top officials at the Tanzania Petroleum Development Corporation (TPDC) in 2014. The director general and board chairman of TPDC refused to release the terms of production-sharing agreements for its oil and gas contracts. This type of problem is not unique to Tanzania, but exemplifies why oil and gas development in East Africa may take longer than the most optimistic studies predict.

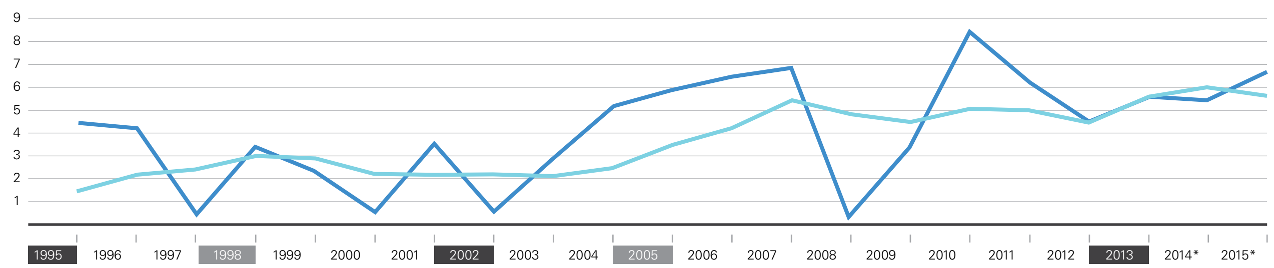
At present, Tanzania and Mozambique project to be exporting large quantities of liquefied natural gas (LNG) by the end of 2020, a much-needed advancement as power shortages have been plaguing the continent. Mozambique was recently compared to the Qatar that existed 30 years ago, the period during which it made immense gas discoveries and quickly became the largest LNG exporter in the world. According to Geoff Bury, managing director of Wentworth Resources Ltd., "Tanzania and Mozambique are both emerging countries in the oil and gas industry. Both jurisdictions have a demand for energy, and have the major advantage of being politically stable. Upon gas discoveries offshore in East Africa, Tanzania and Mozambique have worked hard to attract foreign investors by introducing and ensuring petroleum laws and regulations are reasonable and reliable…once [there is] reliable power, industrial growth will follow." Wentworth Resources is the first and largest supplier of gas into the new government-owned transnational pipeline in Tanzania, in August 2015.

Ethiopia also seeks to become a gas exporter, and the government is hopeful to see production reach 40 billion gallons annually by the end of 2018. Ethiopian Prime Minister Hailemariam Desalegn announced that China's GCL-Poly Petroleum Investments is funding a $5-billion pipeline to Djibouti, a task previously unheard-of due to security concerns. Ogaden is the remote region that has been the focus of exploration for decades. Ogaden also borders war-torn Somalia, making it mostly populated by ethnic Somalis and a hot spot for volatility. Government intervention has significantly decreased the risk of a terrorist-related attack at Ogaden, but it always remains a possibility.

The development of oil and gas is a beacon of hope for bringing East African nations stability and economic development. Managing expectations may be the greatest challenge, as it will still be a long time before countries begin to realize higher living standards. For instance, Uganda has 2.5 billion barrels of proven oil reserves, which is on par with Colombia, but 38% of the population continues to live on less than $1.25 a day. Nonetheless, with proper oversight and investment, East Africa could evolve into a veritable hydrocarbon hub. •

GDP GROWTH (%)

SOURCE: WORLD BANK, EIU



New opposition party - Safina - launched by palaeontologist Richard Leakey. Party refused official registration until November 1997.

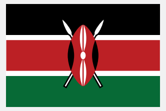
Al-Qaeda operatives bomb the US embassy in Nairobi, killing 224 people and injuring thousands.

December - Elections. Mwai Kibaki wins a landslide victory, ending Daniel arap Moi's 24-year rule and Kanu's four decades in power.

Parliament approves a draft constitution after days of violent protests in Nairobi over aspects of the draft which demonstrators say give too much power to in the president's hands.

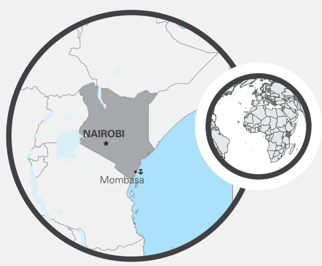
Somali al-Shabab militants seize the Westgate shopping mall in Nairobi and kill more than 60 people, saying they want Kenya's military to pull out of Somalia.

Kenya



The Republic of Kenya is a country in East Africa. It is bordered by Ethiopia to the north, Somalia to the northeast, Tanzania to the south, Uganda to the west, and Sudan to the northwest, with the Indian Ocean running along the southeast border.

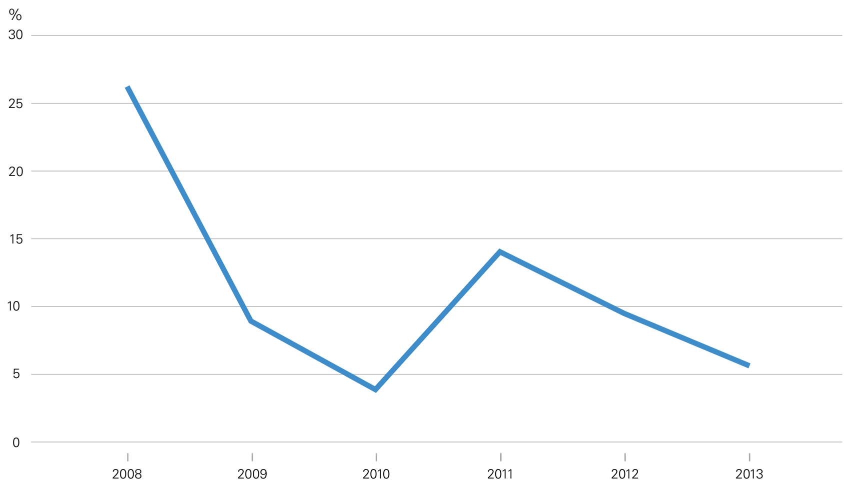
Source: UCLA African Studies Center



Population: 45,925,301 (July 2015 est)
Land Area: 580,367 sq km
Official Language(s): English and Kiswahili
Capital: Nairobi
Chief of State: President Uhuru Kenyatta
Head of Government: President Uhuru Kenyatta
GDP (PPP): $134.7 billion (2014 est.)
Growth Rate: 5.3% (2014 est)
GDP per Capita: $3,100 (2014 est)
Economic Sector Breakdown: agriculture: 29.3%, industry: 17.7%, services: 53% (2013 est)
Exports: $6.271 billion (2014 est.): tea, horticultural products, coffee, petroleum products, fish, cement
Imports: $16.47 billion (2014 est.): machinery and transportation equipment, petroleum products, motor vehicles, iron and steel, resins and plastics
Major Trade Partners: India, China, Uganda, Tanzania, UAE, United States

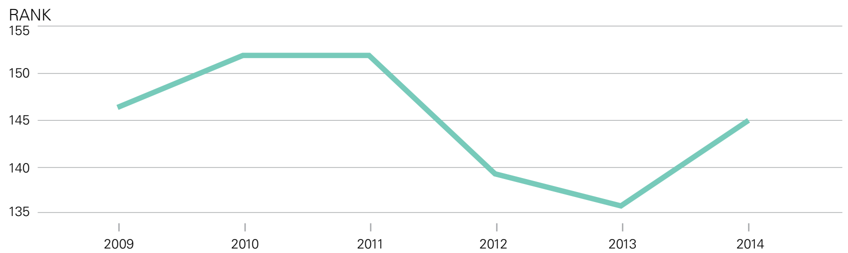
INFLATION

Source: World Bank



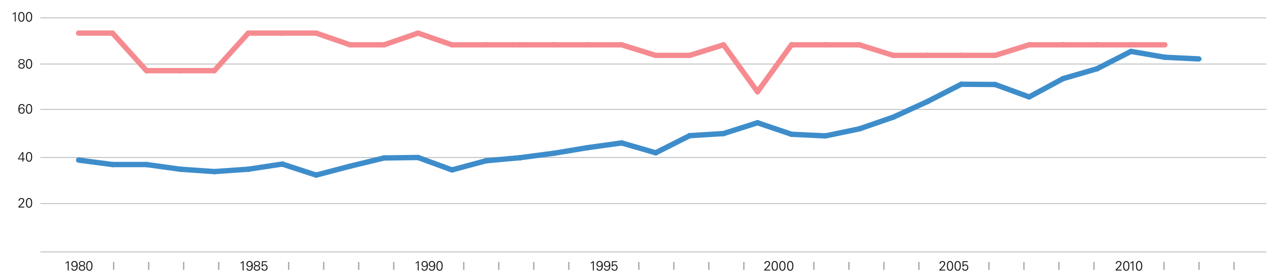
TRANSPARENCY INTERNATIONAL CORRUPTION PERCEPTIONS INDEX

Source: Transparency International



PETROLEUM (thousand barrels per day)

Source: U.S. EIA



WAITING FOR A PIECE OF THE PIE

Kenya's Nascent Oil Industry

Image: Civicon constructing well pads for exploration in North of Kenya for client Tullow Oil

Kenya's search for oil predates the country's independence in 1963; Western majors BP and Royal Dutch Shell began exploring the country's basins and shores as early as the 1950s. After independence, others, including ExxonMobil and several independents, continued the search, but met with little success. Yet after commercially viable petroleum reserves were confirmed in Uganda in 2006, prospectors turned their attention once more to neighboring Kenya, and, in March 2012, Tullow Oil announced a discovery at its Ngamia-1 well in the South Lokichar basin of Turkana County.

International powerhouses including Total, BG Group (acquired by Shell in April 2015), Anadarko, and Eni have since acquired oil exploration licenses in Kenya. Although none has discovered commercially viable oil in the country's 46 blocks, 44 are licensed to 23 exploration companies, and optimism reigns. To encourage exploration, the government is discussing a new petroleum bill and plans to create and offer seven new blocks in the near future. Once the bill passes, Kenyan oil production could take off.

In 2010, Tullow Oil acquired a 50% stake in Africa Oil, which holds five onshore licenses, and today is responsible for 60% of all wells drilled in Kenya. "In just three years, Tullow Oil managed to sink drill 32 wells—nearly one well in the ground every month on average—an upgrade from the country's historical trend of one well every year," said Martin Mbogo, Kenya's country manager for Tullow Oil.

Mbogo is confident of the company's prowess in Kenya, as it has had an impressive 75% success rate in terms of discoveries. "Tullow carried out one of the largest full tensor gravimetric surveys in the world, including a seismic campaign in excess of 5,000 kilometers (km), which unveiled a resource base of about a Pmean of 600 million barrels of oil gross to date," continued Mbogo.

Kenya's potential is stalled at present due to the fact that the price for Brent crude has fallen to almost $40 per barrel. The effect of downward price pressure is felt throughout the service and supply chain. This has not prevented Kenya from preparing for an upswing and attempting to nurture the development of the industry

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Augustin K. Nkuba

Managing Director
ERIN ENERGY KENYA LTD.

Can you tell us about Erin Energy Kenya's relationship with Erin Energy and how are you involved in Kenya?

Given that oil and gas is heavily capital intensive, Kenyan upstream companies benefit from having the backing of a strong parent company. Erin Energy, based in Houston, owns 100% of Erin Energy Kenya Limited, which is an oil and gas exploration and production company involved in Kenya since 2012, and is currently in the exploration phase of its two onshore blocks: L1B and L16 and offshore: Blocks L27 and L28. Erin Energy Kenya is about to complete the first phase of geological and geophysical surveys, and the latest results from 2D seismic acquisitioning of L1B and L16 show encouraging signs and prospects. Erin Energy Kenya has applied for the second phase (or first additional exploration period), where 3D seismic surveys will be completed and drilling of at least one well in each block. At that point, we will know for certain if there is oil or not.

How would you assess Kenya and East Africa's oil and gas potential in comparison to West Africa?

Kenya is the new upstream frontier following the first oil discoveries made in 2012 by Tullow Oil in the South Lokichar basin in Turkana. At present, commercially viable amounts of oil have yet to be discovered in Kenya but there are great expectations that they will be found. Gas has been discovered in Mozambique and Tanzania and Kenya is showing great potential for hydrocarbons and gas offshore, which would revolutionize the country's economy.

West Africa has a much more developed oil and gas sector with the main difference being that its discoveries were made offshore. Kenya's discoveries are onshore, which comes with many inherent challenges, such as very expensive infrastructure and pipelines in order to take it to the market. The ongoing LAPSSET pipeline project proposes to connect Uganda to Lamu Coast. The pipeline project is estimated to cost up to $3.5 billion, but it is a precursory must for Kenyan and Ugandan oil production.

What are some of the regulatory challenges faced by players in the industry?

In Erin Energy Kenya's experience, the government is doing a good job in developing a framework to regulate this new industry. Very importantly, it has solicited the input from private sector players. Having said this, there are regulatory challenges that we and other companies with investments in this sector are working through with the government.

A challenge the industry faces is that investments in the oil and gas sector are taxed indirectly. For example, any transaction from our mother company Erin Energy to Erin Energy Kenya, though it is an intra-company, interest-free transfer of funds for investment purposes, the government applies deemed interest on that money and Erin Energy Kenya would have to pay a tax. Also, instances where our partners pay us to farm in our blocks, the government considers this a capital gain, taxed at 20%, whereas it is, neither income nor profit, but money to boost our exploration capacity.

A third challenge is that Congress is working on a new Petroleum Bill. As of right now, the sector still operates under established contracts and the industry players are currently in talks and negotiations with the government to resolve the concerns of the industry. Erin Energy Kenya's decision to invest in 2012 was based on a set of assumptions, including how blocks were awarded, metrics reported to the government and VAT exemptions, and the contracts should uphold those previously established stipulations. The oil and gas sector in Kenya has always been quite transparent since its inception, and we are confident the new Bill will reflect the interests of the present and future players.

Despite the existing adversity of a downturn cycle, why are Erin Energy Kenya's blocks a worthwhile investment?

All of Erin Energy Kenya's exploration zones are not only located close to the coast for accelerated export if a discovery is made, but also the proposed LAPSSET pipeline will pass directly through them, allowing greater accessibility to our oil in comparison to blocks further inland. We have already capitalized on maximizing our knowledge of the grounds through 2D seismic studies on all four blocks, yielding good prospects that have allowed us to apply for the second phase with confidence.

An advantage to working with Erin Energy Kenya in particular is the added level of flexibility. Our manageable size allows for adaptability in volatile market conditions, giving us faster reaction times to abrupt challenges. Erin Energy is also listed on the New York Stock Exchange and the Johannesburg Stock Exchange, meaning we operate our business under clear regulatory control with an added element of transparency. We are actively looking, and there is a big push from our headquarters to look for potential partners, who would want to partner with us, a dynamic group of trusting and committed people, who are hopeful about Erin Energy Kenya's future.

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for when prices recover. Each block has a production-sharing contract, which clearly spells out companies' contractual obligations. "With a globally depressed upstream market, all entities involved, including the government and our business partners, have a cohesive understanding that these market conditions are less than ideal, and thus have allowed for extensions to contractual obligations," affirmed Augustin Nkuba, managing director of Erin Energy, the Houston-based independent oil exploration company.

A recently approved, 1,500-km oil pipeline is set to connect Uganda to Kenya's Lamu coast. This joint venture is estimated to cost $4.7 billion and have an initial capacity of 300,000 barrels per day (bpd). While Uganda preferred a southern route through Kenya that would avoid areas of social unrest, the Kenyan government sided with its resident oil companies, insisting that a northern route was necessary for the pipeline to reach the area that showed the most promise for production, namely Turkana. This area is, however, less stable. Though oil companies claim to have minimal disturbance from extremist groups, security remains a valid concern for Somalia's southern neighbor. "Kenya is very complex; it sits on a number of fault lines. There is the line between the Kushitic north and the Bantu south, and a predominantly Muslim Omani coast," explained Dylan Evans, head of operations at Salama Fikira, a security firm that specializes in risk assessment and execution in the sub-Saharan region.

With Kenya agreeing to cover insurance, both countries have signed off on the northern route for the pipeline and plan to charge the companies a transit fee of $15.20 per barrel. This route also allows for the potential connection to the Lamu Port Southern Sudan-Ethiopia Transport (LAPSSET) project—an East African infrastructural development that includes the creation of new ports, railways, roads, pipelines etc.—that link Kenya with South Sudan and Ethiopia.

But the Kenyan government still has work to do. It passed a new constitution in 2010 that mandates that any legislation concerning minerals and hydrocarbons be ratified

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Martin Mbogo

Country Manager
TULLOW OIL KENYA

As the leading upstream and exploration company in Kenya, what are some of Tullow Oil's key milestones to date?

Tullow Oil came to Kenya in 2010, when the company acquired 50 percent interest from our current partner, Africa Oil, for five onshore licenses in northern Kenya. Since then, we have drilled 32 wells, accounting for 60% of all wells drilled in Kenya. In just three years, Tullow Oil managed to put a well in the ground each month, an upgrade from the country's historical trend of one well per year. It has been a great transformation. Tullow Oil has carried out one of the largest Full Tensor Gravimetric (FTG) surveys in the world, including a seismic campaign in excess of 5,000 kilometers, which unveiled a resource base of about a Pmean of 600 million barrels of oil gross to date. Within three years, Tullow Oil has managed to put Kenya on the map for oil and gas. There has been an increase in the number of oil and gas companies from a mere handful to over thirty today. Kenya is acting as a catalyst in moving the oil and gas industry forward, just as this industry has picked up steam in neighboring countries such as Uganda.

How has Tullow Oil's strategy evolved since the discovery of reserves in East Africa, and what elements are missing for these findings to become commercially viable?

The business model for Tullow Oil revolves around the production of assets, for example in West Africa, as well as selective development and high impact, basin-opening exploration. The next frontier is clearly East Africa. Tullow Oil is very well positioned in Kenya, where we have a material position and have had an impressive success rate, in excess of 75%, in terms of discoveries. At this moment we are running Extended Well Tests and Interference tests towards booking resources at the end of this year. All of the tests and appraisal work carried out so far underpins the fact that Tullow Oil's breakthrough towards a Pmean gross resource of 600 million barrels of oil is very encouraging.

What is Tullow Oil's long-term plan for developing these appraised resources in a secure environment?

The northern part of Kenya where Tullow Oil operates is one of the most archeologically important, pristine and environmentally sensitive areas of the country. In the four to five years since we began operation, we have had no security issues, but understand that as the scale of our operations grows so could security threats, but our close working relationships with the frontline communities will be a strong mitigating factor against any problems. The local communities are very well engaged in Tullow Oil's activities; Tullow is strongly committed to social investment and shared prosperity. Even at this early stage, without revenue from oil, communities are reaping benefits from our operations—via job opportunities for example.

Image: A Tullow Oil well in Turkana, Kenya

How will advancements in infrastructure, such as the LAPSSET Pipeline, and legislation, such as the Petroleum Bill, increase Tullow Oil's productivity and output?

Thus far, the infrastructural challenge is well acknowledged by all parties. Tullow Oil is working closely with regional governments. The Governments of Uganda, Kenya, and Rwanda commissioned technical consultants to carry out feasibility studies regarding a pipeline routing solution. A decision on the route of the pipeline has been made, and majority parties involved are keen on moving towards the next steps.

The current legal framework is governed by the 1986 Production and Exploration Act, which is clearly outdated. The 2010 Constitution calls for a refresh of that Act. Tullow Oil, among others has been given the opportunity to make oral and written submissions to the bill and a good portion of these suggestions have been taken up. Something in particular that most exploration and production companies hope to see is the upholding of the sanctity of contracts. Separately, there are 18 other pieces of legislation that could also impact upstream operations, like The National Resources Bill, and the Community Land Bill. The important thing to note, however, is that that there is dialogue between the government and stakeholders, and that legislation ought to be pragmatic.

How do you foresee Tullow Oil, and the oil industry in Kenya in general, developing over the next couple of years?

Tullow Oil came into this business for the long term. Despite the fluctuation of oil prices, and legislative challenges, we remain optimistic. Tullow Oil is currently drafting field development plans and hopes to receive project sanction by the end of 2016.

Overall, Kenya is open for business, with progressive leadership, investor- friendly business practices and a listening government. The ease of doing business is consistently improving. It is just a matter of time before Kenya becomes the next big energy hub. •

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by a recently devolved regional governing power. Many parties are concerned with both the timeline of the petroleum bill's passing and its government-centric framework. "The devolution of power presents a huge challenge for the private sector, as there is a lack of understanding at the local level as to how these projects are financed and made commercially viable. Greed and underfunding at the local level also complicates matters," said Jamie Coulson, director of Great Rift Drilling.

A decision on the petroleum bill was supposed to occur by August 27, 2015, but the government has postponed this deadline. "The problem with extending the bill's deadline is that they are also extending the period of uncertainty," said Njau Mukuha, partner at Coulson Harney Advocates. "Until the bill is passed, people who want to invest in Kenya are not granted the regulatory stability that they desire."

Meanwhile, oil companies are sticking to minimum work schedules to protect their licenses and are losing significant amounts of money in the process. Despite these problems, however, the oil industry is in Kenya to stay, and some companies are seeing the promise the country and region hold. Transoceanic Projects and Development is such a company whose strategy is contingent on "investing in equipment and diversification as a means to survive and persevere," according to Transoceanic Projects and Development's CEO and COO, Arval Headrick.

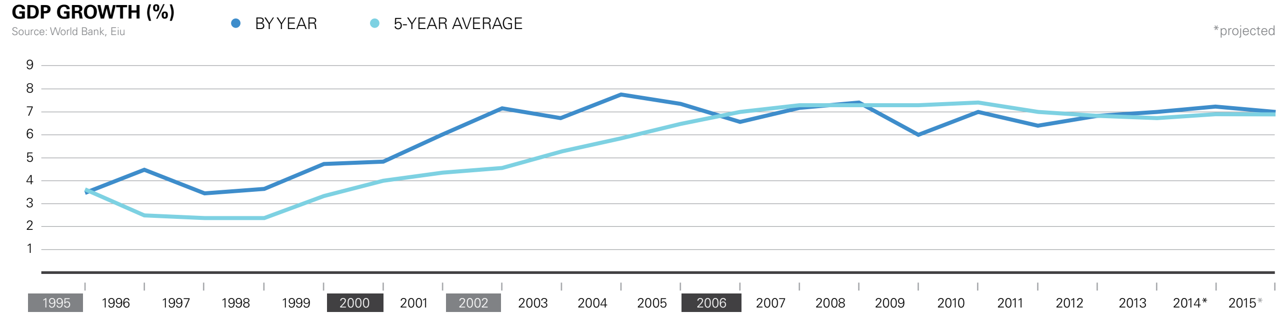
While some companies are pulling out of the Kenyan market to explore greener pastures, Transoceanic Projects & Development is currently collectively working with partners in the importing of oil drilling rig and port handling equipment in anticipation of projects ahead and to add to their fleet of ISO tanks for transporting petroleum and vegetable oils.

Jason Horsey, managing director of Civicon said: "What Kenya is going through now is similar to what happened in Uganda about six years ago. The Kenyan market is already beginning to see the flood of competition with everyone wanting a piece of the pie."

"Oil and gas are cyclical industries, yet people tend to forget this and instead focus on the short-term outlook, which is not favorable at present," explained Headrick. "In these troughs, two types of companies will prevail: those that have had the experience of being around for a longer period of time, while looking at the big picture and realizing that it is just a matter of time until things recover, and those companies that possess the financial muscles to withstand the pressures of declining revenues. Those that do not will seek to sell or merge; and this is what is happening presently in the oil and gas industry globally as well as in the East African region. Today, we see a lot of M&A activity because strong companies are seizing the opportunities that such downturns provide." •

GDP GROWTH (%)

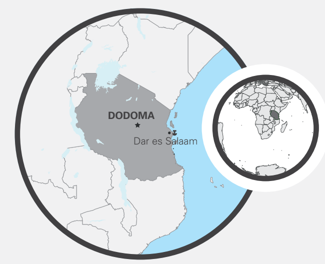
Source: World Bank, Eiu



Tanzania

Tanzania is a country in East Africa bordered by Kenya and Uganda on the north, Rwanda, Burundi and the Democratic Republic of the Congo on the west, and Zambia, Malawi and Mozambique on the south. To the east it borders the Indian Ocean.

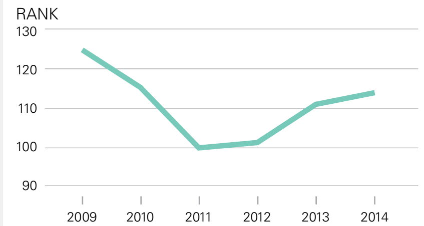
Source: UCLA African Studies Center



Population: 49,639,138 (July 2014 est)
Land Area: 947,300 sq km
Official Language(s): Kiswahili or Swahili (official), English, Arabic (widely spoken in Zanzibar)
Capital: Dar es Salaam
Chief of State: President Jakaya Kikwete
Head of Government: President Jakaya Kikwete
GDP (PPP): $79.29 billion (2013 est)
Growth Rate: 7% (2013 est.)
GDP per Capita: $1,700 (2013 est.)
Economic Sector Breakdown: agriculture: 27.6%, industry: 25%, services: 47.4% (2013 est.)
Exports: $5.92 billion (2013 est.): gold, coffee, cashew nuts, manufactures, cotton
Imports: $11.16 billion (2013 est.): consumer goods, machinery and transportation equipment, industrial raw materials, crude oil
Major Trade Partners: China, India, Japan, South Africa, Kenya, UAE

TRANSPARENCY INTERNATIONAL CORRUPTION PERCEPTIONS INDEX

Source: Transparency International



TOTAL PROVEN NATURAL GAS RESERVES (2015)

Source: EIA

230

billion cubic feet

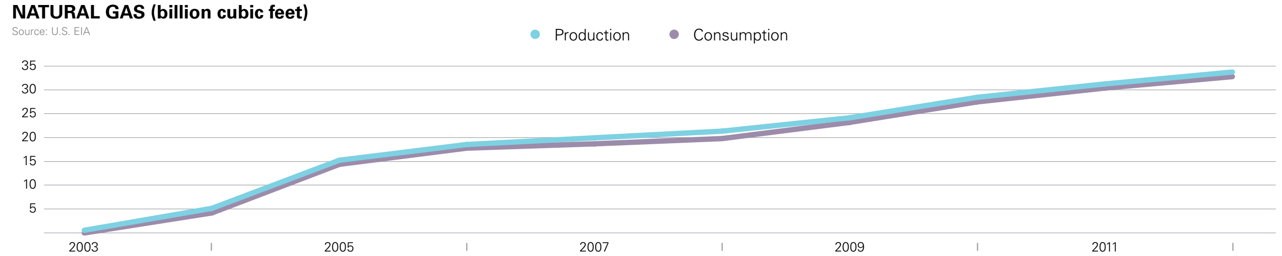
RECENT OFFSHORE NATURAL GAS DISCOVERIES IN TANZANIA

Source: U.S. EIA

LICENSE	NAME	DISCOVERY DATE	DISCOVERY DATE	RECOVERABLE	GAS IN PLACE
Blocks 1, 3, 4 owned by BG Group (60%) and Ophir Energy (40%)					
Block 1		Chaza-1	Apr. 2011	10+ Tcf	–
Block 1		Jodari field	Mar. 2010		
Block 1		Mzia	May. 2012		
Block 1		Mzia-2	Feb. 2013		
Block 3		Papa	Aug. 2012		
Block 4		Pweza-1	Oct. 2010		
Block 4		Chewa-1	Dec. 2010		
Block 2 owned by Statoil (65%) and ExxonMobil (35%)					
Block 2		Zafarani-1	Feb. 2012	10-13 Tcf	15-17 Tcf
Block 2		Lavani	Jun. 2012		
Block 2		Lavani-2	Dec. 2012		
Block 2		Tangawizi-1	Mar. 2013		
Ntorya field owned by Aminex (75%) and Solo Oil (25%)					
Ruvuma PSA		Ntorya-1	Feb. 2012	–	1.2 Tcf

NATURAL GAS (billion cubic feet)

Source: U.S. EIA



A CRUDE START

Central Africa Looks to Tap Its Hydrocarbons

Political stability has raised the profile of Central Africa and has attracted investment in the oil and gas sector. Although several countries in the region have just turned the page on a long history of conflict, challenges in education, infrastructure, and rule of law still affect some of these emerging economies. Abundant oil reserves have provided an easy source of revenue for the early stages of nation building, but some economies have yet to diversify. Six of the region's seven countries have considerable proven oil reserves or promising exploration projects; only the Central African Republic has no known proven reserves of oil.

The Republic of Congo, also known as Congo-Brazzaville, exploded into a civil war from 1997 until 1999, when the government signed agreements with many of the rebel groups involved in the conflict. President Denis Sassou Nguesso's long tenure at the helm of the country, and good relationships with Western governments and companies, has enabled the country to develop its oil and gas industry. The Nené Marine offshore oil field, operated by Eni, has been in production since January 2015. The equivalent of 3.5 billion barrels of oil have been discovered in the Congolese Marine XII Offshore Block, giving Eni the incentive to further invest in the Republic of Congo. Eni CEO Claudio Descalzi has praised the production timeline, which came eight months after receiving a production permit and sixteen months after having found the oil reserves.

New discoveries have also been made in the Democratic Republic of Congo (DRC), in the form of three billion barrels of oil around Lake Albert, near the Uganda border. According to Reuters, only 1.7% of the DRC's GDP came from oil revenue, with 25,000 barrels of oil produced each day in 2014. Moreover, doubling production would grow Congo's economy by 25%. The DRC is completing a strong push to increase oil revenue by partnering with Angola in a joint exploration endeavor in the Common Interest Zone (CIZ) in fall 2015. These new exploration and production projects will boost production and provide the government with much-needed revenue to manage the country and launch anti-poverty campaigns. Moreover, the DRC Parliament passed a new code during the summer aimed at regulating the exploration of hydrocarbons. Signed into law by President Joseph Kabila in September, the law will establish a fiscal regime enabling the government to increase revenue and boost economic growth. The new code institutes a capital gains tax on production of 35% to 40%. The DRC's growth strategy for the oil industry has inevitably raised concerns from the environmental community as companies have received permits in Virunga National Park, a wildlife sanctuary and a UNESCO World Heritage Site.

Image: Wentworth Resources Ltd.

The 48% drop in the price of a barrel of crude oil, between June 2014 and June 2015, has pushed countries in the region to ramp up production. Most governments in the region, especially Gabon, the Republic of Congo, and the DRC, are heavily dependent on revenue from oil exports for 80% to 90% of their budget. They are therefore stuck in a Catch-22 situation: they have to increase production during a period where each barrel of oil extracted yields less value. The lack of economic diversification prevents governments from conserving oil reserves for the promise of higher future returns.

According to the World Bank, Cameroon increased its oil production by 17.5%, to more than 100,000 bpd, compared to 2014. The country is tapping into its limited 200 million to 250 million barrels of proven reserves, despite the downturn in the market, due to the state's financial constraints. Furthermore, Cameroon will look for investments in the oil and gas industry to expand production in 2016. Although it has fewer oil reserves than others, the recent discovery of more than 200 billion cubic meters of natural gas can pave the way for the development of the country's gas industry. The Ministry of Hydrocarbons expects natural gas to be a major revenue contributor as oil reserves dwindle in the coming years.

The Republic of Congo's proven oil reserves remain at 1.6 billion barrels, Gabon's estimates around 2 billion, and both the DRC's and Equatorial Guinea's proven oil reserves stand at 1.1 billion, according to British Petroleum's Statistical Review of World Energy 2015. Equatorial Guinea, with a population of just over 800,000 and a GDP of $14.31 billion, has seen rapid growth in its oil and gas industry; its oil production increased by 5.6%, according to BP's yearly report. President Obiang recently made progress on the disputed maritime borders between Equatorial Guinea and its neighbors Cameroon, Nigeria, Sao Tome & Principe. Basing his unilateral decision on the U.N. Convention on the Law of the Sea, President Obiang adopted an equidistant median line, which was approved by all countries involved in the dispute and bodes well for development in the region.

Companies have taken note of the potential for exploration and production in these countries, yet companies operating in Central Africa still face substantial logistical challenges due to poor infrastructure, local content and skills shortages. Efforts have been made to build major corridors, such as the Pointe Noire-to-Brazzaville corridor in the Republic of Congo. The highway linking the country's political and economic capitals will be completed by January 2016 and will reduce shipping times for freight traveling to and from the port. The contribution of Chinese firms to the development of infrastructure and of the oil industry in the region is notable and is likely to increase with the arrival of Chinese firms focused on cutting costs.

Rampant corruption still affects some of these nascent democracies, but there are renewed anti-corruption efforts in Central Africa. Countries are working on gaining membership to the Extractive Transparency Initiative (EITI), a voluntary effort to publish data from the natural resources industry, such as taxes, royalties and dividends, in order to have more transparency and good governance. The DRC, for example, was declared a compliant country in July 2014, according to the International Comparative Legal Studies (ICLG).

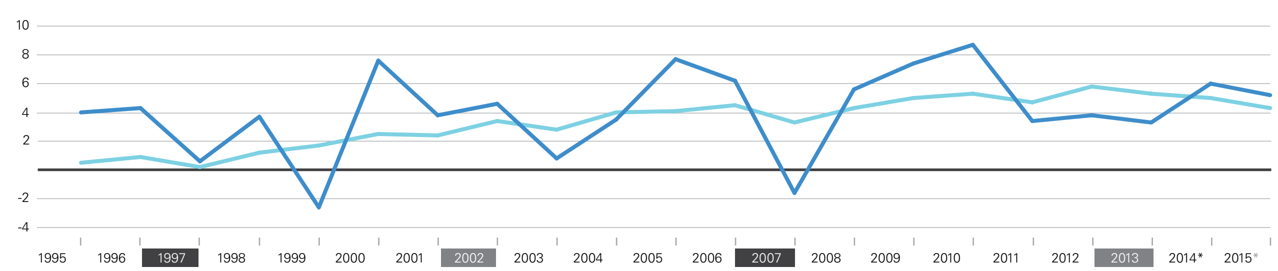
In keeping with environmental goals and diversifying the revenue portfolio, the region's oil producers are experimenting with projects to commercialize gas. Moreover, as part of the Zero Routine Flaring by 2030 Initiative, nine countries including the Republic of Congo, Cameroon, and Gabon will work on decreasing the amount of gas flared during oil extraction operations during the next fifteen years, until arriving at zero-level. Leading oil companies such as Total, Eni and Societé Nationale des Pétroles du Congo (SNPC), as well as Cameroon's Ministry of Hydrocarbons, were signatories of this agreement.

Stability and oil revenues are an opportunity for Central African countries to focus on nation building, with education, infrastructure, and the diversification of the economy being pillars in the road to development and economic independence. The development of the region's abundant oil and gas resources must be the engine for long-term investments for the future of local populations. •

SUB-SAHARAN AFRICA OIL AND GAS HANDBOOK 2015

GDP GROWTH (%)

Source: World Bank, Eiu



1997: Full-scale civil war breaks out; pro-Sassou Nguesso forces, aided by Angolan troops, capture Brazzaville, forcing Lissouba to flee.

2002: Denis Sassou Nguesso wins presidential elections unopposed after his main rivals are barred from the contest.

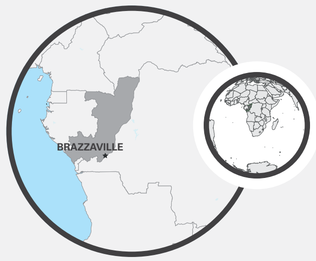
2007: Parliamentary elections, boycotted by some 40 parties. Ruling party wins 90% of seats.

2013: Congo declared to be compliant with standards set by the Extractive Industries Transparency Initiative for the disclosure of revenues from oil.

The Republic of Congo

The Republic of the Congo (French: Rpublique du Congo; Kongo: Repubilika ya Kongo; Lingala: Republiki ya Kong), also known as Congo-Brazzaville or the Congo, is a country in Central Africa. It is bordered by Gabon, Cameroon, the Central African Republic, the Democratic Republic of the Congo, the Angolan exclave province of Cabinda, and the Gulf of Guinea.

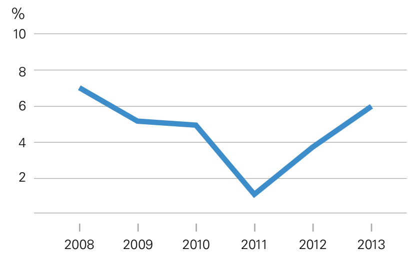
Source: UCLA African Studies Center



Population: 4,755,097
Land Area: 342,000 sq km
Official Language(s): French
Capital: Brazzaville
Chief of State: President Denis Sassou-Nguesso
Head of Government: President Denis Sassou-Nguesso
GDP (PPP): $17.67 billion (2014 est.)
Growth Rate: 6% (2014 est.)
GDP per Capita: $6,600 (2014 est.)
Economic Sector Breakdown: agriculture: 3.3%, industry: 74.4%, services: 22.3% (2014 est.)
Exports: $8.972 billion (2014 est.): petroleum, lumber, plywood, sugar, cocoa, coffee, diamonds
Imports: $4.389 billion (2014 est.): capital equipment, construction materials, foodstuffs
Major Trade Partners: China, France, United States, Australia, Italy

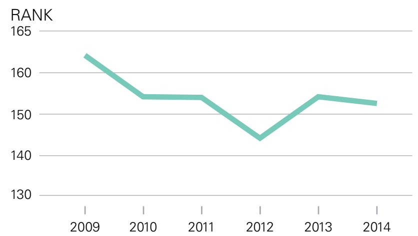
INFLATION

Source: World Bank



TRANSPARENCY INTERNATIONAL CORRUPTION PERCEPTIONS INDEX

Source: Transparency International



TOTAL PROVEN OIL RESERVES (2015)

Source: EIA

1.6
billion barrels

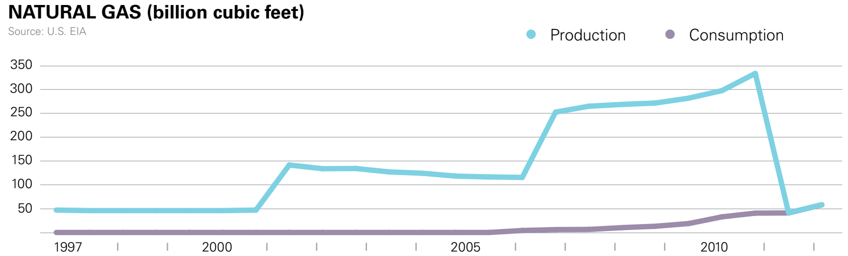
TOTAL PRIMARY ENERGY CONSUMPTION (2011)

Source: U.S. EIA

Solid Biomass and Waste	81
Oil	7
Natural Gas	11
Hydro	1

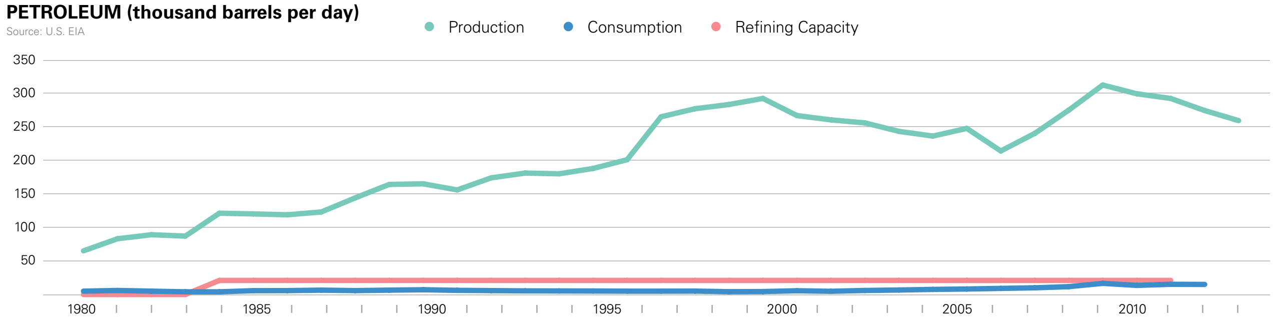
NATURAL GAS (billion cubic feet)

Source: U.S. EIA



PETROLEUM (thousand barrels per day)

Source: U.S. EIA



THE REPUBLIC OF CONGO

Down But Not Out

Image: Wentworth Resources Ltd.

Although dwarfed by its much larger neighbor the Democratic Republic of Congo (DRC), which has 15 times more inhabitants and a landmass almost seven times as big, the Republic of Congo has an ace up its sleeve: its prolific coastline. The country's offshore oil fields yield on average 254,000 barrels per day (bpd) at 2015 production rates. The majority is exported, with China, the European Union and the United States among the top destinations for Congolese oil, according to the U.S. Energy Information Administration (EIA). The DRC, in comparison, produces a mere 20,000 bpd, mostly for domestic consumption.

The Republic of Congo began the decade with its highest ever oil production rate, reaching a peak of around 311,000 bpd in 2010. Halfway through the period, natural declines in maturing oil fields have seen this drop back by approximately 57,000 bpd; however, production is poised to ramp up again in the next two years as new projects come online. Currently the fifth largest oil producer in Sub-Saharan Africa, predictions by the country's Ministry of Hydrocarbons for 2017 could see the Republic of Congo set a new peak output of 350,000 bpd and leapfrog both Sudan and Equatorial Guinea to bring home the bronze medal.

Heavily dependent on oil for its revenue and wealth, the industry accounted for 60% of the country's GDP in 2014, around 85% of government revenue and 90% of exports. A 2014 estimate puts the Republic of Congo's total oil reserves at 1.6 billion barrels—enough to last for the next 17 years at current production rates. Despite this guarantee of wealth generation, the Republic of Congo ranked 142nd out of 187 countries in the 2013 Human Development Index; poverty remains widespread, particularly in rural areas which do not

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Samuele Talevi

General Director
RENCO

Renco was founded in Italy in 1979. Twenty years later, the company established itself in Congo. Please provide a brief overview of Renco's operations in the Republic of Congo and how this has developed?

Renco's business in the Republic of Congo is based mainly on the oil and gas industry, but all four of Renco's divisions are here: the industrial plants division is the biggest and serves the oil and gas industry. The infrastructure division came next when it was decided the company would build its own premises rather than rent, which was then followed by the asset management division to run the building. The services division is also here and runs global maintenance for other companies in Congo.

The company's main client has always been ENI, but two years ago Renco also started to work with Total. There are now three large projects with a combined total of around $125 million: the largest is Total's Moho Nord oil field project and is a contract of around $60 million; Renco also has a Total water treatment contract worth approximately $30 million; while the final contract is with ENI at around $35 million.

In terms of Renco's facilities in Congo, there are two sites. The first in Pointe-Noire contains offices and apartments, as well as a workshop. It is located close to the port to work on offshore platforms. Now that Renco has the contracts with Total, it also made sense to set up a strategic base closer to them. This space is around 50,000 square metres and contains a building, a canteen for 120 persons a civil pre-fabrication site, a mechanical prefabrication site, a depot of 25,000 square meters and a maintenance area.

Renco works with the two largest oil and gas clients in Congo. Do large multinationals account for the majority of your clients or do you also work with smaller players?

Renco normally works with the biggest companies as an engineering procurement construction (EPC) contractor. Normally, Renco's global strategy means it is out of the price range of the local players. Engineering work is usually carried out in Italy, while the procurement of raw materials, such as cement, sand and construction materials, is done in Congo.

With operations in countries such as Mozambique and Nigeria, how important are the company's Congolese operations to the overall corporate strategy?

Congo represents the biggest country in terms of budget. It accounts for around 30% to 35% of global business and 90% of the entire African operations. However, the country currently receiving the largest amount of investment from Renco is Mozambique.

How are Renco's clients reacting to the global downturn in oil prices and what effect is this having on the company's operations in Congo?

This is not a simple question. Oil companies are waiting for something, but their strategic activities are presently at a halt. They are trying to reduce their losses on the current projects and to reduce costs on upcoming activity. New tenders are not forthcoming.

As far as Renco is concerned, the company still has the global maintenance contract for ENI/SNPC. The clients are however asking for renegotiations/extensions of contracts for economic reasons, and occasionally request a reduction in fees. Doing so maintains client relationships and enables the company to demonstrate the full range of its services, so it is a win for both the client and for Renco.

Furthermore, Renco has increased its worldwide budget in the last five years across its four divisions. This enables the company to withstand any fluctuations in certain markets or jurisdictions. Renco is also strategically investing money on buildings and facilities in countries such as the Republic of Congo in order to be ready and waiting for when the market picks up again.

Please provide details regarding Renco's CSR initiatives in the Republic of Congo?

Renco aims to do something for the local populations in all the countries it is present in worldwide. In Pointe-Noire for example, the company is building a €900,000 maternity clinic this year. Renco's employees are its family, and the company aims to establish good relationships with local people.

Renco is only four years away from its 20th anniversary in the Republic of Congo. Where does the company expect to be by this point?

With the exception of ENI and Total, Renco hopes to be one of the biggest companies in the Republic of Congo. The company has a good reputation and image; it is known for conducting honest and trustworthy operations. After twenty years here, it is expected that everybody will know Renco. If a company can survive in a country as difficult to operate in as the Republic of Congo, while remaining both strong enough to withstand the tough times and flexible enough to serve clients' needs, this is all the branding that is required.

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benefit from the revenue generated by the international oil companies (IOCs).

The two key IOCs in the Republic of Congo are Italy's Eni Congo and France's Total E&P Congo, both of which arrived in the country in 1968. "At that time, I only had two clients in the oil and gas industry—the French forerunner of Total, Elf Aquitaine, and Agip, the Italian company which is now a subsidiary of Eni," explained Fernand Carle of law firm Cabinet d'Avocats F. Carle, which moved to Congo in 1971. "In the early days, exploration was very poor and production was very small, and it remained this way until 1980 when, under President Sassou, large quantities of gas were found. Between 1980 and 1988, Congo's oil industry did very well."

Over the years, political unrest has also shaped the oil industry. A slump in world oil prices coincided with the Republic of Congo's civil war, which ran from 1997 to 1999, and saw only marginal increases in annual production. Between 2000 and 2008, aging oil fields meant the pace of production slackened; however, Maurel & Prom's discovery of the large onshore oil field M'Boundi in 2001, which eventually began operating in 2008 under Eni, helped boost oil production in the country and led to three consecutive years of growth.

License to Grow

Spurred on by Maurel & Prom's discovery and with prices increasing to unprecedented levels in the early part of the decade offsetting declining levels of production, the Ministry of Hydrocarbons set about granting a number of new—and most importantly free—onshore and offshore licenses to IOCs hoping to capitalize on further untapped oil reserves. Two prospecting licenses were granted, as well as eight exploration licenses, to a number of IOCs including Chevron and Perenco.

The Pointe-Noire refinery Congolaise de Raffinage (Coraf), which began operating in 1976, was granted a further two-year performance contract for 2013-2015. Although it has the capacity to operate at 21,000 bpd, the EIA estimated it produced only around 13,800 bpd in 2010. Domestic demand for oil products is however low, at around 7% of the Republic of Congo's entire energy usage, with the refinery itself meeting only around 80% of the country's oil requirements. The performance contract stipulated that the existing, under-performing facilities should be upgraded and modernized, gradually bringing treatment capacity to 24,000 bpd and lowering operating expenses below $5.3 per barrel of crude oil processed within three years.

However, the licenses may have been granted at an inopportune moment. With boom naturally comes bust, and the middle of 2014 saw oil prices plummet. As with other jurisdictions, the Republic of Congo is still seeing the effects of the global downturn as IOCs change tack. "Many oil projects are either being delayed or are shrinking because of the downturn," explained Nico Minga, commercial manager Central Africa at oil service provider Baker Hughes. "Projects were planned with projections of oil remaining at more than $100 per barrel, while the price has now dropped to below $50 per barrel."

Additionally, focusing operations on oil fields already in place rather than conducting explorations to find new reserves makes little sense in a global economy suffering under the weight of a glut of crude oil. "There is certainly a reduced scope of project work; they are now limited mainly to production rather than development or exploration," continued Minga.

The mood, however, remains upbeat; IOCs and service providers alike understand the cyclical nature of the industry. "Although the industry is undergoing a downturn, it still has money. Congo has the added benefit of having both onshore and offshore rigs, as well as natural gas reserves," explained William Ball, country director at Kanu Equipment. "The oil and gas industry has the financial wherewithal to withstand tough times such as these."

Indeed, if 2015 was a stagnant year for new activity, 2016 should see companies moving forward. At its peak, Total produced 107,000 bpd in 2012, equivalent to around 40% of the Republic of Congo's output that year. In 2014, it operated 15 out of the 23 offshore oil fields in production, including its flagship Moho-Bilondo site. The Phase 1b and $10-billion Moho Nord projects were launched in March 2013 and are slated to begin producing in 2015 and 2016 respectively; the company is pressing ahead despite the recent challenges to the market and awarded service provider Fugro a five-year, $100-million service contract for remote operated vehicle (ROV) services and remote subsea tooling. Total expects to be producing 140,000 bpd by 2017, emphasizing the importance of its Congolese operations in the midst of current pricing woes.

Eni rivals Total in terms of output, accounting for more than 35% of the Republic of Congo's total oil production in 2012, at 98,000 bpd. The majority of this production occurs at its M'Boundi oil field, but it also began production of the Nene Marine offshore oil field in January 2015 – a rapid 16 months after first discovering the site.

Although Eni and Total are the two most productive IOCs in the Republic of Congo, they are not working alone; Eni has a 65% stake in Marine XII, with UK-based New Age owning a 25% share and the Ministry of Hydrocarbon's own Société Nationale des Pétroles du Congo (SNPC) holding the remainder. SNPC is also present on the Moho Nord project, with a slightly larger 15% interest; US-based Chevron is another minority stakeholder. As Baker Hughes's Minga asserts, the IOCs carry out the bulk of the operations in the Republic of Congo, but smaller players are increasingly looking for a piece of the pie: "This is a trend that Baker Hughes encourages. For example, [SNPC] is coming up with programs and drilling campaigns. Africa Oil & Gas Corporation (AOGC) is also attempting to become a key player," said Minga.

The Ministry of Hydrocarbons controls exploration and production

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Moïse Kokolo

Partner and CEMAC Licensed Tax Advisor
PWC REPUBLIC OF CONGO

Please provide a brief history and some background information of PwC in the Republic of Congo.
PwC has assisted its international and local clients in the Republic of Congo for more than five decades. The development of the oil and gas industry in Congo led to an increase in demand for tax, legal, and assurance and advisory services. PwC assists most major players in the oil and gas industry in Congo, allowing companies to focus on their operations.

PwC has a significant presence in Africa, what is the importance of the Republic of Congo for the firm's overall corporate strategy?
One of the key objectives of the PwC network is to ensure that our global clients can receive local service in accordance with PwC standards. This is particularly reassuring to multinational companies that have numerous operations across many parts of the world, including Africa.
As a PwC member firm in Africa, the Republic of Congo plays a key role in serving its clients in Africa. Due to the strength of its network in Africa, PwC provides services to its clients doing business in countries where there are no PwC offices, through PwC member firms from the neighboring countries.
Through its integrated network throughout Africa, PwC can mobilize its people and resources to meet the demands of its clients in the areas of tax and legal services, audit and assurance, and strategy management consulting. PwC's network allows the firm to follow clients wherever they go.
PwC Congo's tax and legal services are an increasingly important part of the Firm's growth strategy. The firm's long history in the Republic of Congo has made PwC in the country one of the leaders for tax and legal services.

The Republic of Congo's economy is largely focused on the oil and gas industry. How much of a role does this sector play in PwC's operations?
The Congolese economy can still be viewed as a 'monoculture economy', based on revenues from the oil and gas industry. The majority of the government's budget is linked to revenues from this sector due to a lack of diversification in past decades. Today, efforts have been made to venture into mining, agriculture, and the service industry.
Consequently, around 80% to 90% of PwC's services in the Republic of Congo support directly or indirectly the oil and gas industry or secondary service companies related to this industry. PwC is at the heart of the oil and gas industry when it comes to tax and legal services, audit and assurance, and strategy management consulting.

How would you describe the clients that PwC typically work with in the Republic of Congo?
PwC's clients are economic actors who respect the legal frameworks of the countries that they operate in, in this case the Republic of Congo. The firm's clients demonstrate the same high ethical standards that PwC prioritizes. PwC evaluates potential new clients, and their projects, in order to ensure they are in accordance with the Firm's values. Most of PwC's clients are multinational companies who establish local entities in Congo.

Africa is projected to become the second most important net exporter of gas in the world by 2025. What developments have you seen in the Republic of Congo in this regard and what expectations do you have for the near future?
The Congolese government has made serious efforts to promote the development of the gas industry. In previous decades, there were little to no efforts to recover extracted gas. Instead, companies would reinject or flare the natural gas during their oil extraction operations. Several oil companies are now investing in projects to commercialize gas in the Republic of Congo. Three years ago, the government inaugurated a gas-powered electric plant, which is, today, the largest facility of its kind in the country. The plant is fed entirely by local supply of natural gas, from onshore and offshore operations, and has two turbines offering 300 megawatts (MW) to 450 MW of capacity.

How do you help clients carry out CSR initiatives and environmental stewardship programs in the Republic of Congo?
PwC works with its clients to develop projects and policies in accordance with existing regulations, including environmental rules and practices in the Republic of Congo. Moreover, the firm works with its clients to develop programs that can have a positive effect on the community.
Both the international and Congolese civil societies exert significant pressure on the industry to ensure adherence to regulations and improve the social impact of companies operating in Congo. PwC's clients engage willingly in these initiatives since companies understand the importance of accountability to local populations.

Do you have a final message for the readers of the Sub-Saharan Africa Oil & Gas Handbook 2015?
Companies considering the Republic of Congo as a destination to establish operations can count on PwC to provide assistance related to tax and legal services, audit and assurance, and strategy management consulting. Consulting services are essential for companies wanting to navigate through the complex system of laws and regulations in Congo.

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operations through production sharing agreements (PSAs) via the SNPC, which manages the government's shares in hydrocarbon outfits.

The Republic of Congo is also seeing interest from companies outside of the traditional European sphere of influence. In December 2013, Qatar Petroleum's international unit became a shareholder of Total E&P Congo and now holds a 15% stake. Legal firm Cabinet d'Avocats F. Carle claims international companies continue to approach it for information and advice on establishing operations in the Republic of Congo, highlighting Asia—and in particular China—as the next big investor in the country.

Chinese equity company Wing Wah, which operates mainly in China and Kyrgyzstan, chose to come to the Republic of Congo following the discovery of M'Boundi. It was granted a research permit by the government and a PSA is now in place; the SNPC has taken a 15% cut. "Political stability in Congo facilitates our operations here and demonstrates the country's potential to become the center of our operations in Africa," said general manager Fulbert Dzimbe. "Our company is increasing the competitiveness of the industry, bringing with it lower costs, greater efficiency and economies of scale."

A Challenging Environment

Although an attractive destination for foreign investors due to the high volume of oil reserves, the country's infrastructure leaves a lot to be desired. Located in the Congo Basin, two-thirds of the country is rainforest, with untarred roads proving a particular challenge in the rainy season. Yet the situation is improving, thanks in no small part to Chinese investment. China State Construction Engineering Corp was contracted to construct a highway linking the capital, Brazzaville, located on the Congo River, with Pointe-Noire, the second largest city in the Republic of Congo and, with its strategic location on the Atlantic Ocean, the hub of the oil and gas industry. The project should be completed by the end of 2015 and will dramatically decrease the time it takes to drive between the two major cities. Chinese backers are also investing in the creation of a larger port to increase capacity at Pointe-Noire; however, size is not the only issue facing an industry dependent on the sea route for goods and services. A new electronic system has recently been introduced at the port, replacing the paper documents that companies previously had to sign and stamp. As with any new system, the implementation has been beset with teething problems, leading to delays in the release of containers.

Environmental concerns abound in the Republic of Congo; there is as yet no coherent regulation in place regarding issues such as emissions, the extent to which the Congo Basin can be manipulated for the extraction of oil or gas, or the volume of water a project can legitimately use, to name but three. The Heinrich Böll Stiftung (HBS), an independent think tank advocating for policy reform, believes that two of Eni's latest projects—the extraction of petroleum deposits of bitumen also known as oil sands or tar sands, and gas flaring at the M'Boundi deposit—will cause significant harm to the environment.

The tar sands project, currently undergoing feasibility studies, would be the first of its kind in Africa and only the second globally. Eni and the Congolese government signed an exploration agreement in 2008, which estimated up to 2.5 million barrels of bitumen could be contained within the deposit, though only approximately 500 million barrels could viably be extracted. The only other location worldwide in which such deposits are being developed is in Alberta, Canada and, claims HBS, produces three to five times more greenhouse gas emissions per barrel than conventional oil extraction.

Eni's efforts to limit natural gas flaring are faring slightly better, thanks to its Access to Energy initiative. The Republic of Congo holds the fifth-largest proven reserves of natural gas in Sub-Saharan

Image: Sergey Uryadnikov

Africa, at 3.2 trillion cubic feet (tcf) and the country itself relies on natural gas for 11% of its energy supply. While 65% of emissions are re-injected into oil wells to aid oil recovery, 20% are flared; this is not simply a waste of resources but also a contributor to greenhouse gas emissions. HBS estimates that in 2013 more than one billion cubic meters was emitted from the M'Boundi oil field alone. Eni has constructed two gas-fired electric power stations to both redirect the flared gas and improve the country's electricity supply. According to the Ministry of Hydrocarbons, the Centrale Electrique du Congo, fuelled by gas emissions from the M'Boundi oil field, produces 50% of the Republic of Congo's electricity.

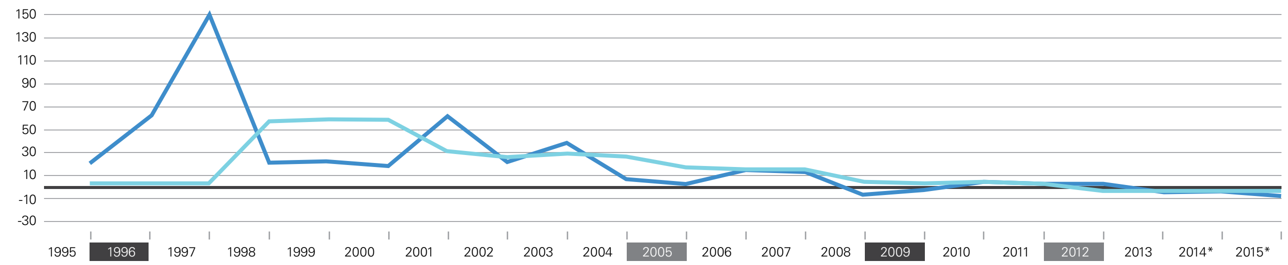
The Republic of Congo is by no means a simple jurisdiction in which to do business, but it can certainly pay off. The government has recognized the need to incentivize further investment from IOCs, not least by granting new exploration permits to interested parties. The tax burden has also been reduced: the government has raised the threshold at which companies have to start paying tax from around \$35 to \$40 per barrel to around \$50 per barrel, almost wiping out the duty with oil prices at their current low levels.

Pointe-Noire's industrial zone is teeming with all manner of service companies aware of the potential in the country. Italy's Renco, which has contracts with both Total and Eni worth around \$125 million overall, is waiting for the inevitable upturn of the market: "Renco is strategically spending money on buildings and facilities in countries such as the Republic of Congo in order to be ready and waiting for when the market does pick up again," explained Samuele Talevi, country manager for the company's Congolese operations.

This strategy could well pay off. Instead of viewing the global downturn as a time to retreat, it provides producers and service providers alike with some much-needed breathing space to set their houses in order before the next turn of the wheel brings another flurry of activity. •

GDP GROWTH (%)

Source: World Bank, IMF, BBC



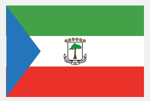
President Obiang Nguema wins 99% of votes in election amid reports of widespread irregularities; Mobil oil corporation announces it has discovered sizeable new oil and gas reserves.

Suspected mercenaries arrested over alleged coup attempt; group is linked to suspected mercenaries detained in Zimbabwe. Crackdown on immigrants ensues; hundreds of foreigners deported.

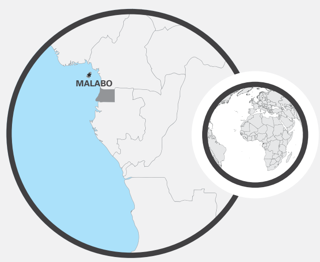
Presidential palace allegedly comes under attack. Seven Nigerians are later jailed over the incident.

President's son, Teodorin, asks US court to dismiss a US bid to seize $71 million worth of his assets, denying they were obtained through corruption.

Equatorial Guinea



The Republic of Equatorial Guinea is a country in Central Africa. It is one of the smallest countries in continental Africa, and comprises two regions: a Continental Region (Ro Muni); and an Insular Region containing Annobn island, Bioko island (formerly Fernando Po) where the capital of Malabo is situated, and several offshore islands like Corisco. Source: UCLA African Studies Center



Population: 722,254 (July 2014 est)
Land Area: 28,051 sq km
Official Language(s): Spanish (official) 67.6%, other (includes French (official), Fang, Bubi) 32.4%
Capital: Malabo
Chief of State: President Brig. Gen. (Ret.) Teodoro Obiang Nguema Mgasogo
Head of Government: Prime Minister Vicente Ehate Tomi
GDP (PPP): $19.68 billion (2013 est)
Growth Rate: -1.5% (2013 est.)
GDP per Capita: $25,700 (2013 est.)
Economic Sector Breakdown: agriculture: 4.6%, industry: 87.3%, services: 8.1% (2013 est.)
Exports: $15.4 billion (2013 est.): petroleum products, timber
Imports: $7.943 billion (2013 est.): petroleum sector equipment, other equipment, construction materials, vehicles
Major Trade Partners: Japan, Spain, China, United States, France, Italy

TOTAL PROVEN NATURAL GAS RESERVES (2015)

Source: EIA

1.3
trillion cubic feet

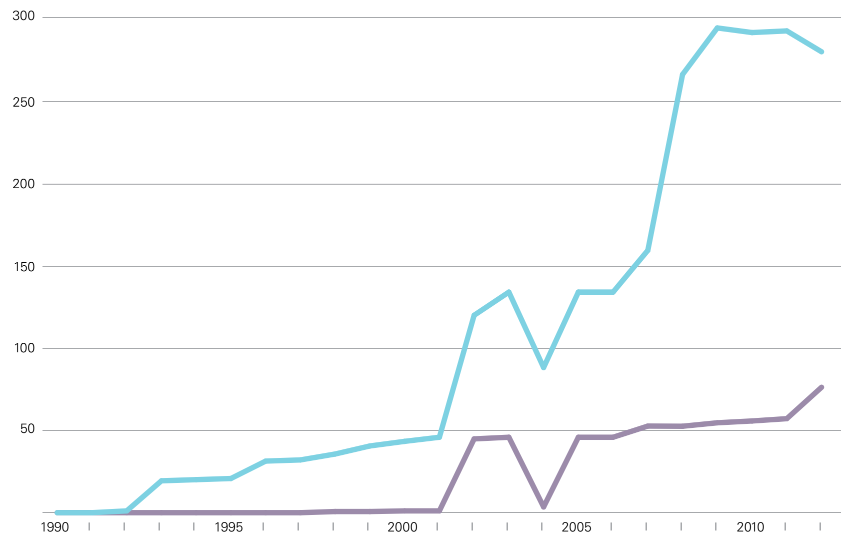
TOTAL PROVEN OIL RESERVES (2015)

Source: EIA

1.1
billion barrels

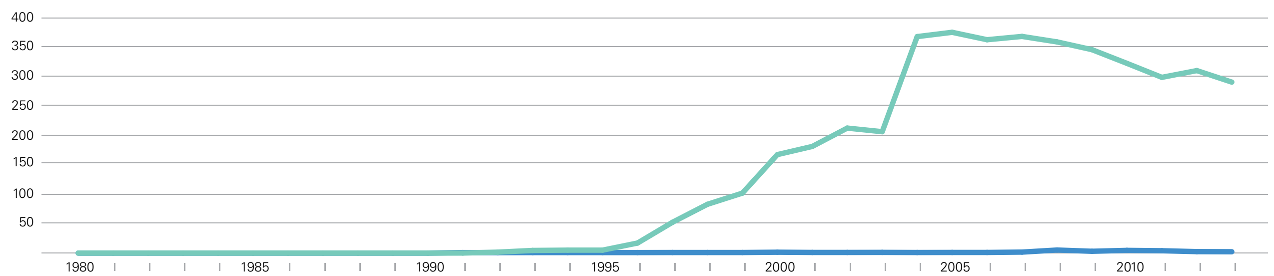
NATURAL GAS (billion cubic feet)

Source: U.S. EIA



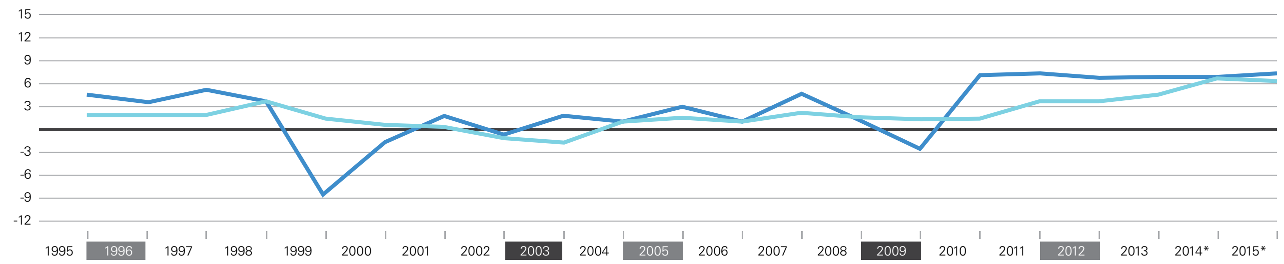
PETROLEUM (thousand barrels per day)

Source: U.S. EIA



GDP GROWTH (%)

Source: World Bank, IMF, BBC



Governing Gabonese Democratic Party wins significant majority in parliamentary elections.

Constitution changed to allow President Bongo to run for president as many times as he wishes.

Omar Bongo is re-elected as president. Opposition supporters clash with police in the capital.

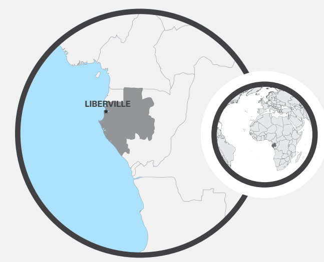
Ali Ben Bongo, son of late president, named winner of August election. Critics say poll was fixed to ensure dynastic succession. Opposition supporters clash with security forces.

French police search a villa in Nice bought by the late President Omar Bongo - father of incumbent President Ali Ben Bongo - as part of a long-running corruption investigation.

Gabon

Gabon is a country in west central Africa sharing borders with Equatorial Guinea, Cameroon, Republic of the Congo and the Gulf of Guinea.

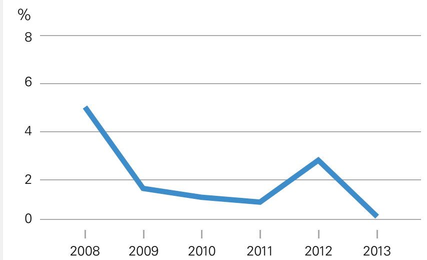
Source: UCLA African Studies Center



Population: 1,672,597 (July 2014 est)
Land Area: 267,667 sq km
Official Language(s): French
Capital: Libreville
Chief of State: President Ali Bongo Ondimba
Head of Government: Prime Minister Daniel Ona Ondo
GDP (PPP): $30.06 billion (2013 est)
Growth Rate: 6.6% (2013 est.)
GDP per Capita: $19,200 (2013 est.)
Economic Sector Breakdown: agriculture: 3.6%, industry: 63.9%, services: 32.5% (2013 est.)
Exports: $9.777 billion (2013 est.): crude oil, timber, manganese, uranium
Imports: $3.934 billion (2013 est.): machinery and equipment, foodstuffs, chemicals, construction materials
Major Trade Partners: France, Japan, United States, China, Australia

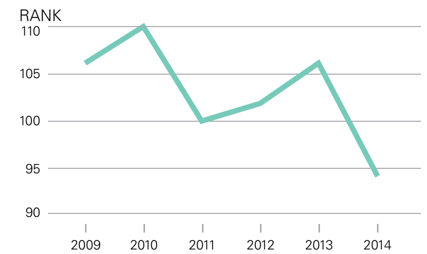
INFLATION

Source: World Bank



TRANSPARENCY INTERNATIONAL CORRUPTION PERCEPTIONS INDEX

Source: Transparency International



TOTAL PROVEN NATURAL GAS RESERVES (2015)

Source: EIA

1
trillion cubic feet

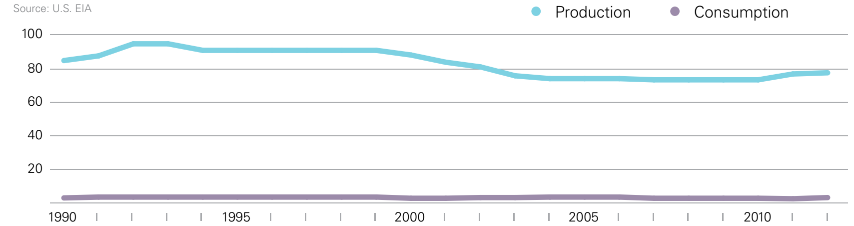
TOTAL PROVEN OIL RESERVES (2015)

Source: EIA

2
billion barrels

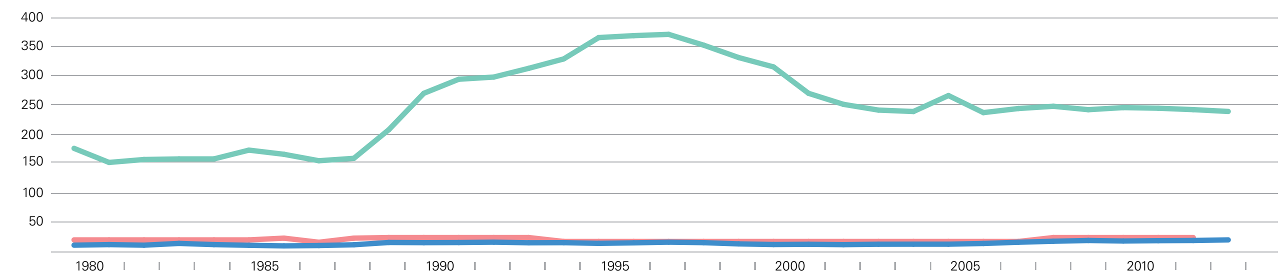
NATURAL GAS (billion cubic feet)

Source: U.S. EIA



PETROLEUM (thousand barrels per day)

Source: U.S. EIA



Global Business Reports

ATLANTIC RISING

West African Oil and Gas Producers Seek Global Market Share

For decades, West African oil and natural gas production has been synonymous with one country: Nigeria. This is unlikely to change, as major international energy agencies forecast that Nigeria will remain ensconced as the dominant producer in Sub-Saharan Africa. With 37 billion barrels of proved oil reserves and its 180.4 trillion cubic feet (tcf) of proved natural gas reserves—the 9th largest in the world—Nigeria is the natural focus of our report on West Africa oil and gas. Yet international oil companies (IOCs) are undertaking exciting exploration and production projects elsewhere, including Ghana, Ivory Coast, and others. Collectively, West African oil and gas could not only become a meaningful source of exports for the global energy market but also spur economic development at the national and regional levels.

Walk Like a Nigerian

IOCs have trained their eye on Nigeria since the 1950s, as Nigerian crude oil provided a consistent supply for Western Europe and the United States that was not subject to the vagaries of Middle East politics. The closure of the Suez Canal from 1956 to 1957 catalyzed production in Nigeria, and the Canal's second closure from 1967 to 1975 reinforced the importance of West African supplies to Western European oil supply security. Nigerian oil production enjoyed strong production levels in the 1970s, but declined slightly in the 1980s, as global oil prices plummeted in an environment reminiscent of the current one. Production picked up again in the late 1980s, however, and contributed 2 million barrels per day (bpd) to 2.5 million bpd to the world market for the past three decades.

Oil will remain the central focus of Nigeria, as oil rents dwarf those of gas, but gas offers more electrifying prospects for the future. For decades, Nigerian gas was simply flared off from the oilfields, a common practice throughout the industry in past decades; today, companies are looking to capture and market it with new zeal. In fact, gas production in Nigeria rose nearly 150% from 2000 to 2008, and looks to have achieved a new floor for its production level of 2.5 tcf per year. The country is aiming to ramp up production by 2020, with some targeting a 300% increase. According to a 2013 study by the U.S. Energy Information Administration, Nigerian natural gas will account for roughly 81% of the growth in natural gas production expected in Sub-Saharan Africa until 2040.

Outside of Nigeria, several countries have exciting offshore oilfields that are attracting attention from international investors and may offer certain advantages in terms of regulations and security to other jurisdictions. Ghana is a relative newcomer and has recently been producing upwards of 200,000 bpd of oil and 200 million cubic feet of gas from its offshore fields. Its proved hydrocarbon reserves amount to 660 million barrels of oil and 800 billion cubic feet (bcf) of gas, and the World Bank recently approved $700 million in investment guarantees to help develop an offshore gas field. Ivory Coast is also off to an impressive start. It has reserves of 100 million barrels of oil and 1 tcf of gas and currently produces 36,600 bpd of oil 57.2 bcf of gas. Liberia, Sierra Leone, and Senegal are in either the production or exploration phases for natural gas, while Mauritania has 20 million barrels of proved oil reserves.

European-Bound Exports

Predicting future trends in energy, let alone oil prices, is foolhardy, but there are two reasons why one can be sanguine about the future demand for West African oil and gas exports: geopolitics and shifting patterns in energy consumption. Europe and North America have long been the primary recipients of Nigerian hydrocarbons, and, though West Africa may be losing the North America market with the tight oil revolution in the United States, Europe has long been far too dependent on Russia for natural gas imports. Policymakers and companies have slowly worked to increase Europe's capacity to import liquefied natural gas (LNG), and a crisis situation in which Russia turned off all of its gas, could make this happen swiftly. West African gas, in this scenario, offers diversification for Europe from both Russia and the Middle East.

Yet West Africa would be entering a crowded and competitive field of new natural gas producers looking to export LNG to Europe. Qatar has long been the king of global LNG exports, but the United States and Australia will soon join its ranks. Collectively, these three countries could come to exert great influence over the global flows of LNG and force smaller players to adjust their marketing strategies. In addition to Qatar, the United States, and Australia, other regions such as the eastern Mediterranean, Argentina, North Africa, and Southern Africa could also compete with West Africa for European market.

The other reason for optimism about increasing West African gas exports is the worldwide shift in power generation from coal to natural gas. Europe has lead the way in this transition since the middle of the 2000s, and China now seems poised to undertake a similar one. Though China may not reduce the percentage of coal that it uses in the same way that Europe has, particularly since its industrial output is so dependent on cheap energy generation, any shift from coal to natural gas from the world's largest user will materially help clean its domestic pollution and reduce global carbon dioxide levels. The United States and China signed a landmark accord on curbing emissions in December 2014, and policymakers and citizens alike who are concerned about climate change are hopeful that the UN Climate Change Conference in Paris in December 2015 will lead to a serious global accord to reduce global carbon dioxide emissions. If the UN Conference is successful, natural gas demand will grow, and West Africa would be well positioned to capitalize on it, and help make the world a less polluted home.

Regional Integration

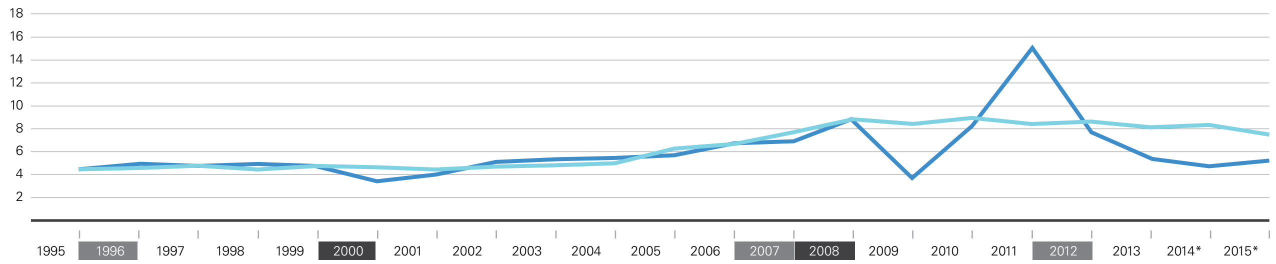
More important to the people of West Africa than exports is the hope that these new natural gas findings can help power national development and regional integration. West Africa is home to many of the poorest countries in the world; Niger, Liberia, Guinea, Guinea-Bissau, Togo, Mali, and Burkina Faso had seven of the lowest twenty levels of GDP per capita from 2010 to 2014, according to the World Bank. Cheap, local natural gas imports could be a boon for growing West African economies and reducing poverty levels.

Dreams of delivering gas directly to Nigeria's poorer neighbors, however, will require regional integration and inspired leadership. The history of the West African Pipeline (WAP)—designed in 1982 to transport natural gas to Benin, Togo, and Ghana but not completed until 2007—stands as a testimony to the vision of regional integration but also its failure to take root, as the WAP has only enjoyed successful operations since 2009. Still, the discovery of natural gas in Ivory Coast has spurred the idea of building an extension of the WAP that would permit Ivorian exports to receiving countries.

Leadership for projects such as the WAP and for the future of regional energy integration may have to come from Nigeria, which will continue to be the center of gravity of oil and gas in West Africa for the next century. Similar to how South Africa can play a leadership role in bringing technologies and services that support new exploration and production across the continent, Nigeria must focus on developing its own industry, improving transparency, and adopting best practices. Then, it can forge serious links and help nurture those countries with younger oil and gas industries. •

GDP GROWTH (%)

Source: World Bank, IMF, BBC



1996: Jerry Rawlings is reelected president with 57% of the vote in an election described as free and fair by observers.

2000: John Atta-Mills, vice president of Rawlings, is defeated by John Kufuor in the presidential elections.

2007: Kufuor, again running with the New Patriotic Party, wins a second term in presidential elections.

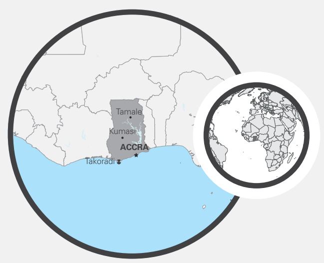
2008: A major offshore oil discovery is announced by Tullow Oil, promising an economic boom for Ghana.

2012: John Atta Mills of the National Democratic Congress wins a close election to become president.

Ghana

The Republic of Ghana is a country in West Africa. It borders Côte d'Ivoire (Ivory Coast) to the west, Burkina Faso to the north, Togo to the east, and the Gulf of Guinea to the south.

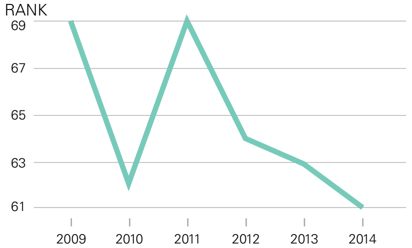
Source: UCLA African Studies Center



Population: 25,758,108
Land Area: 238,533 sq km
Official Language(s): English
Capital: Accra
Chief of State: President John Dramani Mahama
Head of Government: President John Dramani Mahama
GDP (PPP): $90.41 billion (2013 est)
Growth Rate: 7.9% (2013 est)
GDP per Capita: $3,500 (2013 est)
Economic Sector Breakdown: agriculture: 21.5%, industry: 28.7%, services: 49.8% (2013 est)
Exports: $13.37 billion (2013): oil, gold, cocoa, timber, tuna, bauxite, aluminum, manganese ore, diamonds, horticultural products
Imports: $18.49 billion (2013): capital equipment, petroleum, foodstuffs
Major Trade Partners: China, France, United States, Italy, Nigeria, Netherlands

TRANSPARENCY INTERNATIONAL CORRUPTION PERCEPTIONS INDEX

Source: Transparency International



TOTAL PRIMARY ENERGY CONSUMPTION (2012)

Source: U.S. EIA

Solid Biomass and Waste	80
Oil	13
Natural Gas	6
Hydro	1

TOTAL PROVEN NATURAL GAS RESERVES (2015)

Source: EIA

800
billion cubic feet

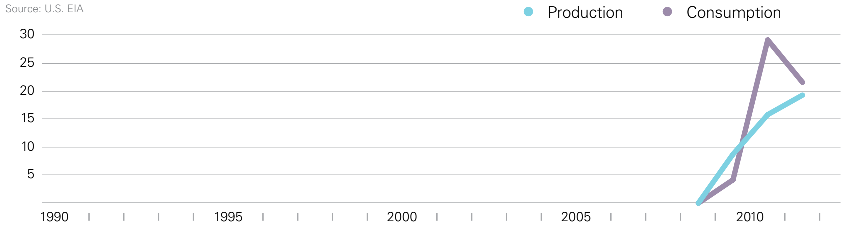
TOTAL PROVEN OIL RESERVES (2015)

Source: EIA

660
million barrels

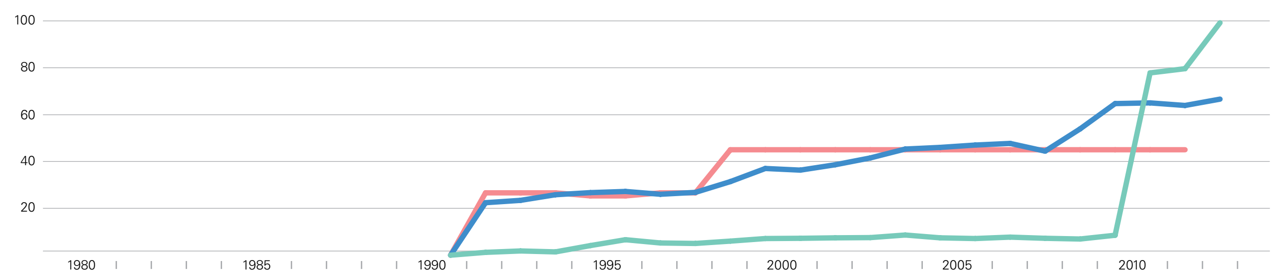
NATURAL GAS (billion cubic feet)

Source: U.S. EIA



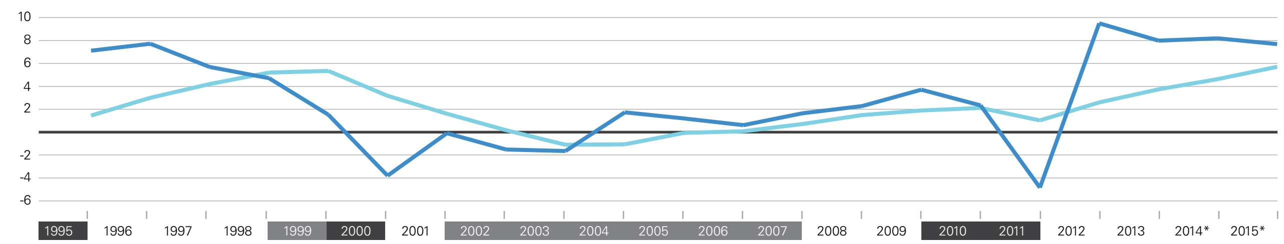
PETROLEUM (thousand barrels per day)

Source: U.S. EIA



GDP GROWTH (%)

Source: World Bank, Eiu



1995: Henri Konan Bedie, who became president following the 1993 death of Félix Houphouët-Boigny, is reelected.

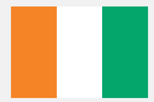
1999: A military coup deposes Bedie, who flees to France, and installs General Robert Guéï as president.

2000: Guéï claims election victory, yet flees following protests and is replaced by Laurent Gbagbo.

2002–2007: The First Ivorian Civil War is sparked by a troop mutiny, in the context of increased ethnic tension. Former president Guéï is killed on the first night and troops quickly take control of the country's north. In January 2003 a compromise deal was reached and in 2004 the Accra III Agreement was signed, yet fighting soon resumed. A peace agreement was finally reached in 2007 after an easing of tensions in the preceding two years.

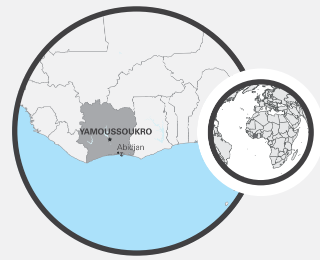
2010–2011: The 2010 elections, delayed from 2005 due to the civil war, result in a victory for Alassane Ouattara, yet the refusal of Gbagbo to accept the result leads to further violent conflict. This ends when Gbagbo is arrested in April 2011.

Ivory Coast



Ivory Coast, officially the Republic of Cote d'Ivoire, is a country in West Africa. Ivory Coast borders Liberia and Guinea to the west, Mali and Burkina Faso to the north, Ghana to the east, and the Gulf of Guinea and the Atlantic Ocean to the south.

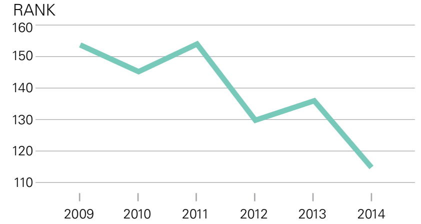
Source: UCLA African Studies Center



Population: 22,400,835 (July 2013 est)
Land Area: 322,463 sq km
Official Language(s): French
Capital: Yamoussoukro
Chief of State: President Alassane Dramane Ouattara
Head of Government: Prime Minister Daniel Kablan Duncan
GDP (PPP): $39.64 billion (2012 est)
Growth Rate: 8.1% (2012 est)
GDP per Capita: $1,700 (2012 est)
Economic Sector Breakdown: agriculture: 28.8%, industry: 21.8%, services: 49.4% (2012 est)
Exports: $10.99 billion (2012): cocoa, coffee, timber, petroleum, cotton, bananas, pineapples, palm oil, fish
Imports: $8.406 billion (2012): fuel, capital equipment, foodstuffs
Major Trade Partners: Nigeria, Netherlands, United States, France

TRANSPARENCY INTERNATIONAL CORRUPTION PERCEPTIONS INDEX

Source: Transparency International



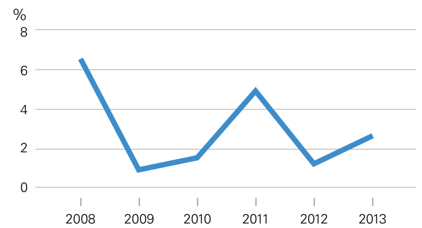
TOTAL PROVEN NATURAL GAS RESERVES (2015)

Source: EIA

1
trillion cubic feet

INFLATION

Source: World Bank



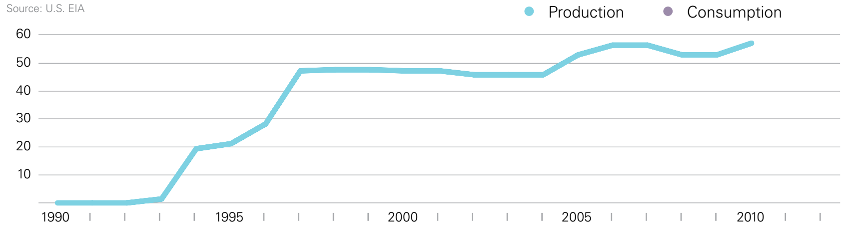
TOTAL PROVEN OIL RESERVES (2015)

Source: EIA

100
million barrels

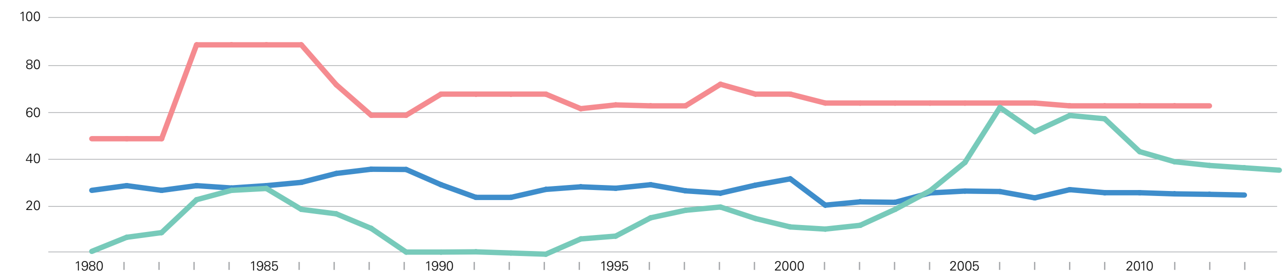
NATURAL GAS (billion cubic feet)

Source: U.S. EIA



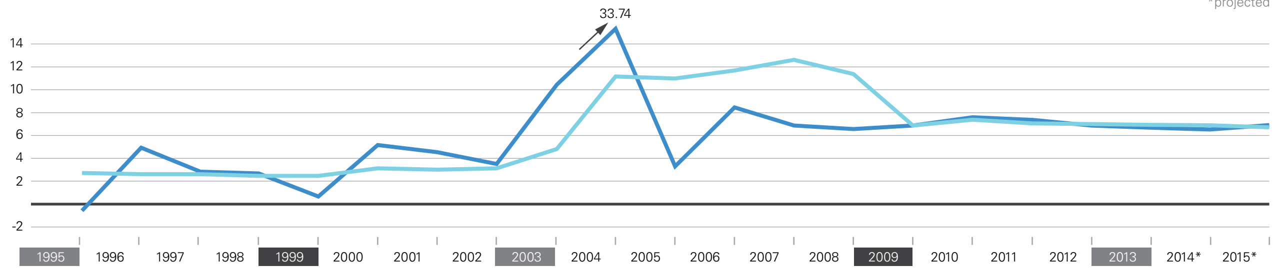
PETROLEUM (thousand barrels per day)

Source: U.S. EIA



GDP GROWTH (%)

Source: World Bank, Eiu



Ken Saro-Wiwa, writer and campaigner against oil industry damage to his Ogoni homeland, is executed following a hasty trial. In protest, European Union imposes sanctions until 1998, Commonwealth suspends Nigeria's membership until 1998.

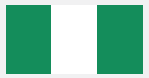
Parliamentary and presidential elections. Olusegun Obasanjo sworn in as president.

First civilian-run presidential elections since end of military rule. Olusegun Obasanjo elected for second term with more than 60% of vote. Opposition parties reject result. EU poll observers cite "serious irregularities".

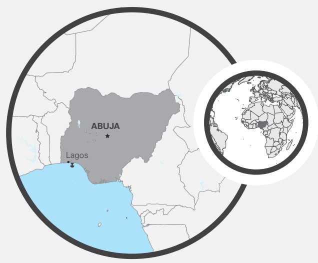
Hundreds die in northeastern Nigeria after the Boko Haram Islamist movement launches a campaign of violence in a bid to have Sharia law imposed on the entire country. Security forces storm Boko Haram's stronghold and kill the movement's leader.

Government declares state of emergency in three northern states of Yobe, Borno and Adamawa and sends in troops to combat the Boko Haram Islamist militants.

Nigeria



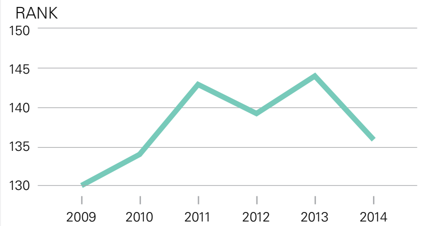
Nigeria officially named the Federal Republic of Nigeria is a federal constitutional republic comprising thirty-six states and one Federal Capital Territory. The country is located in West Africa and shares land borders with the Republic of Benin in the west, Chad and Cameroon in the east, and Niger in the north. Its coast lies on the Gulf of Guinea, part of the Atlantic Ocean, in the south. Source: UCLA African Studies Center



Population: Population: 177,155,754 (July 2014 est)
Land Area: 923,768 sq km
Official Language(s): English
Capital: Abuja
Chief of State: President Muhammadu Buhari
Head of Government: President Muhammadu Buhari
GDP (PPP): $478.5 billion (2013 est)
Growth Rate: 6.2% (2013 est.)
GDP per Capita: $2,800 (2013 est.)
Economic Sector Breakdown: agriculture: 30.9%, industry: 43%, services: 26% (2012)
Exports: $93.55 billion (2013 est.): petroleum and petroleum products 95%, cocoa, rubber
Imports: $55.98 billion (2013 est.): machinery, chemicals, transport equipment, manufactured goods, food and live animals
Major Trade Partners: China, United States, India, Netherlands, Spain

TRANSPARENCY INTERNATIONAL CORRUPTION PERCEPTIONS INDEX

Source: Transparency International



TOTAL PRIMARY ENERGY CONSUMPTION (2012)

Source: U.S. EIA

TOTAL PROVEN NATURAL GAS RESERVES (2015)

Source: EIA

180.4
trillion cubic feet

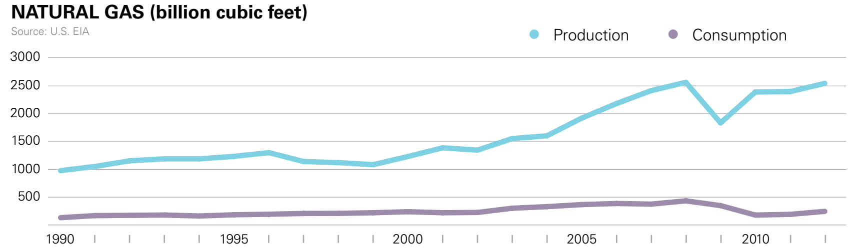
TOTAL PROVEN OIL RESERVES (2015)

Source: EIA

37.07
billion barrels

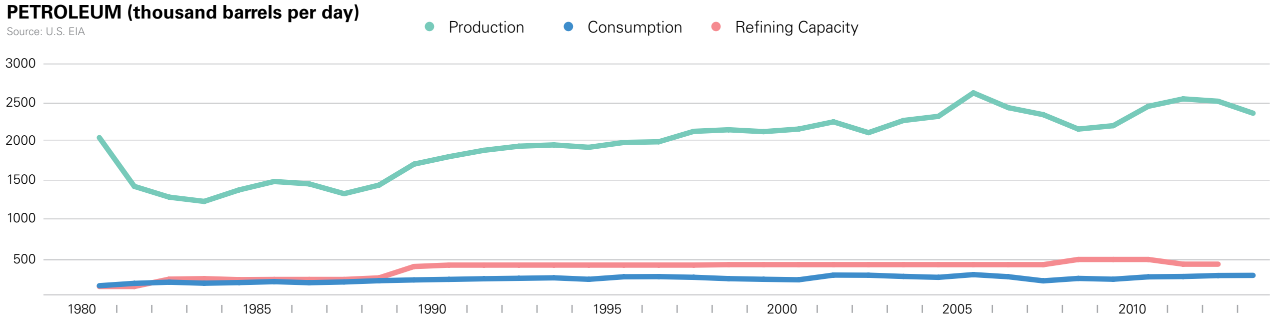
NATURAL GAS (billion cubic feet)

Source: U.S. EIA



PETROLEUM (thousand barrels per day)

Source: U.S. EIA



THE TIMES THEY ARE A-CHANGIN'

Nigeria's New Oil Economy

After four months in office, Nigerian President Muhammudu Buhari finally submitted a list of his proposed ministers to the Senate on Wednesday 30 September, one day before the country celebrated its 55th year of independence from the British.

The announcement came amid mounting pressure on the President. Initial enthusiasm at the victory of an opposition candidate and the remarkably smooth transition of power from the previous leader, Goodluck Jonathan, was beginning to ebb. Fears were growing that the former military man was reverting to his old authoritarian ways.

This criticism was perhaps unfair. President Buhari had claimed on multiple occasions that he would hold off on any ministerial appointments until September. During a trip to the USA shortly after his nomination, he drew a parallel with President Obama, who also delayed several months before appointing his cabinet.

Upon arrival at the presidential residence at Aso Rock, however, Buhari found his country in a far sorrier state than Obama's America. Despite boasting the largest GDP in Africa, decades of rampant corruption had exhausted state finances, many public employees had been working for months without seeing a salary. Meanwhile in the North, Boko Haram militants were advancing over large swathes of the country virtually unchecked by the military.

In a July editorial piece published in the Washington Post, Buhari outlined his priorities as "fighting terrorism… instilling good governance and tackling the scourge of corruption that has held Nigeria back for too long."

Image: Intels

Nigerians viewed the NNPC as something of a black box until now. There has been too much political meddling and now more transparency is needed if we want to see a stronger and more prosperous oil industry.

- Oluwafemi Akarakiri, Country Manager, Weatherford Services Ltd., Nigeria

His first actions as president clearly reflected these priorities. In June, he replaced the country's military leadership and relocated the central command to Borno, close to the heart of the insurgency. The following month, he enlisted the help of the United States in tracking down approximately $150 billion that had been smuggled out of the country over the preceding decade.

Buhari signed off his Washington Post piece with the following advice for his fellow Nigerians: "Have patience. All things become difficult before they become easy." In a time of $50/barrel crude, this maxim is of particular relevance to the oil and gas industry.

With average production in 2014 reaching 2.38 million bpd, Nigeria is the largest producer of crude in sub-Saharan Africa. Yet, recently, investment has dried up and production has fallen.

Natural resources may only account for 14% of GDP but the oil and gas sector is the source of over 75% of government revenues and 90% of export earnings. Given the country's reliance on imports for food and manufactured goods, this foreign exchange income is extremely valuable.

Nigeria's hydrocarbon endowment is one of the most diverse on the continent, ranging from onshore and swamp deposits through to deep and ultra-deep offshore. This encompasses gas, condensate, light oil, heavy oil and bitumen. The array of extractive operators is equally broad. Most of the major IOCs have been present in the country for decades but a new set of indigenous producers is gaining prominence, particularly in the onshore fields.

The state's interest in the sector is represented by the Nigerian National Petroleum Company (NNPC), which has a stake in most producing blocks. Never a shining example of good governance, under the previous administration the NNPC developed an entrenched reputation for opacity and inefficiency. "Nigerians viewed the NNPC as something of a black box until now," said Oluwafemi Akarakiri, country manager at Weatherford. "There has been too much political meddling and now more transparency is needed if we want to see a stronger and more prosperous oil industry."

Buhari has embarked on a wholesale reform of the organization in an effort to plug leakages and attract much-needed new investment. While the economy as a whole has been booming, a study by the McKinsey Global Institute found that oil and gas grew at a rate of just 2.3% between 2010 and 2013. Over the past two years, this is likely to have slowed even more.

At the time of writing, Buhari has been in power for a little over 120 days and it is still too early to judge how effective his reforms will be. But, so far, the reaction from Nigerians has been largely positive. "Twenty years ago, Nigeria was a hard place to live and many people left. Now, the world is changing and the opportunities are here. A lot of Nigerians want to come home and the new government will bolster this feeling even more," claimed Charles Adekuajo, managing director/CEO of Havilah Hydrocarbon Resources Management Nigeria Ltd., an engineering and consulting company whose founders are former members of the diaspora who have once again settled in their home country.

Throughout the era of high prices, most Nigerians failed to derive any benefit from their country's natural resources. This is set to change. Even allowing for the current low prices, more efficient management of oil revenues will allow the government to invest in other important areas, such as power generation, healthcare and education, thus establishing a robust platform for future growth and potentially lifting millions of Nigerians out of poverty.

Dancing with the Devil

Reforming the NNPC

Founded in 1977, the NNPC is the state corporation charged with managing the government's interests in exploration, production, refining, transportation and marketing of hydrocarbons. Buhari himself oversaw its establishment while serving as oil minister under Olosegun Obasanjo. In the past, the organization entered into joint ventures with oil majors, but since the early 1990s there has been a shift towards production sharing contracts (PSCs), whereby the private contractor funds exploration, development and production in return for a pre-determined share of oil and gas produced.

About half of the country's crude production flows into NNPC facilities where, in theory, it should be refined and sold on the domestic market, with the proceeds re-invested into the business. However, this is not always the case.

Under President Jonathan's regime, the NNPC effectively became the personal fiefdom of his minister of petroleum resources, Diezani Alison Madueke. It is alleged that some $20 billion of oil revenues went missing during her tenure, although she denies any wrongdoing. Shortly before Buhari's confirmation, she travelled to London to receive treatment for a sudden onset of breast cancer. She was arrested by the British National Crime Agency (NCA) on October 2.

Regardless of the validity of these particular allegations, the story is emblematic of the mistrust surrounding the company's operations. Over the past five years, only four true exploration wells have been drilled in Nigeria. While the US shale boom and, more recently, subdued oil prices both played a part in this trend, the NNPC's inability to meet counterpart funding obligations and tendency to misplace large sums of money have proved a strong disincentive to invest. The president of one indigenous producer (who chose to remain nameless) referred to his company's partnership with the NNPC as "a dance with the devil."

However, the new administration has already made moves towards reforming the company. Buhari has taken an axe to the top management, removing 38 executives between June and August, including all eight group executive directors. In their place, he has appointed a veteran of the private sector, Emmanuel Ibe Kachikwu, as new group managing director.

Formerly executive vice chairman for ExxonMobil Africa, Kachikwu's track record in the private sector and experience of working overseas have made him a popular choice among the IOCs. Some local players complain that he has spent too long away from the country, but this is a necessary concession given the need for a figure that is senior enough to take over the giant enterprise, but far enough removed to avoid being tainted by the previous mismanagement.

On a broader level, the government needs to re-evaluate the relationships between the three main public bodies involved in the sector: the NNPC, the Department of Petroleum Resources (DPR) and the Ministry of Petroleum. In recent years, the DPR, which is supposed to serve as the industry regulator and watchdog, has seen its power base eroded and some of its functions subsumed by the NNPC, creating a worrying conflict of interest. "The role of the NNPC must be properly defined, with policy clearly separated from regulation and from the commercial side of the business. Similarly, the role of the minister must be clarified and their scope for discretion must be limited," said Dimeji Salaudeen, partner, Risk Consulting and head, Africa Oil and Gas Sector, KPMG Advisory Services.

In this light, the recent announcement that Buhari himself will be acting as minister of petroleum resources has been welcomed by many. Now, industry analysts are hoping that his government will start to enshrine some of these institutional reforms in legislation.

In the meantime, the government has started to enforce the use of a Treasury Single Account. Prior to this, government bodies were able to deposit revenues into a range of different bank accounts, with little oversight from the Central Bank or any other agency. This lax system left the door open to graft. The single account system will allow for closer monitoring of state funds and should limit the opportunities for theft.

Global Business Reports

Image: Intels

The Petroleum Industry Bill (PIB)

The Petroleum Industry Bill (PIB) was envisioned as a sweeping reform to the oil and gas industry that would consolidate the requirements of a range of existing laws into one comprehensive piece of legislation. Instead, it became a byword for political obstructionism and legislative inefficiency.

The fiscal regime governing oil production in Nigeria is notoriously complex. The PIB was supposed to set out the obligations for producers in a more straightforward format. However, the draft was soon hijacked by various political factions and its contents were grossly distorted. The document that was eventually submitted to the House of Representatives bore little relation to the writers' original intentions. It was rejected by the House shortly before the general elections.

Uncertainty over the PIB has done lasting damage to the industry. The period of high oil prices should have seen a slew of new projects announced. Instead, large investments were put on hold until the government could set out clear rules of play.

Dr. Ernest Azudialu – Obiejesi KSC, FNISM, B.Sc, DBA (UNN) is president of Nestoil PLC, one of Nigeria's first and most successful engineering companies, which also has interests in the E&P business. He believes that this inaction is costing the country dearly. "The government must finalize the PIB. There is still a huge question mark floating over the industry. You cannot tell companies to come and spend their money in your country unless you also make it clear how they can take their money out," he said.

As it stands, the bill is generally held to be unworkable. It is too big, too messy and too politicized to make any progress in its current form. Instead, we are likely to see a fragmented approach. Rather than continuing with the PIB omnibus, a range of smaller reforms to existing laws could be on the cards.

Similar changes could be made to the laws governing local content and environmental regulations.

The biggest complaint from outside investors is that the fiscal regime is unclear. This could be improved by amending the 1969 Petroleum Act, a process that would take a matter of months, compared to several years for the PIB.

- Dimeji Salaudeen, Partner, Risk Consulting and head, Africa Oil and Gas Sector, KPMG Advisory Services

Offshore Exodus

The IOCs retreat ever deeper

Commercial oil production in Nigeria can trace its roots back to 1956 and the discovery of the Oloibiri Oilfield in present-day Bayelsa State. For the next 50 years, the swamps of the Niger Delta resonated with the sound of drill rigs as oil majors scrambled to make the next big strike.

Since 2010, this trend has reversed as the IOCs have begun to divest from onshore concerns. Total has sold 11 blocks, while Royal Dutch Shell has divested from eight, with another three sales awaiting approval from the Federal Government. Chevron, Eni and ConocoPhillips have all followed a similar path. In total the IOCs have divested from $11 billion worth of onshore assets. ExxonMobil no longer holds a participating interest in any onshore field.

There are several reasons for this change in direction. The first

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UU


FA

Udoma Udo Udoma & Folake Elias Adebowale

UU: Founding Partner
FA: Partner
UDO UDOMA & BELO-OSAGIE BARRISTERS AND SOLICITORS

Foreign investors are reluctant to commit to new projects in Nigeria until the Petroleum Industry Bill (PIB) is passed and their fiscal obligations are made clear. What progress has been made in pushing the bill through to date?

UU: It is no secret that Nigeria's oil and gas industry has been in the doldrums for some time now but, looking ahead, the outlook is broadly positive. We have a new president and a new Group Managing Director at the NNPC, who are committed to reawakening the dormant industry.

Many foreign investors are concerned about progress being made with the Petroleum Industry Bill (PIB). I chaired the committee that prepared a draft of the PIB, which was reviewed and presented to the legislature. The new government is looking at ways to restart the process. We may see fiscal requirements separated from other aspects of the legislation to enable the bill to get pushed through faster. This will give investors a greater level of certainty over how they will be taxed. The President has also made statements regarding his interest in re-organising the affairs of the Nigerian National Petroleum Corporation.

What steps must a foreign investor take if they want to invest in Nigeria's oil and gas industry?

FA: Petroleum sector participants must give proper consideration to local content requirements, which are aimed at boosting indigenous participation in the Nigerian petroleum sector. The local content rules do not prevent non-Nigerians from doing all petroleum sector business; but Nigerian companies are more likely to be deemed eligible for bids and awards of contracts in the sector. To be considered a "Nigerian company", a company's equity is required to be at least 51% Nigerian-owned, which appears to be encouraging partnerships and joint ventures with local participants. In some areas, there is arguably still a mismatch between the minimum local content prescriptions of the law and the reality of available capacity. There are also some areas of ambiguity within the local content legislation that could be clearer, and in such cases, participants have sometimes had to engage the Nigerian Content Development and Monitoring Board for clarification.

How do you see the future of the country's gas production sector?

FA: Demand for LNG has remained fairly static and a raft of new countries have recently joined the club of LNG-exporting nations. Nevertheless, we believe the potential for Nigerian gas is huge. The country suffers from a crippling power deficit and new generation capacity is much needed. Gas is likely to be the fuel of choice to fire new power plants. Another hurdle is the need to build enabling infrastructure to link gas producers with processing plants. Nigeria has often been called "a natural gas province with some oil in it", but its vast gas reserves remain underexploited. The situation has received attention over the past 10 years but a significant proportion of production is still flared every year. Nevertheless, we are aware that there are participants that now propose to focus solely on gas and its associated infrastructure. Our colleagues in the firm's power team recently advised on the Central Bank of Nigeria's Nigeria Electricity Market Stabilization Facility, and collaborated with the US government on the President Barack Obama Power Sector Initiative. The Central Bank of Nigeria, earlier in the year, set up an intervention facility to address legacy power sector debts, including gas debts, but until tariff and related issues are resolved, the sector will not feel the full benefits.

In 2014, private equity funds raised approximately $4 billion for investments in Africa. How do you evaluate the future of PE in financing large-scale power and gas projects?

FA: Appetite from private equity (PE) funds will continue to increase in Africa, and particularly in Nigeria. We see potential for growth in funding smaller independent power projects for residential and manufacturing communities that are springing up as middle class growth continues exponentially. Nigeria is seeing an increase in developments of small- to medium-sized industrial and residential estates, which house consumers and businesses with capacity to pay the market rate for the electricity that they receive.

At present, there is a certain misalignment between the two sides of the industry: private equity funds have traditionally averaged a five or at most, ten-year timeline for exiting their investments, and they tend to expect guaranteed returns, but it can take up to thirty years for major power and infrastructure projects to generate substantial returns. PE players must redact their investment projections for a longer horizon in order to properly realize the value of their investments. Our private equity practice is fairly active and we note that several key players have a dedicated energy fund that are at least contemplating investments in the sector, subject to the resolution of key issues such as those that we mentioned earlier in relation to tariffs.

Fund managers experienced in emerging markets like Nigeria appear to recognize that petroleum pricing dips such as the current global iteration have tended to be cyclical and, given PE investors' preference for acquiring shares at their lowest point, the current depressed oil prices may present great opportunities for PE investment.

Pade Durotoye

CEO
OANDO ENERGY RESOURCES

Could you start us off with a brief overview of OER and its relationship with the larger Oando Group?

Oando Energy Resources (OER) was incorporated and utilized as a vehicle to conclude a reverse takeover of Exile Resources and is now listed on the Toronto Stock. Oando Exploration and Production Limited (OEPL) is a subsidiary of Oando PLC, which was incorporated in 2003 and originally held 13 licenses, the company currently holds 3 licenses. Certain assets that were previously held by OEPL were transferred to OER, with its strategy and governance system, entirely separate from Oando PLC.

We have not embarked on any capital raising since listing but our position on the TSX puts us in front of many potential investors. At the time of the ConocoPhillips Nigeria business acquisition we were still very young. The scale of the acquisition meant that we were unable to raise the financing on our own, so Oando PLC was used as a platform to raise the necessary equity. However, if Oando PLC did not have OER as a listed exit for shareholders, they would not have been able to raise such a large sum.

While most Nigerian producers choose to concentrate their resources on one project at a time, OER's asset portfolio is extremely broad. What is the strategy behind this approach?

The IOCs set the example, ensuring a balanced portfolio, which fosters multi cash flow sources from a diverse portfolio, allows risk diversification and fiscal divestments. Each of these steps has been in line with our overarching strategy and we believe that our current portfolio brings many benefits. At one time we owned mostly exploration assets, which makes it difficult to generate positive cash flow. The COP acquisition brought us into mainstream production and we are excited to demonstrate how far we can take this. Right now, our growth is coming from optimizing our producing assets. Admittedly, this does not provide the same kind of dramatic surge that a big discovery can deliver but it is a relatively low-cost way to increase revenues.

How are you looking to optimize your already producing assets?

If you look at the results that our operating partner has had over the last 12 months, you will see that nobody else has come close to their performance. In the days of high oil prices and easy cash, operators were not concerned with sweating the most out of their assets. Now we have been able to double production without single rig. This has been achieved through going back into the stock of old wells and troubleshooting, seeing why they had shut in or watered out and making the necessary alterations. There is still some room for growth through workovers but we will not see more significant gains without a single rig. When the oil price changes and we start drilling again, those gains will come on top of the production tweaks we have already carried out.

On a country-wide level, attention is turning to Nigeria's huge gas reserves. What role will gas play in OER's future growth?

Total gas resources in Africa are 509Tcf of which Nigeria holds 180Tcf, making it the largest gas province in Africa. Gas is an area that we do not talk about so much, but it is a key part of our strategy. Approximately 20% of OER's revenues come from gas. From a reserves perspective, gas accounts for over half of what we own. This is even more significant when you consider that the tax regime for gas is far more lenient than oil. Approximately 80% of our gas flows into the NLNG, although we are also looking at ways to feed more into the local gas infrastructure. Nevertheless, we still have a lot of growth opportunities in oil and this will remain our primary focus.

Onshore operators frequently point to continuous pipeline bunkering as a major setback to production. How has this trend affected OER?

Since the new administration came in we have seen record uptime across both the Trans Forcados Pipeline and the Brass line. When you look at the improved production figures we have been posting, not all of this is down to improved well performance; some of it is reduced losses from the pipelines. The security forces have a much stronger focus, are deploying more equipment and are responding quicker to attacks.

Amid a backdrop of considerable political change, what is your vision for the company's future?

We are working towards a strategy of doubling the size of the company within five years.

There are very few places in the world that offer the subsurface simplicity of Nigeria. Below the surface, there is very little risk to investing; it is a well-understood oil and gas province with significant upside in the deep plays. It is only when you get above ground that the challenges appear. Nevertheless, the business environment has improved dramatically, and the country is home to a world-class service sector. The new wave of local producers is professionally run operations with excellent corporate governance.

> *Since the new laws came in, local companies have much more direct interaction with the IOCs. They have woken up to the quality and expertise available within our domestic service sector.*
>
> *- Kave Godwin, Managing Director, Pumpking Oilfield Services*

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is security: sour community relations have made pipeline attacks and production shutdowns a commonplace occurrence. In 2014, an average of 37,000 boe/d was stolen from Royal Dutch Shell's onshore network. Although the past few months have seen an increase in uptime on this network, offshore production is still much easier to police than vast swathes of empty swamp.

The second reflects a broader strategic movement. As oil prices drop, the majors are looking to raise capital by selling off non-core assets. Focusing on large offshore operations can also be seen as a way of controlling costs. This may seem counterintuitive given the high initial outlay but, over the total lifecycle of a project, offshore plays incur lower operating costs.

The third reason is political in nature. In an effort to boost local participation in the industry, the government has encouraged the majors to sell their onshore and shallow water deposits to local Nigerian firms.

"It is a buyer's market right now," said Abiola Ajayi, managing director of Energy and Mineral Resources Ltd., a Nigerian consultancy with a focus on asset evaluation. "Investors with a long-term view and capital to spare certainly stand to make a considerable profit if they get in on the right project now."

While the locals are taking over onshore, the majors have been concentrating their efforts on a wave of offshore expansions. Chevron has commenced a five-well drilling program on its Agbami Field, which lies at a depth of approximately 1,500 m. Production is expected to begin in 2016, while more drilling will continue throughout 2017.

In September, ExxonMobil announced first oil at its Erha North Phase 2 project. Four miles north of the existing production wells, the 65,000 bpd development came in ahead of schedule and under budget. The company attributes this success to the skills and efficiency of their local service providers.

Exploration, or lack thereof

While, these expansions are certainly good news for the industry, they mask a disturbing trend: Nosa Omorodion, president elect of the Nigerian Association of Petroleum Explorationists, is concerned at the lack of exploration taking place in the country. "Over the past decade, the rate of production has not been matched by the rate at which new reserves are being added; net reserves have been shrinking for the past few years," he noted.

Nigerian reserves have remained static at 37 billion barrels for around five years now. This is a problem because the delay between initial discovery and production is approximately 10 years. Omorodion ascribes the lack of exploration activity to a failure by the government to establish proper incentives for explorers: "More should have been invested in exploration when prices were high and funds were easy to come by. Now, prices have slumped and it is tough to find exploration capital." he added.

There is a historical precedent for the country to attract exploration dollars, even in times of low prices. In the 1980s, when oil dropped below $10/barrel (approximately $22/barrel today), the government introduced the Reserve Addition Bonus (RAB), which provided financial incentives to companies that invested in exploration. While the rest of the world saw an exploration slump, Nigeria started adding reserves faster than ever. Unfortunately, the system was poorly implemented and was abused by some of the IOCs. However, the basic premise of rewarding companies for drilling deep and making discoveries was sound. If a reworked version of this scheme could be introduced, it might go some way to addressing Nigeria's faltering reserves.

Indigenous Producers

Marginal fields and major divestments

In an effort to harness the expertise of a newly retiring crop of Nigerian oil veterans and boost local participation in the domestic E&P sector, the Federal Government began to auction off marginal fields to Nigerian companies in the early 2000s. According to Tunde Ajala, founding executive director of Dovewell Oilfield Servies, the effects have been far-reaching: "We have come to a kind of national realization; great things can be achieved using our internal resources. It is no longer necessary to rely on external input," he said.

The first round of bidding saw 24 marginal fields allocated to 31 companies and was followed in 2013 by a second series of auctions. A third round is scheduled to take place in 2016, although the DPR is yet to release details on which blocks will be up for sale.

Between the marginal field program and the IOCs' divestments, Nigeria's indigenous producers now hold some 30% of the country's reserves. However, they only account for 10% of total production. "The potential for Nigerian independent producers is huge, yet, as a group, we are not hitting the production volumes that we should," complained Malije Okoye, CEO of Neconde Energy Ltd., the operator of OML 42. "A dedicated pressure group, the Independent Petroleum Producers Group (IPPG) was recently established to represent our interests. We had an audience with the President in August… He reassured us that he would steer the NNPC and NPDC to increase support to the sector," he added.

Neconde is hoping to exit 2015 producing 60,000 bpd.

The government has set a target for indigenous producers to generate 25% of Nigeria's oil by 2020. The goal is ambitious but not impossible, as long as the right conditions are met. "There are two major hurdles for indigenous producers today: government funding and the slow pace of contracting… If these can be solved we will see a sharp increase in local production," suggested Pade Durotoye, CEO of Oando Energy Resources, one of the country's most prolific producers.

However, one of the main setbacks to production is largely out of the hands of the producers and the NNPC. Fuel bunkering, the practice of illegally tapping into pipelines to steal fuel, remains a challenge throughout the Delta.

In 2014, Shoreline Natural Resources, which operates OML 30, reached peak production of 60,000 bpd on several occasions, but their average output was closer to 40,000 bpd due to pipeline downtime. According to Shoreline's managing director, Dr Ladi Bada: "The Trans-Forcados Pipeline – the main trunk line that evacuates crude from the Western Delta – has been attacked at least 40 times since we took over. We need the government and the Joint Task Force (JTF) to be more aggressive in policing this issue if we are to see consistent high production in the region."

Thus far, indigenous producers have tended to take over existing assets as they found them. Few have sunk any new wells. Kayode Thomas, CEO of Substrata Oil and Gas, a specialist in field development and production optimization, believes that this is a waste of resources: "There are still many onshore blocks that have not been allocated to an operator and which remain unexplored," he said. "We can drill a well in 14 days using a rig that costs $40,000 per day for a total cost of $560,000 – equivalent to one day of offshore exploration."

Given these incentives, a few local players are starting to buck the trend and invest in unproven acreages. Newcross Petroleum Ltd. (NPL) took over OPL 283 from Centrica in 2010 and has built it

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Chikwe Edoziem

President
NIGERIAN ASSOCIATION OF PETROLEUM EXPLORATIONISTS (NAPE)

The Nigerian Association of Petroleum Explorationists (NAPE) is one of the most important associations in the domestic oil and gas sector. How did the organization come into being?
Forty years ago, a group of 10 young geologists and geophysicists driven by the desire to excel in their professional skills and competencies created a forum for themselves. The first meeting took place on August 23rd 1975 at Federal Palace Hotel, Lagos. That day marked the birth of an association called the Lagos Society of Geologists and Geophysicists. In 1982, the name was changed to Nigerian Association of Petroleum Explorationists (NAPE) to accommodate the different occupational and vocational interests in the oil and gas sector. Today, membership of the Association has grown to over 7,000 individual members, 100 corporate members and 4 Chapters across the nation. NAPE is the largest professional association of petroleum geologists and related disciplines in Africa. We are affiliated with the American Association of Petroleum Geologists (AAPG) and, we have collaborated with other professional associations like the Society of Exploration Geologists (SEG), the Society of Petroleum Engineers (SPE), the Nigerian Mining and Geosciences Society (NMGS). We have also worked with government agencies like the Petroleum Technology Development Fund (PTDF) via NAPE's University Assistance Programme (UAP) to create linkages between tertiary institutions and the oil and gas industry.

Could you give us some more information about NAPE's upcoming event?
The association organizes exhibitions, workshops, seminars, field trips, conferences, and short courses. Our Annual International Conference and Exhibition (AICE) is held in November every year and is listed in most reputable global oil and gas journals. This year's AICE is the 33rd edition and will take place at the Eko Hotel & Suites, Victoria Island, Lagos from November 8-12, 2015. The theme is "Global Energy Dynamics and Implications for Nigeria's Energy and Economic Security". The intent is to provide a forum for the membership of the association and stakeholders in the oil and gas industry to share ideas on new technologies and industry best practices. In the past, our Pre-Conference Workshop has produced comprehensive communiqués that have helped the Federal Government to shape policies for the lasting benefit of the industry and the nation at large. This year we expect to achieve similar goals.

Production in Nigeria has continued to grow but reserves have remained stagnant for almost five years. Why is this?
Nigeria's crude reserves have been stagnant for the past five years at 37 billion barrels it achieved in 2010. The target of the Federal Government is 40 billion barrels reserve and 4 million barrels per day production by the year 2020. The oil reserves stagnation can be attributed to poor funding by the Federal Government. The Joint Venture Projects are largely underfunded, and this has hampered the replenishment of oil reserves in recent times. Apart from funding constraints, there is a need for the government to provide clear fiscal terms and incentives that would favor exploration work in frontier areas and deeper opportunities in the high pressure/high temperature regime to meet our reserves replacement goals.

In times of low oil prices exploration budgets are among the first to be cut back. Given that prices are likely to remain depressed for some time, what will be the long-term implications of this drop in exploration activity?
Clearly the current low oil price will not last forever; however, the longer it persists, the more challenging it will become for the industry and government. While some may see this as a catastrophic threat to the industry, I see it as an opportunity to become more efficient at every stage of the value chain, thereby freeing up cash. Exploration companies can take advantage of current low rig rates to fund some level of exploration work. I believe that exploration activities in the PSC portfolios should not be slowed down significantly because of current long lead time between discovery and first oil.

You have suggested that oil companies should make use of current low rig rates to drill more exploration wells, but unless other incentives are added this is unlikely to happen. What kind of incentive scheme should government offer to encourage exploration?
First, there is the need to immediately address the uncertainty surrounding the passage of the PIB because right thinking investors will not open up new areas when they are not sure what direction the PIB will go. There is also the need to come up with a new incentive scheme that may guarantee minimum profitability and or some level of tax exemption to encourage exploration activity in new areas. Indigenous producers could be governed under a separate regime or receive different incentives in the same way the marginal field decree has attempted to do. We should understand that these companies are venturing into high-risk terrain for their size and capability. Similar consideration was made by the Government for Deepwater Exploration entry by the IOCs in 1993. •

Image: Shoreline Natural Resources

At first, there were just three private companies based in Onne... Today there are approximately 170 companies clustered around the free zone, making Onne the largest and fastest growing oil and gas service center in the world.

- Isidore Sambol, Head, Public Relations & Nigerian Content Development, Intels

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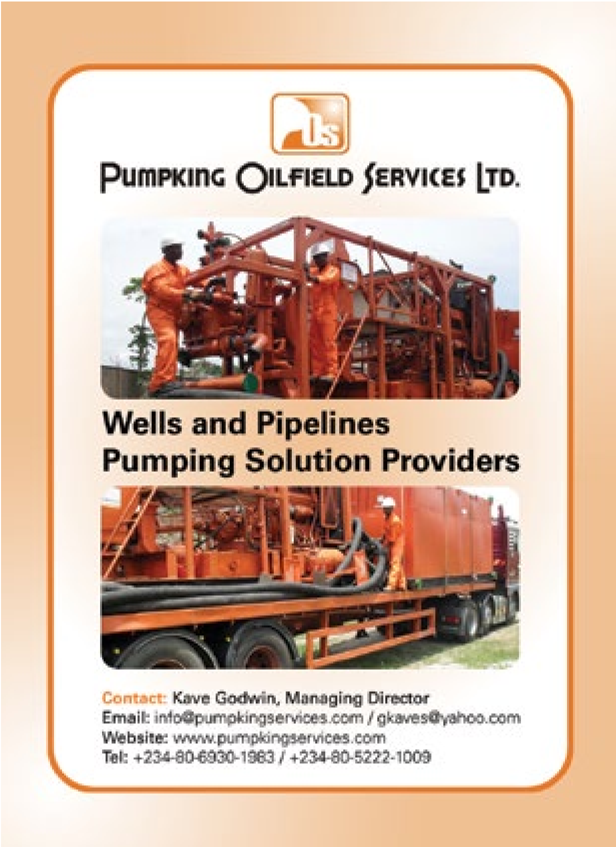
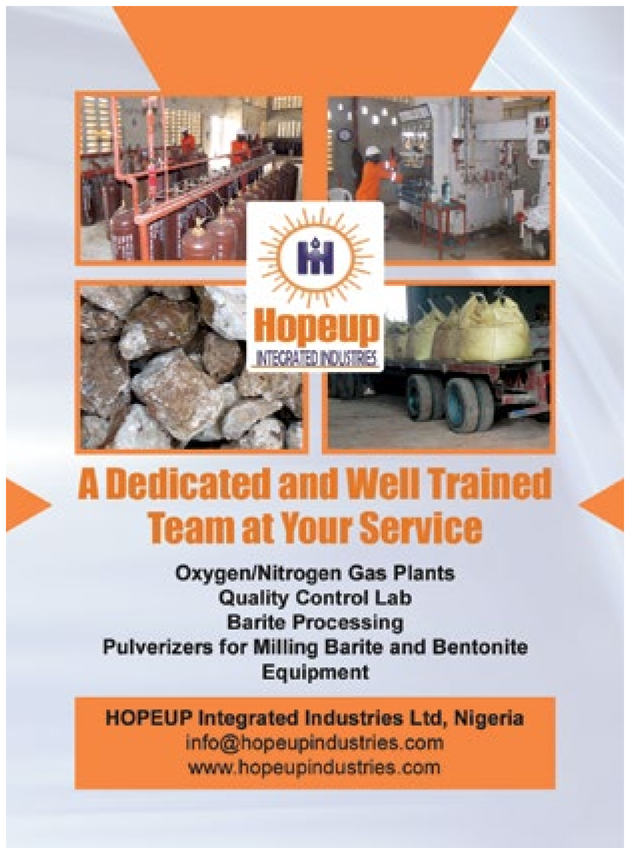
up from a greenfield state. "We believe that in this business, luck favors the bold (sometimes)," said Bolaji Ogundare of NPL. "We are one of a very small group of Nigerian companies that has invested heavily in true exploration… Admittedly, there is a higher level of risk and uncertainty associated with this approach but the value creation can be higher."
For now, most indigenous producers are solely focused on land-based production, but this scenario could soon start to shift. "When you look at the number of indigenous oil producers springing up in Nigeria, it seems logical that some of them will graduate to exploiting deep offshore deposits," said Olutayo Akomolede, director and head of administration at Brone Positioning † Survey Limited, Africa's leading seismic survey provider. "Already, some of the local companies are participating in a deep offshore environment, although they are not the operating partner."

Gas

Nigeria's next frontier

With the price for WTI crude oil reaching below $40 / barrel, it is unlikely that any more major oil investments will be planned in the near future. However, attention is now turning towards Nigeria's huge gas potential. Until recently, most Nigerian gas was seen as an unattractive by-product. Huge quantities were flared, causing serious environmental damage and depriving the country of valuable fuel. Although the situation has improved, last year 289.6 billion standard cubic feet (scf) were flared, equivalent to 11.47% of the country's total production.
This wastage is largely a result of insufficient infrastructure to transport and process the gas into a marketable product. Significant quantities of gas are located in so-called stranded reserves; small isolated pockets that are difficult to extract economically.





"There are huge reserves here in Nigeria yet to be unlocked, although they are highly dispersed compared to Trinidad and Tobago or Saudi Arabia," explained Hashim Zein A.G.M Corporate Planning & Bus. Dev. at Owel-Linkso Group, a diversified group offering services within the fields of engineering and gas processing. "There is a lot of opportunity for independents and third party processors like ourselves to take advantage and bring more gas to the market for utilization," he added.

Today, most of Nigeria's gas flows into the NLNG complex on Bonny Island, which has produced LNG since 1999. Operated by a consortium of IOCs and the NNPC, the facility comprises eight producing trains and provides approximately 7% of the world's LNG supply.

A new development in Bayelsa State, Brass LNG, has been in the pipeline for several years but has been hit by a slew of setbacks. In 2014, one of the main investors, ConocoPhillips (COP), pulled out. The original plan was to build the plant using COP's proprietary Cascade liquefaction technology. Their exit forced the engineers to return to the drawing board and recommence from the pre-FEED stage. The other parties involved in the consortium, Total, Eni and the NNPC agreed to take over the outstanding shares but engineering work was put on hold for several months.

The remaining developers are cagey about estimates as to when the two-train facility will eventually come online, but it is likely to take several years. Given that demand for LNG has remained fairly static for some years and several other countries closer to the main markets in Asia have begun producing, it seems unlikely that any other big liquefaction projects will be given the green light anytime soon.

Domestic demand for natural gas, on the other hand, should rise exponentially. Nigeria's total installed power generation capacity stands at around 6GW, of which only 4GW is usually in operation. This is less than 10% of South Africa's total capacity in a nation with three times the population. More power is needed urgently. The fuel to fire the generators will be gas.

The Nigerian power industry has undergone a gradual privatization process in recent years. Private companies participate in generation and distribution, but transmission remains a state controlled monopoly. While much more transparent than before, there are still issues regarding pricing and tariffs. Price controls keep the gas price below the market value, making it difficult to attract development; lenders and financiers need some level of security over their investments, which is currently lacking.

That being said, some financial institutions are already showing an interest in low risk projects. "Nigeria is seeing an increase in developments of small to medium size industrial and residential estates, which house consumers and businesses with capacity to pay the market rate for electricity. This is one key area where we expect leading PE funds in the Nigerian market to turn their attention initially," explained Folake Elias Adebowale, partner at Udo Udoma.

Pushing Downstream

Nigeria is Africa's largest producer of crude oil but is constantly plagued by fuel shortages, a paradox that neatly illustrates the destructive effects of fuel subsidies.

Artificially low prices create an incentive for corrupt officials to smuggle fuel out of the country, where they receive a higher price. In times of acute shortage, some of this is then smuggled back into Nigeria, where it can be sold at up to double the official rate. While the system is perverse, repealing the subsidies is politically sensitive, as many Nigerians view cheap fuel as the only advantage they derive from their oil industry.

Buhari and the new director of the NNPC have both spoken against continued subsidization. The current low oil prices could provide a conducive environment to reduce subsidies without a dramatic increase in fuel prices. This should encourage more private investment in downstream processing. However, some industry insiders have signalled that more needs to be done. "Removing the fuel subsidy alone will not stop imports or automatically encourage local production," said Chinedu Okpareke, head of Sahara Infrastructure and Venture Capital. "The government must implement alternative incentives. Nigeria needs new refineries because current production capacity is not sufficient."

Some local producers have signalled their interest to invest in small, modular refineries that can be rapidly scaled up according to demand. At the other end of the spectrum, Africa's richest man, Aliko Dangote, has started designing a $9 billion complex that will incorporate a 500,000 bpd refinery, a petrochemicals plant and a fertilizer production facility. The project is expected to begin producing in 2018.

In the meantime, the NNPC runs four refineries but they have been operating at an average of 30% capacity for the past 10 years. To make up for the shortfall, the government engages in swap contracts with foreign commodity traders, whereby crude is exchanged for refined products, usually imported from the Middle East or Asia. The terms of these deals are only just being released and the conditions are deeply unfavourable. Close to 40% of Nigeria's foreign currency expenditure goes into funding the importation of petroleum products. According to an estimate by the Extractive Industries Transparency Initiative (EITI) at least $600 million was lost in 2012 through systematic undervaluation of Nigeria's crude.

Image: Africa's first five-axis milling machine with a centre distance of 8m, courtesy of Thompson and Grace

It does not make business sense for private companies to invest in refining. The upfront costs are huge and if the owner must then sell his products below the market price then such a venture cannot be profitable. Thus, there have been talks about deregulating the sector and removing the petroleum subsidies. This move coupled with a favorable tax regime should hopefully incentivize investments in crude refining.

- Oghogho Akpata, Managing Partner, Templars Nigeria

Port Harcourt

West Africa's oil and gas hub

Known as Nigeria's garden city, Port Harcourt has served as an oil and gas hub since the early 1960s when a cluster of service companies sprang up to support the blossoming industry.

In the past, the sector was dominated by multinationals but today Nigerian outfits play a far more prominent role. This is largely thanks to the 2010 Nigerian Oil and Gas Industry Content Development Act, which encouraged IOCs to favour local providers. The first beneficiaries were machine shops and welders but today's operators can also turn to Nigerians for more sophisticated jobs. "Since the new laws came in, local companies have much more direct interaction with the IOCs," explained Kave Godwin, managing director of Pumpking Oilfield Services. "They have woken up to the quality and expertise available within our domestic service sector."

Incorporated in 2010, Pumpking provides pumping and pipeline maintenance services to major players such as Royal Dutch Shell. Now they are taking on international contracts in far flung locations such as Iran and India.

Many of these successes are the result of technical partnerships between established international companies and local Nigerian engineers. Thompson & Grace has worked for 15 years as the local partner for UK-based crane maintenance specialist, Spar-

Removing the fuel subsidy alone will not stop imports or automatically encourage local production. The government must implement alternative incentives. Nigeria needs new refineries because current production capacity is not sufficient.

- Chinedu Okpareke, Head, Sahara Infrastructure and Venture Capital

rows. This solid foundation has allowed the company to diversify into exciting new areas. "FMC has just approved us as a global supplier and we are currently holding talks with GE to become a major fabrication partner for them," said projects and technical services director, Ekemini Thompson Amos.

Tight links between industry and academia are also being forged in the city. Amid complaints from employers that recent graduates were not sufficiently prepared to enter the world of work, the Institute for Petroleum Studies (IPS) was founded in 2003 as a collaboration between Total E&P, the University of Port Harcourt and IFP School in France. The institute offers a range of MSc courses in petroleum related disciplines and works closely with the private sector to ensure that curricula are relevant. Director, Professor Mike Onyekonwu is proud of IPS' achievements. "This institution is unique in West Africa and already we are attracting students from outside Nigeria," he said.

Beyond service delivery, some Nigerian entrepreneurs are going into manufacturing. Hopeup Integrated Industries Ltd. is a 100% indigenous operation that produces industrial gases and processes barite for use in drilling fluid. At present, its plant has capacity to produce 6 mt/hour of milled barite. MD/CEO, Chief (Dr.) Davies Ibiamu Ikanya (JP) sees great potential for quick industrial growth in the region but believes that banks need to be more open to lending to start-ups. "The new president has often spoken of the importance of boosting Nigerian industry and supporting local manufacturers so we are confident that more opportunities will open up under his government," he said.

A lack of access to capital is frequently cited as the main setback to industrial growth. With the exception of South Africa, Nigeria has the most developed financial sector in Africa. Big Nigerian banks have been busy expanding their operations across the continent but many SMEs feel neglected by the system. Start-ups are often forced to build up their business through personal finances or by seeking private investors.

One example of such a company is CypherCrescent. The business has existed in various formats since 2003 with a mission to develop innovative software to help operators manage their wells and reservoirs more efficiently. Despite the lack of any real precedent for Nigerian developed software, over the past five years they have raised approximately $3 million from an assortment of private backers. Their flagship product, the Structured Engineering Presentation and Analysis Library (SEPAL) was launched commercially in June and is now used by seven E&P operators in Nigeria. "Hopefully, the success of businesses like CypherCrescent will open the door for other innovative entrepreneurs to source funding here in Nigeria," said technical director, ThankGod Egbe.

The Onne Free Zone

Port Harcourt may be Nigeria's centre of excellence for petroleum engineering but nearby Onne has become the oil and gas industry's most important port. Since the late 1980s, it has served as the principal hub for offshore operations and an important logistics base for many land operations too. "The port is divided into two main terminals: the Federal Ocean Terminal (FOT) and the Federal Lighter Terminal (FLT). The FOT houses 11 berths and has a draft of 12 m while the FLT is smaller, with four berths and an average draft of between 7 m to 10 m," said Engr. O. B. Allen-Taylor, chief port engineer, Nigeria Ports Authority.

Before Onne, the main Nigerian ports were Lagos and Port Harcourt, which were built more than a century ago. Rapid growth in these cities left no room for expansions of port facilities, resulting in overuse and congestion. As activity in the oil sector grew, the situation worsened. In response, the government channelled funds into infrastructure across the Delta Region, encompassing the ports of Warri, Calabar and Onne.

In the intervening years, Onne has become far more than just a port. All the big names in oil field services are present, as are a wide range of local companies, including one of the country's largest fabrication yards and the only Nigerian shipbuilding operation.

The reason behind Onne's sudden rise to prominence is that it was developed as a public private partnership (PPP). Until the 1980s, all of Nigeria's ports were run as entirely public entities, giving rise to serious problems with efficiency. Under the current operating terms, government agencies handle all water-based activities, while terminal operation and infrastructure development are left to the private concessionaire, Intels.

"At first, there were just three private companies based in Onne but as we constructed new jetties, built new offices and improved logistics and support facilities, new firms flocked to the port," explained Isidore Sambol, head, public relations & Nigerian content development at Intels. "Today there are approximately 170 companies clustered around the free zone, making Onne the largest and fastest growing oil and gas service center in the world."

The site's status as a free zone means that companies are not liable to pay duties on materials they land until they remove them from the facility. This reduces pressure on operational cash flow. Take the hypothetical case of a 300 km pipeline made up of thousands of individual pieces of 12 m pipe. The construction process could take many months or even years. To pay all the duties at once would be financially crippling. Being based at Onne results in a substantial saving to importers.

The total area allocated to the Port Authority is 2,500 ha, making it one of the largest facilities in the region. At present, only 40% of this land is utilized but expansions are already underway to cater to growing demand. "Today, Nigeria produces an average of 2.2 million bpd. By 2025, it is projected that the country will be producing about 4 million bpd. This increase will require more rigs, more pipelines, more services and more capacity at the ports," added Sambol. •

"Although large projects can easily skew the percentage, the Sub-Saharan region currently accounts for approximately 20% to 30% of Hatch's portfolio overall. This figure, however, is predicted to increase to over 50%. Preferably, countries such as South Africa, Mozambique, and Tanzania are easily the most attractive oil and gas jurisdictions for Hatch, but the company's business model is to follow the client, i.e. to places such as Chad, Gabon, Mauritania, Madagascar, and Nigeria."

- Sanjiv Save, Global Director,
Hatch Ltd.

"Most spill cleanups are handled by contractors hired from host communities by the polluting companies in collaboration with the National Oil Spill Detection and Response Agency (NOSDRA) and the Department of Petroleum Resources (DPR). However, there are opportunities for non community contractors in the areas of equipment and material supply, training, as well as management of waste from spill clean up operations. Sometimes the host community contractors sublet to more capable hands, and we are positioned to take advantage of that."

- Melvin Apeku, Business Development Manager,
Envirogreen Technical Support Ltd.

"The NCD act is playing a major role in changing the business environment. Earlier all the major projects were executed outside Nigeria and now we are seeing that many packages are being executed locally. This requires more trained manpower, which consequently will encourage more companies to significantly invest in skill development. Through our expertise and global leadership in the automation sector, Emerson can help Nigerian oil and gas companies to train and develop their workforce."

- Sanjeev Sharma, Country Manager,
Emerson Nigeria

"If you look at an image of gas flaring on a world map against the provision of power to cities, you will see red flares across Nigeria's oil blocks whilst large city centers, such as Lagos, remain in the dark. Gas flaring in Nigeria simply has to go; gas needs to be refined and channelled for domestic use in power generation, industrial operations, and as feedstock for producing industrial chemicals."

- James Ogungbemi, CEO,
Sahara Gas Line

"Aberdair Aviaion hopes to find more opportunity in Kenya in the near future, but we have found that recently there have been more opportunities outside of the Kenyan market. Kenya is a great place for us to be based, giving us the resources that we need to operate, but in West Africa there is much less competition and, to a certain extent, the legislation and infrastructure there is more enabling. Kenya will progress the fastest in East Africa, and even though there have been faltering steps in the beginning, the growth will soon have a knock on effect to the support companies such as Aberdair Aviation."

- Adrian Wilcox, CEO,
Aberdair Aviation

"There is a shortage of certain technical staff, including civil, mechanical, and chemical engineers. Because the oil industry is so nascent, it is difficult to find the employee they need that has ten or more years of experience. The University of Nairobi and Moi University have technical education programs that are producing general engineers, but there are no programs specifically catered to oil and gas. Even so, there are few technical programs that exist being that this type of education tends to be more expensive. There will be competition between the oil companies for the graduates, and even then there will be a large learning curve. Since oil prices are so low, companies might be hesitant to spend a lot on developing local human capital right now, but hopefully that changes. This, of course, is not geographically limited to Keya. The product of oil lies across boundaries, so there will be an increased demand for skilled labor across the region as well."

- Francis Muhindi, Group Managing Director,
Manpower Services Group

"NOV is committed to the Kenyan market, but while there certainly is huge opportunity here, the institutional environment at all levels creates challenges that need to be navigated in a compliant and correct manner. The country is currently in the process of evaluating the legal framework governing the oil and gas industry and NOV believes that with a more secure legal framework the opportunity to upskill the industry will multiply to the benefit of all."

- Ben Solomon, Director and General Manager,
National Oilwell Varco (NOV) Kenya

"The Congolese economy can still be viewed as a 'monoculture economy', based on revenues from the oil and gas industry. The majority of the government's budget is linked to revenues from this sector due to a lack of diversification in past decades. Consequently, around 80% to 90% of PwC's services in the Republic of Congo support directly or indirectly the oil and gas industry or secondary service companies related to this industry. PwC is at the heart of the oil and gas industry when it comes to tax and legal services, audit and assurance, and strategy management consulting."

- Moïse Kokolo, Partner and CEMAC Licensed Tax Advisor,
PwC Republic of Congo

"The big drive in Mozambique is to increase local content and we have now started to employ Mozambicans as part of our in country project teams. When Foster Wheeler completed the first Sasol project in Mozambique, about ten years ago, most skilled resources came from South Africa. Sasol is increasing the amount of Mozambicans that operate the facility. Amec Foster Wheeler is currently integrating more Mozambicans into successful project execution teams. There is a new update to the petroleum bill, which will drive local content even further, and Amec Foster Wheeler is committed to transferring skills to the local people. Foster Wheeler had a long track record in Mozambique mostly on the back of work with Sasol. We were the FEED/EPC contractor for the development of the Pande flow lines and Temane gas field and CPF project in Mozambique. Recently, Sasol has awarded us another two EPC contracts on that facility which we are currently executing. It is, however, a balancing act, as the projects are technically complex, in challenging locations, and there are major skills shortages."

- Mark Hellman, General Manager,
Amec Foster Wheeler South Africa

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