CHAPTER 10

Local Content and Local Participation in the Oil and Gas Industry: Has Ghana Gotten It Right?

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1 Introduction

The extraction of natural resources can be harnessed to transform economies structurally. Oil and gas resource endowments, however modest, have significant implication for local and national economies. Petroleum extraction has become central to global geopolitics, and today, most of the global conflicts mainly related to natural resources are linked to petroleum. While climate change has set in motion research and

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development into sustainable energy sources, exploration and hydrocarbon extraction have also increased significantly in recent times. Recent economic growths in China, India, and the need to diversify American energy sources have expanded oil and gas extraction frontiers (McCaskie 2008; Rupp 2013). Thus, many countries in sub-Saharan Africa and Latin America have become hot zones for petroleum exploration and production (EIA 2010; Deheza and Ribet 2012; Cust and Mihalyi 2017).

The contribution of natural resources extraction to development outcomes is, however, not clear-cut. The economies of countries like Norway, Malaysia, and Botswana were transformed by natural resource endowment (Larsen 2006; Lipková and Hovorkova 2018). Before the 1970s, Norway had the lowest GDP per capita in comparison to Sweden and Denmark. But following the discovery and production of oil on the Norwegian continental shelf, Norway's GDP per capita has become the highest among its neighbours (Erling 2006). Today, Norway has become the model country for how natural resource endowments can be harnessed for broad-based socio-economic development (Larsen 2006). As perhaps the quintessential welfare state, Norway has managed its oil resources effectively to ensure a sustained economic growth, providing free health care, education, and affordable housing schemes for low-income households.

For several developing countries, however, natural resource extraction has been linked to negative development outcomes. Countries such as Nigeria (Humphreys et al. 2007), Bolivia (Auty 1994), Sudan, Equatorial Guinea, Democratic Republic of Congo and Angola (Karl 2007) have suffered conflicts, environmental degradation, increased poverty and inequality. While the link between resource extraction and negative development outcome is not clear-cut, many scholars have shown that in weak regulations and institutions, corruption and mismanagement, natural resources extraction rather than promoting development can result in underdevelopment (Dobbs et al. 2013).

Conceptually, the failure of natural resource wealth to engender positive development is viewed as the 'Resource curse' or 'Paradox of Plenty' (Sachs and Warner 1995). Many natural resource-rich developing countries suffer the 'Dutch Disease' due to the tendency to over-rely on the export of natural resources to the neglect of other sectors of the economy—manufacturing, agriculture and services (Humphreys et al. 2007). As income from the extractive sector increases, it can crowd out manufacturing and other exports (Frankel 2010). With an over-emphasis

on oil and gas extraction, many countries, including several in Africa countries fail to diversify their economies and thus expose state budgets to fluctuations in the international commodities market. Therefore, the failure of African countries to manage the volatilities on the international commodities market has adverse impacts on development. In Ghana, for instance, Ablo (2019) observed that revenue from the oil industry in the first half of 2016 experienced a 55% reduction when compared to the same period in 2015 when revenue was US$274.47 million due to plunging oil prices on the international market.

The resource curse thesis posits that weak and corrupt institutions undermine the judicious management of natural resource wealth and create the space for elites to capture benefits from the resource sector (Mohan et al. 2018). In Ghana, scholarly works by World Bank (2009), Adams et al. (2019), Owusu (2018) and Gyimah-Boadi and Prempeh (2012) have all cautioned that without necessary mechanisms, Ghana's oil and gas wealth could adversely affect the economy. Thus, institutional reforms and legal frameworks that can promote local participation have been viewed as critical to averting the resource curse.

The orthodox resource curse approach has been criticised for its over-emphasis on the internal weaknesses of developing countries. For instance, Ayelazuno (2014) contends that even if developing countries can put strong institutional mechanisms, they only minimise the internal risks of resource curse but not the external risks. The link between resource extraction and the risks of civil conflicts has been criticised for its simplistic approach to resource-related conflicts. According to Ross (2004), civil wars in resource-abundant countries are caused by various mechanisms and not necessarily inequity in the distribution of resource benefits. In effect, any attempt to view the resource-development nexus as a duality of either blessing or curse is an over-simplification that fails to consider the complex dynamics of resource extraction and development.

Recent discourse focuses on the 'Africa Rising' narrative—the view that natural resources extraction has spurred GDP growth in African economies (Africa Progress Panel 2013). This perspective is based on the steady growth in socio-economic indicators, with several African governments making more concrete efforts to bridge gender gaps and inequality (Africa Progress Panel 2013). However, many critics view the 'Africa Rising' discourse as based on statistical illusion without any consideration for the growth dynamics experienced across Africa (Jerven 2015; Acheampong 2013). Crucially, fluctuations in oil prices (including the recent

COVID-19 pandemic-impacted freefall and resurgence) have significantly impacted African economies and exposing the continued reliance on primary natural resource commodity exports, thus questioning the notion of a resource-driven socio-economic development.

The discovery of commercial quantities of oil and gas off Ghana's western coast in 2007 sparked debates on the role of the extractive sector in the country's economy. The debates are driven by the fact that after the long history of gold mining in Ghana, the country remains underdeveloped (Hilson 2002). In other words, the experiences of Ghana's traditional mining sector underpinned the importance of getting the policy and implementation mechanisms right in the oil and gas sector. In 2016, crude oil constituted 12.1% of Ghana's exports and was among the country's top three export earners behind cocoa (23.1%) and gold exports (44.2%) (GHEITI 2018: 111–112). Thus, without any significant resource-driven development, many questions were raised about how Ghana could harness its oil and gas resource wealth to promote broad-based socio-economic development. Increasing attention is paid to improved institutions, transparency and accountability, regulation, revenue management, and local participation to help minimise the potential curse that may stem from Ghana's oil and gas resource wealth (Ayanoore 2021).

In 2013, the petroleum local content and participation law were passed to promote the engagement of local personnel, goods, and services at each level of the oil and gas industry value chain. In this chapter, we critically analyse Ghana's local content law (LCL), emphasising the successes and challenges of implementing the law. It also highlights how LCLs can foster linkages between the petroleum and Ghanaian economies to promote broad-based socio-economic development.

Building on a long period of fieldwork in Ghana's oil and gas industry (between 2010 and 2021), we rely on interviews and review of secondary data sources to analyse Ghana's LCL. We argue that the potential for the LCL in promoting inter-sectoral linkages is undoubted. The LCL has created opportunities for some Ghanaian businesses, promoted employment, and encouraged technology transfer. In its eight-year existence, however, Ghana's LCLs have faced significant challenges in implementation. These include lack of transparent and accurate data on contracts and local employment levels, limited partnerships between Multinational Corporations (MNCs) and local oil companies, certification challenges for Ghanaian companies, unresponsiveness of public institutions to local

business needs, and the use of local companies as fronts for foreign ones. On employment, many Ghanaians dominate onshore and low-echelon offshore positions with unfair labour practices that undermine the upward job mobility of Ghanaians. It is concluded that attention should be paid to processes that will enhance local capacity through training and skill enhancement, technology transfer, research and development, and regulatory enforcement to promote local participation and foster broader national development.

2 The Relevance of Local Content Laws for Inter-Sectoral Linkages in the Extractive Sector

According to Ferguson (2005), sub-Saharan Africa's (SSA) extractive sector is delinked from national economies. Unlike the orthodox resource curse thesis' over-emphasis on the internal inefficiencies of SSA countries as the cause of the negative development outcome of resource extraction, Ferguson (2005) observed that much of the resources extracted from SSA countries are not properly linked to national economies. The lack of proper linkages and integration between oil and gas extraction and economies limits the potential for growth beyond tax revenues. The conclusion is that 'capital "hops" over "unusable Africa," alighting only in mineral-rich enclaves that are starkly disconnected from their national societies' (Ferguson 2005: 380). To minimise this disconnection, LCLs can promote inter-sectoral linkages (Tordo et al. 2013).

While countries across the globe pursue different pathways to promote natural resources-led development, the role of policies and regulations is undoubted. In recent times, policymakers and scholars are emphasising LCLs to encourage linkages between the resource sector and national economies. With the emergence of LCLs in the North Sea in the 1970s, many oil and gas producing countries today have LCLs because the discovery and extraction of oil and gas heighten expectations for structural transformation of economies. The successful implementation of LCLs in Norway, Malaysia, and Brazil has played a significant role in their economies and influenced many oil-producing countries to promote LCLs (Azevedo Filho et al. 2019). LCLs are policy tools that governments use to generate benefits from a particular sector to encourage economic development beyond tax receipts which have traditionally been

the bedrock of African government's revenue from the resource sector (Olawuyi 2019).

LCLs can promote linkages between the extractive sectors and broader national economies. The linkages can be fiscal, side-stream, horizontal, backwards among others. According to Sadik-Zada et al. (2019) and Bloch and Owusu (2012), promoting forward, backward, fiscal, or consumption linkages between the extractive and national economies can stimulate broad-based socio-economic development. Thus, with its potential to promote local participation, LCLs are critical policy tools to drive various linkages between the oil and gas sector, national economies, and international linkages (Fig. 1).

Bloch and Owusu (2012) contend that the fiscal linkages to national economies take the form of tax receipts by governments from the extractive sector. In other words, fiscal linkages constitute windfall rents (royalties, corporate taxes, personal income taxes, dividends) received by governments as part of agreements with oil companies. In Ghana, tax receipts by the government from the oil and gas sector are significant but constantly vary (see Fig. 2). In the first half of 2016, for instance, government tax receipts were US$126.41 million, a 55% reduction in revenue compared to the 2015 figures of US$274.47 million (PIAC 2016). Similarly, the total petroleum receipt for the first half of 2020 was about US$322 million, an 11.32% reduction when compared

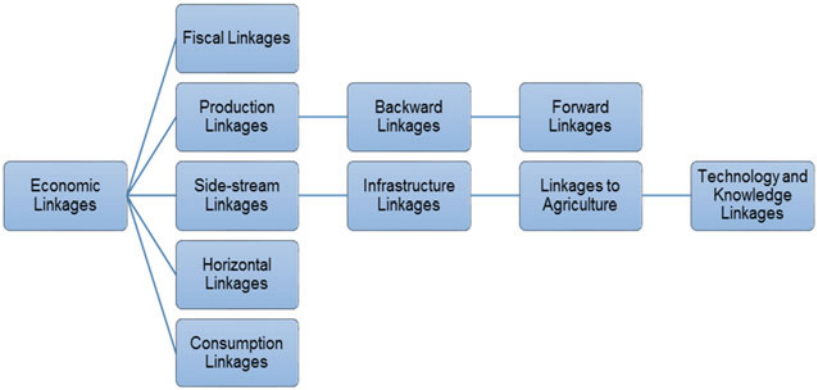

Fig. 1 Forms of linkages in the extractive sector (*Source* Extractives Hub https://www.extractiveshub.org/topic/view/id/47/chapterId/523)

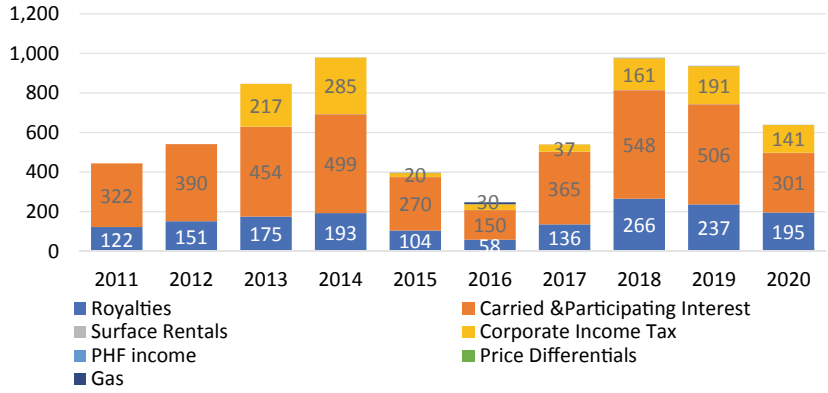

Fig. 2 Analysis of petroleum receipts, 2011–2020 (US$ million) (*Source* Ministry of Finance/Bank of Ghana)

to the same period in 2019. Revenues from Ghana's oil industry have been utilised for various social and infrastructure projects. Between 2018 and 2019, for instance, the government of Ghana spent over US$34 million of petroleum revenue on student tuition as part of the 'Free Senior High School programme'. Essentially, for developing countries to derive the maximum positive development outcomes from their extractive industries, fiscal linkages alone will not suffice. Fluctuations on the international commodities market and the recent COVID-19 pandemic have led to significant reductions in tax receipts with adverse implications for government budgeting.

Another form of linkage that can emerge through the proper implementation of LCLs is forward linkages, which involves processing commodities for export. Forward linkages can be achieved with a robust industrial base. In many sub-Saharan African economies, excluding South Africa, the industrial sector has not seen significant growth since independence. Thus, apart from the export of raw materials, there is limited processing of extractive resources for export. For instance, in Ghana's oil and gas industry, crude oil is exported without processing, as the Tema Oil Refinery—the country's only oil refinery—is not adequately positioned to process crude from local oil fields. Thus, in 2014, workers from the Tema refinery criticised management for the lack of capacity to refine oil from the Jubilee fields (*Daily Graphic* 2014). Currently, gas

is processed from Ghana's oil fields but only for the domestic market (Ablo and Asamoah 2018). About 25% of Ghana's domestic energy is from LPG, with nearly a quarter produced locally.

LCLs can also promote consumption linkages, which take the form of expenditure of profits and wages accruing from oil and gas extraction. In 2015, annual salaries for local and foreign petroleum workers in Ghana were $52,000 and $115,000, respectively (Obeng-Odoom 2020: 146; Ablo 2018). Notwithstanding these gaping disparities, these salaries provide significantly larger disposal incomes compared to the average salaried Ghanaian.[1] This enables workers to invest into other ventures, including agriculture and commercial activities as part of consumption linkages. Ablo (2012: 77–80) details the commercial ventures of rig workers' wives and family members enabled by the workers newly found oil wages. However, in cases of tax avoidance and illicit repatriation of incomes and profits outside the country, consumption linkages can become deleterious. Nonetheless, consumption linkages can be critical for stimulating both local and national economies.

LCLs also facilitate backward linkages by boosting the supply of inputs for commodity production. For many sub-Saharan African countries, backward linkages provide the best opportunity for development. Such linkages hinge on a strong local supply chain, enabled by LCLs. For companies, backward linkages enable access to inputs and services at a potentially lower cost (for instance, due to reduced transport cost and limited import tariffs). In Ghana, studies have shown that many Ghanaian companies can service the oil and gas industry (Ablo 2020; Ayanoore 2021; Overå 2017; Ovadia 2016).

3 The Context of Petroleum Governance in Ghana

Since independence, Ghana has made significant progress with formulating various laws and regulations for its extractive sector. Some of the critical frameworks that guided activities in the oil and gas sector included the PNDC Law 84 (Petroleum Exploration and Production Law), which set out the policy framework and described the role of the Ministry

[1] The yearly nominal wage received by a Ghanaian worker for 2017 was around $1400 (ILO 2020: 175).

of Energy. The PNDC Law 64 also established the Ghana National Petroleum Corporation (GNPC). This state company—GNPC—carries out petroleum exploration and production and enters into joint ventures and production sharing agreements for the government of Ghana.

In 2011, the Petroleum Commission of Ghana was established by the Petroleum Commission Act, 2011 (Act 821) to regulate the upstream oil and gas industry. The Commission oversees applications, permitting, and has established a Local Content Committee tasked to promote local participation in the oil and gas industry value chain. Additionally, the Petroleum Revenue Management Act, 2011 (Act 815), as amended, guides how petroleum revenues are mobilised and used and established the Public Interest and Accountability Committee (PIAC) under Section 51 as part of efforts to promote transparency and accountability.

Additionally, Ghana has been Extractive Industry Transparency Initiative (EITI) compliant since October 2010, leading to the establishment of the Ghana Extractive Industry Transparency Initiative (GHEITI) at the Ministry of Finance. As an EITI compliant country, the government of Ghana is required to be open and accountable in the management of the country's natural resources. Transparency—be it freedom of information or frequent publication of government economic data—has implications for the quality of governance. As an EITI compliant country, the government of Ghana aims to prudently manage revenues from the country's resources, especially the new oil and gas. While EITI compliance has promoted transparency in Ghana's oil revenue flow, the transparency has not translated into accountability (Van Gyampo 2016; Andrews and Okpanachi 2020). For instance, in 2013, the African Centre for Energy Policy published a Report that flagged the discretionary administration of Ghana's Annual Budget Funding Amount (ABFA) by the Ministry of Finance (ACEP 2013). Similarly, since 2018, there has been a standoff between the Ministry of Finance and the Public Interest Accountability Committee over the release of ABFA data (PIAC 2018; Bokpe and Acquah 2018). Thus, while there is transparency on revenue receipts, the government of Ghana has not been necessarily accountable. Consistently, various governments have used petroleum revenues in ways that are not aligned with the letter and spirit of the Petroleum Revenue Management Act.

3.1 Legislative Framework/institutional Arrangements for Local Content in Ghana

The Petroleum (Exploration and Production) Act, 1984 (PNDCL 84) was one of the first key pieces of legislation introduced in Ghana's oil sector. The law vested potential petroleum resources in the state (vested in the PNDC on behalf of the people), with the power to grant exploration rights to oil companies. The subsequent Model Petroleum Agreement (MPA) introduced in 2000 also provided boilerplate contracts between the state and oil companies. Both PNDCL 84, the MPA and subsequent petroleum agreements which were signed with the IOCs included provisions on local content such as direct employment and personnel training, and procurement of goods and services. In essence, some elements of local content have been part of Ghana's regulatory architecture as evidenced in the petroleum agreements signed with the IOCs. The Petroleum (Exploration and Production) Act, 1984 (PNDCL 840) was repealed by the Petroleum (Exploration and Production) Act, 2016 (Act 919), six years after the start of production in the offshore Jubilee oilfields. The 2016 Act made provisions for regulating upstream exploration, transport, licensing and general management, including local content and local participation. The 2018 Petroleum Exploration and Production (General) Regulations (L.I. 2359) also provided additional regulations for contractors, including expanding on local content and local participation requirements.

A major policy initiative that preceded the 2016 law was the *Petroleum (Local Content and Local Participation) Regulations 2013*, L.I. 2204, which was passed in 2013. The LCL primarily aims at promoting Ghanaians' participation at each level of the oil and gas industry value chain. As stated earlier, requirements for local participation predate the LCL, evidenced in articles 20 and 21 of the 2000 Model Petroleum Agreement even before oil discovery. The drive to promote local participation in Ghana's extractive sector is therefore not new. Various legislations and contracts both in the mining and petroleum sectors have some forms of local-content requirements. However, L.I. 2204 was specifically tailored to create the space for Ghanaians' engagement in the upstream petroleum sector. In this section, we critically unpack Ghana's LCL to assess progress made and challenges.

In L.I. 2204, local content is defined as *'the quantum or percentage of locally produced materials, personnel, financing, goods and services rendered*

Table 1 Local-content targets in Ghana's LCL

Item	*Start (%)*	*5 years (%)*	*10 years (%)*
1. Goods and services	10	50	60–90
2. Recruitment and training			
a. Management staff	30	50–60	70–80
b. Technical core staff	20	50–60	70–80
c. Other staff	80	90	100

Source L.I. 2204

in the petroleum industry value chain and which can be measured in monetary terms' (Regulation 49 of L.I. 2204) (Ministry of Energy 2013). Tables 1 and 2 show the local-content targets in Ghana's LCL. The emphasis on the percentage or quantity of locally sourced personnel, goods and services are not unique to the Ghanaian context. LCLs of most oil-producing SSA countries emphasise meeting quantifiable percentages (Hilson and Ovadia 2020; Acheampong et al. 2016; Ramdoo 2016).

A central goal of Ghana's LCL is to promote local ownership of the oil and gas sector. Therefore, Regulation 4 (L.I. 2204) requires foreign companies to enter joint ventures with local firms and open equity to local partners before obtaining a license. To operationalise this requirement, the GNPC is a party to all upstream petroleum agreements in Ghana by law. GNPC represents Ghanaian stake in all upstream petroleum transactions. In addition to the GNPC, Ghanaian companies can form joint ventures (JVs) with foreign companies.

However, the over-emphasis on quantity can cloud out issues of quality and value. By 2015 for instance, Ovadia (2016) found that an estimated 60–75% of contracts were awarded to Ghanaian businesses. However, the value of the contracts awarded to Ghanaian companies is low when considered as a percentage of the total value of contracts awarded in the oil and gas industry. Thus, when quantity is over-emphasised, value is sometimes compromised as the percentage of contracts awarded to local companies does not necessarily reflect the total value of contracts awarded.

Table 2 Examples of sub-targets under L.I. 2204

Description	*Start (%)*	*5 years (%)*	*10 years (%)*	*Measured unit (%)*
1. FEED, detailed engineering and other engineering services				
1.1. FEED and detailed engineering on onshore facilities	20	50	80	Man-Hour
1.2. FEED and detailed engineering on offshore facilities (shallow water)	10	30	70	Man-Hour
1.3. FEED and detailed engineering on LNG facility	10	30	60	Man-Hour
1.4. FEED and detailed engineering gas gather facilities	20	50	80	Man-Hour
1.5. FEED and detailed engineering on deep offshore facilities-hull and topside modules	10	30	70	Man-Hour
1.6. FEED and detailed engineering on deep offshore concrete structure	10	30	70	Man-Hour
2. Fabrication and construction				
2.1. Terminal or oil movement systems	20	50	80	Volume
2.2. Drilling modules or packages	20	50	90	Tonnage
2.3. Piles, anchors, buoys, jackets, bridges, flare brooms, storage tanks, pressure vessels umbilical	20	50	80	Tonnage
2.4. Topside module (process modules and storage modules)	10	30	50	Tonnage
2.5. Accommodation module	10	40	70	Tonnage
2.6. Subsea systems	10	40	80	Tonnage
2.7. Pipeline systems	10	50	100	Tonnage
2.8. Risers (cannot be manufactured Ghana)	10	50	100	Tonnage

(continued)

Table 2 (continued)

Description	*Start (%)*	*5 years (%)*	*10 years (%)*	*Measured unit (%)*
2.9. Utilities module or packages	10	20	50	Tonnage
3. Materials and procurement				
3.1. Steel plates, flat sheets, sections	40	80	100	Tonnage
3.2. Steel pipes	40	80	100	Tonnage
3.3. Low voltage cables	60	80	90	Length
3.4. High voltage cables	60	80	90	Length
3.5. Valves and pumps	20	40	60	Number
3.6. Drilling mud-baryte, bentonite	40	70	80	Tonnage
3.7. Cement	40	70	80	Tonnage
3.8. Heat exchangers and other piping accessories	10	50	80	Number
3.9. Steel ropes and other mooring accessories	30	60	80	Tonnage
3.10. Protective paints	50	70	90	Litres
3.11. Glass reinforced epoxy (GRE) pipes	20	50	70	Tonnage

Source L.I. 2204

4 Local Content and Local Participation in the Oil and Gas Sector: Has Ghana Gotten It Right?

Data from the Petroleum Commission shows that between 2011 and 2020, the total value of contracts awarded in Ghana's oil and gas industry was over US$9.9 billion, of which over US$6.6 billion (60%) worth of contracts were awarded to JV companies. Based on the values, JVs are thus critical to the growth and development of Ghana's oil and gas industry. The earliest record for the value of JV contracts is from 2012, with a total contract sum of US$5 million. This rose to over US$3.7 billion in 2014 but has since been reducing, with 2020 recording a low value of US$50.5 million. As can be seen from Table 3, 2014 is by far the most productive year in terms of contracts value (over US$4 billion) between 2011 and 2020.

Table 3 Value of contracts awarded in Ghana's oil and gas industry (2011–2020)

Year	*Foreign companies* *US$ mm*	*Indigenous companies* *US$ mm*	*Joint Ventures (JVs)* *US$ mm*	*Grand total* *US$ mm*
2011	8.83	–	–	8.83
2012	–	29.49	5.00	34.49
2013	2,119.40	15.33	–	2,134.73
2014	10.87	355.15	3,718.50	4,084.52
2015	305.31	55.43	390.34	751.07
2016	124.63	481.42	895.50	1,501.55
2017	28.66	147.05	411.17	586.87
2018	7.75	79.76	219.84	307.34
2019	15.52	101.80	371.21	488.52
2020	7.93	17.87	50.52	76.32
Total	**2,628.89**	**1,283.28**	**6,062.07**	**9,974.24**
Year	*%*	*%*	*%*	*%*
2011	100.00			100.00
2012		85.50	14.50	100.00
2013	99.28	0.72	0.00	100.00
2014	0.27	8.70	91.04	100.00
2015	40.65	7.38	51.97	100.00
2016	8.30	32.06	59.64	100.00
2017	4.88	25.06	70.06	100.00
2018	2.52	25.95	71.53	100.00
2019	3.18	20.84	75.99	100.00
2020	10.38	23.42	66.20	100.00
Total	**26.36**	**12.87**	**60.78**	**100.00**

Source Petroleum Commission

JVs also provide the avenue for transferring technology from foreign companies to indigenous Ghanaian companies, as outlined in Regulation 24 and 25 (L.I. 2204). A significant setback for many resource-producing countries in SSA is the lack of domestic capacity in capital and technology. By promoting JVs, local companies can acquire the necessary expertise to grow into globally competitive firms. Additionally, the new technologies from the oil and gas industry can be deployed in other sectors of the economy. But as Graham and Ovadia (2019) argued, Ghana's LCL

has few restrictions against fronting—the situation where foreign companies are registered as indigenous. Indeed, as Ablo (2019) found, some businesses registered as indigenous are merely fronts for foreigners. Thus, while the company may be registered as Ghanaian, the management and assets of the companies are foreign owned. The implication of fronting is two-fold. Firstly, fronting creates the illusion of local value capture since contracts supposedly awarded to local firms could in reality be awarded to foreign firms hence revenue could be repatriated. Secondly, fronting robs Ghanaian business of the opportunities for technology transfer. There is a need for research into the nature of JVs and the proportion of Ghanaian equity to determine the benefit of JVs to the Ghanaian economies. Here, requirements for local asset ownership and management structures could be part of measures to upend fronting.

Another primary goal of Ghana's LCL is to promote the employment of Ghanaians in the oil and gas industry. In Regulation 9 (L.I. 2204), qualified Ghanaian jobseekers must be given first consideration in any employment opportunities. To achieve this objective, the first schedule of L.I. 2204 provides the minimum number of Ghanaians to be employed at each stage of a foreign company's operation in the country. The goal is to 'force' foreign companies to recruit Ghanaians and, in the long term, reduce the number of expatriate labour in the upstream industry.

Data from the Petroleum Commission outlined in Table 4 shows that the total number of people employed in the oil industry increased from 3,139 in 2017 to 5,990 in 2019, representing over a 90% increase. While the proportion of local employment is high, Ablo (2018) and Ovadia (2016) argue that most Ghanaians are employed in entry-level positions with significantly huge wage disparity compared to expatriates. These salary disparities have led to worker agitations and protests on various oil and gas infrastructures in Ghana, with workers calling for fairer conditions of service compared to expatriates. For instance, in 2014, forty Ghanaian workers on the offshore FPSO Kwame Nkrumah embarked on a sit-down strike at the Jubilee oilfields. Protests were also organised in 2017 by Ghanaian workers at ENI's onshore Sanzule gas-receiving plant. Similar to the quantity versus the value of contracts, these wage disparities emphasise percentages of locally employed and an under-appreciation for the tiers of employment positions occupied by Ghanaians.

Based on the assumption that one direct employment generates 3.62 indirect employment and 2.87 induced employment, the Petroleum

Table 4 Employment trend in Ghana's oil and gas industry (2017–2019)

Year		*Local*	*Expatriate*	*Total*
2019	Management	602	119	711
	Core technical	2059	655	2714
	Others	2463	52	2515
	Total	**5124**	**826**	**5950**
2018	Management	443	202	645
	Core technical	1824	719	2543
	Others	1791	100	1891
	Total	**4058**	**1021**	**5079**
2017	Management	386	69	455
	Core technical	1025	350	1375
	Others	1272	37	1309
	Total	**2683**	**456**	**3139**

Source Petroleum Commission

Commission data on local employment estimates the total number of local employment in the oil and gas industry at about 43,503 as of 2019, twice the figure of 2017 (Table 5). What the data does not show, however, is the sub-sectors in which indirect and induced employment are generated. More so, the income and labour practices within the sub-sectors employing Ghanaians due to direct local employment need further interrogation. How are these employments linked to Ghana's informal economy? For instance, Otchere-Darko and Ovadia (2020) analysed 1997–2017 land-use permit data to show how restrictions on informal commerce have been recently introduced in Sekondi-Takoradi to maintain the 'aesthetics' of the oil city. Such sectoral and even contextual challenges to indirect employment generation are not highlighted in such

Table 5 Indirect and induced employment (2017–2019)

Year	*Direct local employment*	*Indirect employment*	*Induced employment*	*Total*
2019	5124	18,549	14,706	43,503
2018	4058	14,690	11,647	30,397
2017	2683	9,713	7,700	20,096

Source Author's estimates

estimates by the Petroleum Commission. These are critical issues that must be broached but are not the subject of this chapter.

Ghana lacks highly skilled local technical personnel, particularly for the upstream industry. Various local and foreign companies have some form of skill development initiatives to address this human capital challenge. For instance, at the Takoradi Technical University, the Jubilee Partners established the Jubilee Technical Training Centre (JTTC), which has a model three-stage separator found on FPSOs to train local personnel. The Ghana upstream internship programme also provides opportunities for practical learning experiences (Table 6).

There are also state-led skill training initiatives to improve the skills of the youth. Various international oil companies also provide some skill training as part of their CSRs. Some oil companies attempted various capacity-building initiatives to enhance local skills within affected communities along the Western coast. These include inland fishing, aquaculture, and vocational training as part of alternative livelihood programmes (Otchere-Darko and Ovadia 2020). However, these skill trainings are not necessarily aimed at equipping local labour for employment in the oil and gas industry. Many tertiary institutions in Ghana are also running oil and gas-related programmes. But without the avenues for practical skill learning, much of the tertiary programmes are focused on management, logistics and supply chain, and law. Some of the private locally organised training have been somewhat exploitative (see Darkwah 2013).

Regulation 20 and 21 (L.I. 2204) require foreign companies to submit a research and development plan before commencing their activities in Ghana. Research and development are integral to technology transfer and local solution-based systems for the oil and gas industry. In countries like Norway, the domiciliation of research and development was crucial for expertise transfer and the emergence and growth of Norwegian oil and

Table 6 Ghana upstream sector internship programme placement

Year	*No. of roles*
2020	23
2019	84
2018	43
2017	45
Total	**195**

Source Petroleum Commission/Fieldwork 2021

gas companies, which have become global giants in the oil and gas sector. In the context of Ghana, information on foreign companies' fulfilment of Regulations 20 and 21 of L.I. 2204 is not public as most of the contracts in the oil and gas industry have confidentiality and non-disclosure clauses. More critically, the extent to which the research and development plans presented by foreign companies have been fulfilled remains to be seen. This is an important area that the government of Ghana must pursue more vigorously to move the LCL normative target focus to a more nuanced industrial policy tool.

With over 70% of economic activities in Ghana being informal, government efforts over the years have been geared towards the formalisation of the informal economy. Overall, most businesses in Ghana are micro, medium, and small-scale enterprises (MSMEs) (Peprah et al. 2020). The development and growth of MSMEs in Ghana's oil and gas industry are a viable route to promoting inter-sectoral linkages with the broader economy. The drive to localise the oil and gas supply chain is being pursued by maximising local procurement outlined in Regulation 11 (L.I. 2204). Regulation 11 requires that preference should be given to indigenous Ghanaian firms in the bidding process. In Table 2, the total value of contracts awarded to indigenous companies stands at over US$1.2 billion between 2011 and 2020, which is just 12% of the total contract value awarded within that period. The deficiency of Ghanaian businesses is the small scale of their operation, lack of capital and technical expertise for the oil and gas industry, which is described as the most capital-intensive industry. Apart from a few elite local companies, most Ghanaian businesses in the oil industry struggle to obtain International Organisation for Standardisation (ISO) and the American Bureau of Shipping (ABS) certifications critical for most technical operations in the oil industry. The capacity issues are compounded by the slow, ponderous, and unresponsiveness of public institutions to facilitate local businesses.

To address the challenges of businesses, the government of Ghana, in partnership with some foreign oil companies, established the Enterprise Development Centre (EDC) in Takoradi. The EDC was a five year-US$5 million project established in 2013. It was expected that by the end of the first five-year of operation of the centre, it would develop an independent funding source to keep it operational to support local firms in the oil industry (see Ablo 2015). However, the EDC project was politically driven and thus was not fit for purpose as it failed to address the needs of

Ghanaian businesses. The funding provided by the multinational companies was primarily driven by the need to fulfil their CSR requirements and not particularly a drive to develop the capacity of Ghanaian firms (Ayanoore 2021; Ablo 2020). The EDC collapsed with minimal impacts on improving the expertise of Ghanaian businesses and promoting their participation in the oil industry.

5 Conclusion

LCLs are important initiatives and represent efforts to promote state-led policies to develop a locally owned oil industry. We can argue that the pursuit of local content is a shift away from neoliberalism involving the rollback of states from the economy that characterises post-independent SSA states. Ghana is arguably witnessing shifting, if not expanding, resource endowments from traditional mining to petroleum production. Much has been said about the impacts of various neoliberal policies implemented in Ghana's mining industries on employment sectors and communities. There are important lessons that must be drawn from Ghana's experience in mining for the oil and gas sector, focusing on how to maximise resource benefits on energy and the economy. LCLs are thus part of policy and institutional mechanisms aimed at fostering linkages between the nascent oil and gas industry and broader national economies beyond fiscal benefits.

The need to ensure that SSA countries' natural resource wealth can promote equitable and just societies and overcome the rent-seeking behaviour of elites underlie the development of LCLs. In this chapter, we argue that the emphasis of Ghana's LCL has been on the achievement of various targets and not necessarily how the multiple targets can be linked to the broader national economy. The enforcement of processes that will ensure that local actors are integrated into the petroleum industry value chain, and the extent to which the local content law can benefit the Ghanaian society is also limited. The chapter shows that achieving significant levels of local participation depends on local actors' abilities to meet the oil and gas industry standards, the capacity of state institutions to enforce various regulatory requirements and enforce local-content requirements. The ability of state institutions to enhance the capacity of local businesses to enable them to take advantage of the opportunities in the oil and gas sector is also critical.

Additionally, developing the refining capacity of infrastructure such as the Tema Oil Refinery can potentially complement forward linkages and local capacities, thus enhancing linkage development. Currently, the Tema Oil Refinery is heavily indebted and faces crippling management challenges. The government of Ghana must restructure the operations of the refinery devoid of political interferences and provide the financial support to secure and refine crude from Ghana's oil fields. Such complements of LCL and refinery infrastructure can enhance local capacity and job creation beyond the upstream into the midstream and downstream service sectors. Such linkage development can also enable the export of higher value oil and local energy security as part of forward linkages. So far, Ghana has made some significant progress in the pursuit of local participation. However, more needs to be done in promoting research and development, increasing the opportunities for human capital development through practical learning experiences and policies to improve the competitiveness of indigenous Ghanaian firms.

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