CHAPTER 5

Self-Governance, Political Uniformity and the Significance of Policy Alignment for Education and Training Programs

Nichelle S. Williams

Policymakers can produce legislation that facilitates the introduction and expansion of industries to create employment opportunities. The alignment of workforce development initiatives and economic industries are rightful alliances because this ensures a labor force to serve growing domestic industries. This chapter explores how, if at all, policies derived from good self-governance support access to education and training that align with industry needs for labor in areas that require complex skills, specifically in the oil and gas industry and policy arenas interconnect to support economic development. It also looks into the extent countries engage external interests in domestic development to improve the quality of life of its citizens. Ghana, Chad and Equatorial Guinea are countries participating in the oil and gas industry and promote education and training to support domestic development and productivity.

N. S. Williams (✉)
The African Institution, Washington, DC, USA

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Education is a systematic process of study and instruction designed to provide theoretical knowledge. Often, it requires a significant investment of time and resources from the student, community and institutions. It provides the knowledge base for training that meets the needs of businesses and industries. Training provides students the opportunity to develop skills and gain experience mastering a specific task or set of tasks. Education paired with training in technical fields is a developmental step for individuals' economic success and tends to lead to better-paying jobs. For example, education and training in the field of information technology (IT) is viable for economic success because "the movement of data is already surpassing traditional physical trade as the connective tissue in the global economy: according to Cisco Systems, the amount of cross-border bandwidth used grew by 90-fold from 2005 to 2016, and it will grow an additional 13-fold by 2023" (Lund and Tyson 2018, p. 132). In preparation for the growth of the IT field, South Africa's Vaal University of Technology offers an Information Technology program geared toward entry-level programmers that offer in-service training such as the supervised support of existing information systems (Vaal University of Technology 2018).

Domestic industries contribute to national economies by producing goods, services and employment opportunities. Training programs that support these industries increase the viability of the industries, particularly in Africa. In Ghana, for example, the discovery of offshore oil created a new domestic industry, which improved management and capacity of its emerging oil and gas industry (World Bank 2017). This industry impacts gross domestic product (GDP), contributes to the production of services and employment and increases the viability of the domestic market (Callen 2017). Another growing industry in several African countries is the textile and clothing industry. The textile and clothing industry represents the second-largest industry in developing countries with a large customer base in Africa. Fashionomics is a training initiative that works to increase the production of goods, services, and entrepreneurship in the textile and clothing industry. This initiative, specifically, contributes to the economic growth of countries such as Tanzania by providing individuals with tools they need to contribute economically to the country's development. Additionally, Fashionomics provides training on such topics as business and financial matters, education, and intellectual property management. These types of initiatives target population subgroups, such as women, and provide them with the opportunity to contribute to a growing industry that contributes to the national economy.

Education and training opportunities for domestic industries support elements of strong development. Development refers to a country's strategic and coordinated implementation of plans to advance economic performance, both domestically and globally; ensure better standards for quality of living; establish inclusive, long-term approaches to citizen empowerment; provide reliable access and make certain equitable distribution of resources. For example, Niger's Economic and Social Development Plan (ESDP) establishes eleven programmatic objectives to address development priorities. These priorities include (a) social mobilization for behavior change, such as providing a better understanding of religion and strengthening youth resilience against religious radicalization, (b) strengthening multi-party political culture, such as conflict resolution skill development and promoting the capacity of collective action, (c) human capital development, such as improving the process of education in academic and vocational training, (d) demographic transition to include advocating against underage marriage and promoting female empowerment, (e) private sector development such as investing in the development of the energy and trade infrastructures, (f) rural sector transformation, including promoting entrepreneurship and youth organization, (g) improving the management of overall development, such as enhancing the national statistical system and evaluation system, (h) consolidating the efficiency and transparency of institutions, including the strengthening of public administration leadership, (i) strengthening internal and external security of the country, (j) Ensuring the sustainability of resource management (i.e. land, water, and biodiversity), and (k) improving quality of life by addressing sanitation and climate change (Republic of Niger 2017). One important feature of the ESDP is its emphasis on education and training for human capital development, both of which could be advantageous in globalization efforts.

Globalization refers to the flow of finances, goods, services, people and communication through international borders. It has created interconnected and interdependent world markets. For example, Sierra Leone, Ghana, Chad and Equatorial Guinea work with outside investors to generate revenue and promote exports from their countries (for details, see Observatory of Economic Complexity—OEC 2017a, b, c, d).

Table 5.1 China as a top export destination for African countries

Top export destination	*Sierra Leone*	*Ghana*	*Chad*	*Equatorial Guinea*
Belgium	X			
Brazil				X
China	X	X	X	X
Cote d'Ivoire	X			
India		X	X	
Japan			X	
The Netherlands	X			
South Korea				X
Spain				X
Switzerland		X		
United Arab Emirates		X		
United States	X		X	

Source Self-generated by the author using data from the Observatory of Economic Complexity—OEC, (2017a, b, c, d)

Ghana, Chad and Equatorial Guinea have oil resources as one of their largest exports, which improve negotiations (Baur 2014). Oil and petroleum products are resources traded as energy commodities with global demand that has steadily increased over the past 25 years and "regional trade talks in Asia and Africa involving China and negotiations among Latin American countries have…gained pace" (Posen 2018, p. 33). Note that as shown in Table 5.1, China is a top export destination for African countries. Aligning development policies that include training components are therefore imperative for successful negotiations and industry enterprises in these globalization efforts.

By investigating how effectively and efficiently countries engage in all three sectors of the oil and gas industry, this research can highlight the importance of countries ensuring its citizens can access education and training opportunities in the industry. Furthermore, this chapter discusses factors that contribute to any lack of engagement in these sectors and identifies opportunities for improvement. In this, it will attempt to explain how, if at all, uniform political engagement with a consistent focus on self-governance, supports national growth and stabilization during this era of globalization.

With growing focus on their natural resources, African countries with oil and gas resources, have been chosen for the purpose of the this chapter. This research attempts to understand the problems faced by Chad, Ghana and Equatorial Guinea in building an infrastructure to support the production of goods, services and labor in the oil and gas industry. The chapter reviews relevant academic work relating to the determinants of development, the impact of education and training access, the importance of aligning policy to support growth in major industries and how challenges to meeting labor demands impacts the national economy. This research also attempts to study the broad determinants of the developing oil and gas sector in the context of increased reliance on international trade partners.

Against this background, the chapter seeks to achieve the following objectives related to the oil and gas industry, self-governance, and education and training: (1) To compare and contrast initiatives to support market demand, (2) To examine the problems faced by policymakers in addressing domestic needs and (3) To examine to what extent domestic development is effectively and efficiently engaged for support. This research addresses three major questions: (a) In what ways, have plans for the oil and gas industry been carried out? (b) How, if at all, have oil and gas industry development plans in African countries benefited the quality of individual citizens? (c) What challenges do African countries face in doing so? Before engaging in the analysis, however, I must begin with discussions of the theory and methodology upon which it is grounded.

Dependency Theory and Development

The theoretical framework that guides this analysis is the theory of dependency. This theory, first established in the mid-1900s, focuses on the significance of developing countries that are working to grow domestic infrastructure and systems. The role of labor in the capitalistic system plays a central role in Dependency Theory. The imbalance of labor between wealthy and developing countries can have an adverse effect in developing economies. This occurs when labor opportunities provide less than living wages for the individuals producing goods and services that have relatively beneficial market value in wealthier countries. About this phenomenon, Giovanni Reyes mentions the following:

> The theory of dependency combines elements from a neomarxist perspective with Keynes' economic theory the liberal economic ideas, which emerged in the United States and Europe as a response to the depression years of the 1920s. From the Keynes' economic approach, the theory of dependency embodies four main points: (a) to develop an important internal effective demand in terms of domestic markets; (b) to recognize that the industrial sector is crucial to achieving better levels of national development, especially due to the fact that this sector, in comparison with the agricultural sector, can contribute more value added to products; (c) to increase worker's income as a means of generating more aggregate demand in national market conditions; and (d) to promote a more effective government role in order to reinforce national development conditions and to increase national standards of living. (2001, p. 5)

Also, Bubaker Shareia states what follows

> According to this theory, the system of the capitalistic world causes a labour upheaval that damages the domestic economies of under-developed countries. It diminishes the economic growth rate and ends in the increased inequality of income. It also has a negative effect on the welfare of the majority of people. Further, since there is no basic equality in the goods that are processed and the exchanged raw materials, major and minor countries have been separated from one another more and more by the application of trade dependency. (2015, p. 81)

A strength of Dependency Theory is the focus on the relational aspect of domestic systems and how they can be positioned for beneficial results. This chapter therefore uses Dependency Theory to identify how African countries are employing tactics to address the four main points from Keynes' economic approach. This theory further explores how these countries are working to reduce and eliminate any imbalances in the division of labor in promoting equality of income and enhancing quality of life. Dependency Theory will highlight any extensive imbalances of foreign engagement and whether or not this dependency has any other negative effects. One limitation of Dependency Theory is the lack of emphasis on the significance of interconnected global trade, finances and technology. Despite this, the increasing importance of the global environment and how this impacts developing countries is addressed in this chapter. In addition, Dependency Theory does not take into account differences in culture. When applicable, the chapter will mention how cultural aspects play a role in development.

The primary research activity employed for this chapter is a review of research literature and documents. Throughout the course of study, I conducted a review of literature regarding the operation of oil and gas sectors, education and training programs in the energy field, and factors that influence policy in this arena. I also reviewed several governing documents for country-level development plans. Two areas of research in particular—the performance of African countries in the three major sectors of the oil and gas industry and how education policy aligns with training for this industry—were heavily informed by literature and document reviews. Sources for research include peer-reviewed journals, government websites and policy documents. A secondary research activity is data analysis specifically exploring trends over time for country performance on such indices as the Corruption Perception Index and data from the World Bank Group's Enterprise surveys. One limitation to this chapter is the depth of data available. The lack of data from government agencies limits the precise applicability of proposed solutions.

Engagement in the Oil and Gas Industry

Oil and gas are two of the most valuable global exports. The African countries discussed in this chapter have initiatives geared towards improving education and training in the oil and gas sector but face challenges managing the effectiveness of these initiatives and ensuring government transparency. Mohamed Elnagar (2015) with Egypt's National Research Center identifies three major sectors of the oil and gas industry: (1) the upstream sector that includes searching for crude oil, drilling of exploratory wells and drilling and operating wells that bring oil and raw natural gas to the surface, (2) the midstream sector, which includes the transportation, storage and wholesale marketing of oil and refined petroleum products, and (3) the downstream sector, which includes the refining of petroleum crude oil and processing of raw natural gas, and distribution of these products. After refinement and processing, these natural resources are used to make useful products including gasoline, diesel and jet fuel, fertilizer, plastics, and even some pharmaceuticals (Fig. 5.1).

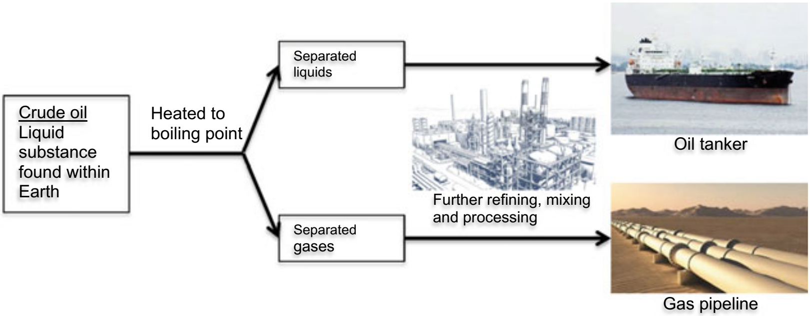

Fig. 5.1 Processing crude oil for transportation (*Note* Pipelines may also be used to transport oil from inland to the coast for international distribution. *Source* Self-generated by author using information from the world petroleum council [WPC] website.)

While there are three major sectors of the industry, the downstream sector is the most profitable in terms of dollar value. In his paper on oil refinement, Simon Baur states:

> Firstly, increased downstream capacities may improve the economic outcome by increasing the availability and accessibility of fuel, enhancing linkages to other sectors and diversifying the economy. Secondly, coupling national strategies for developing downstream capacities with supplying internal demand and energy self-sufficiency may reduce the 'rentier effects' associated with serving an external market. The linkages that emerge as a result of increased downstream capacities may increase the bargaining power of political groups linked to the petrochemical sector (e.g. transport unions), potentially diluting the concentration of power and improving the institutional outcome of oil producing countries. (2014, p. 6)

The downstream sector of the oil and gas industry has a higher potential to add value to economic growth measures, such as GDP and the production of higher quality employment opportunities, than the upstream and midstream sectors. Investment in infrastructure to support this sector in African countries has resulted in documented successes that have improved employment opportunities and economic growth. With experience of challenges and successes, Ghana, Chad and Equatorial Guinea are at various stages of in the oil and gas industry and demonstrated ways in which the oil and gas industry have improved their economies using education and training in their development plans.

It has been just over a decade since the discovery of oil off the coast of Ghana, and crude and refined petroleum are now significant contributors to the domestic economy. As of 2016, crude and refined petroleum made up 11.7% of Ghana's exports. Thus, "The strong contribution of industry to aggregate productivity growth in 2006–13 is traced mainly to productivity gains within the sector as a result of the high growth of the sector's output on the back of the commencement of commercial oil production in 2011" (Aryeetey and Baah-Boateng 2016, p. 14). As a result, Ghana's oil and mining industry spearheaded annual output and employment growth. Hence, "A combination of the strong annual output growth of industry of about 7.3%, largely on the back of oil and mining, accompanied by employment growth of 4.9% (or a 4.6 percentage point rise in the sector's share in employment) over the period generated 4.3% annual productivity gains within the sector" (Aryeetey and Baah-Boateng 2016, p. 14). Previously, high economic growth in mining and oil production started around 2011 and resulted in a significant reduction in employment fluctuation. Consequently, "The strong growth effect of physical capital after 2000 could be explained by the strong contribution of capital intensive sectors of mining and oil, as well as finance, to growth…Essentially, Ghana's economic growth has largely been driven by low employment generating sectors of mining, oil extraction, and finance as against slower growth in high labour absorption sectors, particularly manufacturing" (Aryeetey and Baah-Boateng 2016, p. 21).

Leadership, uneven distribution of benefits and misaligned policy present some challenges to African countries' ability to consistently focus on developing the oil and gas industry. Therefore, "With the exception of the oil under the ocean, Ghana lacks money and human capital to participate actively and fully in the industry which means all the phases of the value-chain—up, mid and downstream—are undertaken by transnational extractive corporations which expatriate their profits back to their home countries in the West" (Ayelazuno 2014, p. 71). Price drops, gas revenue shortfalls and low corporate tax revenues negatively impact the profitability of Ghana's oil industry. According to Samual Bekoe and David Mihalyi (2015), Ghana's petroleum revenues in 2015 were approximately 63% lower than what the Ministry of Finance budgeted, which is considered a major difference and could be attributed to a drop in prices, low corporate income tax and gas revenues.

Ghana's Ministry of Energy and Petroleum currently play a supervisory role in refinery projects that lead to significant impediments, such as, operational challenges and a weakened infrastructure. The slow progress towards a sustainable downstream is the result of "poor infrastructure, theft and the difficulties in transferring products from one depot to the other" (Amponsah and Opei 2014, p. 444). In addition, Amponsah and Opei (2014) note that accounting for real and artificial product shortages, such as the inability to refine products, import products and embark on infrastructure expansion, is due to delays by government in paying under recoveries.

Chad built relations with external interests using its oil resources as an attraction while improving domestic quality of life. Chad is landlocked with Libya to the north, Niger to the east, Sudan to the west, Nigeria to its southeast, and Cameroon and the Central African Republic to its south. This geographic limitation creates a need for oil exportation partnerships. In 2000, the World Bank Group supported a regional initiative for the construction of a pipeline to extract and transport oil from fields in Chad through Cameroon and to the coast (World Bank 2010). Two oil transportation companies, one based in Chad and the other in Cameroon, owned and operated the pipeline supported by the World Bank Group. Cost for the pipeline project was estimated at more than $4 billion. According to the Council of Foreign Relations,

> As part of the agreement, Chad's parliament passed the 1999 Petroleum Revenue Management Law. One goal of the law was transparency. The agreement required that Chad's 12.5 percent share of direct revenues from oil production flow into a London-based Citibank escrow account (monitored by an independent body created to oversee the account's management). Another main goal was to channel Chad's revenue into poverty-reduction programs. The "future generations" fund accounts for 10 percent of annual revenue and was created to provide Chad with reserve funds after the oil reserves are exhausted. (2006, p. 2)

International companies in the petroleum industry with operations in Chad during pipeline construction made commitments to high-quality training for local workers and donated any unused equipment to local governments. By early 2010, outcomes in employment gains, workforce skills development and industry participation were observed (Advocates Coalition for Development and Environment 2016).

In Chad's case, controversy surrounding the legitimacy of Chad's leadership impeded foreign investors from the oil and gas industry for almost 30 years (Al-Jazeera 2010). The goal of the pipeline project did not meet its maximum potential because revenue was misappropriated and not spent on the construction of critical infrastructure such as schools, hospitals and roads as intended. Despite any economic advancements made through the pipeline initiative, instability, corruption and widespread poverty were factors that persisted in Chad. In 2005, Chad ranked as the most corrupt nation in the world by the watchdog group Transparency International (Council on Foreign Relations 2006). In 2012, a dispute with the China National Petroleum Corp. International (CNPCI) over the price of oil led to the closure of the state-owned refinery called the Societe des Hydrocarbures du Tchad (SHT). This closure was the second within six months for the same issue (Watkins 2012). In a 2016 report, the International Monetary Fund recommended that the Ministry of Petroleum deploy better accountability standards in order to navigate government oil resources and the oversight, management and use of these resources (International Monetary Fund 2016). By 2019, Chad ranked 162 out of 180 participating countries with only 18 countries considered more corrupt (Transparency International 2019).

Equatorial Guinea touches the Gulf of Guinea and with this geographic advantage, in 1996, new oil and gas reserves were discovered. In 2015, Equatorial Guinea had a positive trade balance of more than \$4 billion with crude petroleum and petroleum gas as its largest exports. The country is a member of Organization of Petroleum Exporting Countries (OPEC) which is a multi-state partnership that will assist with best practices for the stabilization of its oil markets, establishing a base for steadied producer income and ensuring investors receive a fair return on invested capital. Dominique Puthod states:

> In 2016, the economy of Equatorial Guinea was still dominated by the petroleum sector, which accounted for 85 percent of gross domestic product (GDP) and more than 94 percent of exports in 2015, according to the International Monetary Fund (IMF). Other relatively important sectors are construction (7 percent of GDP in 2015), agriculture, forestry and fisheries (2 percent of GDP), and trade (1.6 percent). Although these sectors are improving, relative to the petroleum sector, change has been very marginal since 2013. Economic diversification is slow to materialise but remains an important objective for economic growth and stability in the medium and long term. Over the past three years, the fall in oil prices has severely affected the development effort. (2017, p. 258)

Equatorial Guinea's strategic plan sets goals for domestic growth such as improving access to education, sanitation and transportation. The plan also acknowledges challenges to meeting these goals such as needing to focus on industrial development throughout the country and the need for green industries. Equatorial Guinea also has a focus on diversification of the economy with plans to develop the fishing and tourism industries (Valentin 2014).

While Equatorial Guinea is an oil rich country, the lack of transparency and poor leadership are factors that prevent benefits reaching the lowest realms of its society. Despite the abundance of resources valuable to the oil and gas sector, Equatorial Guinea has struggled to maintain production rates with dropping oil prices and underinvestment from external investors. The country's domestic infrastructure is currently not established well enough to support long-term growth of toward the more fruitful sector of this industry. According to *The Economist*,

> Equatorial Guinea's downstream sector is relatively poorly developed. The country has one liquefied natural gas (LNG) processing facility at Punta Europa with a capacity to produce 3.7 m tonnes/year, as well as two plants producing methanol gas and liquefied petroleum gas (LPG). Beyond this there is little activity. A second LNG train is scheduled to come on stream in 2016, but uncertainty over feed-gas availability is likely to delay this, particularly as Ophir Energy of the UK—whose Block R would supply a large chunk of the gas for the second train—is targeting the set-up of a separate floating LNG facility rather than using the existing facilities at Punta Europa. (2014, p. 1)

It also appears as if government officials mismanage infrastructure improvement projects and transparency around how profits are distributed to improve the citizens' lives is not evident. "Between 2009 and 2013, Equatorial Guinea took in an average of US$4 billion annually in oil revenue, and spent US$4.2 billion on things like roads, buildings, and airports. IMF data shows that in 2011, it spent only US$140 million on education and US$92 million on health. In 2008, the only other year for which such data is available, it spent US$60 million on education and US$90 million on health" (Bekele 2017, p. 2). While transportation and commercial infrastructure are important components of domestic life, Equatorial Guinea spends a fraction on components that better prepare individual citizens to take advantage of them. In Guinea, there is still a need to ensure industry revenue is directed more adequately to improve services and impact quality of life.

Inadequate strategic planning and leadership in the oil and gas sector have negative consequences. Carolina Moreno (2017) describes multidimensional poverty as the deprivation of several factors including adequate housing, quality education, access to good healthcare and physical security. While challenges related to the oil and gas industry are not the only factors contributing to multidimensional poverty that exists in these countries, the benefits from the stability and growth of this economic sector would alleviate deprivations for some citizens. Today, more than two-thirds of Chadians and just over than one-quarter of Ghanaians live in multidimensional poverty (United Nations Development Program 2019). The economic transformation in Equatorial Guinea increased GDP per capita rapidly in a short time period but the country's leadership has not made significant efforts to contribute equitable proportions of oil revenues for investment in social infrastructure. Rebecca Holmes of the Overseas Development Institute states:

> Social protection programmes, as a component of this social and economic development agenda, could play a major role in reducing inequality, lifting the population out of poverty, broadening access to essential social services, improving child well-being and accelerating progress towards the Millennium Development Goals (MDGs)…Over 70 percent of the population lives in poverty in Equatorial Guinea, and over 40 percent lives in extreme poverty. More than 50 percent of the population is under 18 years of age and child poverty is higher than adult poverty because of the larger number of children in poor households. (2009, p. 1)

The massive oil profits derived from Equatorial Guinea exemplifies that the eradication of poverty and focus on inclusive social growth cannot be realized as long as corruption, poor leadership and inadequate policy are evident. The African countries discussed in this chapter recognize the value of achieving better levels of national development, but have in place less than optimal efforts leading to an enhanced quality of life, increased worker's income and a more effective, transparent government role in order to reinforce national development objectives.

Functionality of Political Uniformity in Facilitating Self-Governance

The uniformity of economic and political policies is decisive in enabling countries' goal achievement. Cohesiveness amongst policymakers is key to facilitating self-governance and progression. Self-governance occurs when nearly all community members agree to adopt internal standards. Even amongst dissenters, political uniformity around these adopted standards is necessary for the betterment of the common good. Too often, special interests paired with government officials that have weak integrity impede the progression of self-governance. These government officials do not necessarily work uniformly with established policy. In many instances, these government officials work in their own best interest and this type of behavior hinders self-governance. Domestic strength results from good self-governance and this strength is important for countries to receive the full benefits of foreign investment. The ratio of foreign direct investment to gross domestic product is greater in Africa than other developing regions, which brings large growth potential and may result in positive spillover benefits (Loots and Kabundi 2012). It may be evident that Ghana, Chad and Equatorial Guinea have reached a level of domestic development that enables these benefits, but there are needs for further political uniformity to ensure self-governance with positive rewards.

Uniformed decisions around defining in what ways a country will engage investors is a component of the self-governing process. Business incentives are tools used by developing countries to attract foreign investment and are usually geared toward specific economic sectors; those that countries want to concentrate development efforts. Leadership should work in accord to determine the types of incentives and allowances that will benefit companies doing business in their country. The promotion of accountability and transparency should be a component of uniformity in order to create a favorable business climate for foreign investors. Chad, Ghana and Guinea engage elements of self-governance differently.

Ghana's state-owned company that manages exploration, development, and distribution of petroleum is Ghana National Petroleum Corporation (GNPC), which manages all oil and natural gas agreements and oil and gas field licenses in Ghana. It also works to supply sufficient fuel for Ghana's energy needs. Other major companies are Kosmos Energy, Anadarko Petroleum Corporation and Edusei-Owusu (EO) Group. Ghana's investment promotion center provides opportunities for foreign investment in the gas industry through various projects such as the west-east gas pipeline, which intends to establish a nationally owned path to move gas from the west to the Accra region of the country. There are also upstream and downstream oil sector investment opportunities. Upstream investments include equipment supply, site surveying, seismic data acquisition, and geochemical and geographical studies. Downstream opportunities include refinery maintenance, fertilizer plants, and pipeline construction and maintenance (Ghana Investment Promotion Centre 2018). Ghana's amended Petroleum Revenue Management Act of 2015 intends to promote transparency for oil revenue and the Petroleum Act of 2016 sought amongst other things to make contracting for oil investments more accountable and uniform (Republic of Ghana 2016).

Chad established a state-owned oil company, in 2006, the Société d'Hydrocarbures de Tchad or SHT that works to coordinate with other government agencies and market the government's oil. Common incentives are provided for new business initiatives, and the expansion of existing ones. Those that qualify may receive a five-year company tax reduction, and relief on other taxes such as personal income, developed and undeveloped land. Mining is an eligible economic activity for some of these incentives under the Chadian tax code. Chad's College de Contrôle et de Surveillance des Recettes Pétrolieres or CCSRP serves as an oversight body that produces annual reports covering topics such as priority spending for oil revenue. In 2010, Chad began deploying a model that standardized the metrics used to evaluate contracts and negotiations and began taking part in the Extractive Industries Transparency Initiative as a commitment to accountability and transparency (International Monetary Fund 2016).

Equatorial Guinea's state-owned oil company, GEPetrol, has joint ownership in the oil sector and the government of Equatorial Guinea actively engages foreign investors using a fairly standard set of guidelines. The government promotes exploration licenses in attempt to stimulate spending from investors who may be eligible for deductions from taxable income, such as wages and training costs for Equatoguinean staff (Rascouet 2018). The government infrequently suggests that investors employ Equatoguinean staff as a majority of their employees and does not allow foreign investors to own land or property, but they do allow government leasing (United States Department of State 2014). USAID, a foreign assistance agency based in the United States of America, has assisted with Equatorial Guinea's transition towards good self-governance by launching "Faisons Ensemble" (FE), an initiative that focuses on implementing tools of good governance across multiple sectors, integrating public health, education, agriculture and that management of natural resources into a strategically consistent and uniformed management structure. Accordingly, the FE's "Activities emphasized training and resource provisioning aligned to 'good governance' practices on the part of government and civil society organizations (CSOs). As well, technical training was provided in procurement, financial and administrative management" (USAID 2015, p. 11).

Instability in leadership during early years after independence resulted in a lack of focus on Ghana's strategic political and economic development. Ghana's majority political party, the NPP operates under the ideology that effective leadership and governance will reinforce and grow domestic institutions, improve access to quality education, increase access to quality housing, and promote health and safety policies that will address systematic inadequacies. Politics in Ghana is relatively stable with only three percent of firms surveyed by the World Bank Group identifying political instability as a significant obstacle (World Bank Group 2018); but according to the International Trade Administration (ITA), politics and policy do not undercut the influence of malicious actors:

> Corruption in Ghana is comparatively less prevalent than in other countries in the region, but remains a problem. The government has a relatively strong anti-corruption legal framework in place, but faces challenges with enforcement. A few American firms have identified corruption as the main obstacle to foreign direct investment. Ghana's 2016 score and ranking on the Transparency International Global Corruption Perceptions Index dropped to 70 out of 176 (from 56 in 2015). Corruption in government institutions is pervasive. In 2016, there were a number of corruption allegations involving government officials. Shortly before the December 7 election, media and local civil society organization OccupyGhana reported the government awarded a contract worth 35 million cedis (approximately \$9 million) to a business owned by controversial businessman Alfred Woyome. In 2014, Ghana's Supreme Court ordered Woyome to pay back 51 million cedis (approximately \$13 million) for unfulfilled public works contracts awarded by the government in 2010. In June 2016, media reported that then-President Mahama accepted an SUV worth approximately \$60,000 as a "gift" from a businessman in Burkina-Faso bidding on three government contracts. (ITA 2017a, p. 1)

In addition to corruption, Ghana's oil sector is less than 10 years old with minimal capacity to meet the needs of foreign oil companies investing in the offshore petroleum reserves. Ghana's domestic enterprises have limited experience in providing services to support offshore operators and while onshore services are somewhat more mature they are still significantly inefficient (ITA 2017b).

Chad's leadership has been relatively stable since about 2010, but political corruption in Chad continues to be a widely regarded concern (Central Intelligence Agency 2018). In 2011, "The *European Union* (EU) sent 24 short-term observers and 46 short-term observers headed by Louis Michel of Belgium to monitor the legislative elections from January 20 to February 14, 2011. The African Union (AU) sent observers headed by Ibrahim Boubacar Keita of Mali to monitor the presidential election. The Organisation Internationale de la Francophonie (OIF) sent observers to monitor the presidential election April 22 to May 6, 2011" (University of Central Arkansas 2018, p. 9). In 2016, Idriss Deby was re-elected to his fifth term in presidential office, but elections in Chad continue to be met with scrutiny from onlookers. Conflicts challenged economic and infrastructural development in post-independence Chad. So, while oil was discovered in Chad in 1973, instability delayed foreign investors for almost 30 years (Al-Jazeera 2010). In effect, Chad has developed favorable conditions for foreign investments. Currently, Chad does not require foreign investors use domestic content in the production of goods, which implies that domestic enterprise are not equipped to meet the supply need of foreign investors. This requirement would produce a spillover effect, in which; the oil and gas sector would become a multiplier, creating growth and employment opportunities in sub-sectors that are needed to support to major economic sector. Almost thirty- percent of firms surveyed by the World Bank Group identify political instability as a significant obstacle (World Bank Group 2018).

The corruption that detracts from effective self-governance and development in Equatorial Guinea is concentrated at the top with government leadership squandering oil profits. In a 2004 hearing before the U.S. Senate's Permanent Subcommittee on Investigations, it was reported that more than $25 million was withdrawn from the country's oil account and transferred to multiple companies, some possibly belonging to Equatorial Guinea's president (United States Senate Hearing, 2004), pp. 108–633. It was also reported that an account manager for the country embezzled more than $1 million due to poor internal controls. Riggs Bank, a main player in Equatorial Guinea's financial mismanagement, is said to also house accounts owned by Saudi officials, and checks drawn on some Equatorial Guinea accounts may have benefitted two of the hijackers on September 11, 2001. The country was delisted from the Extractive Industries Transparency Initiative in 2010 due to inadequate management and transparency around the availability of revenue and funding, which make it difficult to identify efforts to establish political accountability. Almost seventy percent of firms surveyed by the World Bank Group identify political instability as a significant obstacle (World Bank Group 2018). Currently, the lack of transparency is a hindrance to good self-governance and also gives evidence to support the continued narrative that heavy corruption exists.

Ghana's economic growth can be attributed to the past and prospective performance of its oil and gas sector as well as its efforts to diversify its trade exports. Yet, economic benefits are distributed disproportionately. Economic opportunities are more fitting for southern Ghanaians due to their access to major urban centers while those in the northern region typically have lower levels of education and less complex skill sets. This disparity in access is also evident in the area of healthcare. Poverty reduction is evident in the southern Ghana, while poverty increases in the North. In all, there are more non-agricultural employment opportunities in Ghana's urban areas, which are mainly in the South. As dependence on oil exports increases, so does the need for economic diversity, contingency plans for growth reversal and plans to ensure benefits are distributed to all citizens (World Bank 2013).

Oil profits in Chad have had undesirable consequences for most Chadians. In terms of employment opportunities, the industry brought an influx of foreign workers, which increased the cost of living and created difficulties for local residents. While oil fields in Chad produce jobs, there are widespread complaints that foreign workers are favored over local residents. Chadians do not readily see benefits from oil revenue, with some believing that money is used to finance conflict and not domestic development. A minority of Chadians benefit from the profits of the oil industry, while most Chadians have experienced an increase in poverty levels (Yorbana 2017).

In 2015, Equatorial Guinea's positive trade balance of more than \$4 billion created opportunities to improve the quality of domestic institutions and citizens' life. Yet, with poor management and little transparency, there is minimal evidence that the country's oil wealth has been used for public good. Equatorial Guinea's oil reserves are declining and will probably be depleted by the 2030s, which implies a shortening window for revenue from this source as a means to improve citizens' quality of life. An initial step is political uniformity since it appears that a majority of the oil wealth is concentrated in the hands of top government officials.

Using Revenue for Education and Technical/Vocational Programs That Train Citizens for Complex Skills Positions to Meet Labor Demands

Workforce development initiatives ensure a supply of workers with skill sets needed to meet labor demands, reducing labor shortages in that industry. The alignment of workforce and economic development better prepares countries to achieve economic property and offers a suitable return on investment. Ghana, Chad, and Equatorial Guinea have made education and training a clear focus in their economic development, and each demonstrates how such investments have met labor demands in the oil industry. All three countries have reduced unemployment, improved productivity, and expanded their global market in direct response to these efforts.

In 2013, annual employment growth for the service and manufacturing sectors in Ghana was 9.6% with a growth in labor productivity of 11.3%. In Ghana, less than half of service companies and just over one-third of manufacturing companies offer workers formal training. While most workers are permanent employees, thirty percent of these companies identify inadequately educated workers as a major constraint. (World Bank Group 2018). Ghana has met this opportunity to provide more adequately educated workers through partnerships with higher education institutions. In 2017, Ghana's Ministry of Energy in partnership with Regional Maritime University, unveiled its Accelerated Oil and Gas Capacity Program (AOGC). This program is a government-funded initiative that will train at least 1000 citizens, annually, for employment in the oil and gas industry. AOGC intends to assist the country with labor market demands and provide Ghanaians with training in complex skill sets needed for long-term success. In addition, Ghana Oil Drilling Academy & Consultancy collaborates with Norwegian Drilling Academy to provide intensive training that lead to certifications for Ghanaians interested in oil and gas industry careers and offer courses such as Logistics in Oil and Gas, Safety Technology, Process and Production and Human Resource Management in Oil and Gas (GODAC 2018).

In 2018, the annual rate of employment growth declined for service and manufacturing sectors in Chad to -1.4%. There was also a decline in labor productivity to -0.9%. Approximately, one-quarter of service and manufacturing companies in Chad offer workers formal training. Like Ghana, most workers are permanent employees, yet twenty percent of these companies identify inadequately educated workers as a major constraint (World Bank Group 2018). These statistics demonstrate an opportunity for government to step in and explore areas to improve access to training for citizens. Chad's Ministry of Petroleum and Energy manages the negotiation of oil and gas industry contracts. These contracts require a commitment to training and employing Chad nationals. According to policies that regulate Chad's oil and gas industry, foreign investments over a relatively moderate price threshold must provide capital for programs that train Chad nationals. Exxonmobil's investment in the Chad-Cameroon pipeline is accompanied with human capital investments. Through training, citizens of both countries gain professional skills and develop from skilled workers into managers and entrepreneurs. These now skilled workers also can receive continued training which covers broader topics related to the oil industry, such as environmental and regulatory policy (Exxonmobil 2013).

Technical and vocational educational and training (TVET) is a component of Chad's education system that guarantees citizens access to education. There are several challenges that Chad faces in preparing their workforce: (a) connecting TVET initiatives and programs to labor market needs because most of the unemployed have adequate education levels and limited vocational skills, (b) establishing job training programs that focus on improving the employability of youth, and (c) improving the quality of TVET programs (UNESCO-UNEVOC 2014). With the relatively recent fall of oil prices, Chad's ability to address these challenges through TVET are constrained but the government is exploring opportunities to address these constraints. These programs offer certifications that qualify Chadians for recruitment and upward mobility in the domestic oil and gas industry (UNESCO-UNEVOC 2014).

According to the United Nations Educational, Scientific and Cultural Organization (UNESCO), Equatorial Guinea has one of the highest literacy rates in sub-Saharan Africa. In 2016, annual employment growth for in Equatorial Guinea's service sector was 10.8%. Most workers are permanent employees and 38% of these companies identify inadequately educated workers as a major constraint. With this, the country has partnered with foreign enterprises and higher education institutions to provide training for citizens in the petroleum industry. Marathon Oil, a major stakeholder in Equatorial Guinea's oil industry, states:

> In Equatorial Guinea, we employ almost 800 national citizens. Through recruiting, training, workforce integration, and educational and vocational programs, Equatoguineans have grown to be 74 percent of our workforce. Since 2010, Equatoguineans have been promoted over 1,400 times, with 358 national employees promoted to higher employee grades. (Marathon Oil 2018, p. 1)

In 2013, Equatorial Guinea developed a training and technical assistance program in partnership with a petroleum company named Hydrac to invest heavily in the human capital needed to support the oil sector (Equatorial Guinea Press 2013). Three years later, the Ministry of Mines, Industry and Energy in partnership with the Southern Alberta Institute of Technology developed an intensive technical training program to support labor needs for the emerging oil and gas market (Ministry of Mines, Industry and Energy of Equatorial Guinea 2016).

The ebb and flow of economic growth should be forecasted by developing countries. In workforce and economic development, contingency plans and collaboration are key to maintaining education and training programs. During times of economic decline, countries should develop contingency plans to continue funding education and training programs. Lack of planning creates hardships in ensuring the adequacy of basic services such as drinkable water, quality shelter, education and healthcare. For example, as oil prices fall, Chad reaches out to external interests to find funding to continue domestic development efforts. According to the World Bank, "This, in turn, has created a potentially volatile situation as civil servants have resorted to striking for long periods. In the education sector, although (community teachers) are not officially part of the civil service, they, too, have gone on strike along with the civil servant teachers as the Government has not been able to pay them since July 2014" (World Bank 2016, p. 8).

Another component of workforce and economic development alignment is the collaboration between employers and the education community to build citizens' skills. Investment in human capital provides leverage that countries can use to attract long-term business relationships in the oil and gas industry. Training technical workers and establishing continuing education programs are avenues that lead to clear economic benefits. Well-trained labor establishes a way to meet labor demands by recruiting, retaining and developing the local workforce. There are instances were African countries are using government funds and engaging foreign investors to create these training opportunities for citizens. Countries should make sure that companies are primarily targeting training opportunities in job sectors that provide individuals with the highest return on investment. For example, Exxonmobil provides training opportunities in both the oil and agricultural sectors. However, the oil and gas industry is a much more lucrative occupation sector than the agricultural sector. Additionally, some Chadians impacted by oil production operations receive training, materials and equipment as part of Exxonmobil's resettlement program (Exxonmobil 2013).

Summary, Recommendations and Conclusion

Ghana, Chad and Equatorial Guinea dealt with leadership instabilities early in post-independence history that resulted in a lack of focus towards economic development and cohesive domestic productivity. This research shows that, more recently, each country has taken steps to address the adverse effects of labor imbalance in a capitalistic system, as discussed in Dependency Theory. All three countries recognize that oil and gas is an industrial sector that contributes more value to the national economy, work to build domestic demand and promote processed goods derived from this sector in the global market. Through government-managed agencies, Ghana, Chad and Equatorial Guinea, promote an effective government role and reinforce domestic development needs. Additionally, each country supports the development of education and training initiatives, which have reduced income inequality for some. In effect, the data analysis of feedback from private industry leaders in each country demonstrates relatively positive results for training and workers' performance, yet highlights areas where there is still a need for more training opportunities. Through literature, this chapter identifies areas of successful public-private collaboration and policy implementation that positively impact government stakeholders and citizens.

Currently, all three countries have relative political stability with elements of self-governance that present opportunities for further economic growth in the oil and gas industry. Policy agendas may shift after a change of leadership but there should be uniform acknowledgment that investment in human capital and developing economic sectors will continue building foreign trade relations and significantly impact a country's domestic development. Governments should strategically develop skilled labor, and cultivate native expertise in the oil and gas industry in order to sustain goals for participation and optimize opportunities for future participation in downstream sectors, which will allow for long-term beneficial effects. In addition, policymakers should ensure transparency in how revenue is used to develop technical assistance training programs that produce highly skilled workers. Increased human capital is a measure of success for foreign investment as an economic strategy and a positive spillover effect for the domestic labor market. The workforce training programs discussed in this chapter are fairly new but evaluation allows for readjustment in cases where realignment is needed to better meet labor needs. In conducting evaluations, countries should enlist stakeholders to assist and co-develop curriculum that will make sure skill gaps are met and emerging training needs are addressed. Policymakers should be mindful of the inequitable distribution of trade benefits such as improving education access and training in high-skilled areas for all despite geographic location.

While the development of domestic infrastructure and educating citizenry is a long-term process, governments should continue to strategically integrate reliable plans for trade, natural resource production, and enhancements to quality of life for future growth. The concerted efforts of the countries discussed in this chapter could provide lessons learned for others. The following are therefore key recommendations for consideration:

a. Oil and gas are finite natural resources and governments should be conscious of how to efficiently manage any profits to ensure benefits are geared toward domestic improvement.
b. Governments should consider developing policy in which foreign investors must use domestic content in the production of goods or technology. This policy should be coupled with a strategic focus on being able to provide quality content for foreign investor use.

c. Governments should develop and/or further the investment of publicly funded workforce programs and evaluate the impact of these programs using budgetary and administrative data, based on the influence on service-related variables such as income and employment outcomes by demographic group.
d. Governments should work to build native expertise in the oil and gas sector to produce not only students but also instructors. In order to increase the net number of citizens with access to training, growth should be increasingly focused on building native trainers to provide essential long-term on-the-job training. Training can include topics beyond occupation-specific duties and address the fundamentals of administration and management, as well as, crosscutting knowledge areas and skills.
e. Governments should provide citizens with the opportunity to transition into the oil and gas sector from the agricultural and other sectors with less lucrative incomes. In addition, there should be public messaging campaigns intended to educate individuals on such topics as projected earnings and unemployment rates in each sector in order to aid citizens' decision-making.

In conclusion, African countries should be transparent and make public actual allocations for the education sector and provide context for underperformance and gaps. Revenue streams for planned programs or intended education investments should also be public knowledge with dedicated allocations. Technical education programs are costly and policymakers should ensure learners are provided adequate resources such as books, libraries and laboratory equipment. Competitive salaries should be set in order to attract adequate teaching staff. The continued path towards self-governance should include (a) minimized political conflict, (b) uniformed decision-making and (c) transparency of government operations in order to educate citizens. Increasing citizens' participation in their own governance, along with ensuring the efficiency and effectiveness of the functional governance of institutions will provide the basis for the stronger domestic development and greater ability to participate on the global economic stage.

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