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# Oil Exploration and Production in Sub-Saharan Africa, 1990-Present: Trends and Developments

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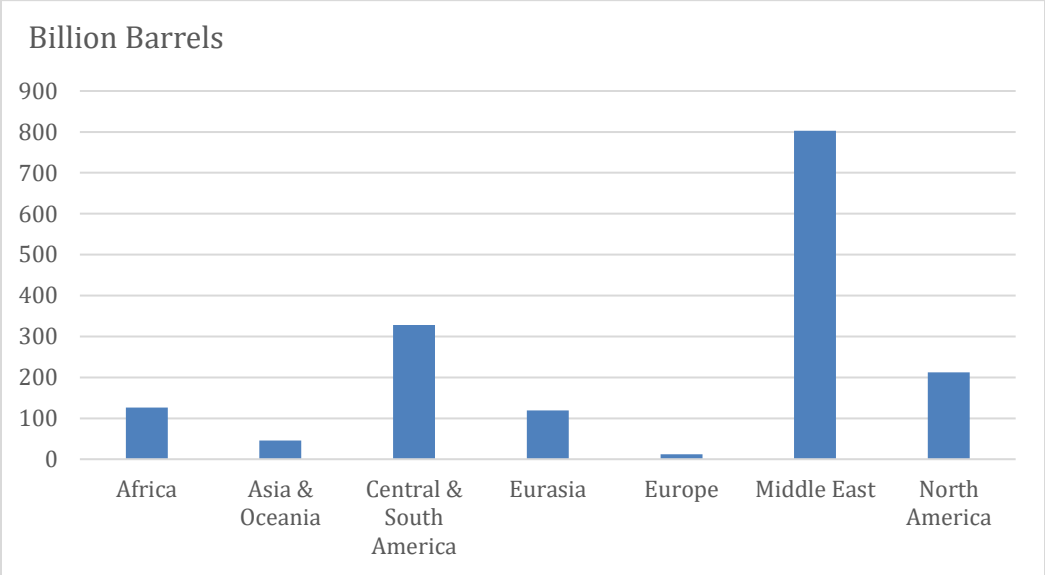
**Abstract**
The exploration and production of oil and gas continue to be vigorously pursued by African states and international corporations—both large and small. However, with unpredictable fluctuations in oil prices it becomes more difficult to exploit these resources in ways which accrue net benefits to both the state and its citizens. The oil and gas industry in Africa continues to grow and attract new investment, especially from China and India. Despite the lower price of oil exploration and production activities continue to be carried out. At the same time, the possibilities for oil and gas to be a blessing narrow. Natural resource-based development has always been a difficult objective for any state. The question now may be whether embracing oil and gas is socially responsible: as renewable energy becomes more cost-effective and societies transition into a post-carbon world, the prospects for African states to make good use of carbon resources are waning. In exploring the closing window for petro-development in Africa, this paper uses a comparative cross-regional analysis of trends and developments to highlight how weak legal frameworks and a lack of institutional capacity pose major challenges for the continent's states in managing their natural resources.

**Keywords;** Oil, Gas, Africa, Local Content, Development

## 1. Introduction

The oil and gas sector plays an important role in the global economy. Many developed and developing countries rich in hydrocarbon resources continue to rely on this sector for revenue and growth, while the global economy as whole functions on fossil fuels. Almost every major production network begins with burning oil and gas, ends with it, and relies on it to move commodities along the chain from one location to another. Oil and gas have been centre stage in global economic growth and trade since the industrial revolution. In recent years, however, there have been increasing concerns over the environmental consequences of burning enormous volumes of oil and whether fossil fuel reserves have the capacity to service ever-growing global demand (Campbell and Heapes, 2008; Di Muszio and Ovadia, 2006; Höök et al., 2009).

Figure 1: Regional Comparison of Petroleum Reserves in 2017




Source: Author's computation with data from US EIA https://www.eia.gov/beta/international/data/browser/

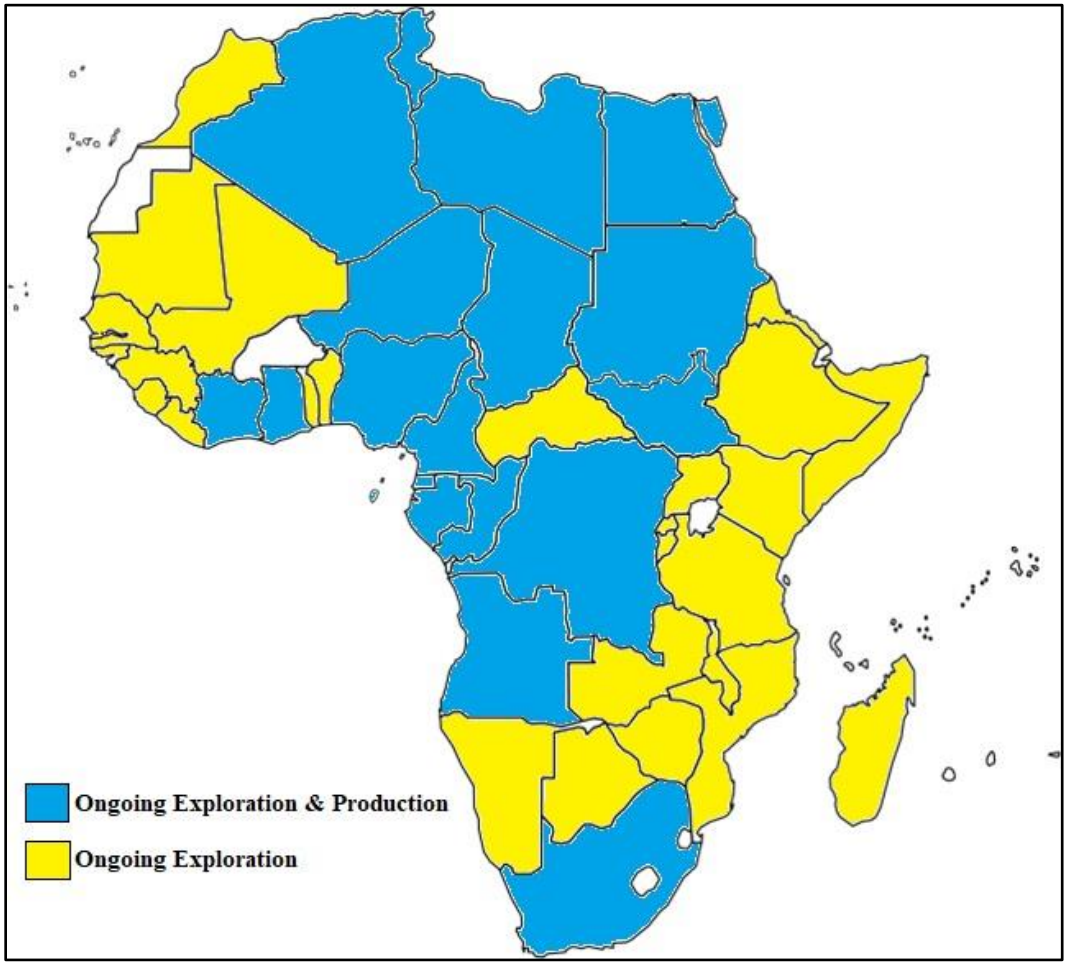
Africa remains a major player in oil production among the oil exporting regions of the world. United States Energy Information Administration (EIA) data show that proven oil reserves in Africa have grew by over 240% between 1980 and 2013. It is estimated that there are about 100 billion barrels of oil awaiting discovery offshore (Rotimi and Ngalawa, 2017, p. 174). As of 2017, Africa was estimated to contain 126 billion barrels of proven oil reserves. The Middle East has more than six times this whilst Central and South America has 2.5 times this amount (See Figure 1).

Most of the world's hydrocarbon reserves are controlled by nation-states. Almost all states have legislation or a constitution that specifies that natural resources belong to the state. In the wake of the oil crisis of the 1970s, most oil-rich states chose to directly control their petroleum industries through a national oil company (NOC). As a result, Tordo (2011, p. xi), explains, NOCs now control approximately 90% of the world's oil and gas reserves and 75% of global production. Sub-Saharan Africa is one of the last places that international oil companies (IOCs) as well as oil-poor emerging countries such as China

and India can go to gain access to petroleum reserves. Even if these reserves are owned by the state and controlled by a NOC or state concessionaire, effective control may be possible through a joint venture, production sharing agreement, service contract or straight concession due to the limited capacity of African NOCs and their lack of capital—limitations that are accentuated for reserves located in the deep offshore.

The potential for undiscovered oil and gas reserves in many parts of Africa is particularly strong given the lack of previous exploration activity. Regions such as the Gulf of Guinea, Congo basin, and offshore East Africa are attractive to the oil and gas industry due to the excellent record of exploration activity in recent years. During the commodity boom of 2003-2014, many new discoveries were made in the continent's two largest traditional oil and gas producers, Angola and Nigeria. Additionally, several new countries, including Chad, Senegal, Liberia and Sierra Leone in the West, Ghana, Cote d'Ivoire, Togo, and Sao Tome and Principe in the Gulf of Guinea, and Central African Republic, Uganda, Tanzania, Kenya and Mozambique in East Africa, discovered significant new hydrocarbon resources. A general sense of 'Africa rising' took hold during this period. As a result of these oil discoveries, the continent has become a major site for competition between various national and international oil companies from across the globe.

Figure 2: Current Petroleum Exploration and Production in Africa



Prior to the oil price shock in 2014, expectations in many of the above-named states grew significantly. These expectations continue to grow and tensions continue to build as exploration activities persist and final investment decisions are weighed. As shown in Figure 2, almost every country in Africa is currently, or has within the past few years, been host to either exploration or production of petroleum. Sadly, the history of oil extraction on the African continent suggests that it has not translated into expected developmental outcomes: it has been described as the 'paradox of plenty' (Karl, 1997). In the view of some economists, the tendency for natural resource-rich countries to experience low economic growth is a conceptual puzzle (Sachs and Warner, 1999, 1997). This situation is what is popularly referred to as 'resource curse' (Auty, 2001, 1993; Auty and Warhurst, 1993; Ross, 2001).

There have been several studies conducted on the oil and gas sectors in Africa. Some argue that the discovery and production of natural resources is associated with a higher level of poverty (Ross, 2001; Ross and Voeten, 2013). Nigeria is an often-cited example of where oil and gas discovery is associated with conflict and authoritarian rule especially in the Niger Delta region (Collier and Hoeffler, 1998; Obi, 2010, 2014; Obi, 2010; Obi and Rustad, 2011; Ross, 2001; Rosser, 2006; Sachs and Warner, 1995). Other studies show that the discovery of oil failed to bring about sustainable development in some other countries such as Angola, Sudan and Gabon (Le Billon, 2012, 2008, Sachs and Warner, 1995, 2001, 1997).

Despite the evidence of a resource curse and the beginnings of a shift in the global economy toward renewable energy, there continue to be new discoveries and an ongoing search for oil in many African countries. The oil price shock of 2014 has not dampened the enthusiasm of African governments to pursue new oil and gas projects as well as local content policies (LCPs) and legislation aimed at increasing local participation in the industry. The World Bank, UNCTAD, African Development Bank, OECD, and various donor agencies also continue to explore an agenda of natural resource-based development. In this paper, therefore, we provide a general overview of oil exploration in sub-Saharan Africa, from 1990 to the present, pointing out trends, political patterns, investment decisions, Chinese and Indian interventions, community concerns, and more.

A comparative analysis of these trends across West Africa, East Africa, Central Africa and Lusophone Africa reveals similarities and differences across the regions in terms of the challenges with managing petroleum resources. Further, this analysis helps to define these challenges as institutional, legal and regulatory design, and governance/implementation. The paper is structured as follows. Section 2 provides a quick overview of petroleum exploration and production in Africa. Section 3 discusses China and India's involvement in Africa's oil and gas sector. Section 4 introduces the question of what is good use of natural resources. Section 5 discusses recent legislation and regulation, and new trends and institutional designs in the legal regimes for petroleum in order to identify similarities and differences in regional approaches. Section 6 looks at the impact of oil exploration and production on local communities. Section 7 revisits the question of the new limits of what is feasible in Africa, returning to the central question of whether or not oil-backed

development is possible and what it will require in the context of recent trends and developments.

## 2. Petroleum Exploration and Production in Africa

Table 1 examines exploration activities in Africa, outlining new developments in several countries. Information can be hard to come by in the public domain and is often out of date. We have done our best to capture the most important dynamics in each country. In general, upstream activities are expanding across the continent, with new oil and gas resources being developed in many countries that have not previously been significant producers. Given the sheer number of new oil and gas projects, not all countries are included in this summary. Notably, as shown in Figure 2, exploration activities currently or recently underway in Morocco, Mali, Togo, Benin, Guinea, Guinea Bissau, Ethiopia, Eritrea, Somalia, Central African Republic, Rwanda, Burundi, Namibia, Botswana, Malawi, Zambia, Zimbabwe, Madagascar, Seychelles, Mauritius, Comoros, and Sao Tome and Principle are not discussed in detail. Additionally, Tunisia, Egypt, Libya, Niger, Cameroon, Republic of Congo, and South Africa have current production but are not discussed in detail. The number of countries currently seeking to develop petroleum resources underscores the importance of the oil and gas industry to Africa and of delivering developmental outcomes before the moment for carbon energy fades.

Table 1. A Summary of Recent Exploration and Production Activities in Africa

| Country | Recent Oil Discoveries and Production | Recent Oil Company Activity |
|---|---|---|
| Algeria | In 2003 state-owned company Sonatrach along with Anadarko Petroleum, Algeriet and Eni-Lasmo Oil discovered oil in Block 404 | Sonatrach, works in partnership with many IOCs, including Total, Shell, BP, Conoco Phillips, Eni, Gazprom, Repsol, Statoil and Anadarko |
| Angola | In June 2016 Angola's Sonangol discovered substantial amount of oil offshore Kwanza Basin with the capacity of 813 million barrels of oil equivalent | Angolan oil blocks are too numerous to mention. However, a map of Angolan oil blocks is available from Sonangol[1] |
| Chad | Oil was discovered in the 1970s but oil exports began to increase after the Chad-Cameroon pipeline was completed in 2003 | Exxon is the largest IOC operating in Chad. In 2016, companies from Canada, Britain, Taiwan, Russia, and Nigeria acquired oil blocks and exploration rights in Chad (Reuters, 2016a) |
| Cote d'Ivoire | In 2007 Cote d'Ivoire discovered new feasible oil deposits (McGovern, 2011, p. 168). Côte d'Ivoire has several sizeable gas fields, the largest being Foxtrot, which has reserves of 18 billion cubic metres | The oil companies in operation are state-owned PETROCI with other IOCs such as Tullow Plc, Ophir Energy, African Petroleum, Canadian Natural Resources Limited, Vanco Energy and Co, Sinopec Overseas Oil and Gas Ltd of China. Other IOCs in Cote d'Ivoire include Total, ExxonMobil, and Anadarko |
| Democratic Republic of Congo (DRC) | In 2011, 180 million barrels of oil were discovered in the DRC. The country's current oil production is limited to the Coast Basin, producing 25,000 barrels per day. The DRC also has proven gas reserves of 30 billion cubic meters of methane and natural gas (www.export.gov, 2017) | Congo Gulf Oil (Chevron), Teikoku Oil of Japan (Congo Petroleum Company) and Union Oil California (Unocal) are partners with the government in one development. Petrofina and Shell also operate onshore. However, Ocelot International bought out Shell's interest in three onshore production concessions. The Japan National Oil Company (JNOC) is also involved in the DRC (www.oilwatch.org, 2002) |
| Equatorial Guinea | Earlier discoveries of the 1990s attracted a great number of upstream explorations. In October 2017 ExxonMobil discovered oil at Block EG- 06 Avestruz-1 well (The Post, 2017). The Ministry of | There were efforts by the China National Offshore Oil Corporation (CNOOC) for more exploration. In 2010 five new exploration licenses were given to the Russian firm Gazprom and Murphy oil Corporation (African Business, |

[1]http://www.sonangol.co.ao/English/AreasOfActivity/Concessionary/Pages/Concessions-Map.aspx

| | | |
|---|---|---|
| | Mines and Hydrocarbons, the national oil company GEPetrol, and Kosmos Energy signed three new production sharing contracts (PSC) for EG-21, Block S and Block W offshore Rio Muni (Offshore Energy Today, 2017a) | 2014). The government of Equatorial Guinea partnered with ExxonMobil with a 20% share held by the National Oil Company GEPetrol |
| Gabon | Gabon recorded its highest oil production in 1997 with a peak of 370,000 bpd. It has recorded a decline in production since 1997 and returned to OPEC in 2016 (ALB, 2017) | The national oil company, Societe Nationale des Hydrocarbures du Gabon, some IOCs such as Maranatha Oil, Vaalco, and Shell (www.theoilandgasyear.com, 2017). In October 2013 the government launched a bidding round for oil blocks in offshore deep and very deep offshore. In August that same year eight new production sharing agreements were signed with Petronas, Marathon, Repsol, Noble and Woodside, Impact Oil and Gas et cetera (ALB, 2017). In August 2014, Gabon finalized a contract with six oil companies including Maranatha Oil and Nobel Energy (www.export.gov, 2016). In February 2017, French oil company Total signed an agreement for the sale of stakes and transfer of operatorship in various shares to Perenco in Gabon (Offshore Energy Today, 2017b). In March 2017 Shell decided to sell its onshore assets to Assala Energy, for US$587 million in a move to partially make up for its US$50 billion acquisition of BG group in 2016 (Offshore Energy Today, 2017c) |
| Ghana | In June 2007, Ghana discovered oil in commercially viable quantities. The reserves range between 800 million and 3 billion barrels of oil, while production has ranged from 24,395 to 105,000 barrels per day (Obeng-Odoom, 2016) | A few transnational oil companies such as Tullow Oil Plc, Kosmos Energy, Anadarko Petro SA and the local Ghana National Petroleum Company (GNPC) are involved in Ghana's oil and gas sector. Norway's Aker Energy recently bought out Hess Corporation's 50% stake in the ultra deepwater Tano Cape Three Points block (Reuters, 2018a). New exploration and production at the Twenboa, Enyenra and Ntomme (TEN) field were halted in 2014 with Cote d'Ivoire alleging that drilling off Ghana's western coast had strayed into Cote d'Ivoire's territory. Unproductive talks saw the issue taken to the ITLOS, which on September 23, 2017, said Ghana had not, breached its neighbour's sovereignty (www.enca.com, 2017) |
| Kenya | In 2012, Tullow Oil opened the Ngamia-1 exploration well in Kenya. This followed several successful exploration activities in the South Lokichar Basin. Earlier in 2017, Tullow discovered oil resources in the South Lokichar Basin which is estimated to be 750 million barrels (Reuters, 2017a) | Since 2012 several IOCs such as Total, Tullow, Apache and Premier have acquired stakes from smaller companies that operate in Kenya's upstream oil and gas sector (Ledesma, 2013). Major operations have been stalled for both Total and Tullow as conflict in the Turkana region threatens the country's plans to begin oil production. Tullow in particular has already threatened to shut down permanently if a resolution to the conflict cannot be found (Herbling and Burkhardt, 2018) |
| Liberia | African Petroleum holds a 100% operating stake in two oil blocks: LB-08 and LB09. European Hydrocarbons Limited has begun an initial exploration drilling programme on LB-09 (www.africanpetroleum.com, 2017a) | The main IOC involved in Liberia's oil and gas sector is Exxon Mobil. Liberia has proven oil reserves estimated to be about one billion barrels of oil. It has created 30 concessionary oil blocks comprising 17 deep-water blocks and 13 "ultra-deepwater" blocks (Oguh, 2015) |
| Mozambique | In 2003, Sasol initiated an extensive drilling in the Pande/Temane on shore blocks and discovered gas. In 2006, Anadarko secured offshore Area 1 (Ledesma, 2013). These efforts have led to several successful exploration projects. In 2017, an estimated 20 billion barrels of oil was found off Mozambique's coast (CNN, 2017) | IOCs in operations are Anadarko and ENI. Several companies have been involved in new discoveries. The oil company Sasol, which discovered the oil in wells off Mozambique, aims to increase oil and gas production (Reuters, 2017b). In March 2017, ExxonMobil and ENI signed a sale and purchased agreement which gave ExxonMobil 25% indirect interest in Area 4 block offshore of Mozambique (Offshore Energy Today, 2017d). ENI finalized the Mozambique's Gas Project investment in June 2017 (Bloomberg.com, 2017). In July 2017 the US based IOC Anadarko took the steps in developing it offshore gas field in Mozambique (Offshore Energy Today, 2017e). |

| | | |
|---|---|---|
| | | There were however also some setbacks as Statoil relinquished its only asset in the country, Block A5-A, in January 2018 (Reuters, 2018b) |
| Nigeria | In December 2016, Nigeria announced the discovery of crude oil in Borno state, which is considered a Boko Haram stronghold. First oil is expected soon from the Aje Field, which is located offshore of Lagos. Exploration and production activities in the country are too numerous to mention | There are many IOCs in the oil and gas sector of Nigeria. They are too numerous to list here, however an online oil and gas map of the country has been developed by OilMapNG that provides this information[2] |
| Senegal | In 2015, Kosmos (90%, operator) in partnership with the Mauritanian Hydrocarbons and Mining Resources Corporation (SMHPM, 10%) made a discovery in an offshore well in southern Mauritania close to the border with Senegal. In early 2016, Kosmos (60%, operator) in partnership with Timis (30%) and the state-run company Petrosen (10%) reported another offshore gas discovery in Senegal (Holle Energy, 2017) | Cairn Energy, a UK-based company, has found oil and gas in three offshore oil blocks in Senegal. In May 2017, Total became the operator of a block with a 90% stake and Petrosen holding the remaining 10%. African Petroleum holds a 90% operating interest in two exploration blocks, with Petrosen holding the remaining 10% equity. African Petroleum also has other fields in the Gambia, holding 100% operated working interest in offshore licences A1 and A4 (www.africanpetroleum.com, 2017b) |
| Sierra Leone | After a licencing round in 2012, several wells were drilled and small-scale discoveries were made that were later abandoned. However, African Petroleum continues to explore for oil and gas | Anadarko Petroleum Corporation confirmed the existence of an "active petroleum system" in the Sierra Leone-Liberian basin. Russia's largest privately held oil company, Lukoil, has also been active in oil exploration in Sierra Leone. However, both Anadarko and Lukoil abandoned their blocks in 2015. Therefore, African Petroleum is the only active foreign oil company in Sierra Leone. The company holds a 100% working interest in two blocks in Sierra Leone, SL-03 and SL-4A-10 (www.africanpetroleum.com, 2017c) |
| Tanzania | Since 1990, but particularly in the last decade, Tanzania has been in the news for several oil and gas discoveries. In February 2015, Tanzania found an additional 2.17 trillion cubic feet (tcf) of possible natural gas deposits | The IOCs involved in these fields are BG Group, which was acquired by Royal Dutch Shell, Statoil, Exxon Mobil and Ophir Energy (Reuters, 2016a). In August 2017, the governments of Tanzania and Uganda laid the foundation stone for the construction of a US$3.55 billion-crude export pipeline that would pump Ugandan oil for international markets. The IOCs involved include Total, Ugandan oilfields, CNOOC from China and Tullow Oil Plc from Britain (Reuters, 2017c) |
| Uganda | In 2006, commercial quantities of oil were discovered in Uganda, mainly in the Albertine Graben region | In August 2016, production licenses were given to Tullow Oil and Total. These authorizations cover Exploration Area One (EA1), operated by Total, and Exploration Area Two (EA2), operated by Tullow (Reuters, 2016b). Furthermore, in 2017 production licences were issued for three blocks where production commenced. Tullow is no longer an operator. On 9 January 2017, it announced that it had approved to farm-down 21.57% of its 33.33% interests in Exploration Areas 1, 1A, 2 and 3A in Uganda to Total E&P Uganda for a total consideration of US$900 million (Tullow, 2017). Tullow sold other holdings to CNOOC (Aglionby, 2017) |
| Mauritania | In December 2016, BP contracted Kosmos Energy to procure a 62% interest. The deal included the development of Kosmos' blocks in Mauritania, and a 32.5% interest in Kosmos' Senegal exploration blocks | BP is projecting to drill four more wells by the end of 2018 (Holle Energy, 2017). Additionally, in 2018, Shell signed agreements to explore for petroleum in two blocks in Mauritania (Petroleum Africa, 2018) |
| Sudan & South Sudan | In 2012 oil was discovered in Abu Karinka locality in Shuq Al-Dud area. Older discoveries are still in production | Currently, some of the oil companies involved in the oil and gas sector of South Sudan are China's CNPC, Malaysia's PETRONAS and India's Oil and Natural Gas Corporation (ONGC). The only state owned company is NILEPET (Riak, 2017). There are ongoing exploration activities in South |

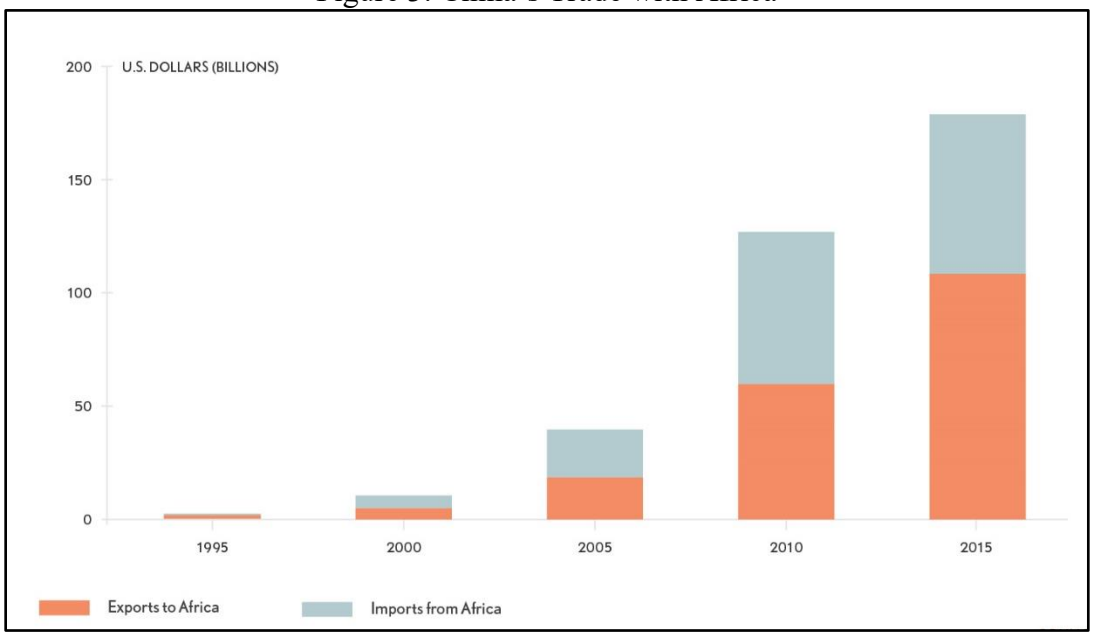
[2] http://oilmapng.com/discover_page.php

| | | |
|---|---|---|
| | | Sudan. The largest block, Block B, is operated by Total. The small Block 5B is operated by Moldovan company Ascom (Shankleman, 2011) |
| Togo | ENI is exploring two Blocks in the Dahomey Basin, which the company described as 'scarcely explored' and analogous to Ghana's Tano Basin (Africa Review, 2012; www.woodmac.com, 2016) | ENI operates Togo Blocks 1 and 2 with 100% participation interests in each |

## 3. Chinese and Indian Investments in African Oil and Gas

An onging trend in African economies has been the massive increase in trade with China. There have been astounding increases in both imports and exports between China and Africa since the mid-1990s, as shown in Figure 3. Several IOCs from China and (to a lesser but still notable extent) India have made in-roads on the African continent in their drive towards securing a reliable supply of crude oil and natural gas (Frynas and Paulo, 2007; Carmody, 2011; Sharma and Ganeshan, 2011; Taylor, 2014; Verma and Phartiyal, 2016). China's engagement with African countries has both political and economic dimensions (Frynas and Paulo, 2007). The former has to do with China's quest for African support as the key power status in world affairs as well as limiting Taiwan's diplomatic recognition in Africa (Alden, 2005). The later mainly looks at China's thirst for Africa's oil to satisfy the demands of its booming economy (Frynas and Paulo, 2007, p. 239).

Figure 3: China's Trade with Africa




Source: (Council on Foreign Relations, 2017)

India has also been involved in some African countries' oil and gas sectors in their quest to sustain their growing economy and energy demand (Arnold, 2009; Sharma and Ganeshan, 2011; Verma and Phartiyal, 2016). In 2005, for example, India offered West African petro-states lines of credit worth US$1billion in exchange for oil exploration rights (Frynas and Paulo, 2007, p. 232). As of 2009, it was reported that India imports 11% of its

oil from Africa to feed its growing consumption of petrol (Arnold, 2009). Indeed, energy security (particularly oil and gas) has been an important motivation for India's interest in Africa's oil and gas (Singh, 2007). In terms of the make-up of companies, there is a more readily visible diversity, given the involvement of Chinese, Indian, Brazilian, and other companies — from both the public and the private sectors. In Nigeria, for instance, valuable oil licences were awarded to Brazil's Petrobras, the CNOOC, India's Oil and Natural Gas Corporation (ONGC), and the Korean National Oil Corporation (Frynas and Paulo, 2007, p. 239). Tables 2 and 3 give a sense of the presence of the Chinese and Indian companies in Africa's oil and gas sector.

Table: 2 Oil blocks bid for/acquired by Chinese oil companies in 11 West African Countries

| **Country** | **Company** | **Number of Blocks** | **Name of Block** | **Type of Block** |
|---|---|---|---|---|
| Angola | Sinopec | 7 | Block 15/06; Block 17/06; Block 18; Block 18/06; Block 31; Block 32: Block3/80 | Offshore; Offshore; Offshore; Offshore; Ultra deep water; Ultra deep water; onshore |
| Cameroon | Sinopec | 12 | Block in Rio del Rey Basin | Offshore |
| Chad | CNPC | 1 | Block H | Onshore |
| Equatorial Guinea | CNPC<br>CNOOC | 1<br>1 | Block M<br>Block S | Offshore<br>Offshore |
| Ghana | CNOOC | - | Jubilee Oil Field | Offshore |
| Liberia | Petro China | 1 | Block LB-09 | Offshore |
| Niger | CNPC | 2 | Block Bilma; Block Tenere | Onshore; Onshore |
| Mauritania | CNPC | 4 | Block Ta 13; Block Ta 21; Block 12: Block 20 | Onshore; Onshore; Onshore; Onshore |
| Nigeria | CNPC<br><br>Sinopec<br><br><br><br>CNOOC | 4<br><br>8<br><br><br><br>2 | OPL 298; OPL 471; OPL721; OPL 732.<br>OML 123; OML 124; OML 126; OML 137; OPL 227; OPL 291; Okwok; OML 138.<br>OML 129; OPL 229 | Onshore; Offshore; Onshore; Onshore<br>Offshore; Offshore; Offshore; Offshore; Offshore; Offshore; Offshore; Offshore.<br>Offshore; Offshore |
| Nigeria Sao Tom, Principe and JDZ | Sinopec | 1 | Block 1 | Offshore |
| Gabon | Sinopec<br><br><br><br>CNOOC | 5<br><br><br><br>2 | Magbena; Panthere NZE; Awoun, Kiasseny and Etame.<br>BC9; BCD10 | Onshore; Onshore; Onshore; Offshore; Offshore.<br>Offshore; Offshore |
| **Total** | | | **Block 52; Acquired 50** | |

Source: (Verma, 2017)

Chinese and Indian investment represents one of the most significant new trends in African oil and gas. The Chinese have a huge presence on the continent through companies such as China National Petroleum Corporation (CNPC), China National Offshore Oil

Corporation (CNOOC) and Sinopec. They are supported by a list of affiliated groups such as China National Oil and Gas Exploration and Development Corp (CNODC), PetroChina, BGP International, and the China Petroleum Engineering and Construction Group (CPECC) (IDE-JETRO, 2009).

Table 3: Oil blocks bid for/acquired by Indian oil companies in 5 West African Countries

| Country | Company | Number of Blocks | Name of Block | Type of Block |
|---|---|---|---|---|
| Angola | OVL | 6 | Block 18; Block 31; Block 15 (06); Block 17(06); Block 18906); Block 32: | Offshore; Offshore; Offshore; Offshore; Offshore; ultra-deep water. |
| Ghana | OVL | 0 | Jubilee Oil Block | Offshore |
| Nigeria | OVL | 4 | OPL 279; OPL 285; OPL 321; OPL 323. | Deep water; Deep water Deep water; Deep water. |
| | Oil and IOCL | 1 | OPL 205 | Onshore |
| | Essar Oil | 1 | OPL 205 | Onshore |
| Nigeria Sao Tom, Principe and JDZ | OVL | 1 | Block 2 | Offshore |
| Gabon | IOCL and OIL | 1 | Shakhi (FT-2000) | Onshore |
| **Total** | | | **Block 12: Acquired 6** | |

Source: (Verma, 2017)

CNPC, Malaysia's Petronas and India's ONGC are heavy investors in Sudan in partnership with Sudapet. In 2003, India's national oil company ONGC, bought a 25% stake in Greater Nile Petroleum Operating Corporation in Sudan for US$250 million from Talisman company of Canada as a result of US suctions applied against the country (Arnold, 2009). On the contrary, China's involvement in Sudan's oil and gas sector has faced considerable controversy due to the human rights situation in the country and genocide in Darfur (Hurst, 2006; Patey, 2014). Sudan was a logical entry point into the African oil and gas industry due to Western reluctance to operate in the country during the ongoing conflicts. Building on this momentum, Chinese and Indian IOCs have expanded elsewhere in Africa at a fast pace.

## 4. What Constitutes a 'Good Use' of Resources?

Debates regarding petroleum and development have contained both substantial consensus as well as contradictions (Papyrakis and Gerlagh, 2004). The literature on the resource curse tells us that resource-rich countries have experienced a range of adverse economic, political and social impacts from of resource extraction. Regarding the adverse impact of natural resources on long-term economic growth, Manzano and Rigobon (2001), as well as Kolb (2011), argue that the abundance of mineral resource can lead to debt overhang, whereby the mineral-rich states use their resources as collateral for debt or loans in

international markets. Further studies suggest that investment in human capital is related negatively with mineral abundance (Gylfason, 2001; Papyrakis and Gerlagh, 2004). For van der Ploeg and Poelhekke (2009), the price volatility of natural resources leads to macroeconomic instability and uncertainty for foreign investors. For Ross (2001), and Ross and Voeten (2013), the discovery and production of oil is related to higher levels of poverty.

In terms of political impacts, Mehlum et al. (2006a) argue that weak institutions facilitate the resource curse. Other studies underscore the link between resource-rich countries and the pervasiveness of corruption (Wright et al., 2015; Ahmadov, 2014; Kolstad and Søreide, 2009; Petermann et al., 2007; Bulte et al., 2005; Isham et al., 2005; Leite and Weidmann, 1999). Additionally, some studies focus on the link between resources and conflict. Scholars found in this strand discuss how natural resources sustain and fuel political conflict and civil wars (Collier and Hoeffler, 2005, 1998; Welsch, 2008; Wick and Bulte, 2006).

Indeed, the literature on the resource curse has become increasingly diverse and multifaceted as it has moved from the national level (macro impact), to the regional (meso) and community (micro)-level social impacts. More recent studies at the micro level have looked at the development impacts of the extractive industries at the community level (Bainton, 2008; Banks, 2006, 2009; Gilberthorpe, 2013a, 2013b; Gilberthorpe and Banks, 2012; Golub, 2007; Hilson, 2002, 2006). These studies have focused more closely on the impacts of the extractive industries on individual agency and community relationships. For example, some of these studies have looked at how resource extraction can aggravate poverty for nearby communities (Hilson, 2010, 2012) while others looked at how it can cause gender inequality and social fragmentation (Macintyre, 2003). For some, the focus has been on how resources can create tensions between the government, private sector and indigenous groups in mineral-rich areas due to issues of social dislocation and conflict (Arellano-Yanguas, 2011; Watts, 2001).

Although there are extensive scholarly works that affirm the existence of a resource curse, it is important to point out that the 'resource curse' concept has been critiqued in various ways. The radical perspective suggests that natural resource abundance makes a developing country a target for forced incorporation into the global capitalist system, which, in turn, impairs its ability to pursue autonomous programs of economic development (Davis and Tilton, 2005; Mehlum et al., 2006b, 2006a; Idemudia, 2012). Undoubtedly, the causes of the resource curse transcend domestic or internal governance issues, as there are numerous actors in the global political economy that impact both political and socio-economic outcomes in resource-rich countries (Cramer, 2002; Rosser, 2006; Panford, 2017). Others have opposed the conventional approach used in earlier studies for ignoring reverse causality and adopting inappropriate proxies to measure resource endowment (Brunnschweiler, 2008; Brunnschweiler and Bulte, 2008). Rosser (2006) similarly points out that studies on the resource curse do not conclusively illustrate the direction of causality from natural resource wealth to lower development results. As a result, it is best to view negative impacts not as an inevitable outcome (or curse) but as one that can be managed as in the development experiences of Norway, Botswana, Chile and others (Gilberthorpe and

Papyrakis, 2015) and dependent on the type of resources, socio-political institutions and linkages with the rest of the economy (Papyrakis, 2017).

Many scholars have proposed remedies to the resource curse. Some of the suggestions include stable macro-economic policies, economic diversification, natural resource funds, domestic or national ownership of resources, and transparency and accountability initiatives (Weinthal and Luong, 2006). It is worth noting that transparency is seen as the core pillar around which the fight against corruption in the oil and gas sector revolves. In the view of Mehlum et al. (2006a) corruption, manifested as rent seeking, is a major cause of the oil curse. McPherson and MacSearraigh (2007) acknowledged the many forms of corruption has taken in the oil and gas sector, a list that includes policy corruption, administrative corruption, commercial corruption, and diversion of massive amounts of money through the diversion of production, products, or revenues. This is generally referred to as 'grand corruption'. In order to promote good governance and limit the incidence of corruption, the Extractive Industries Transparency Initiative (EITI) was set up in 2002. Membership includes 11 countries from West Africa. The program has been successful in the sense that it has become widely adopted and increased general awareness of transparency. However, it has been critiqued on many levels for being voluntary, not going far enough, having minimal developmental impact, lacking civil society involvement, lacking a shared vision between stakeholders, and for its lacklustre implementation (Aaronson, 2011; Sovacool et al. 2016; Rustad et al., 2017; Van Alstine, 2017). The issue of corruption, while important, can only be understood within the larger context of the institutional, legal and regulatory frameworks governing African petroleum industries.

Ovadia (2014) suggests that LCPs in oil and gas can be used for socio-economic development. His concept of 'petro-development' captures the possibility of development through both proper investment of revenues and the creation of productive linkages between oil and non-oil economies (Ovadia, 2016a). Petro-development is not a remedy for the resource curse. Rather, if the curse is the negative developmental outcomes resulting from the particular and exceptional circumstances of oil as a commodity ('negative oil exceptionalism'), then petro-development should be seen as what the author calls 'positive oil exceptionalism', or positive developmental outcomes flowing from a developmental state that possesses dynamic capacity in specific institutions to enact activist industrial policy—in this case, backward linkages to the non-oil economy through local content (Ovadia, 2016b).

Corporate Social Responsibility (CSR) in the oil and gas sector has been advanced as a possible solution to negative oil exceptionalism. The discourse on CSR, however, has largely failed to significantly impact developmental outcomes in African oil states (Frynas et al., 2017; Idemudia, 2014, 2012). This may be because it is not concerned with actual exploration and production activities—only with social investment as an add-on. If petroleum resources are not having a positive developmental benefit, there is little moral and ethical justification for resource extraction to occur given the well-documented impacts on the health, environment and livelihoods of people living close to sites of extraction (Obi, 2010b, 2010a, 2014; Papyrakis, 2017; Wick and Bulte, 2006). Although the global

economy needs oil and gas—and will likely need it for several decades to come—'good' use of petroleum resources in any context, but particularly for sub-Saharan Africa, can only mean positive developmental outcomes. This is the goal we have in mind as we review recent trends in African oil and gas.

## 5. Institutional, Legal and Regulatory Frameworks in Africa's Oil and Gas Sectors: Are Laws Helping?

Manteaw (2011) suggests when establishing a governance framework for the national economy, the state needs to articulate, through a policy document, its vision regarding what contribution a sector (in this case, oil and gas) should make. This becomes a guide in forming the legal regime. This section of the paper examines recent laws passed (1990-present) and new trends in the legal regimes for petroleum across sub-Saharan Africa, grouping trends by region into West Africa, Lusophone Africa, East Africa, and Central Africa. It pulls out the commonalities and differences that make the governance frameworks of each of these regions inadequate and ineffective in promoting petro-developmentalism. It further argues that this inadequacy and ineffectiveness is a result of weak regulatory institutions. This is done through four case studies of Nigeria, Ghana, Tanzania and Uganda.

It must be noted that within the period of evaluation for this paper (1990-present), many of the new trends in legal frameworks of several countries in Africa have been in the area of local content laws (see Table 4). Additionally, there has been a shift from joint venture arrangements to production sharing agreements. However, as the terms of both are often shrouded in secrecy and in any case vary substantially from country to country and even within countries such as Angola and Nigeria over time, negotiated agreements are not the focus of this review.

The last two decades have seen a drastic shift in the governance of natural resources. Several scholars have argued that resource nationalism is on the rise, pointing to governmental expropriations, tax increases and other forms of nationalistic interventions recently undertaken by countries as diverse as Venezuela, Canada, Russia, Nigeria, China, Bolivia and Kazakhstan (Bremmer and Johnston, 2009; Mares, 2010; Vivoda, 2009). Moreover, some governments in resource-rich countries either adopted or intensified resource nationalist policy regimes. These governments have developed legal and regulatory regimes that align resource policies in the extractive sectors to political goals. This has made resource nationalism a widespread phenomenon, especially across the developing world (Bremmer and Johnston, 2009; Mares, 2010). The forms in which resource nationalism manifests vary widely. They can include increased state participation new fiscal measures, mandated beneficiation (often through the imposition of export levies), mandatory local inputs, and local equity and participation requirements.

Resource nationalism has been on the rise not only in oil-rich African countries but also in countries rich in solid minerals. In these mineral-rich economies, the focus has been on improving the fiscal terms and increasing the government's share of revenue. In oil and gas economies, the focus has been on the fiscal regimes, but more so moving towards

localization and local content enhancement, although local content in solid minerals is now also attracting significant attention in many African countries.

Table 4. Legal Frameworks for Petroleum in Africa

| Country | Oil & Gas Discovery[3] | Total Production (2017) (bpd)[4] | Exploration and Production Legislation | Local Content Legislation and Regulations | Other Local Content Provisions | Key Implementing Institution(s) |
|---|---|---|---|---|---|---|
| Angola | 1955 | 1,707,000 | • Petroleum Activities Law 10/04 | • Decree No. 127/2003<br>• Decree-Law No. 17/09 | • Law 2/2012;PSA (Arts 14 + 36) | Sonangol; Ministry of Petroleum |
| Nigeria | 1956 | 2,015,000 | • Petroleum Act 1969 | • NOGICD Act, 2010 | • Local content provisions found in JOAs and PSCs | NCDMB |
| Chad | 1989 | 128,000 | • Petroleum Law 2010<br>• Law No. 006/ PR/2007 | • Petroleum Law has basic requirements | • PSA (Art 14, 24, 26) | Ministry of Energy and Petroleum |
| Ghana | 2008 | 152,000 | • Petroleum (E&P) Act, 2016 | Petroleum (Local Content) Regs 2013 | • Local content also found in PSAs (Articles 20 + 21) | Ghana Petroleum Commission |
| Uganda | 2006 | 0 | • Petroleum (Exploration, Development and Production) Act No.3/2013 | • Act contains basic regs<br>• Draft Local Content Regulations | • Draft National Content Policy PSA (Arts 18, 20, 21) | Ministry of Energy and Mineral Development |
| Mozambique | 2010 | 300 | • Petroleum Law, 21/2014<br>• Decree-Law 2/2014 for Rovuma Basin | • Draft Local Content Regulations (2015) | • A new local content law is being drafted<br>• E&P Concession Contract (Art 18) | National Petroleum Institute (INP) |
| Tanzania | 2010 | 0 | • The Petroleum Act, 2015 | • Draft Local Content Regulations | • LCPs not in current PSAs but included in 2013 MPSA | PURA and EWURA |
| Kenya | 2010 | 800 | • Draft Petroleum Bill 2014 | • Local Content Act2016 | • PSC (Arts 13 & 31) | Upstream Petroleum Regulatory Authority |
| Liberia | 2012 | 0 | • Petroleum E&P Act 2013 | • E&P Act has basic regs<br>• Draft Local Content Bill | • PSC (Article 29) | NOCAL |
| Sierra Leone | 2012 | 0 | • Petroleum E&P Law 2011 | • Local Content Agency Act 2016 | • Model PSA 2012 (Articles 20, 21) | Sierra Leone Local Content Agency |

### *5.1 West Africa*

Nigeria is one of the oldest and the largest petroleum producers in sub-Saharan Africa. It was the first mover in the region on local content and, perhaps as a result, articulated one of the most detailed and interventionist approaches. This became the model for Nigeria's neighbor, Ghana, though subsequent local content legislation in Liberia, Sierra Leone and Chad has been far less interventionist. A common issue in this oil-rich region is the unrealistic setting of local content objectives, a lack of capacity in industry regulators, and a lack of commitment to seeing through petro-development.

Apart from a decade-long effort to pass a new Petroleum Industry Bill to replace the Petroleum Act, recent developments in Nigeria have been in the area of local content laws

[3] It was known that petroleum existed in Angola and Nigeria prior to the 1950s

[4]Source: US Energy Information Administration.

and regulations. In 2010, the Nigerian Oil and Gas Industry Content Development Act (or Nigerian Content Act) was promulgated with the main thrust of increasing participation of indigenous companies in the oil and gas industry. It created targets for Nigerian participation in 280 categories of oil services, thereby demonstrating the possibilities for local linkages found in the interplay between these various sectors. The Nigerian Content Act (NCA) also created the Nigerian Content Development and Monitoring Board (NCDMB) as a means of monitoring and enforcing compliance with NCA regulations. The NCDMB has made impressive gains as a result of local content enforcement and capacity building initiatives as opposed to 'softer' provisions found in joint operating agreements with IOCs.

Nigeria's approach to local content reflects its position as a major oil and gas producer with deep reserves, decades of experience, and a large number of citizens educated and trained to participate in the industry. Although its success has been limited by a lack of leadership and strategic direction from the government, there has been a substantial return as a direct result of these policies: national capture of annual petroleum investment has risen from 5% to roughly 40% today, and 70% of purchase orders are now given to local companies (Ovadia, 2013b; 2014). However, as the Ghana case study below also highlights, the in-country value of contracts that local companies gain can be lower than the percentage of such contracts. Therefore, local content in Nigeria and elsewhere in Africa must be evaluated according to a variety of measures.

Nigeria's oil and gas industry is notable for the large number of indigenous companies participating upstream. Large companies such as Oando and Conoil, which have expanded beyond the country, operate alongside much smaller ones. The participation of local oil companies (LOCs) in Nigeria is promoted by the Marginal Field Programme (MFP). The government codified its first policy on the acquisition of marginal fields with the 1996 Petroleum Amendment Decree (Act No. 23). This Act was supplemented by the Guidelines for Farm-out and Operation of Marginal Fields 2013 (2013 Guidelines), which replaced the 2001 guidelines (Ashurst, 2014).

The MFP was established to facilitate the opening of the upstream segments of the industry to more extensive indigenous participation by requiring IOCs to carve-out oil fields in blocks they hold that they do not feel are commercially significant. According to the regulations, only LOCs are permitted to apply for, or operate in, marginal fields; foreign participation is only allowed through technical partnerships and at less than 51% equity participation. These partnerships have helped to catalyze a strong parallel industry in which locals can grow their expertise, at a much lower risk than if they had tried to begin with more challenging and capital-intensive projects (Acheampong et al., 2016). Unfortunately, it has been more than two decades since the MFP was established and few of the carved-out fields have reached first oil.

The petroleum fiscal regime in Ghana, which made a substantial oil and gas discovery in 2007, was first established following implementation of the Petroleum Exploration and Production Law in 1984 (PNDL 84), and the Petroleum Income Tax Law of 1988 (PNDCL

88).[5] Ghana has since passed the National Petroleum Authority Act 2005 (Act 691), the Petroleum Commission Act 2010 (Act 821), the Petroleum Revenue Management Act 2011 (Act 815l), which was amended in 2015, and the Exploration and Production Act 2016 (Act 919) (Graham et al., 2016).[6]

In Ghana's petroleum fiscal regime, royalties were based on gross production of crude oil and varied by block, depending on water depth, ranging from 5%-12.5%. The state is entitled to 10% carried interest in each block should a discovery be made. The state can opt for additional interest in each block if a commercial discovery is made but would be responsible for a prorated amount of the cost of development and production. The additional interest varies from one block to the other. For example, in the Jubilee Field, the state has additional interest of 3.75% (Ghebremusse, 2014, pp. 40–44; Kankam and Ackah, 2014, p. 402).

Regarding local content laws, Ghana has not been as successful than Nigeria in its adoption of LCPs. It began with a very similar local content law to that of Nigeria's, including the same targets in the same list of 280 categories of oil services. For Nigeria, the targets set are unrealistically high in many categories and below local capacity to participate in others. This has led to the NCDMB having to provide waivers, which undermine the local content targets. The NCDMB also lacks the capacity to monitor effectively local participation across so many activities. For Ghana, Nigeria's targets are even more unrealistic because the country is a new producer and there are fewer individuals and companies that can participate in petroleum activities. Additionally, although it has made several significant discoveries, Ghana's reserves of petroleum are small compared to Nigeria and thus cannot support companies focused on supplying services that are highly specialized or specific to the industry.

Ghana's Petroleum Commission Act of 2011 created an agency to regulate this new industry. In both Ghana and Nigeria, local content agencies were new. However, Nigeria has a much deeper pool of experienced industry executives and regulators to draw upon to staff the NCDMB. In Ghana, the Petroleum Commission was created from scratch and has struggled in its first few years in operation. In parallel with Nigeria's policy framework, early successes in Ghana included 6900 people employed in the oil and gas industry by 2014, with 90% of them being Ghanaian and US$584 million in contracts awarded to Ghanaian companies in both oil and non-oil economies (Amoako-Tuffour et al., 2015; Ovadia, 2016c). However, Ghanaian companies in the Jubilee Field that have been awarded these contracts are most likely to specialize in catering, hospitality, freight-forwarding, and other activities that are lower in value. Local content is expected to be somewhat higher in newer oil fields such as TEN and Sankofa, where the government is taking on an 'in-country focused' approach that accepts lower short-term revenue in exchange for higher in-country value and a longer developmental path (Ovadia, 2016c).

[5] The PNDCL 84 was used from the beginning of the oil discovery till the Petroleum Exploration and Production Law (E&P Law) replaced it on 4th August 2016 (ModernGhana.com, 2016).

[6] For the specific contribution of CSOPG in the PRMA see Debrah and Graham (2015, pp. 20–30).

Like the NCA, the Local Content Law (Ghana) 2013 (GLCL) contains a preference for local companies with costs within 10% of foreign tenders. However, the GLCL is in many ways much weaker than the NCA. For example, it has fewer restrictions against 'fronting' (where a national is the face of a company owned mostly by foreign capital) and fewer regulations that favour job creation over indigenous ownership. Unlike Nigeria's law, it does little to prevent local companies from subcontracting services to international firms and importing goods manufactured overseas. It also does not require that local companies own any of the capital equipment, which is a strategy Nigeria's NCA employs in order to avoid local fronts from forming. The GLCL does check obligations, payments and contractual requirements that local companies have with joint venture partners. However, given the sheer number of Ghanaian companies awarded contracts from the oil industry - 200 since 2009 - it seems doubtful the Petroleum Commission can be fully thorough in its enforcement (Ovadia, 2016c). This insight corroborates Ayelazuno's (2016, p.48) argument that the neoliberal Ghanaian state failed to formulate tough policies in the oil and gas sector that would maximize profits and require IOCs to build linkages between the oil and gas sector and the wider Ghanaian economy.

Sierra Leone, Liberia and Chad have all recently discovered petroleum resources and put in place new or updated petroleum laws in 2011, 2013, and 2010 respectively (see Table 3). However, all three have taken what Ovadia (2016c) calls 'soft' approaches to local content, which may limit their ability to achieve objectives. Sierra Leone passed its Local Content Agency Act in 2016. The Act set up the Sierra Leone Local Content Agency. Sierra Leone endured a long civil war and a recent health emergency with the outbreak of Ebola in 2014. Therefore, it does not have the industrial capacity or existing economic development of many other African countries. Its 2016 law carries no provisions that specifically restrict market access to businesses which are locally owned. Instead, the Act affords *first consideration* to 'local' service companies. Unlike Nigeria and Ghana's 280 categories of targets, the Act in Sierra Leone contains just one target for each of the different sectors it covers. In each of these cases, the targets are at levels believed to be achievable by the local market (Warner 2016). While this may be significantly more acceptable to IOCs, Sierra Leone's Local Content Agency Act does not push companies to go beyond current local content levels and increase local value added. As with Liberia, it is too early to know how successful Sierra Leone has been with its approach, given the lack of current petroleum production thus far.

In Liberia, the 2013 Petroleum Exploration and Production Act does not have a large local content focus. The law only vaguely mentions employment and training of Liberians in the oil and gas sectors, that indigenous companies have preference for onshore oil blocks (although Liberia's oil is offshore), and some preference for cost-competitive Liberian companies in contracts under US$3 million. Training and employment provisions can be found in Article 29 of Liberia's PSCs, which are similar to those in place in many other African countries, but with slightly higher spending commitments. Altogether, these clauses do not significantly promote local content, although it is not clear how much oil and gas Liberia has an whether its reserves would justify larger local content investments.

Even though local content consultations were undertaken by the Ministry of Mining and Energy, the National Oil Company of Liberia (NOCAL) now spearheads the process of drafting LCPs. NOCAL officials report to the President on their role as both regulator and NOC, which other government officials see as operating non-transparently. The new local content law that was expected to be published in late 2015 is purported to request IOCs to supply plans for local linkages, which Liberia's Production Sharing Contracts (PSCs) already require (Ovadia, 2016c). Overall, Liberia has taken on a business-friendly 'win-win' approach when it comes to local content that is more open to collaborating with IOCs on the drafting of its new law. Business attitudes towards Liberia's current government are more accepting than the last regime. There are concerns that this can lead to softer LCPs in the years to come.

Chad has taken the most 'hands-off' approach to its petroleum industry. To date, local content is not covered by any legislation. Rather, it is pursued through provisions within contracts with IOCs. While Chad is not a major oil-producing country, the sector is significant to its government since oil and gas exports account for 90% of total exports (World Bank, 2015). Chad is notable due to the establishment of a capacity-building enterprise centre for indigenous companies. The centre has achieved outcomes comparable to business development initiatives in Angola and Nigeria (Mushemeza and Okiira, 2016). The 2007 Hydrocarbon Law and the 2010 Petroleum Law establish a PSC that monitors oil and gas activity. The Ministry of Energy and Petroleum (MEP) works closely with the NOC Société des Hydrocarbures du Tchad (SHT) in local content enforcement. There is pressure on Chad to increase SHT's capacity for it to function as a primary agency for creating and implementing LCPs in the same way that Sonangol does in Angola (Gary et al., 2005; Houdin and Gerin, 2010; World Bank, 2015). If this should happen, transparent operations must be prioritized as well as involvement of all stakeholders.

*5.2 Lusophone Africa*

After Nigeria, second largest oil producer in sub-Saharan Africa is Angola. Moreover, Mozambique is now home to some of the world's largest reserves of natural gas. Neither Angola nor Mozambique's legal regimes for petroleum seem primarily concerned with development objectives. Rather, the loopholes and opportunities for either elite accumulation in the case of Angola or maximization of revenue in the shortest possible timescale in the case of Mozambique demonstrate how short-term domestic political considerations often take priority over longer-term developmental ones.

The culture of what Angolans call 'Angolanization' can be traced back to post-1975 independence when the country created the national oil company *Sociedade Nacional de Combustíveis* (Sonangol). Norway's strong support of oil-funded development, combined with Angola's consistent prioritization of local content, led to a uniquely conducive starting point for LCPs. Known for its well-crafted production sharing agreements (PSAs), which effectively ensure the state gets a good split of petroleum revenues while allowing IOCs to recover costs, and that the state (not IOCs) benefit most from windfall prices, Angola has a strong and stable legal framework for petroleum activities. Angola's LCP framework is rooted in a 2001 collaboration between the Angolan Chamber of Commerce & Industry,

the Ministry of Petroleum and Sonangol. Nationally-mandated requirements for part or full Angolan participation in certain oil activities (Decree No. 127/03) and on skills training for oil and non-oil sector workers (Decree-Law No. 17/09) were complemented by the control that Sonangol's Directorate of Production (D.PRO) and Directorate of Economy and Concessions (DEC) had over awarding contracts (Ovadia, 2016c). Alongside this, the Ministry of Petroleum created a sub-directorate called *'Direcção Nacional de Fomento a Angolanização'* (National Directorate for the Development of Angolanization). Its mandate is to use 'positive discrimination' for increasing Angolan participation in the petroleum sector, to study future LCPs and report back its findings with the intention of drafting new legislation (Ovadia, 2016c). New laws require tax incentives to be given to local companies and for oil companies to use Angolan banks and local currency. As a result of these initiatives, larger firms have started either partnering with Sonangol or conducting services in country that were previously performed abroad, with goods and services supplied by new, local businesses.

Although the government has gained more power vis-à-vis IOCs, local elites dominate in Angola. Therefore, although Sonangol may sometimes obtain margins of preference for local companies closer to 20% or 30%, local content is more a mechanism of patronage and elite accumulation than one that delivers a benefit to the majority of the population (Ovadia, 2012). As Heller notes, Angola's approach 'serves as a patronage mechanism for the regime's network of supporters and is a key to the government's expanding-core economic strategy' (2012: 860). In this way, Angola can be seen as a warning to African countries to ensure an inclusive benefit from LCPs in oil and gas.

Mozambique's 2014 Petroleum Law is a starting point for the country's LCPs. The law provides concessions to local companies and joint ventures, requires companies to be 51% owned by Mozambicans, sets out a training mandate for locals (with quotas for foreign workers found in other legislation), and prefers a maximum 10% cost difference on local goods and services compared to those sourced from elsewhere. Even though the law does not clarify targets or measurement of local content, it can be compared to Angola, Nigeria and Ghana. However, current petroleum activities are not included within the law, and therefore can fall under their own 'Special Regime', which does not require government approval for LCPs.

More recently, the Norwegian Government and the Mozambique National Petroleum Institute (INP) published draft local content regulations that set out: basic reporting requirements for local citizen employment (Article 45); a 10% preference for indigenous companies (Article 49); clauses on domestic supply (Article 106); training and skills enhancement (Articles 116 and 117); and a maximum fine of US$125,000 for non-compliant IOCs (Article 115). This fine is not a significant amount given that 'over US$25 billion is expected to be invested by 2020 for oil and gas companies to reach initial production' (Kooker, 2015, p. 1)

Instead of PSAs, Mozambique uses concession contracts with IOCs that include spending requirements for training and employment (Article 18). Unfortunately, existing contracts for the Rovuma Basin do not contain other local content requirements. With the decree-

law for the area, Mozambique has prioritized short-term revenues over local content in its primary gas activities.

The Ministry of Economy and Finance is hoping to solve the complex nature of the legal framework on local content in Mozambique by creating a new local content law that would apply to the entire economy and supersede previous (sometimes conflicting) legislation. The expected release date of this draft was June 2015, but observers are still awaiting its production. Once this is in place, other ministries and agencies will create sector-specific supporting regulations with potential for new petroleum-specific drafts being made in 2016 or afterwards.

*5.3 East Africa*

Tanzania is an emerging petroleum producer alongside its neighbours Uganda and Kenya. All three are relatively recent major petroleum producers, with Kenya and Uganda focused on in-land crude oil production and Tanzania focused on offshore natural gas. East Africa is more economically integrated, with many of the same IOCs as major players. A proposed pipeline from Uganda to Kenya for crude oil exports has now been replaced with a Uganda-Tanzania pipeline project.

Compared to other countries in East Africa, Uganda was slow on developing its LCPs since its 2006 oil discovery. In 2008, the 'National Oil and Gas Policy for Uganda' introduced the thought of a framework for Ugandan 'national content'. Recommendations for this were made by the Ministry of Energy and Mineral Development and became the basis for a National Content Policy and implementation strategy by the Petroleum Exploration and Development Department (MEMD, 2011, 2008). The 'National Content Steering Committee' within the Ministry now creates draft regulations from the upstream (Petroleum Act 2013) and downstream (Petroleum Refining Act 2013) sectors. Observers are still awaiting publication of these regulations (Ovadia, 2016c).

The Petroleum (Exploration, Development and Production) Act of 2013 stipulates that 'contractors and subcontractors shall give preference to goods which are produced or available in Uganda and services which are rendered by Ugandan citizens and Companies' (Ovadia, 2016c). Despite this, there is no actual definition of local content or indication if a local company must be owned by Ugandans or simply registered in the country. While skills training for locals is mentioned, there are no penalties for non-compliance, and no incentives offered to IOCs for their participation in this. Additionally, these policies are lacking strong technology transfer regulations.

The Ugandan Government's PSA with Tullow Oil outlines its preference for domestic use of oil (Article 18), goods and services made in-country by national citizens and companies that are equal to or better than imported ones (Article 20), and commitments for training and employment (Article 21). The Ministry believes Ugandan companies win over a quarter of total spend by value of contracts, with a forecasted US$10 billion in investments and 10,000 peak production jobs (MEMD, 2011). However, statistics on current local content are not very meaningful since, as in the case of Tanzania, they are post-discovery

and pre-final investment. Most of the capital expenditure has not yet been committed, while current statistics on local capture do not include most of the expenditure on exploration.

In Kenya, oil production has also not come online but LCPs have been put in place with the Local Content Act of 2016 and Petroleum (Exploration, Development and Production) Act of 2014. Kenya's approach sets some targets but falls short on penalties for non-compliance, which are set too low to be a deterrent to IOCs. Existing PSCs cover requirements for training and employment, with spending commitments paralleling Uganda and Mozambique (Article 13), crude oil supply for domestic consumption (Article 29) and prefer Kenyan goods that are comparable in quality and availability to foreign goods (Article 31).

Observers are looking forward to the enactment of the Petroleum Bill and Local Content Regulations (originally set for 2015). Closely paralleling Nigerian and Ghanaian local content plans, these would cover employment, training, research, technology transfer and legal or financial services. The regulations would also specifically prevent local fronting which is absent from other new LCPs, such as the above-mentioned GLCL. While the schedule for these is almost identical to the Nigeria and Ghana's schedules, it seems even more unlikely that the targets set in this draft law could be met in the short to medium term.

*5.4 Central Africa*

Gabon, Republic of Congo and Equatorial Guinea are all older petroleum producers which have been slower to adopt serious LCPs. Gabon introduced stricter requirements in its 2014 hydrocarbons law. According to Willy Olsen, Gabon's law reasserts principles reflected in the Gabonese labour legislation in terms of priority in hiring for members of the local workforce with equivalent skills and qualifications as progressive replacement of foreign workers. A certification by the Minister of Hydrocarbons is required in order to hire a subcontractor for upstream and downstream hydrocarbons activities. According to Olsen, Gabonese subcontractors employing at least 80% nationals are given priority. Another measure the new law sets out is that 25% of risks must be insured locally (Olsen, 2017).

The Republic of the Congo has established a Local Content Committee. It has been working with UNCTAD, the African Petroleum Producers Association, and the Economic Community for Central African Member States (ECCAS) on a regional approach to local content. In terms of its own legal regime, Law 22-88 of September 1988 addresses the employment of locals in the private sector, while Law 3-2000 of February 2000 governs all sub-contracting arrangements. Law 24-94 of August 1994 and Decree 2000-160 of August 2000 regulate the oil industry.[7] However, the country is only at the beginning of establishing local content regulations.

Like Republic of Congo and Gabon, Equatorial Guinea has been working with UNCTAD, the African Petroleum Producers Association, and the Economic Community for Central African Member States (ECCAS) on a regional approach to local content. In 2014, local

[7] Presentation by the Ministry of Hydrocarbons, Brazzaville, 26 September 2016.

content regulations were released under Decree Law No. 8/2006 of November 2006, known as the Hydrocarbons Law. The regulations mandate submission of a local content plan and demands consultation takes place with the Ministry of Mines, Industry and Energy prior to hiring foreign labour. However, they have few hard targets or requirements.

*5.5 Case Studies of Implementation Challenges*

Building on the regional analyses, the challenges of institutional capacity can be further understood through recent experiences in four countries: Nigeria, Ghana, Tanzania and Uganda. In Nigeria, the Petroleum Act governs the oil and gas industry. Nevertheless, there is significant replication in the responsibilities of regulatory agencies and policy incoherence regarding core issues such as governance. This incoherence has weakened the level of government integration and optimization of industry (Oyewunmi and Olujobi, 2016). The Petroleum Act is not only in need of updating, but it also must be revised to incorporate dozens of auxiliary laws on specific issues such as safety, health, the environment, maritime shipping, imports, governance of the NOC and price control. Discussions to amend or replace the law with a new Petroleum Industry Bill (PIB) have been ongoing for over a decade. Without urgently-needed reform, the industry will continue to stagnate as the uncertainty over what the new PIB might contain has created a climate where IOCs are putting off as many decisions as possible until the regulatory environment is more certain.

In contrast, Ghana's Petroleum Revenue Management Act (PRMA) is said to be one of the African oil industry's best laws. Crafted with a great deal of input from international institutions and non-governmental organizations such as Oxfam and the Natural Resource Governance Institute, it has indisputably increased transparency of petroleum revenue allocation in the oil and gas sector. Clear roles have been established for the Ministry of Finance, Ghana National Petroleum Corporation, Bank of Ghana, and the newly created Public Interest and Accountability Committee (PIAC). PIAC publishes useful data regarding petroleum revenue collection and allocation. However, the PRMA has some challenges as well. For instance, it does not adequately deal with revenue volatility or enhance overall fiscal sustainability. PIAC is seen by some as a technocratic mechanism that will be unable to alter the structural dynamics of the resource curse (Oppong, 2016), while others note that there have been numerous complications in interpreting and implementing the Act, leading to deviations from the spirit behind the law (Adam, 2017). Ghana's petroleum legal regime is also lacking in addressing environmental regulation.The Ghanaian Environmental Protection Agency (EPA) has not been given adequate capacity to regulate the oil and gas sector. Furthermore, clear and stringent environmental and health laws to regulate the oil and gas sector are lacking (Yeboah, 2010).

Tanzania put in place a new petroleum legal regime in 2015 consisting of a new Petroleum Act, Oil and Gas Revenues Management Act, and Extractive Industries Transparency and Accountability Act. While these laws are a major improvement over previous legislation, they have several flaws, which are described by Lee and Dupuy (2016). The President and the Minister of Petroleum have enormous discretionary powers over numerous facets of the oil and gas sector. For example, they are empowered to make final decisions about the

contract awarding and licenses and agreements. Additionally, there appears to be a conflict of interest between activities of the Tanzanian Petroleum Development Corporation (TPDC) and its mandate to both offer advice to policy makers on the oil and gas sector issues as well as promote new investments in the sector. The new laws are not clear on the TPDC's political independence, which present a high risk of political influence in its operations. Above all, there is contradictory language regarding transparency in the new regulations. For example, on one hand, the Petroleum Upstream Regulatory Authority (PURA) has the option to publish contracts and licenses, as well as information from the Petroleum Registry and the National Petroleum and Gas Information System. On the other hand, the Tanzania Extractive Industries Transparency and Accountability (TEITA) states that revenue disclosure is obligatory. Both statements contradict Section 52 of the Production Sharing Agreement, which states that information provided by contractors to the TPDC is to be kept private. These uncertainties creates room for corruption and misuse of revenues (Lee and Dupuy, 2016). The confusion is deepened by the uncertainty created by overlapping regulatory authority (Ovadia, 2017).

Uganda is a final example of a state that has put in place new laws but is experiencing substantial challenges in implementing them. Its new local content law follows the pattern described above of setting high targets for local participation that cannot possibly be realized given the current level of local capacity. Uganda is not able to meet the legal requirement that citizens should own 48% of services used by the oil industry in their local currency. Due to a lack of technical capacity, Uganda has ignored some legal requirements (Aglionby, 2017). Like Nigeria, Ghana and Tanzania then, it seems likely loopholes will have to be found to address the fact that the requirements of the legal regime cannot be met.

## 6. The Impact of Oil Exploration and Production on Local Communities

It has been argued that oil exploration and production can be a driver of national and regional development in sub-Saharan Africa. However, the development implications of the extractive industries have been controversial due to the negative impacts on economies as a whole ('the resource curse') as well as on host communities, which are often in remote, relatively underdeveloped areas. Negative impacts of the oil industry are a significant concern threatening not only the health of local communities, but also the livelihoods they depend on. In this section of the paper, we examine some key debates around the negative impact of oil exploration and production under the following themes: the socio-economic impact on livelihoods, the impact on the environment, and Corporate Social Responsibility (CSR) and community conflict.

### *6.1 Socio-economic Impacts on livelihoods*

Social impacts of the oil and gas industry include but not limited to increased cost of rent, basic foodstuffs, and a generally high cost of living in oil producing communities. This is mostly a result of migration and population growth, as economic migrants seek new opportunities. In-migration can also be associated with higher levels of crime and prostitution. In Cameroon, for instance, the Bakola/Bagyei pygmies, an ethnic minority in the region around Kribi whose livelihood is hunting for subsistence were affected by the

Chad-Cameroon pipeline construction, found that the pipeline project destroyed their medicinal plants, game areas and fishing (Karl, 2004). The influx of workers and their poor housing conditions led to an increase in transmittable diseases such as AIDS and other sexually transmitted infections. Temporary living along the Chad-Cameroon pipeline led to the rise in prostitution and the manifestation of HIV/AIDS in nearby localities (Karl, 2004).

Field research carried out by Baumuller et al.,(2011) and Reed (2009) in Cabinda Angola underlines the negative impacts of the oil industry on local fisheries. Ghana's 'oil city' (Sekondi-Takoradi) and fishing communities close to the Jubilee Field, where oil production began in December 2010, have been experiencing negative impacts as a result of oil sector (Ovadia and Graham, Forthcoming). The fishermen claim that they cannot fish in areas of the sea that they used to fish in, due to the presence of offshore installations and zones of exclusion around them. They further claim that fish are attracted to these same zones. Others raise concerns about increased seaweed, smaller fish, and other impacts of oil exploration and production (Ackah-Baidoo, 2013; Andrews, 2013). Ayelazuno (2016, p. 63) suggests that '…state elites are complicit, explicitly or tacitly, in the deleterious social and environmental effects the [Foreign Oil Companies] FOCs and GNPC cause… [in these communities surrounding the offshore oil fields]. Their source of livelihood, the ocean and land, have been seized by the FOCs and the GNPC.' As a result, the interest of the young people in the community has been shifting from fishing to the seemingly booming oil industry (Graham et al. 2016).

Additionally, the exploration, production, and development of oil at Cape Three Points are pushing out both fishers and farmers away from their land. Prices of land and housing have increased dramatically to the point that many are unable to cope with the escalating costs of housing and rise in evictions. Landowners continue to sell or rent their land to the highest bidders, including IOCs and their employees. This has made it difficult for residents to get accommodation while some have been evicted for oil companies and their workers (Obeng-Odoom, 2014).

Macintyre (2003) shows how resource extraction causes gender inequalities and social fragmentation in communities. To corroborate this assertion, Ablo's (2012) research suggests that, there is strong discrimination in the recruitment and employment of workers based on ethnicity and gender in Ghana's oil sector. According to his survey of offshore jobs in Ghana's oil industry, three out of the five local companies studied dominate in the recruitment of Ghanaians offshore. The owners of these three companies come from three of the major ethnic groups in southern Ghana (Ewe, Fante, and Ga-Adangbe). There are few women working on the rigs, who are mostly employed as cooks and utility personnel (housekeeping and dishwashing). Both rig workers and officials from recruitment companies alluded to how people (especially women) who have young children could have divided attention while working on the rig. Societal norms place the more significant part of childcare and home keeping responsibilities on women. Ghanaian women, therefore, seek employment in jobs that suit these roles. This makes it difficult for Ghanaian women to take up employment such as offshore work that requires long absence from home (Ablo, 2012).

*6.2 Environmental Impact*

Perilous wastes, site pollution, and a lack of adequate protection of soil, waters, biodiversity, and air quality have endangered the health of local populations near oil production sites. An often-cited example is the Niger Delta in Nigeria, where gas flaring has permanently destroyed food crops and fisheries (Karl, 2004). The region averages three oil spills per month (Karl, 2004; Opukri and Ibaba, 2008). Spills and gas flaring and have contributed not only to oil-based environmental degradation, but also to displacement (Clarke, 2009; Opukri and Ibaba, 2008). According to Clarke (2009, p. 94) 'Many flares have run 24 hours a day, and some have been active for 40 years with over 8 MMCFD [million cubic feet per day] burnt'. Eleme, a community in River State, is an example of a host community that has seen the destruction of wildlife, loss of fertile soil, pollution of air and water, and the damage to the ecosystem of the communities (Abii and Nwosu, 2009).

The situation in Angola is difficult to ascertain since the government and companies do not report all spills. There are cases whereby spills were only reported by chance a month later (Baumuller et al., 2011). This is partly due to the Ministry of Environment's policy of only discussing spills over a certain amount of volume (4000 bbl). In South Sudan, reports show forceful evictions and continuous environmental degradation by some IOCs in the Sudd Wetland. There are have been reports of lost livelihoods (especially for herders), soils and drinking water polluted as a result of saline water continually injected to retain the pressure of the oil basins, and dumping of industrial waste into swamp areas (Oruonye, 2012).

*6.3 Corporate Social Responsibility (CSR) and Community Conflict*

Some researchers have shown how resource extraction in communities may produce tensions between the government and private sector on one side and indigenous groups on the other, leading to social dislocation and conflict (Arellano-Yanguas, 2011; Watts, 2001). Adverse economic, political and social effects from oil exploration and production regularly inflame grievances at local levels, leading to armed conflict (Ross, 2001). Such conflict is most acutely seen in the Niger Delta, where violence, oil theft and sabotage of pipelines increased substantially during the 1990s and reached a peak in 2006–07 as militant groups were formed and communities vented their anger about restricted employment chances, unfair sharing of oil revenues, environmental degradation, and impacts on local farming and fishing livelihoods. These tensions in the Niger Delta are believed to have contributed to the Nembe war in 2005 and the conflict between the Emouha and Ogbakiri communities in Rivers State (Horta, Nguiffo, and Djiraibe, 2007).

The Chad Cameroon Pipeline Project is also a commonly-cited example of a project that increased local conflict and created under-development. The project was supposed to be a flagship model of financial management for host country development; however, in the end it suffered serious issues of governance, developmental impact and environmental concerns. The project ended up increasing violence, impoverishing the people who lived close to the oil fields and along the pipeline route, aggravating the pressures on indigenous peoples, and creating new environmental problems (Pegg, 2006; Kojucharov, 2007; Horta et al., 2007; Lo, 2010; Cash, 2012).

Indeed, the payment of cash by IOCs to community leaders to avoid disorder, or to local individuals and companies for security, is believed to foster both conflict and crime. In Nigeria, it has led to an increase in hostage-taking, both of foreign oil workers and prominent Nigerians and their family members. In this regard Idemudia (2010) suggests that although structural factors limit the active discussion and engagement with CSR, systemic failures limit the positive impacts of CSR on conflict. Despite the challenges of CSR by IOCs in sub-Saharan Africa, there are of course examples of CSR initiatives yielding positive results. In general, CSR initiatives by international oil companies in Ghana's oil and gas industry have positively impacted health, education, human capital development, entrepreneurship, social amenities, and other areas. The concern is that such projects do not effectively mitigate the negative impacts discussed above. Additionally, they create new forms of dependence and social difference.

## 7. Conclusion: The New Limits of the Possible' for African Oil and Gas

As discussed above, there have been numerous oil and gas discoveries in several African countries since the early 1990s. These discoveries open the possibility of petro-development. However, the industry has also been saddled with several challenges within this period. Of these, the most significant are the inadequate and poorly implemented legal and regulatory frameworks that exist in most countries and the fall in oil prices.

Regarding legal and regulatory frameworks, while many African countries have put in place new legal and institutional regimes for their oil and gas sectors, implementation has been characterized by low capacity to enforce regulations, non-adherence to laws that contain unrealistic requirements, and a general opaqueness around the sector and particularly around financial flows.

African petroleum exporters face a separate challenge in lower oil prices and the shift towards renewable energy. While the shift to renewables is an important positive development from an environmental perspective, during the transition and while petroleum resources continue to be required, African states that so desire should make the most of their petroleum resources and exploit them as long as 'good' outcomes are possible. This is the logic underpinning petro-development. However, the fall in oil prices has been compounded by unreliable legal regulation, corruption and the potential for socio-economic and political instability. The situation is worse for countries like Angola, Nigeria, Chad and others that depend substantially on oil and gas revenues for their national budget.

Due to the fall in the oil price, there is a general fear that several billion dollars of investment in the oil and gas sectors in African countries might be in jeopardy. The fall in oil prices made oil-exporters in sub-Saharan Africa revise their 2015 and 2016 budgets by adjusting the oil price assumption and cutting spending, largely in the area of capital expenditures. Currency depreciations and falling foreign reserves led to adjustments in monetary and exchange rate policies. In Nigeria, for instance, the falling oil price led to a roughly 20% deprecation of the naira against the dollar between June 2014 and February 2015 (Kambou, 2015). In Angola, the central bank devalued the kwanza and in January

2018 announced that it would abandon its policy of tying the kwanza to the US dollar entirely (Almeida et al., 2018).

According to the IMF, many African countries are among the countries most at risk from the fall in oil prices due to their "degree of dependence on oil exports" (Arezki and Blanchard, 2014). In Gabon, Angola and Republic of Congo, 40%-50% of GDP comes from oil and gas. In Equatorial Guinea, 80% of GDP comes from petroleum. These countries are especially dependent on oil as a source of government revenue (Sy, 2014). The post-2014 oil price shock continues to negatively impact oil producing countries in sub-Saharan Africa, reducing the short-to-medium-term prospects for petro-development, even as the transition away from fossil fuels makes the long-term prospects minimal unless, as discussed above, oil can aid structural transformation and improve economic diversification.

Even with an oil price recovery, it seems unlikely that most countries in sub-Saharan Africa will be able to achieve real petro-development without a radical overhaul of their approach to natural resource management and governance. While new projects and investments have begun to pick up again, inability to attract such investment was never the problem—particularly for traditional oil producers such as Angola and Nigeria. Rather, what has been lacking is commitment to meaningful development and a long-term, well-thought-out, and achievable strategy for realizing developmental objectives.

On their own, with the possible exception of Angola and Nigeria, countries in sub-Saharan Africa are minor players in the international oil industry. While it may be unrealistic to think that they could work together on a shared agenda of natural resource-based development, the economic connections, shared ties and common experiences of these regional groups could help these countries vis-à-vis IOCs as well as India and China. Currently, it is only Central Africa that has been pursuing this approach. Even if regional approaches take hold, institutional, legal and political challenges will remain. Regardless then of future trends and developments in the oil and gas industry, underlying political and structural factors will need to be addressed to take advantage of carbon resources while there is still time.

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