Local Content Policy in Oil for Development Partnership Programmes: Are Universities and Technical Institutions Actively Engaged as Enablers of Sustainable Development?

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ABSTRACT

Local content policy designed in the Oil for Development partnership programme between Ghana and Norway was crucial to promote the use of Ghanaian local expertise, goods and services, people, businesses and financing in the oil and gas activities. The "local expertise" and "people" components of the policy are equally crucial to the overall success of the policy goals. Institutions of higher learning, technical institutions, and vocational institutions are responsible for developing the "local expertise" and training the "people" to fulfill the requisite knowledge and skill needs of the oil and gas industry. Thus, the participation of these educational institutions in the local content policy processes is essential to both the development of the policy and the overall sustainability of the oil and gas resources.

The purpose of this study was to investigate the engagement and contributions of universities and technical institutions in the local content policy of the Oil for Development partnership programme between Ghana and Norway. Qualitative method by use of questionnaire was employed to elicit responses from five purposively selected categories of respondents. The categories of respondents were made up of universities, technical institutions, government agencies, private organizations, and a civil society organization. The thirteen received responses revealed that while some universities and technical institutions are engaged in local content policy process in the OfD partnership programme, the form of engagements do not allow for significant contributions. Notwithstanding, continuous efforts are made by these educational institutions to engage, be engaged, and contribute.

In terms of efforts made by universities and technical institutions to contribute to local content policy development in the oil and gas industry, some universities and technical institutions have engaged relevant government agencies for policy discussions pertaining to oil and gas activities in Ghana. Additionally, some universities and technical institutions have established partnerships with industry players and other key stakeholders in oil and gas that allow for practical training and internships for students and knowledge transfer and sharing among university lecturers, instructors, and professors.

As an indication to curriculum development by universities and technical institutions, new study programmes and professional courses relevant to the petroleum industry and sustainable development of natural resources have also been developed at certificate, bachelor, master's, and PhD levels.

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LIST OF ABBREVIATIONS

CTVET	Commission for Technical & Vocational Education & Training
IOC	International Oil Companies
NORAD	Norwegian Agency for Development Cooperation
OfD	Oil for Development
LCP	Local Content Policy
STEPRI	Science & Technology Policy Research Institute

Keywords: *Curriculum Development; Education Engagement, Government, Local Content Policy, Knowledge; Oil & Gas Industry, Partnership; Sustainable Development; Technical Institution; Skill Acquisition;Universities.*

CHAPTER ONE
INTRODUCTION

1. 1 Research background

Many nations around the world have had significant forms of development due to the natural resources they are endowed with. The factor condition of Porter's Diamond Theory of National Advantage spells out natural resources as key to a nation's development and competitiveness (Porter,1990; Grant, 1991). The extent of developments attained by some nations because of their natural resources is the proximate reason for other nations when they also discover natural resources. The hydrocarbon reserves endowments of countries in regions like Africa, Central Asia, Europe, North America, and Central and Southern America has spurred development and elevated such regions to greater geostrategic and politico-economic relevance and attention (Javaid & Rashid 2020; Fischer, 1983; Squires, 1975). Oil endowed countries tend to establish partnerships to drive sustainable oil exploration and production, and the effective marketing and proper management of oil proceeds (Hughes, 2006; Hu, 2014). One of the means of achieving this goal is the "local content policy (LCP)" which forms part several policies entailed in a partnership agreement's memoranda of understanding (Ovadia, 2016). LCP is the need to use and engage domestic or national expertise, goods and services, people, financing, businesses, and institutions in oil and gas activities. LCP is often structured to prioritize the interests of stakeholders and actors who tend to have short term goals in the oil and gas activities (Disch et al., 2014). Kazzazi & Nouri, (2012) contend that local content should be defined in terms of value addition in local country (by local staff, local materials, local services, and facilities) rather than in terms of ownership of the company performing the value-added activities.

Universities, technical institutes, and vocational institutes are key stakeholders and instruments in national, regional, and citizenry development through transfer of knowledge, skills, and competence for poverty reduction. They can develop non-existent study programs and trade skill acquisition trainings and revise existing study programs tailored to the need areas of oil and gas activities, are often excluded, or marginalized in LCPs (Adesola et al., 2018; Fonseca & Nieth 2021). The importance of the role that universities, technical and vocational institutes play in sustainable development should be valued because they impart knowledge, skills, and competence to the human resource of nations for the present and future developments of nations. (Filho, 2011, Kim, 2015; Maclean & Pavlova 2009, Karlsen, 2005; Nwosu & Micah

2017). The discovery of oil came the way of Ghana when an estimated 3 billion barrels of oil was discovered by Ghana in 2007 which added to its existing natural resource endowments of gold, diamond, bauxite, among others. The oil discovery made Ghana occupy the rank of Africa's fifth largest oil reserves and sixth largest natural gas reserves (OfD Annual Report, 2016; Ghana Strikes Oil in Commercial Quantities, n.d.). The joy in discovering oil stems from the hopes of socio-economic and environmental development that the exploration, production, marketing, and management of the discovered oil resources were envisaged to deliver.

However, as a novice to the realms of oil endowed countries, Ghana needed to stand on the shoulders of giants to make inroads into the exploration, development, production, and management of its oil proceeds. The need for expert advice in projects of such scale cannot be underrated (Carrillo & Gaimon, 2004). Thus, the establishment of partnership between the governments of Ghana and Norway in 2010 through the latter's flagship Oil for Development programme (OfD). To the two nations in partnership, the success of the first agreement which lasted between 2010 and 2014 led to another five-year extension (OfD Annual Report, 2020). While Ghana, as most oil endowed countries in Africa do, considered local content development as critically important in the partnership agreement, Norway, as a strategic partner had little to contribute (Disch et al., 2014, p. 5). Considering that companies of Norwegian origin were actively involved in some of the international oil companies (IOCs) roles in the oil and gas production in Ghana, it is fitting to reference the quote that when development interests converge with profit interests, profit interests often triumph (Bull and McNeill 2007). Even when prioritization of local content appeared earmarked by Ghana in OfD programme, the research of Osei-Tutu (2013) revealed that neither were universities and technical institutions included in the captured groups for local content policy process nor were the significant roles that universities and technical institutions could play in the long-term knowledge and skill development for the oil and gas industry considered.

1. 2 Research problem

The strategic partnership between the two governments which was through Oil for Development (OfD) programme, has a primary aim of which both countries, Ghana and Norway were privy to, and were expected to act in adherence to the underlying obligations for the ultimate attainment of the partnership goals. Hu, (2014) characterizes this form of partnership as drawing on successful experience to introduce necessary sectoral and organizational restructuring, professional expertism, standardized and scientific management,

operational system improvement, knowledge, and skill, and retaining unique political advantages that might be different from other forms of partnership. Garcia et al., (2014) emphasize capability development as crucial in oil and gas strategic partnerships.

There is lack of interest shown by the Norwegian side (OfD) to attach importance to local content (Disch et al., 2015, p.36). The inability on the Ghanaian side to prioritize universities and technical institutions as entities that hold unique ability by means of knowledge, skill, and competence delivery suggests a short-term interest that could adversely impact the principal goal of the partnership -- poverty reduction. Interestingly, in the early stages of oil and gas activities in Norway, Ryggvik, (2010) argues that local content was a top priority and aimed at 70%, and for that goal to be attained, huge investment was made in the education system of Norway to supply the required skilled persons to the new national petroleum industry. This is evidence of the understanding held by Norway regarding the prioritization and investment in education on a country's oil discovery. The research of Disch et al., (2015) both for OfD in Ghana and Uganda, and the NORAD funded research on local content in Ghana as carried out by Osei-Tutu (2013) revealed a deficit in skilled human resource in the oil and gas industry in both Ghana and Uganda. Principally, while the Norwegian side of the partnership brings onboard its capabilities in Ghana's effort to manage the newfound petroleum resources in a sustainable manner, it is incumbent on Ghana to seek to robustly champion the cause of educating its citizens specifically for poverty reduction, social and environmental sustainability as they pertain to the oil and gas industry. To an end that empirical studies have limited focus on the role of universities and technical institutions in local content policies in the oil and gas industry, this research seeks to investigate the extent to which key universities and technical and vocational institutions in Ghana have been engaged, either actively or passively in local content policy processes since the inception of the OfD programme in Ghana. It is against this background that this study seeks to determine the engagements of and contributions by universities and technical institutions in Ghana in the oil and gas activities. It is envisaged that the research findings will not only add to extant literature but also inform policymakers on the significant role that educational institutions could play in the sustainability of a newfound natural resource.

1.3 Research objectives

The objectives of the research comprise:

1. To identify whether universities and technical institutions in Ghana have been consulted and engaged for local content policy development for the sustainable development of the Ghana oil and gas industry.
2. To investigate what contributions universities and technical institutions can make in local content policy development for the sustainable development of the Ghana oil and gas industry.
3. To identify whether universities and technical institutions in Ghana have already established customized curriculum that meet the requisite knowledge and skills in all relevant areas of the oil and gas industry.

1.4 Research questions

The following specific questions will be investigated:

4. How have universities and technical institutions in Ghana engaged in local content policy process for the sustainable development of the Ghana oil and gas industry?

- What contributions can universities and technical institutions make in local content policy for the sustainable development of the Ghana oil and gas industry?

5. To what extent have universities and technical institutions in Ghana developed customized curriculum that meet the requisite knowledge and skills needs of the Ghana oil and gas industry?

1.5 Geographic study area and context

- **Ghana**: Ghana is a country located in West Africa. It lies between Cote d'Ivoire and Togo to the west and east respectively. It shares borders with Burkina Faso in the north and the Gulf of Guinea in the south. Ghana discovered oil in commercial quantities in the Jubilee Oil Field in 2007. The Jubilee Oil Field is located 60km offshore, lying between the Deepwater Tano and West Cape Three Points blocks off the coast of Western Region of Ghana in the South Atlantic Ocean. Production started with an average of 200,000 barrels a day. Some of the major oil and gas activities are conducted by international oil companies such as Tullow Ghana, Vitol, Kosmos Energy, ENI, and Aker Energy (International Trade Administration, 2022). For poverty reduction, Ghana

established a strategic partnership with Norway in 2010 to strengthen resource and environmental management in the oil and gas sector from 2010 to 2020 (OfD Annual Report, 2020). Aside from many other types of public and private universities, colleges and training institutions, Ghana has fifteen (15) public universities and ten (10) public technical universities (Ministry of Education, Ghana). There are five hundred and eighty-seven (587) Technical and Vocational Education and Training (TVET) schools across Ghana (Commission of TVET, Ghana).

Figure 1. 1: Map depicting the geographical location of the Jubilee Oil Field (Source: Ghana National Petroleum Corporation)

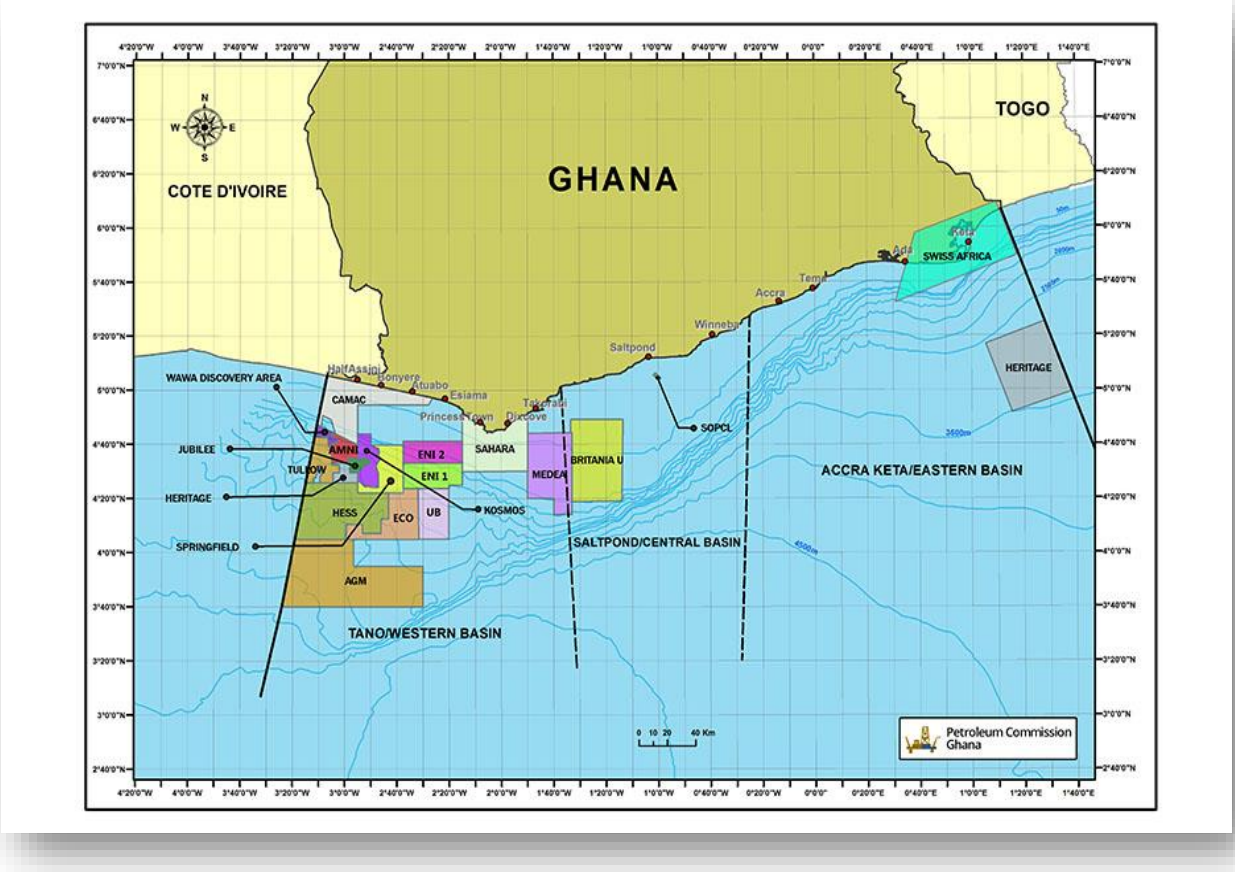

Figure 1. 2: Map depicting offshore activities in the continental margin of Ghana (Source: Petroleum Commission Ghana)

1.6 Organization of the research

The research is structured into sx chapters.

Chapter one outlines the background to the research and explains the significance of the chosen area.It also highlights the geographical context. In successive order, the problem statement, research objectives, research questions, and the geographical context have all been covered in chapter one. Review of relevant literature and exposition of the underpinning theories of the research are captured under chapter two. Chapter three proceeds with the methodology while the presentation of empirical data, analysis and findings are entailed in the fourth chapter. The discussion based on the findings is covered in chapter five. The research is concluded under chapter six where the practical implications and limitations are discussed.

CHAPTER TWO
LITERATURE REVIEW

2.0 Introduction

In this chapter, two sections are presented. In the first section, literature review of relevant extant literature is presented under six themes relevant to the chosen field of research. The theoretical framework is presented in the second section. The presentation of the theories is intended to provide in-depth understanding of the research area and to serve as a guide to analyzing the empirical findings - significant patterns, regularities, and variations in the collected data.

2.1.1 OFD in response to good governance, paradox of plenty, and sustainable development

Norway commenced Oil for development (OfD) programme in 2005 with focus on three integrated pillars namely management of resources, the environment, and revenues. Good governance was a primary framework (Norad, 2010, 2014). The yearly allocated budgets were approximately NOK 150 million in 2006 and 2007, NOK 200 million in 2008 and 2009, and NOK 253 million in 2010. It commenced with nine core partnership countries which included Ghana and had limited cooperation with sixteen other countries (Norad, 2010). The pursuit of poverty reduction as the heralded fundamental goal of OfD is in part a response to the argument of paradox of plenty or resource curse perceived to be associated to lack of good governance in the global south. Dauvin & Guerreiro (2017) refer to paradox of plenty as inverse correlation between natural resource and economic growth wherein countries with abundance of natural resource have less economic growth, less democracy or worse development outcomes than countries with fewer resources. Extensive empirical studies have documented this so-called "conceptual puzzle" or resource curse or paradox of plenty to show that a correlation exists between natural resource abundance and economic decline after natural resource discovery, especially in the global south (Sach &Warner 1995, 1997, 1999; Neary & Van Wijnbergen 1986; Monroe & Mabro 1974). The paradox of plenty is argued to view oil discovery, exploration, and production in commercial quantities as a source of corruption and bad governance (Karl, 1997).

Solli, (2011) and Udosen et al. (2010) raised counterarguments to this assumption by arguing that weak and corrupt state institutions and bad governance and not necessarily possession of oil reserve is the cause of paradox of plenty. Ironically, President Museveni of Uganda

corroborated this position of Solli, (2011) and Udosen et al. (2010) during the announcement of oil discovery in Lake Alberta in 2006. (Polus & Tycholiz, 2017, p. 182). But little did President Museveni know that his government would later become a victim of the same phenomenon he once vehemently dissented. If the counterarguments are anything to consider and hold on to, then OfD is intended to limit negative effects as it seeks to "strengthen resource management" and "strengthen environmental management" in the oil and gas sector of the partner nations or one of the partner nations. Notwithstanding the successes that OfD is argued by Disch et al., (2014) and NORAD (2010 - 2020) to have been recorded for poverty reduction in Ghana, Uganda, Sudan, South Sudan, Mozambique, Lebanon, Colombia among others, criticisms are levelled against OfD. By and large, the criticisms stem from the intermingling of the partnership motive with commercial motive (Allesina & Dollar, 2000). A former Danish Minister metaphorically puts it this way, "the flag follows the flesh" (Helgesen, 2007).

Solli (2011) cites that one of the pertinent criticisms raised against OfD concerns the issue of integrity where the commercial interest of the program leads Norwegian oil companies to either operate or compete for licenses. Interestingly, the concern was not only voiced by the media and civil society groups but also the Norwegian Church, that is, the state church (Eraker, 2006, Hansen, 2007; Harbo, 2009; Kolstad et al., 2009; National Council of the Church of Norway, 2007; Ryggvik & Engen, 2005; Samset, 2007; Simonsen, 2008). If the state church is also raising an eyebrow over an action by the state which contradicts sound judgement, then indeed the moral compass of Norway is in doubt. Nonetheless, as value creation entails not only customer satisfaction but also company profitability or shareholder interest, Åm & Heiberg, (2014) opine that a win-win public-private partnership serves as a bedrock to a far more fiscal, regulatory, infrastructural, social, and technological development in oil and gas exploration, extraction, and processing.

2.1.2 Local content policy in the oil and gas industry

Ovadia (2016) acknowledges that African countries including Ghana, Uganda, Mozambique, Tanzania, Kenya, and Liberia have established legal frameworks for oil and gas to put in place local content policies (LCPs). The popularity of these efforts stems from the quest to signal the strong instead of the assumed weakened stances of regulatory frameworks in Africa. One main reason is for nationalistic goals in the face of increased international oil companies' involvements in oil and gas exploration in the region. The oil discovery in Ghana and influx of IOCs amidst partnership agreements like OfD resulted in the Ghana Local Content Law (GLCL) being passed on November 2013. While the GLCL appeared similar to that of Nigeria

in its schedule of oil services, targets and definitions, and has recorded some early successes, Amoako-Tuffour et al., (2015) and Ovadia, (2016) highlight some limitations like fewer provisions that prevent locals from fronting for foreign companies. Also, it does not have enough regulations that promote job creation over indigenous ownership. Ayanoore (2018) views those limitations and many others from a political perspective. Osei-Tutu (2013) asserts that over the period of 2010 and 2012, two local policy documents had been developed, namely LCLPPA (2010) and PR (2012). Intriguingly, the only mentioning in the contents of the two documents that came close to the role of universities and technical institutions is research and development. Yet, the mentioning was even vague without specificity or clarity. Osei-Tutu (2013, p.36) also elaborated on the various definitions given to local content by key government institutions in Ghana which are connected to the oil and gas industry. The compelling question is, if the definition the Ministry of Energy in Ghana has for local content is "the level of use of Ghanaian local expertise, goods and services, people, businesses and financing in oil and gas activities," then where does the ministry expect the "expertise" of the "people" to emanate from? The importance of local content embrace from procurement practices perspective in Australian oil and gas and mining operations was studied by Esteves & Barclay (2011). They identified that the integration of procurement strategies with social and economic impact assessment enhances the primary goal of local content policy development. On his part, Ngoasong (2014) identified from his investigation that international oil companies (OICs) respond to local content policies in petroleum-producing developing countries through four key strategies namely direct engagement to renegotiate local content requirements with governments, legal compliance framework, the business case for local content strategies, and corporate social responsibility (CSR) initiatives. The conceptual model for local content development created by Kazzazi & Nouri, (2012, p. 2168) interestingly highlighted education and educational infrastructure as essential variables under the key factors in the model such as local infrastructure and local capabilities. The role of the state (political factor) was identified to be a crucial macro factor affecting local content development directly. This corroborate the position of Ngoasong (2014) that the response of IOCs to local content development is highly impacted by legal frameworks and government interventions.

2.1.3 Lack of workforce with skills and knowledge for the oil and gas industry

Revealingly, analyses conducted by OfD and through agencies like SINTEF and SCANTEAM on the state of the oil and gas industry in oil-rich African countries indicate a significant level of African workforce with low level of knowledge and skill needed for the oil and gas industry

(Disch et al., 2015, OfD Annual Report, 2010-2020). The oil and gas industry are no mere an industry where the importance of knowledge and skill management is downplayed. While the study of Carrillo (2015) focused on Canadian oil and gas companies, her investigation into knowledge management sheds light on the knowledge management needs of international oil companies (IOCs). These needs are key determinants in the choices for local or foreign workforce by IOCs despite the prescriptive local content regulatory requirements that may be forced (Webb, 1998; Carrillo, 2004).

Even though the oil and gas industry could be argued to create jobs only as long as the oil exploration and production last, the sustainable potential of oil reserve and the hefty revenues a country can accrue from the industry require a nation to invest hugely in the education of its citizens for the industry. International oil companies and other companies operating in different industries and sectors of Ghana's economy tend to cite low or lack of skilled workers in Ghana to shun polycentric approaches of recruitment in favour of recruiting from their home country (Obeng-Odoom, 2015). Ablo (2018, 2022), Panford (2014), Pegram et al., (2019) among others, have shown the complexities pertaining to the relationship between low skill and employment in the oil and gas industry of Ghana. Pegram et al., (2019) find that progressive training and development of local people with the requisite education, competencies, and experience come with risks, costs, and challenges. On the other hand, a conscious effort in the progressive training and development of local competence has a long-term cost benefit. Monday (2014) utilized his study of oil companies in the Niger Delta of Nigeria to endorse the position of Pegram et al., (2019) from the standpoint that developing human capital within local content policy in oil and gas operations evidently results in sustainable business performance. Thus, without regarding the pursuit of local content requirement only as a regulatory obligation, long term cost benefits and other benefits need to be considered.

2.1.4 Universities and technical institutions as drivers of sustainable development

Economic theory (i.e., Human Capital Theory and New Growth Economics Theory) traditionally defines education as an important determinant of economic development, both nationally and regionally (Romer, 1990; Batabyal & Nijkamp, 2012). Among the levels of education, Faggian & McCann, (2009) note that attention is focused more on higher education. Higher education is regarded as the most successful in providing the right skills to compete in the new global economy, respond to technological transformation, and help in achieving sustainable development.

In the petroleum industry, the state or government (public sector institutions as mandated by law) and IOCs are regarded as the primary stakeholders that have direct influence on petroleum activities. While the former is the 'corporate owner' of the discovered oil, the latter is a huge financial and technical investor in the exploration, development, and production of the oil and gas (Osei-Tutu 2013, p.36). This positions universities and technical institutions, among other groups, to be secondary stakeholders in the oil and gas industry. By this categorization, the influence that higher education institutions however have in the development of human capital of a nation may have a limited reflection on the decisions and policies in the petroleum industry.

Perhaps, one of the several elements that Humphrey et al., (2007) associate oil economy with, may be of some relevance here. They submit that oil dependent countries, as Karl (2004) and Clapham (1996) would call them rentier states, tend to live off their capital instead of investing in education and other sectors of the economy. According to OfD reports and analyses, STEPRI has been involved in certain areas of the OfD partnership programme in Ghana. STEPRI, which stands for Science and Technology Policy Research Institute is one of the thirteen research institutes under the Council for Scientific and Industrial Research (CSIR), Ghana. The extent to which universities and technical institutions in Ghana are connected to this research unit is not revealed. In unequivocal terms, the significant role played by universities, technical institutions, among others within the spectrum of education for the development of a country cannot be overestimated. Maclean & Pavlova (2009) posit that technology and vocational education results in empowerment – self-reliance, self-strength, independence, awakening, and capability. These attributes are ultimately enshrined in sustainable development. As universities are thought to play a crucial role in determining local and regional innovation (Diebolt & Hippe, 2018; Bramwell & Wolfe, 2008), innovative regions are found to be associated with university departments that conduct high-quality research (Malva & Carree, 2013). Viewing and approaching it from diverse perspectives in their research work, authors including Lendel et al., (2009), Feller (1990), Yusuf & Nabeshima (2007), Alhasan & Tyabo (2013), Agasisti & Bertoletti, (2020), and Nwosu & Micah (2017) have identified the crucial role of higher education in the attainment of sustainable development.

2.1.5 Sustainable development

Economic growth, social development and environmental development constitute the three main different pillars of sustainable development (Wichaisri & Sopadang, 2017). The international development agenda, as spearheaded by the UN, has transitioned through the stage of the Millennium Development Goals (MDGs) to the Sustainable Development Goals

(SDGs). It places a responsibility on all key actors and stakeholders, under this context governments, to play their part in its success (Haliscelik & Soytas, 2019; Sachs, 2012; Lomazzi et al., 2014). Cognizant of the need to demonstrate credibility and be equally well resourced to commit to the specifics of the SDGs for the well-being of their citizens, governments tend to partner with other governments for mutual benefits (Xue, Weng, & Yu, 2018). Tapping into the resources of each other, such forms of partnership for sustainable development could exist between governments of developed economies, governments of developing economies or between governments of developed and developing economies (Williams, 2010; Vidya Nadkarni, 2010).

The advantage accrued from sustainable development hinges on meeting the needs of the present generation without having to compromise the ability of future generations to meet their own needs (Haliscelik & Soytas, 2019).

Extensive literature exists in the domain. The ability of partnership between governments of oil-rich countries to ensure the sustainable management of oil resources has been identified by NORAD (2016, 2017, 2018, 2019 & 2020). This position by NORAD is corroborated by Holtzinger, (2010) with attention on Russo-China strategic partnership. He sought to investigate the validity of the strategic partnership in oil and gas between the two nations. Garcia et al., (2014) and Heiberg & Lessard (2014) stayed within the same context, however, from the viewpoint of capabilities and in organization setting. Notably, extant literature maintains two divergent views on the possibility of strategic partnerships to help achieve the intended primary objectives which most often border on the sustainable development of the nations involved in the partnership. That is, either the partnerships have helped to translate the resources of the nations into sustainable and prolific advantages, or the partnership has contributed to the worse conditions of the nations (Du Plessis, 2014; Looy, 2006; Bolt & Cross, 2010; Garnett, 2001; Wang 2017; Sharma, 2018; and Fuzesi, 2020). Hu, (2014) postulates that geopolitics and intense energy competition may play out in certain strategic partnerships to deprive the partnership of the crucial goal of achieving sustainable developments.

Specific indicators exist for each of the three dimensions (Gericke et al., 2018). A government's commitment to leveraging opportunities to achieve sustainable development requires an inclusive effort where economic development should not promise only a high level of income but proportionately demonstrate itself through better education, health, justice, environment, and other socio-economic indicators (Ramos-Mejia et al., 2018; Hanssen &Nygaard, 2013, Martinez Arranz, 2017).

2.1.6 Poverty reduction

Economic development or economic growth is one of the three interconnected pillars of sustainable development (Giddings et al., 2002). The analysis of Atkinson et al., (2007) and Ahmed (2010) recognize the economic pillar as that which aims for a market-based economic system capable of generating growth and welfare, reducing poverty, generating employment, and maintaining corporate responsibility. To enable understanding and measurement of the specific indicators under the economic pillar, the UNESCO framework for the UN Decade of Education for Sustainable Development (UNESCO, 2006, p. 18-21 & 2015) proposes three subthemes namely poverty reduction, corporate responsibility and accountability, and market economy. Zeroing in on poverty reduction, Chamhuri et al., (2012) drew on the multidimensional poverty index (MPI) established by Alkire & Santos, (2010), as based on a technique by Alkire & Foster, (2011) to posit that poverty reduction can be measured using the subthemes health, education, and standard of living. Specific indicators by which each of the three subthemes could be measured were also identified by the seasoned authors. Importantly, there is a strong positive correlation between educating citizens of a country and poverty reduction in the country. This existing relationship is established from different perspectives by the studies of Mayombe (2016), Adebayo (2012), Harbar (2002), Yong & Zang (2021). In his research analysis in South Africa, Mayombe (2016) discovered that adult education and training programmes among other interventions significantly contribute to poverty reduction and social inclusion pursued through sustainable development goals. Asserting that poverty alleviation trainings and intervention are supposed to reduce employment and result in human capital empowerment, specifically in Nigeria, Adebayo (2012) labelled university education as having the cognitive, psychomotor, and affective capability to drive skill acquisition, self-reliance, and employment. Harbar (2002) laid emphasis on education, democracy, and poverty reduction in Africa by arguing that while authoritarian rule has exacerbated poverty in Africa, democratic values and behaviours serve as antidote to a greater level of democracy. However, given that democratic values and behaviours are leaned and not inborn, education must play a key role in fostering greater democracy, which will in turn result in poverty reduction. Yong & Zang (2021) maintain that to control poverty, ignorance must be controlled, and to reduce poverty, intelligence must be supported. Thus, as an essential driving force of social development, education out of which intelligence is derived, is significantly important.

2.1.7 Green governance and green growth

A country's development is equally dependent on the proper management of its natural resources. Atkinson, Dietz, & Neumayer, (2007) refer to the environmental dimension as the capacity to maintain biological diversity, sustainable ecological processes, and resiliencies. That is, being able to safeguard natural resources for material cycles to fit into the global cycles of materials, and for local eco-systems to be aligned (Rauch, 2002). Under the proposition of the UNESCO framework for the UN Decade of Education for Sustainable Development (UNESCO, 2006, p. 18-21 & 2015), the subthemes allocated to environmental dimension of sustainable development comprise natural resources (water, energy, agriculture, and biodiversity), climate change, rural development, sustainable urbanization, and disaster prevention and mitigation.

The increased awareness about the climate change narrative has spurred the call for environmental stewardship to be embraced by all and sundry. This has evolved into some form of governmental and stakeholder visionary, strategic, and participatory efforts labelled with key terminologies such as go green, green economy, green governance, and green growth. (Li et al., 2018, Dieng & Pesqueux, 2017; Konrod et al., 2012). With the intent that these ambitious endeavours with such publicity tagging would otherwise help to shape true sustainable development where the safety of earth's biosphere will not be at the expense of global economic growth agenda, Hickel & Kallis, (2020, p. 1) however, argue that the highly publicized and literally glorified green growth agenda is "likely to be a misguided objective." The authors maintain a viewpoint of objection to the assumption being heralded by leading multinational organizations on green growth that absolute decoupling of GDP growth from resource use and carbon emissions is feasible. They propose the need for policymakers to resort to alternative strategies. Hickel (2020, p. 1107) argues that the word 'growth' has become a propaganda term defining a "a process of elite accumulation, the commodification of commons, and the appropriation of human labour and natural resource – a process that is quite often colonial in character." Being a process that is generally destructive to humans, communities, and ecology, however polished as growth, is what degrowth proponents seek to achieve. Dorninger et al., (2020) corroborate the stance of Hickel (2020) that the reliance of high-income countries or the so-called global north on a large proportion of resources from the rest of the world tend to register a negative ecological impact rather on the so-called global south.

Shanguhyia, (2013) and Eriksen, (2016) argued from political ecology, political economy, and anthropology standpoints that the pervasive global economic growth agenda typically driven by the global north rids the global south of their economic and ecological liberty. While the principal contention is that, Africa has been central in the framing of global environmental issues, the authors further put forward that there are underlying elements of capitalism, colonialization, and hegemonic connotations to the overall agenda being pushed by leading multinational organization. Both national and international policies are influenced by these underlying factors.

Gulley et al., (2018) contend in their analyses that the insatiable consumption and dependence on natural resources driving the so-called growth agenda is the prima facie to the contention between the two largest world economies – USA and China.

2.1.8 Social inclusion

Social development, as one of the three pillars of sustainable development is identified by Atkinson et al., (2007) to be associated with equity between humans of different populations and within populations, between present and future generations, along with security and good health. Under the UNESCO framework for the UN Decade of Education for Sustainable Development (UNESCO, 2006, p. 18-21 & 2015), the subthemes proposed for social development include human rights, peace and human security, gender equality, cultural diversity and intercultural understanding, health, and governance. The concept of social inclusion emphasizes the significance of equity to be expressed in the inclusion of stakeholders and actors in development policies and interventions. Equally crucial is the active and not passive inclusion of stakeholders and actors. It is worth noting that poverty reduction contributes significantly to social wellbeing and inclusion. The research analyses of Mayombe (2016), Adebayo (2012), Harbar (2002) have attested to this perspective.

In identifying the significant role of social inclusion as a key factor in sustainable development, Vijayalakshmi, (2002) contributed by analyzing the devolution process of India to conclude that the affirmative action enshrined in the 73rd Constitution Amendments has furthered the participation and inclusion of women and marginalized groups and ensured some level of equality in political opportunities. However, greater expectation could be met if further efforts are made beyond the prevailing level of participation and inclusion.

Quick & Feldman (2011) sought to distinguish between participation and inclusion to find out the relevance of the distinction in managing public engagement and addressing societal issues.

While inclusion was found to continuously create a community engaged in defining and addressing public issues, participation describes public input on decision making content and engaging multiple ways of knowing. In effect, inclusion supports an ongoing community with the capability to solve many societal issues. McNulty, (2012) explored participatory governance in Peru's local institution by asking the question whether women and men participate equally in Peru's budgeting process, and why, if the answer was yes or no. With the intent to identify how the local institutions could be more inclusive for local and national development, women participation and inclusion was found to be in deficit. Making some recommendations as corrective steps, the author emphasized (p. 15) "Merely creating institutions and opening the doors is clearly not enough." The research efforts of Singh, (2006) and Figueiredo & Perkins (2013) had a common focus on women and participation in water management. Whereas the former drew attention to the extent to which women's participation in local governance would help to achieve sustainable management of water resources, the latter investigated the participatory and inclusive processes involved in women and water management in times of climate change. Highlighting on the stimulating and effectiveness of collaboration between academic and non-academics, Figueiredo & Perkins (2013, p. 193) concluded that the gendered roles and responsibilities of women within the research setting make them better placed to possess incomparable knowledge of local ecological and water conditions. The sharing and utilization of knowledge is essential for local, national, and international negotiations and decision-making processes. However, the findings of Singh, (2006) demonstrated that the objective of women's participation in local water governance faced several institutional contradictions. The theme of social inclusion has been assessed from different dimensions also by Adams & Ferreira, (2008), Kramer et al., (2006), and Mack & Szulanski, (2017),

2.2. THEORETICAL FRAMEWORK

The research is theoretically grounded in three main theories which provide the research rationale and define the research objectives and research questions. The three theories comprise human development theory, skill acquisition theory, and sustainability.

2.2.1 Human Development Theory (HDT)

In an unambiguous term to indicate the position of the theory as largely centered on "people development," the proponent of the theory, Haq (1995, p.3) asserted, "After many years of development, we are rediscovering the obvious – that people are both the means and the end

of development." The theory focuses on development through the development of human capital, essentially through instructional capital and social capital. In pursuit of peoples' growth and wellbeing, the Human Development Index (HDI) draws on the HDT to measure the average achievement in three capability areas namely health, knowledge, and standard of living. However, HDT is a broader theory (Fakuda-Parr, 2003). From a contemporary perspective, Lerner (2018) asserts that the cutting edge of development theory is represented by conceptions of process. That is, how structures function and how functions are structured over time. In this view, socioeconomic development, value change, and political institutions which Welzel et al., (2003) describe as the three trajectories or processes critical to societal change must be functional and structured to have a positive reflection on societal development. The third process, namely political institution is of keen interest in the sense that a massive trend towards more democracy is one of the notable developments that has evolved from the framework of political institutions (Sørensen, 1993; Huntington, 1991).

The people centered approach not only in national development agendas but in global trade and partnerships had attention by UNDP in its 2003 "Making Global Trade Work for People" publication and its Human Development Reports (HDR) (UNDP, 2003).

The centrality of the idea is developing a nation through the development of the people in a manner that is felt on an individual basis. Emphasizing the 'individual' sense of it, Weiss & Carayannis, (2005, p. 255) quoted Kofi Annan, the former UN Secretary General as saying, "we have defined what development means for the individual through our HDR." As human development has been all about putting people back at the centre stage (Streeten, 1995), it draws on the greatness of human potentiality despite the narrowly circumscribed lives of the people (Sen, 2000 2006, p. 257). Fundamentally, people are posited as agents of change, who ought not be forgotten in all critical development interventions, policies, and processes (Haq, 1995, p. 24).

If a country will follow a trajectory of sidestepping the long-term focus of the development of its people in favour of short-term focus and interests when among others it is blessed with oil resource, then the underpinning idea of human development will be standing in contention.

2.2.2 Skill Acquisition Theory (SAT)

Despite the theory having been largely linked to language development, Mystkowska-Wiertelak & Pawlak (2012) submit that it is a general theory ranging from cognitive to psychomotor skills. Its relevance within the context of attaining instructions and specific skill

set which certainly are under the mandate of institutions of higher learning and technical institutions was pointed out by Ellis & Shintani (2013). They emphasized the skill-specificity on SAT to imply that the effects of instructions are skill-based. What that means according to Taie (2014) is that input-based and output-based instructions are respectively beneficial to receptive and productive skills. Revealingly, the greater part of the theory which brings to bear the indispensable role of institutions of higher learning, thus, their inclusion in policy matters being paramount, are the five concepts that play key role in the theory. Taie (2014) elaborate the concepts as skill, priming, practice, automaticity, and power law of practice. Regarding skill, among the nine defining attributes of skills that Concord (1996) used to clarify the definition of skills given by Vanpatten & Benati (2010), two stand out. He posits that "skills require contents and context knowledge" and secondly, "considerable periods of time are required to reach high levels of skill." Priming is explained to be cognitive repetition in which knowledge taught or acquired previously enhances subsequent processing (Tromfimovich & McDonough 2013). Concerning practice, while it cannot be defined on generic or vague terms to commend the apparently scanty training passively offered in 'local content policy' of OfD programmes or by IOCs, instead of the definition by Calsen (1997) cited in DeKeyser (2007, p.2) as "repeated performance of the same or similar routines," the precise definition by Newell & Rosenbloom (1981) is tenable in this context. It states that practice is the subclass of learning that deals only with improving performance on a task that can already be successfully performed. It means that practice required for learning on SAT should be meaningful. Without delving further into the remaining two of the five concepts of SAT, the position of Speelman (2005) on one of the two groups of theories he believes exists on skill acquisition, is insightful. His assertion about the theory which explains that skill acquisition results from a process of strategy refinement, resonates with the positions of Nietfeld & Schaw (2002) about knowledge and strategy training on monitoring accuracy. It also resonates with the position of Johannisson et al., (1998) on university training.

2.2.3 Sustainability

The theory of sustainability is contingent on generalizable knowledge about the functioning and management of socio-ecological systems (SESs), Waring et al., (2015). To emphasize the different facets connected to sustainability which serve as individual components capable of being a complex adaptive system that seek to guide interventions in global sustainability crises, a variety of conceptual and analytical frameworks are used by sustainability scientists and practitioners (Binder et al., 2013). For example, resilience, vulnerability, human and natural

system, and socio-ecological systems are conceptualized respectively by Folke et al., (2002), Turner et al., (2003), Liu et al., (2007), and Ostrom (2009).

Drawing on these to make it more meaningful, Pezzey (1992, p. 45) submits that within the context of SES, sustainability has two implications. First, it is a goal state that comprises the maintenance of the environment and human well-being. Second, sustainability also means the durability of a given state over time. That is, being resilient to misuse or agitation of, for example, natural resources.

However, Waring et al., (2015) argue that while not all resilient states are desirable, nor are all desirable states resilient, there is the need to distinguish between characteristics of systems states and transition dynamics between states that serve as driving factors. Human values must determine the desired state whereas science must determine the process to achieve and maintain that state. For this reason, sustainability theory seeks to identify and explain the emergence and persistence of socio-ecological states. Moreover, system states and transitions tend to depend on the development and transmission of behaviours, values, norms, and institutions, all of which are bound in culture. Interestingly, change in culture over time happens more rapidly than environmental change, explaining why human factors, for example innovation in resource exploitation, now dominate the global biosphere (Perreault, 2012; Vitousek, 1997; Steffen et al., 2007).

Concerning the position of partnership in sustainability or the association of partnership to sustainability, even though such kinds of partnerships might be detrimental to the environment, they might at the same time be essential in interventions. Waring et al., (2015) submit that sustainability theory models the evolution of environmental cooperation. It is indicated that patterns of cooperation influence social ecological outcomes. It remains clear that the most harmful sustainability challenges, including carbon emissions or biodiversity loss, have multiple layers of cooperation, albeit two groups with diverging interests. While the ecological state can be costly for one group, it may yield benefits to the other group (Hickel, 2020).

Notably, concepts like sustainable development and interventions like SDGs are embedded in the system states and transition dynamics underpinnings of the theory of sustainability, as characterized by ecological systems and cultural evolutions, and their various attributes (Waring et al., 2015).

CHAPTER THREE
METHODOLOGY

3.0 Introduction

The main element of the research paradigm is methodology. It addresses the how-related aspects of the investigation process. The phrase "methodology" is used to refer broadly to the research design, techniques, processes, and approaches used in a well-planned study, according to Gupta and Gupta (2022). This implies that the only methodological components of a paradigm that contribute to comprehending the study problem are the participants, data collection methods, and data analysis measures. The methodology defines the flow and logic of the systematic processes necessary to accomplish a research endeavor in order to better comprehend a research subject (Dźwigoł & Dźwigoł-Barosz, 2018). It talks about the assumptions made, the challenges encountered, and how those challenges were overcome. The emphasis is on how people acquire knowledge about the world or a specific area of it (Patel & Patel, 2019; Zangirolami-Raimundo et al., 2018). Additionally, methodology addresses concerns like how to go about obtaining the knowledge, comprehension, and insights required to respond to a study topic and thereby increase knowledge (Kapur, 2018; Mishra & Alok, 2022; Davidavičienė, 2018). The methodological question, in a similar vein, asks "how would the inquirer (would-be knower) go about finding out whatever he or she believes may be known?", according to Kumar (2018). It follows from this that the researcher can utilize methodological questions as a guide to comprehend how the research questions are answered (Nayak & Singh, 2021). The researcher must consequently have a thorough understanding of the methodological assumptions that will be applied throughout the investigation (Devi, 2017; Mohajan, 2018).

3.1 Research paradigm

A set of presumptions regarding the nature of the universe under study makes up research philosophy (Žukauskas et al., 2018). The type of research philosophy employed in a particular field of study depends on the topic under investigation (Tamminen & Poucher, 2020). The study of reality's nature, how it differs from how we perceive reality, and how this impacts the environment in which we live, is known as ontology (Kennedy, 2017). Praxis, which is affected by sound judgment, is the ability to act in challenging situations to effect change (Hürlimann & Hürlimann, 2019). Hermeneutics has probably benefited social sciences in continental Europe more than positivist approaches (Khaldi, 2017). In positivist science, the researcher is commonly considered to be both the sole producer of action that will be done on a mostly

passive cosmos and the primary source of information that will lead to that action (Kirongo & Odoyo, 2020). According to the literature, a research paradigm is a fundamental and all-inclusive belief system for comprehending research phenomena (Blok, 2018). According to the researcher's worldview, mentality, school of thought, or community of shared beliefs, the meaning or interpretation of the study's findings is determined (Shan, 2022).

When carrying out their research, the researcher must be conscious of and informed about how they see and notice the environment and its occurrences. It requires that the researcher must hold a variety of philosophical beliefs about how truth or reality is experienced, how information is produced using different ways and procedures, and how standards are controlled in research projects that rely on particular research paradigms (Khatri, 2020). Since they define reality, knowledge, methodological approaches, and values in line with each paradigm, these beliefs and presumptions are also referred to as research paradigm components (Muhaise et al., 2020). Ontology, epistemology, axiology, and methodology are the four parts of a paradigm (Tamminen & Poucher, 2020). Ontology is the quality of reality; epistemology is the quality of knowledge and the nature of the relationship between the knower and the item being known; methodology is the best way for conducting systematic research; and axiology is the quality of ethics, according to the paradigm of study (Blok, 2018). Ontology, epistemology, technique, and axiology make up a research paradigm.

3.2 Research design

This study employed qualitative research methods (Maxwell 2013; Dannels, 2018). The primary goal for this choice is the suitability of this design in obtaining in-depth opinions and ideas of the intended population about the study problem under investigation. It goes further to help establish answers to the whys and how of the study problem, giving detailed description and allowing for the identification pattern of association. Inductive and exploratory research were both used in the current study (Sileyew, 2019).

3.3 Research approach

In essence, surveys are snapshots of people's attitudes, actions, or behaviors at a particular time (Bloomfield & Fisher, 2019). Surveys, case studies, action research, and experimental research are further types of research designs (Ridder, 2017; Percie du Sert et al., 2017). Surveys that are carried out using questionnaires or in-depth interviews can yield conclusions (Asenahabi, 2019). Deductive approaches are widely employed when analyzing data to find outcomes that are statistically significant (Ranganathan & Aggarwal, 2018). When properly constructed, surveys can be a useful tool for examining a far larger range of factors than an experiment

(Guetterman & Fetters, 2018). Case studies have been incorporated into deductive techniques since they are generally considered to be a study form (Kazdin, 2021). One of the methods that is most frequently applied in real-world settings is case study research (Aggarwal & Ranganathan, 2019; Turner et al., 2017). The case study technique of doing inductive research has arisen as a unique approach to scientific inquiry, in part as a response to the perceived limitations of deductive research (Schoonenboom & Johnson, 2017). Case study research is an example of inductive research (Boaz et al., 2018). Inductive research stresses many methodologies and approaches its subject using an interpretive, naturalistic approach (Huntington-Klein, 2021). Action research can take the role of quasi-experimental research (Abutabenjeh & Jaradat, 2018; Rahi, 2017). Lewin employed action research for the first time in 1946. Lewin was interested in applying social scientific knowledge to society problems including intergroup conflict and the need to change eating habits during wartime (Siedlecki, 2020). Lewin frequently refers to "problem-centered research," but he does not seem to have given it a comprehensive description (Tobi & Kampen, 2018). However, Lewin brings up business research initiatives whose expansion is driven by the demands of the organizations (Chih-Pei & Chang, 2017) which survey research caters to. Therefore, survey research was employed in this study.

3.4 Data sources

Summaries of published articles about local content policy development for sustainable development were used as secondary sources of knowledge (Sun et al., 2018). The literature review used secondary sources of data (Gutierrez-Osorio & Pedraza, 2020). Because the study in part examines government processes, it was essential to have access to official documents to allow for informed analysis. However, due to information sensitivity as they relate to policy decisions and foreign policy interest concerns, access to many relevant public documents was minimal. This was especially concerning Petroleum Commission which is the government representative for the Oil for Development partnership programme between Ghana and Norway. Some of the universities also granted access to some relevant documents. A few extra pieces of secondary data were used to support the methodology chosen for this research project (Lohr & Raghunathan, 2017). The major source, as was previously said, is the additional source of data that was utilized. This is the process of acquiring information from participants in the research population or from the field (Correia et al., 2021). In this sense, the primary source of data for this study was information gathered from Ghanaian Universities and Technical Universities/Institutions, Commission for Technical & Vocational Education & Training,

Accra-Ghana (CTVET), and Petroleum Commission, Accra-Ghana. The other participants included CSIR-Science & Technology Policy Research Institute (STEPRI), Accra-Ghana, and Civil Society Organizations. The objectives and research questions of the study are addressed by this kind of data.

3.5 Population, sample, and sampling

Ghanaian Universities and Technical Universities/Institutions, Commission for Technical & Vocational Education & Training, Accra-Ghana (CTVET), and Petroleum Commission, Accra-Ghana, CSIR-Science & Technology Policy Research Institute (STEPRI), Accra-Ghana, and Civil Society Organizations constitute the population for the study (Etikan & Bala, 2017). Among the Civil Society Organizations ISODEC, IBIS Ghana, and WACAM were given focus given their relevance to the oil and gas industry of Ghana (Osei-Tutu, 2013). The choice of Civil Society Organizations was informed by their role in policy advocacy, transparency promotion, active partners in development among others. This is crucial herein, given the objective of the study to examine the participation of universities and technical institutions in local content policy development.

The sample units comprised members of staff of the named institutions and organizations that had relevant knowledge of the problem that the research seeks to answer. The study's 13 participants included 1 personnel from Civil Society Organization, 1 personnel from Commission for Technical & Vocational Education & Training, Accra-Ghana (CTVET), 1 personnel from Petroleum Commission, Accra-Ghana, 1 personnel from CSIR-Science & Technology Policy Research Institute (STEPRI), Accra-Ghana, and 9 members from Universities and Technical Universities/Institutions. Thus, the sample size of the study was 13 respondents. A non-probability sampling technique called purposive sampling, otherwise referred to as selective or judgment sampling was deemed suitable for the study because the specific organizations or participants were in the position to provide in-depth and detailed information about the study's primary problem under investigation. (Campbell et al., 2020; Etikan et al., 2016). Conversely, convenience sampling method selects the sample units according to how easily the researcher can obtain them (Asiamah et al., 2017). This may be due to geographic closeness or accessibility during a certain time (Otzen & Manterola, 2017). Thus, relevant departments and personnel of Ghanaian Universities and Technical Universities/Institutions, Commission for Technical & Vocational Education & Training, Accra-Ghana (CTVET), Petroleum Commission, Accra-Ghana, CSIR-Science & Technology Policy Research Institute (STEPRI), Accra-Ghana, and Civil Society Organizations were "on

purpose" and nonrandomly sampled. When utilizing this sampling procedure, there is no exact equal chance that every member of the population would be selected (Heen et al., 2020).

3.6 Data collection instrument and procedure

The data gathering method was originally intended to be an interview (Alam, 2021). However, the requests of participants based on their availability and schedules resulted in the use of open-ended survey questions (Braun et al., 2020). The respondents were given the opportunity to answer the questionnaire with their own sentences between 1 and 4000 characters (including space). Unlike close-ended questionnaire where respondents are restricted to choose one out of some given answers, open-ended format gives liberty to respondents in their choice of answers. enables the researcher to ask as many questions as are pertinent to the subject being researched. Despite the much more diverse responses that open-ended questionnaire allows, it has the limitation of producing missing data and inadequate responses (Reja et al., 2003; Schuman & Presser, 1979). The researcher asked participants for their consent before sending the link to them (Androutsopoulos, 2017). Participants were also assured of privacy and confidentiality of responses according to ethical standards (Rahi, 2017). Depending on the length of answers to provide, the questionnaire had to take between 30 and 60 minutes to complete. I used Microsoft forms to collect the responses from respondents. The responses were saved on Microsoft One Drive because access to the Microsoft account was officially provided by my university, University of Agder.

3.7 Data analysis technique

Thematic analysis was the analysis techniques used for this study. This was achieved through systematically analyzing the content of the texts and grouping them based on themes, patterns, and semantics connected to the three research questions (Bui, 2020, p. 183; Campbell et al, 2021, p. 2014). The procedure allowed the opportunity to identify either the positive, negative, or neutral opinions and dispositions of the respondents toward the phenomenon being investigated. The limitation of non-suitability for complex and big data which this form of data analysis technique is normally associated with was overcome by the purposive nature and number of the study's sample (Campbell et al, 2021).

3.8 Document analysis

I had access to publicly accessible documents and publications from Petroleum Commission, STEPRI, NORAD, and one institution of higher learning. I also accessed some information

from webpages of all the informants. Even though the documents were accessed by me from known sources, I further assessed the methodology used and whether the authors were from within or outside the organization that I accessed the documents from. This was necessary because it aligned with one of the steps in the procedure to analyze secondary data as outlined by Johnston (2014, p. 620). To draw out the salient information from the documents, I searched the contents that were relevant to the themes and patterns I had already established for the primary data. For example, "policy process," "local content policy," "relevant stakeholders," sustainable development," "educational institutions," "universities," "vocational institutions," "technical institutions," "curriculum development," "oil and gas partnerships," among others. I further analyzed the documents based on the relevant period within which commercial oil production started in Ghana and at which time the Oil for Development partnership programme started between Ghana and Norway. Afterwards, I thoroughly read and analyzed the contents found relevant in order to find consistency with the findings from the primary data. After I analyzed the empirical data collected from the questionnaire, I verified the validity of the information in the questionnaire with the information in the relevant documents from the informants. Some of the documents were not relevant to the themes I developed. Following the procedure elaborated above, I found some relevant information in the following documents that correspond to the respective informant:

Petroleum Commission: (Local Content Magazine, 1st Edition, Enhancing E&P Activities to Sustain Local Content Development, Building a Regional Oil& Gas Business-The Strategic Way Forward, Petroleum LCP Regulation 2013, Petroleum LCP Regulation Amendment 2021, Guidelines for the Formation of Joint Venture Companies),

STEPRI: (NKOSOO 2015: Sustainable Growth of Oil Supply in Ghana),

NORAD: (Annual Reports 2010 – 2020, Findings on funded research)

Institution of Higher Learning: (The Role of Academia in Sustaining Local Content Development, Study Programmes and Admission Requirements).

3.9 Validity of Findings

The collected data was qualitative data. That is, nonnumerical data. This necessitated the need to ensure the validity of the collected data. Validity in this context of nonnumerical data implies that the quality of the findings is ensured. That is, making sure that the collected data and findings are accurate, credible, or trustworthy (Bui, 2020, p 185; Creswell, 2003).

To achieve this goal and help increase the validity of my data and findings, I ensured that I kept detailed records of my primary data, secured the data, called on some respondents for confirmation of their responses, and provided thorough description of respondents' responses. Another procedure I used to help increase the validity of the findings is by double-checking provided responses from secondary sources. Some of the respondents even recommended that I double-check their responses from the document archives on their websites, which I did, to corroborate the responses they presented to me. (Denzin 1989, Oliver-Hoyo & Allen, 2006; Tuckett, 2005) as cited by Leech & Onwuegbuzie, (2007, p. 579) referred to this step as data triangulation, where the same phenomenon is studied using a combination of methodologies. In this case, I supported my primary data with secondary data from relevant sources, which included the public document obtained from the archives of some of the primary respondents.

3.10 Ethical consideration

As important as the research remains to the development of individuals, society, and nations, it is essential that it is undertaken in ways that are ethically sound and honour human dignity. (Etikkom, 2019). "Human dignity constitutes the core value in this context, and it is protected by three principles: respect for equality, freedom and autonomy, and protection from the risk of significant harm and unreasonable burdens." (Guidelines for Research Ethics in the Social Sciences, Humanities, Law, and Technology, 2019, p.1)

By undertaking research in ways that are sound and honour human dignity, ethical values must be upheld. This implies adhering to the four main principles namely respect, good consequences, fairness, and integrity. The research problem borders on a sensitive policy issue which while one group of respondents may be discreet about their responses, another group may be unequivocal. This depends on how the respective respondents or participants relate to the overall research problem as well as the specific question at hand. There may be the likelihood of a situation of "telling it as it is" by respondents who tend to be the group directly impacted by the policies from such strategic partnerships. On the other hand, agencies of governments who are at the centre of the programme implementation may seek to reserve the right to disclose certain pertinent and sensitive information. To put all into perspective, consideration was given to risk for respondents, risk for me as researcher, informed consent for respondents, and personal data protection.

Request was made for the consent and approval from the institutions and public and private organizations that were selected as respondents. The respondents included Ghanaian

Universities and Technical Universities/Institutions, Commission for Technical & Vocational Education & Training, Accra-Ghana (CTVET), Petroleum Commission, Accra-Ghana, CSIR-Science & Technology Policy Research Institute (STEPRI), Accra-Ghana, and Civil Society Organizations. The study adhered to all ethical requirements, including maintaining the confidentiality of the responses from the respondents and respect for privacy. The respondents were given the assurance of data confidentiality and anonymity. They were given the opportunity to opt out of the study without giving notice. They also had the right to request access to their data before the completion of the research, at which time the collected data will be deleted.

The investigation was carried out in accordance with the established ethical guidelines by NSD/SIKT (Norwegian Agency for Shared Services in Education and Research), Norway as adhered to by my university, University of Agder (Zaidi & Larsen, 2018). Before beginning the questionnaire, each respondent was required to complete an ethics consent form (Faucher & Roques, 2018). Participants were given guarantees that their answers or responses would not put them in any form of danger. The respondents were explicitly informed about the study's aim and purpose, and that no intentional distortion to the research data will be made. Moreover, the data will be used for the intended educational purpose. That is, in partial fulfilment for the award of a Master's degree in Global Development and Planning. The guarantees or assurances paved the way for the respondents to provide sincere and accurate responses.

CHAPTER FOUR
PRESENTATION OF EMPIRICAL DATA, ANALYSIS AND FINDINGS

4.0 Introduction

Based on the qualitative criteria and specifically questionnaire instrument highlighted in the preceding chapter, this chapter presents the findings from the collected data. The organization and presentation of the findings were premised on themes and patterns that were directly connected to the research objectives and questions. This means that the interview questions that were converted into questionnaire on the request of respondents, were directly tied to the research questions. However, there were a few questions that were indirect but equally meant to elicit or draw out key answers connected to the overall objective of the research. This became necessary due to the diversity in the composition of the purposively selected respondents. Secondary data was also analyzed to validate some of the primary data. The procedure followed for the secondary analysis is also briefly presented in this chapter.

4.1 Characteristics of respondents

The online administered questionnaires were sent to five different groups of purposively selected respondents. They were made up of Ghanaian Universities and Technical Universities/Institutions, Commission for Technical & Vocational Education & Training, Accra-Ghana (CTVET), Petroleum Commission, Accra-Ghana, CSIR-Science & Technology Policy Research Institute (STEPRI), Accra-Ghana, and Civil Society Organizations. This characterization implied that Universities and Technical Universities/Institutions were made up of more than one respondent and subsequently responses were received from the individual institutions under them. It was a similar scenario to Civil Society Organizations because they constitute several or multiple types. However, it was not the case with the other groups of participants/respondents because they were single groups. The questionnaires were sent directly to the targeted institutions and organizations. This included the various universities and technical institutions. Some of the institutions and organizations who were sent the request to complete the survey responded to the request but did not complete the survey. They included Ghana National Petroleum Council, NORAD, and two specific civil society organizations. NORAD, however, suggested that their several relevant documents available for public access could be referred to. A total of thirteen (13) responses were received from the five (5) categories of respondents. Among the 13 responses, nine (9) responses were received from Universities

and Technical Universities/Institutions. The responses from each of the remaining four groups of respondents added up to include the remaining four (4) responses. Out of the 9 responses received from Universities and Technical Universities/Institutions, two universities responded. They included Kwame Nkrumah University of Science and Technology and University of Ghana, Legon. The remaining seven (7) responses were received from various Technical Universities and Institutions across Ghana. The sample total of thirteen (13) for the purposely selected five groups of samples/respondents represented a significant percentage of responses to obtain even as there was the challenge of repeatedly following up on certain key respondents for their responses.

Table 4.1 shows the characteristics of the respondents/sample that are relevant for the analysis. Each of the five characteristics has its relevance to the analysis. The 'institution/organization' is meant to identify the targeted institution/organization that the respondent belongs to. The 'lengths of years in the position and institution' identifies the respondent's ability to have the required information within the specific period of interest – from the year of inception of the OfD partnership programme. Both the 'position in the institution' and 'education level' help to determine the rank and experience of the respondents to enable the provision of relevant responses. The frequency identifies the number of responses received from the individual respondent/institution/organization.

Table 4. 1: Relevant characteristics of respondents

Characteristics	Institution	Frequency
Institution/organization	KNUST	1
	Legon	1
	Technical University	7
	CTVET	1
	CSIR-STEPRI	1
	Petroleum Commission	1
	Civil Society Org	1
Length of years in the institution	Less than 1 year	
	1-5 years	1
	6-9 years	2
	More than 10 years	10

Position in the institution	Professor	3
	Associate Professor	
	Senior Lecturer	2
	Head of Department	5
	Director	3
Length of years in the position	Less than 1 year	
	1-5 years	1
	6-9 years	6
	More than 10 years	6
Education level	Technical/Polytechnic	
	Bachelor	
	Master	2
	PhD	10
	Other: ……	1

4.2 Characteristics of individual respondents

As highlighted in the preceding chapter, relevant staff members from the various institutions and organizations that constitute the five groups of respondents answered the questionnaire on behalf of their various organizations. The staff members were considered to have relevant knowledge about the phenomenon that this research is focused on. Thus, below are the general characteristics of the five categories of respondents.

4.2.1 Universities and Technical Universities

Figure 1 shows that 1 response was received from Kwame Nkrumah University of Science & Technology (KNUST), Kumasi. Ghana. Seven responses were recorded from the various Technical Universities/Institutions in Ghana and 1 response was received from University of Ghana, Legon. Accra. Ghana.

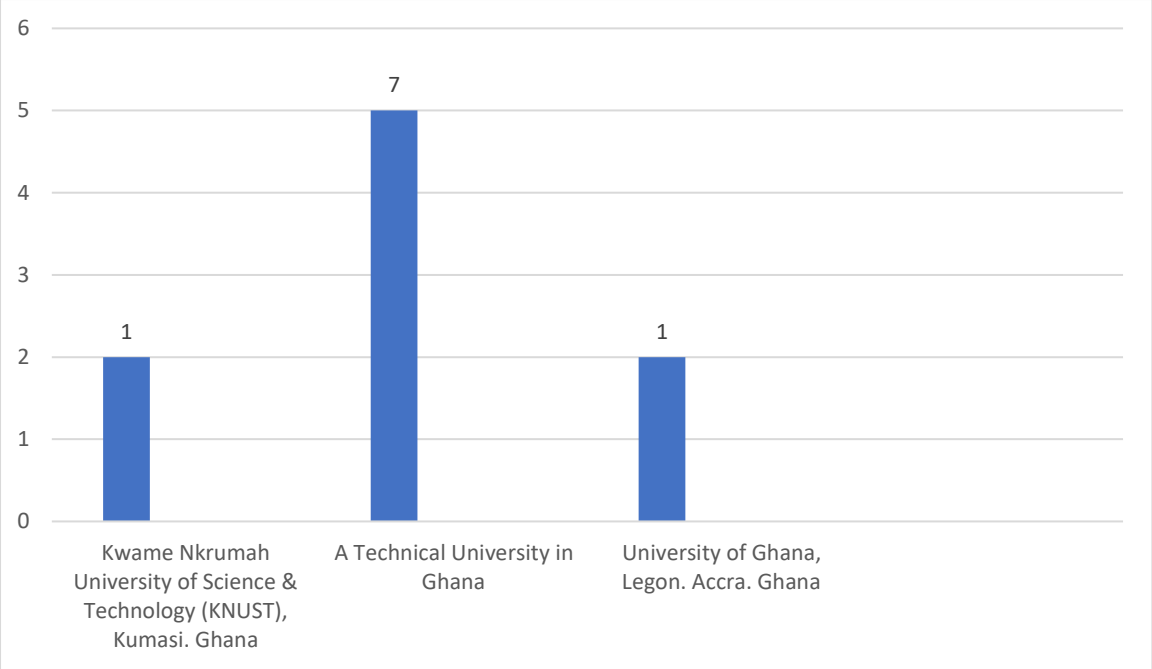

Figure 4. 1: Distribution of types of universities and technical universities/institutions

Figure 2 below shows the number of years of work that respondents from the various universities and technical universities have worked in their institutions. Respectively, one respondent has worked for 1-5 years, two respondents 6-9 years, and six respondents 10 years and above.

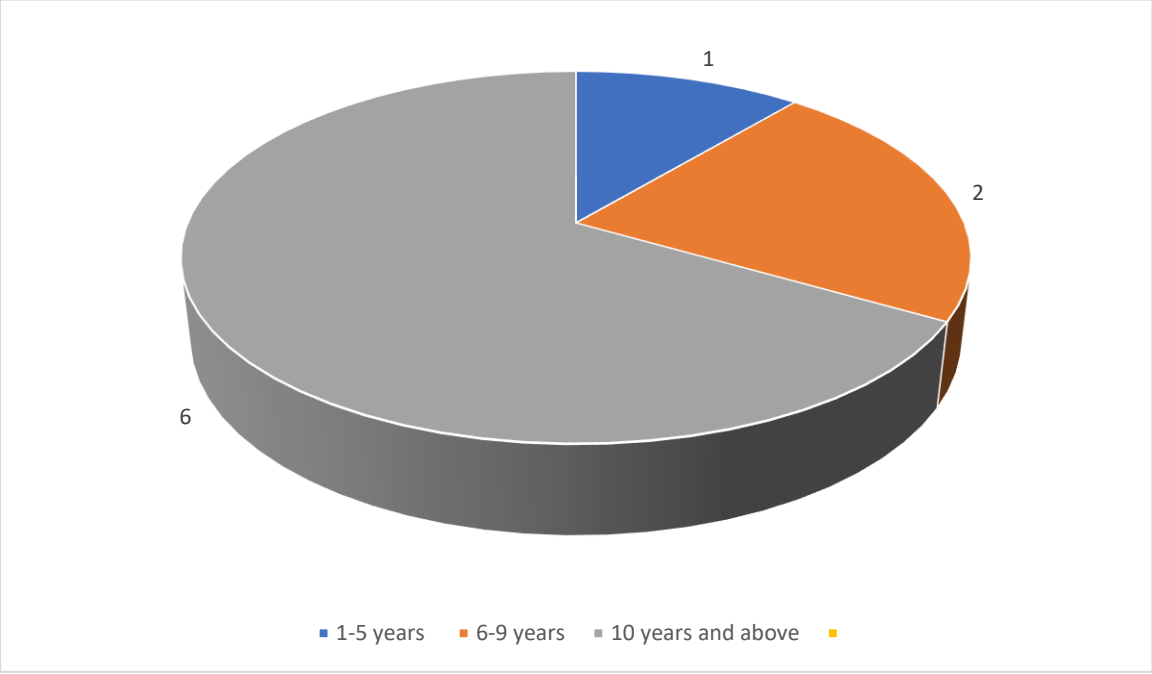

Figure 4. 2: Distribution of number of years of work in the institution

Figure 3 below illustrates that there were three respondents for each of the positions of Head of Department, Professor, and Senior Lecturer respectively.

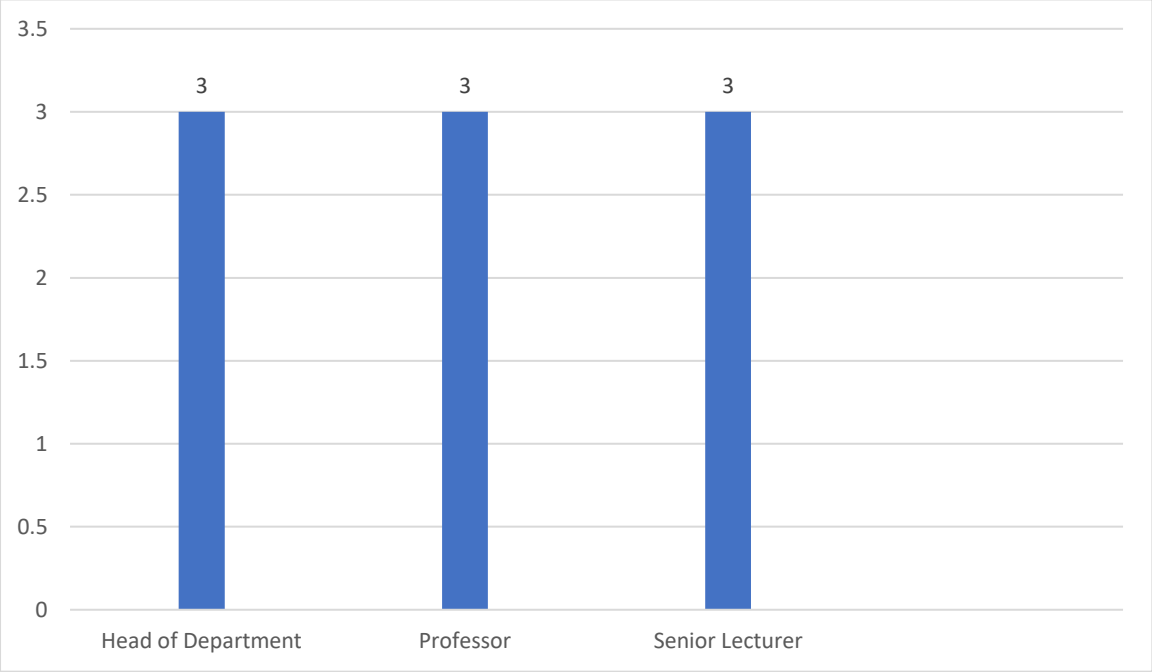

Figure 4. 3: Respondents' position in the institution

Figure 4 displays the distribution of respondents' number of years in the position that they occupy in their institution. One respondent has been in the position for 1-5 years, two respondents have been in the position for 6-9 years, and six respondents have been in the position for 10 years and above.

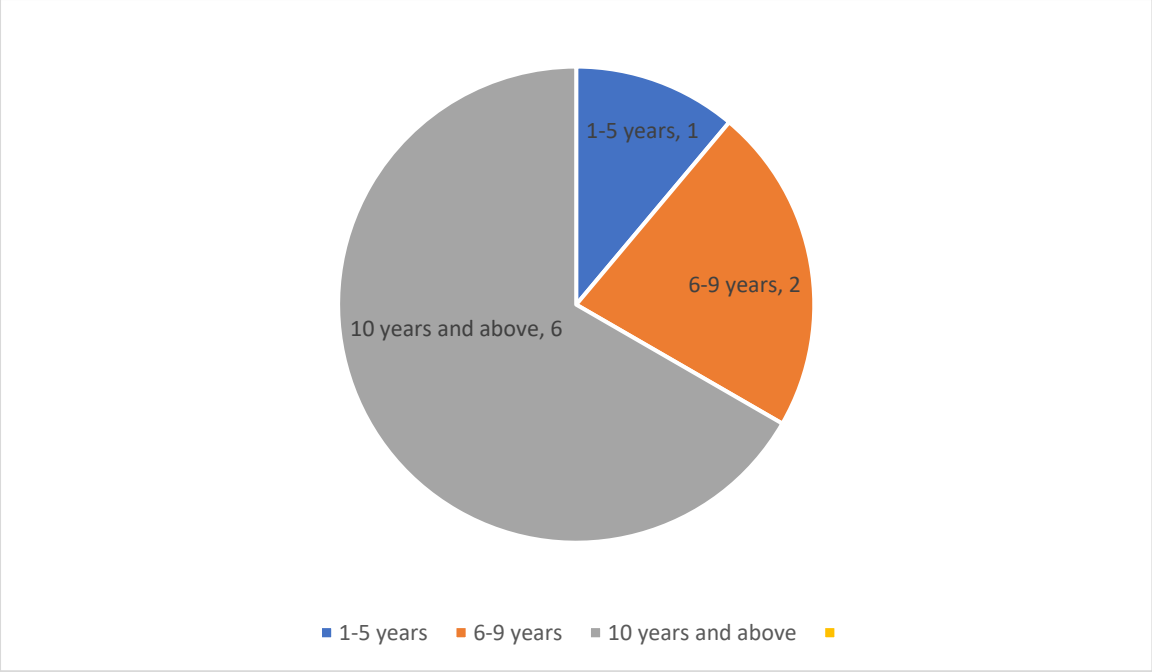

Figure 4. 4: Distribution of number of years in the position

Concerning the level of education of respondents, Figure 5 shows that one respondent holds a master's degree whereas eight respondents hold a PhD.

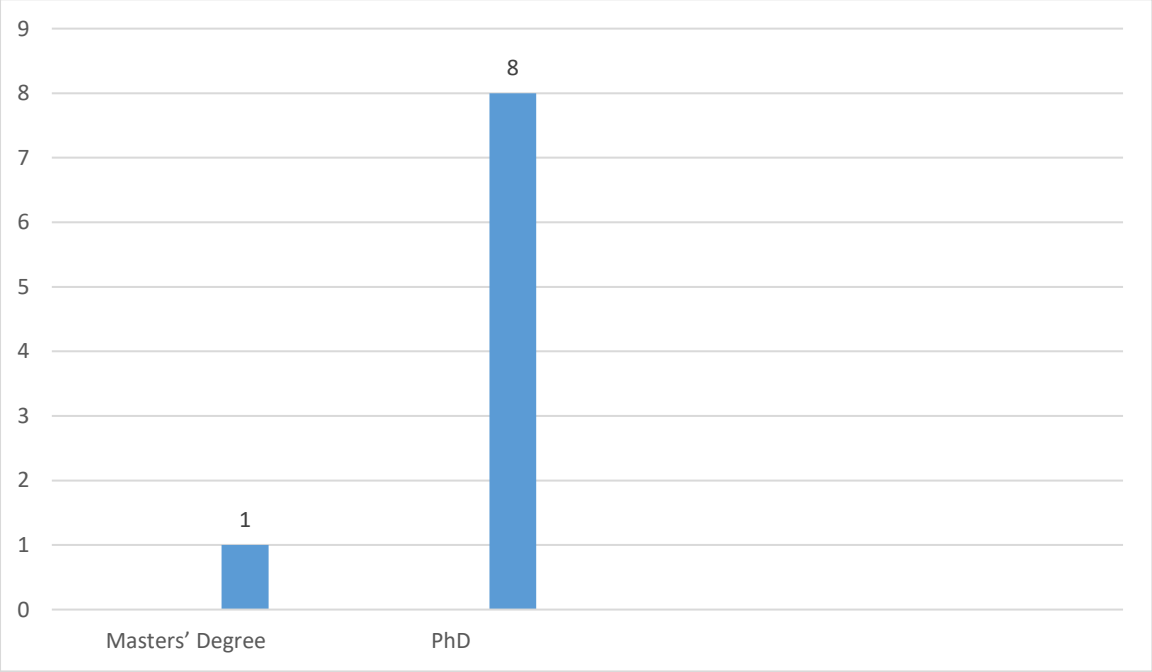

Figure 4. 5: Distribution of education level

4.2.2 CTVET, Petroleum Commission & STEPRI

One response each was received from the Commission for Technical & Vocational Education & Training (CTVET), Petroleum Commission, and CSIR-Science & Technology Policy Research Institute (STEPRI) respectively. Whereas the respondent's level of education are respectively Master's, Professional degree and PhD, their positions ranged from Director to Head of Department. Each one of them has occupied the position from between 6 – 9 years. They have worked in their various institutions/organization for years ranging between 1 and 10 years.

4.2.3 Civil Society Organization

The literature review revealed that both Civil Society Organizations (CSO) and NGOs are also proactive in the subject matter of petroleum policy and legislation (Osei-Tutu 2013, p. 24). Among the many existing CSOs and NGOs in Ghana and those outside Ghana whose work has focus on Ghana, three of them which are also Civil Society Platform on Oil and Gas (CSPOG) members, have devoted a lot of efforts specifically to Ghanaian participation in the petroleum industry and local content policy (LCP). In light of this, these three Civil Society Organizations, namely Integrated Social Development Centre (ISODEC), IBIS Ghana, and WACAM were contacted for the survey. While a response was received from only one of them, the demographic data about the concerned staff member comprised 10 years and above work in the organization and a PhD holder. As a director in the organization, the respondent has been in the position for a period between 6 and 9 years.

4.3 Thematic analysis

The responses of each of the five categories of participants were analyzed, drawing on the themes, patterns, and semantics that were directly connected to each of the three research objectives and questions (Bui, 2020, p. 183; Campbell et al, 2021, p. 2014). Considering this, the presentation of findings follows a sequential order for each of the five (5) individual categories of respondents namely Universities and Technical Universities/Institutions, Commission for Technical & Vocational Education & Training, Accra-Ghana (CTVET), Petroleum Commission, Accra-Ghana, CSIR-Science & Technology Policy Research Institute (STEPRI), Accra-Ghana, and Civil Society Organizations. However, to allow for the comparing, contrasting and identification of similarities of opinions under the same themes and patterns among similar categories of respondents, the presentation of findings

have been grouped based on two main categories namely Universities and Technical Universities/Institutions and the other four organizations Therefore, the responses of each category of respondent have been analyzed and discussed based on the theme, pattern, and semantics corresponding to the three research objectives and questions. Because the category of Universities and Technical Universities/Institutions was made up of 9 individual respondents, the responses of respondents were categorized under the themes, patterns and semantics that corresponded to each of the three research objectives and questions.

4.3.1 Universities and Technical Universities/Institutions

4.3.1.1 To identify whether universities and technical institutions in Ghana have been consulted and engaged for local content policy development for the sustainable development of the Ghana oil and gas industry [How have universities and technical institutions in Ghana engaged in local content policy process for the sustainable development of the Ghana oil and gas industry?]

With the primary intent to discover the importance that the partners in the Oil for Development program, namely Petroleum Commission and NORAD attach to the involvement of Universities and Technical Institutions in local content policy process, research objective one (1) was as highlighted above. Under this research objective and question, the nine (9) educational institutions were asked eight (8) relevant questions. The questions were based on themes such as engagement of educational institutions by any government agency or authority, participation of other groups of organizations in policy discussions, composition of such groups of organizations, how the engagement of universities had taken place, and whether the engagement has had a focus on oil and gas and sustainable development. Other themes also sought to find out the engagement of the institutions by government and oil and gas companies for graduate employment opportunities and development of new or upgrade of existing petroleum industry-based curriculum. The expectations of universities for their increased engagement by the government and industry players was also sought for. **Five themes** were developed under research objective one. The responses revealed an array of divergent standpoints by the individual informants that represented the individual institutions:

Theme 1

This theme focused on whether the educational institutions had been consulted and engaged by any government agency for participation in discussions and development of policies for the oil and gas industry in Ghana. In response, a common viewpoint was shared by the two main universities among the educational institutions. One maintained that the government

recognizes the important role of academia in the petroleum industry. Therefore, they are engaged in some policy discussions, research and development projects, and relevant national conferences on policy developments. The other university affirmed this position, however, by noting that they are engaged by means of public policy discussions and seminars. The engagement was also confirmed by one of the seven technical universities. In their case it is achieved through capacity building programmes and training, both within and outside Ghana, and initiated by government agencies like the petroleum commission. In another shape of engagement, another technical institution submitted that while they are occasionally invited to participate in seminars organized by some government ministries and agencies, those seminars had not been focused specifically on oil and gas. This act of engaging institutions of higher learning and technical institutions might even be suggested by some institutions themselves as an added responsibility to an existing institutional mandate or obligation. Another technical university appeared to be one of such institutions because of the response they gave. They opined that the government expects them to align with their core mandate as an academic institution. Therefore, they were not engaged directly for policy discussions and policy developments. Nevertheless, they underlined that they could certainly contribute effectively to local content policy discussions and processes if they were engaged because ultimately, they provide the human resource of the nation with knowledge and skill for the economic, social, and environmental development of the nation. Contrary to the affirmative responses shared by their counterparts in connection with the question of how institutions of higher learning had been engaged by any government agency, another one of the seven technical universities pointed out that they had had no such engagement experience. Explicitly, they stated "No engagement of that nature has occurred." Without any attempt to interpret responses, these opposing views maintained by these institutions concerning this theme suggest a probability that the government and industry players may be selective in their choice of which institutions to engage with or the degree of engagement to maintain with educational institutions as far as the oil and gas industry is concerned. A technical university which happened to be the fifth out of the seven informants related a different version by communicating that while they had not taken a step to engage specifically the Petroleum Commission for discussions on matters about the oil and gas industry, there had been engagement with other agencies over other sustainable development discussions and projects.

The remaining two technical universities responded "yes," to the demands of this team. The apparent lack of specific responses to specifics of the theme served as a drawback to identifying the perspectives that the two institutions had on what the research questions sought to divulge.

In a nutshell, a greater percentage of the nine institutions admitted to their consultation and engagement by the government to participate in discussions and development of policies for the oil and gas industry in Ghana.

Theme 2

To assess the government's prioritization of other categories within local content policy over institutions of higher education, vice versa, there was the need to know what other institutions or group of organizations had participated in the policy discussion and development - their composition – and whether they were made up of both local and foreign institutions and organizations. It was subsequently admitted by one institution that other many different groups and organizations also participated. They were made up of both local and foreign companies, civil society organizations and other groups that the informant had no idea about. There was confirmation from the first response received that both private and public sector organizations and companies had equally been key participants in such government-initiated programmes on local content policy processes. Consequently, there was an increasing admittance by five more educational institutions that other academic institutions, government agencies, companies, NGOs, and many other organizations participated in the policy seminars. They averred "In those engagements, business organizations, government ministries, NGOs, legislators, politicians, media organizations and those in academia had all been partakers. Equally, there were foreign diplomats present, including representatives of international oil companies." While two of the educational institutions had mostly been brief with their responses as well as not being precise, "none" as a response was issued out by three informants to this theme. This might be due to either no dialogue or engagement occurred that necessitated the need for the informants to be part of the engagement activities or the institution had other reasons for this response. This format of responses which prevent the possibility of deriving specific responses to specific questions explains the limitation in using questionnaire use. Under this theme, a larger proportion of the informants, approximately 70.6% admitted to the involvement of many other groups in the policy discussion and development.

Theme 3

The core interest of this theme was to elicit response on educational institutions' engagement and input in activities specifically for the OfD partnership programme between Ghana and Norway and not the oil and gas industry of Ghana in general. Furthermore, to identify the difference their participation made and if they would have liked to contribute in a different manner or way. The array of responses mainly showed an indirect form of participation and contribution by the educational institutions. A few of the indirect responses included "Since

the partnership was centered on the overall petroleum industry, I would say that our input has been in the form of our participation in capacity building programmes for the petroleum industry that equip us for better training of our students especially in engineering." Another claimed that "our input in the partnership programme could be seen from the angle of educating and imparting knowledge to students who will manage some of these partnership projects eventually." On the other hand, the non-involvement was explicitly expressed by others, "We are aware of the partnership between our country and Norway, but we are not directly involved." Another one was,

"No direct engagement has existed between the university and the Oil for Development partnership programme even though the university knew about the existence of the partnership programme."

Theme 4

This theme is aligned with the goal to identify any consultation by the government and industry players on the subject matter of sustainable development, satisfaction of input made, and how the input had been implemented. Majority of the informants were inclined to the view that as academic institutions, they have a part to play in sustainable development through knowledge and skill impartation. Thus, they did not have to wait on external parties to engage them before they carry out their responsibility as it pertained to sustainable development. Yet, their satisfaction is derived from the greater opportunity availed by the government for them to carry out their mandate and contribute to the policy development processes and the subsequent implementation of our contribution. That notwithstanding, some of them indicated expressly that there had not been any request from the government for their input specifically in sustainable development policies. In the case of one premium university, this was asserted, the respondent disclosed that their university is an autonomous institution that has the mandate to develop programmes that are relevant to the development of the economy of Ghana. Having said that, they develop study programmes and courses that fit the need areas of Ghana's development. It was acknowledged that the oil discovery by Ghana spurred the need for redevelopment of the already existing petroleum study programmes they have on offer.

Themes 5

Consultation and engagement by government and oil and gas companies on curriculum development, skill acquisition by students, and graduate employment were the areas of interests under this theme. To what extent these forms of engagements and practical outcomes means for the institutions was similarly sought after. One technical institution indicated that there exists a National Council responsible for the establishment, upgrading, and assessment of

curriculum for tertiary institutions. Since oil and gas study programmes had already been discussed by the informant's institution and the National Council for curriculum development, once the training infrastructures were in place, study programmes pertaining to oil and gas would be welcoming. They further conveyed affirmative responses that, at every least opportunity they encourage the government regarding graduate employment and contribute to R&D in critical sectors of Ghana's economy. However, more engagements with them by government and industry players would be highly encouraging. Furthermore, it would serve as motivation to identify and implement beneficial mechanisms in the training of their students and the employment of their graduates. They accepted that they had the responsibility of ensuring the cordial, continuous, and smooth management of their part of the engagements. Conscious efforts in that direction would in turn translate into economic, social, and environmental development for Ghana, they remarked.

Another viewpoint was delivered by another institution that with oil and gas study programmes considered as important in the face of oil production in commercial quantities by Ghana, an established system was in place for the restructuring of their curriculum and the introduction of new and relevant programmes. Any concern or suggestion pertaining to curriculum development is channeled through the Ministry of Education. "Indeed, engagements with all relevant parties basically for the improvement of skill and knowledge impartation and acquisition in institutions of higher learning is crucial," remarked the same respondent. Furthermore, they have been having discussions with companies operating in many different industries, but no significant practical outcomes had been realized especially concerning the oil and gas companies. Effective engagements, discussions, and cooperation among actors including institutions of higher learning are considered by this institution as very important for local content policy and sustainable development. In that sense, they as respondent encourages them to happen, giving assurance that they as a technical university will contribute seriously to the success of the initiatives.

A third institution opined that oil and gas are now known to Ghana, at least since a decade ago. Therefore, the introduction or upgrading of the existing curriculum based on oil and gas holds good prospects for our students and their employability. It will be encouraging if the government engages the universities and technical institutions in a special way in this specific area. Improvement in every existing mechanism, especially for the education and development of the country's human resources, is always a priority to the institution. Whiles some of their students have certainly had their internships with some oil and gas companies, those internship opportunities had subsequently led to employment. As welcoming as the engagements had

been, they as an educational institution would go every length in contributing their development quota through knowledge and skill delivery.

Positive responses to all the subjects raised under this theme were recorded from a university. The institution specified that while they contribute to the discourse on policy development for the petroleum industry, they do not run engineering study programmes on oil and gas. However, the outcomes have been very appreciable, and they need more government engagements. As Ghana's premier university, they believe that the graduates from their university are employed in almost all oil and gas companies in Ghana. Some of their graduates are also employed in companies around the world. Additionally, their commitments and contribution to knowledge and skill generation concerning any sector of Ghana's development have been phenomenal.

While two short responses from two institutions noted a simple 'yes' to the series of subjects under the theme, there appear another significant approval by three more institutions concerning all subjects under the theme. One of them submitted that the different forms of engagements with different public and private entities had influenced the structuring of their curriculum and driven the establishment of necessary mechanisms for innovative research, internships and industrial trainings for students, and graduates' employment opportunities. In their opinion, those mechanisms or schemes had been appealing and welcoming. All other things being equal, their continuity would have a far-reaching positive effect. The next institution averred that their institution was part of some technical universities in Ghana selected by Petroleum Commission for an Upstream instruction programme in Canada. They are effectively and efficiently carrying out their mandate in education which certainly include study programmes on sustainability of all resources belonging to Ghana. They are very confident about that, and they believe that the government has trust in their input even though they cannot emphatically state that some of their recommendations that concern sustainable development of the country's resources have been singled out for policy implementation. They would like increased engagement with government through the Ministry of Education, Ghana National Petroleum Corporation, Petroleum Commission, and others, by establishing a mechanism that place increased responsibility on stakeholders for prioritization of graduates' employment in the oil and gas as well as other national industries. Further to that, they maintained a yes stance by indicating that fostering partnerships with industry players was very important to them because eventually their graduates will have to work for companies. Discussions with industry players, IOCs and other companies had been going on and the practical outcomes were very encouraging because of the informant's increased call on them.

To conclude their responses to subjects under this theme, this specific institution submitted that they had always shown their readiness and enthusiasm for cooperation with relevant parties for the development of their curriculum and students.

The third respondent who also maintained positive views, indicated that as they are the pioneer of oil and gas education in Ghana, they are the first point of call by the government when policy discussions, research and development, and relevant training pertaining to the oil and gas industry needed to involve education institutions. They further conveyed that while all their policy suggestions and inputs might not have been completely implemented by the government, they were duly welcomed by the government through the relevant agencies. They are thus satisfied by their personal input. They tend to engage the government, private sector organizations and companies, mainly through prolific research and development in key domains of the economy of Ghana. This increases the employability of students when they graduate insomuch that some of them secure job opportunities even before they graduate. Additionally, their engagement with both local and international oil companies has been mainly about research and development and key projects. As a university they are open to constant engagement with industry players and the government for the success of their study programmes and employment of their graduates.

In summary, the responses given by the individual institutions in regards of themes under research question one is mainly seen to be in-depth and expressive of their (Universities and Technical Institutions in Ghana) willingness, readiness, and ability to be engaged by relevant stakeholders in order to contribute to the knowledge development and skill acquisition of Ghanaians for the oil and gas industry of Ghana. Yet, the extent to which each of these respondents/informants /institutions are engaged by the government of Ghana and other key stakeholders for the development of the nation's human resource may be dependent on some factors. Some of these factors could probably be the interests of government and industry players, the specialty areas of these institutions, and consideration of these institutions as dispensable or secondary stakeholders in the development of the oil and gas industry (Osei-Tutu 2013, p. 36). It is also identified that, to a large extent the government and industry players of the oil and gas industry of Ghana have been consulting and engaging universities and technical institutions to participate in discussions and development of policies for the oil and gas industry in Ghana.

4.4.1.2 To investigate what contributions universities and technical institutions can make in local content policy development for the sustainable development of the Ghana oil and gas industry [What contributions can universities and technical institutions make in local content policy for the sustainable development of the Ghana oil and gas industry?]

The research objective two (2) relies on research objective one (1) to explain that the need for the engagement of universities and technical universities in local content policy processes must be contingent on what contributions they could make for the development of Ghana's oil and gas industry and sustainable development. To this end, the six (6) questions developed under this objective to elicit answers from respondents featured themes on efforts made by respondents to drive their being engaged, contributions they can make, the extent of partnership with other stakeholders in the oil and gas industry, practical results from such partnerships, and impacts of the partnerships on knowledge development and skill acquisition. Another key theme herein comprises the extent of collaboration with foreign institutions of higher learning, research organizations, and civil society organizations. These have been grouped under **four themes** as follows:

Theme 1

The first theme under research objective two (2) required responses on efforts made by educational institutions to be engaged in discussions pertaining to the oil and gas industry, their goal, contribution, level of satisfaction, and keenness shown by government in the efforts to be engaged. The result of the analyses turned out that a greater number of the universities and technical universities had made the effort to be engaged by the government. Precisely, seven (6) out of the nine (9) informants had reached out to the government. The following are some of the details of the findings from the institutions/informant/respondents. The first institution which happened to be a university, stated that there was already an existing relationship between them and government agencies. Despite the keen interest that both parties share in the relationship, the respondent seeks increased engagement. For the second institution that also gave confirmation, though the had made a statement previously to suggest that engagement with government and other players in the petroleum industry might be an added responsibility because government expects them to align with their core mandate as an educational institution, under this theme they indicated that through the Ministry of Education, they had expressed their interest to cooperate with the government and oil companies. The primary reason was the contributions that the government and oil companies have been making towards policies pertaining to the oil and gas industry. Especially, concerning policies that will encourage graduate employment in the oil and gas industry. They continued that the effort was welcomed

by the concerned parties at the initial stage, but the expected positive outcome had not been encouraging. It was stated by another technical institution that when the need for discussion or contact with any public agency arose, they as an institution ensured that it occurred accordingly. As a result, they had had fruitful engagements and discussions with relevant government agencies. On the part of the institutions that indicated otherwise, one, responded that they had not reached out to any government agency or department in an effort to engage in discussions pertaining to the oil and gas industry. On the other hand, the Petroleum Commission had helped to initiate a programme that had engaged them. The initiative resulted in the capacity-building and training of some of the instructors/tutors in their institution. An example includes the Accelerated Oil and Gas Capacity Building training program in Northern Alberta Institute of Technology in Edmonton, Canada. This effort aligns with the postulation of Maclean & Pavlova (2009). He posits that technology and vocational education results in empowerment for a nation's human resources. In similar vein, for institutions of higher education, capacity-building programmes established to enable research exchanges within and across international borders are empowering, with key attributes like self-reliance, self-strength, independence, awakening, and capability.

Theme 2

Theme two had its fundamental focus on the engagement educational institutions had established with precisely oil and gas industry players that allow practical training and internships for students. The level of cooperation by the industry players and the practical results of the engagement or partnership on knowledge and skill acquisition by students and employment for graduates were also considered under the theme. This theme recorded an overwhelming positive response rate. All institution acknowledged that in one way or the other, they had established some form of partnership with or engaged with industry players.

A university cited that the nature of the partnership with industry players had mainly been through research and development, and policy deliberations. Commendably, it had gone to some extent to be beneficial to their students during and after graduation. Another institution relayed that even though the arrangements they have in place with some companies that permit their students to have internship during the long vacation period are few, the arrangements have consequently been helpful. Some of their graduates had consequently gained employment through those schemes. Furthermore, another institution noted that the partnerships they have with some industry players was a longstanding one. The partnerships have taken the form of training, internships, research, and sponsorships. Further to that, the partnerships had been beneficial in a wide range of ways for the university, their students, as well as the industry

players. They emphasized again that that form of collaboration had long existed and it had been helpful for all parties involved since both parties had kept their end of the partnership agreement. The partnership had helped to facilitate the acquisition of industry-specific knowledge and development of capable and qualified workforce. A technical institution located in one of the industrial hubs of Ghana observed that the partnership had been established with some oil and gas companies as well as mining and construction companies that pave the way for the practical training and internships of their students. The cooperation had been going on successfully in terms of knowledge and skill development for students. In quoting a direct response, another institution averred "Yes, we have such partnerships and they have been helpful to a very great extent. We are continuously seeking to establish more partnerships for the benefit of our students, graduates, and institutions." On another front, one of the universities remarked, "Certainly, we have established partnerships with several companies in various industries to enable our students to participate in industrial placements, trainings, and internships. The partnership arrangements have helped in job acquisition by quite a lot of our graduates, ultimately not just for the oil and gas industry but in other sectors of the economy of Ghana. Collaboration at that level also cannot be underrated."

Theme 3

The relevant factors under this team concern the idea about establishing a scheme that allow collaboration and knowledge sharing between educators/professors/instructors and oil and gas industry players, partnerships with other educational institutions in Ghana, results of the partnership on effective knowledge sharing and skill acquisition for the oil and gas industry, and what other areas of focus the partnership has aside from the oil and gas industry. This is another theme that had informants throwing their full supports behind the elements and communicating emphatically that they had established that form of partnerships. All nine institutions including the two that usually use short words like "yes" and "no" gave positive responses. For one of the two universities that were part of the informants, it was learnt that they had established an extensive level of partnerships with other education institutions in Ghana. While the partnerships had not focused only on the oil and gas industry, they had focused on other key areas. Some of the partnership agreements required the respondent to issue the certificate of completion for all study programmes in other university colleges. To an overarching extent, this form of partnership that the respondent has with other institutions in Ghana is laudable. The core reason is that it fosters local and regional innovation, critical knowledge sharing and skill acquisition in specific disciplines and research areas (Diebolt &

Hippe, 2018; Bramwell & Wolfe, 2008). Another institution highlighted that meaningful collaboration is very important in all industries, including academia. In light of that they had had partnerships with other institutions in Ghana, and the level of partnership had been cooperating. It had led to a good level of knowledge sharing and skill acquisition in all academic domains within the partnership agreement. Taking their turn in responding positively to the same theme, a technical university asserted that the idea of a scheme to allow collaboration and knowledge sharing between their professors and oil and gas industry players was recounted as a brilliant idea and one which was ongoing. They had established knowledge and skill sharing partnerships for different study programmes with other higher education institutions and vocational and technical institutions. The level of partnership was described to have been encouraging. Interestingly, another technical university had to express their affirmative response this way, "If what is good for the goose is also good for the gander, then if collaborations in the interests of our students and graduates have been beneficial, then collaborations in the interests of our lecturers, professors and instructors have and will always be beneficial." A different institution also maintained that the fundamental goal of the partnerships with the Ghanaian education institutions is knowledge and skill generation and acquisition. The partnerships goals have revolved around the mandate of the institutions involved. That is, knowledge and skill transfer, knowledge and skill acquisition, national development, among others. They brought to bear that the state of the partnerships had been cooperating and encouraging. In the case of another institution, to the extent that some previously sustained partnership initiatives had been successful for students, the institution sought different kinds and more partnerships with other industry players and institutions of higher education to facilitate knowledge sharing between those institutions and the informant's professors and instructors. It was highlighted that the outcome of that collaborative effort had been highly productive in terms of innovative research and knowledge sharing.

Theme 4

This theme primarily sought to examine educational institutions' partnerships with foreign universities and foreign research institutions, which specific areas the partnerships are focused on, to what extent have the partnerships achieved results in the focus areas, and what difference would it be if the partnership did not exist. Further to that, the theme identifies whether the institutions have had partnerships with any civil society organization in Ghana or outside Ghana that focus its activities strongly on citizen participation in oil and gas activities, which specific areas the partnerships are focused on, and the outcomes in the focus areas. Herein this theme, except one university college, all remaining eight institutions of higher education

averred that that they had partnerships with either foreign universities or research institutions. On the other hand, the result recorded for the civil society organization partnership was almost a tie. Whereas five (5) of the institutions indicated an affirmative response for partnerships with civil society organizations, four (4) indicated otherwise. The position of one institution was that as they had partnerships with foreign higher educational institutions, the focus was on broad areas including research and development and exchange programmes. They held the opinion that partnerships especially in the education domain are always important. In the absence of those partnerships, benefits derived by all universities and institutions involved would not be possible, remarked the respondent. Concerning partnership with Civil Society Organizations, the same respondent noted that no specific one existed. It was observed that Civil Society Organizations and NGOs tend to engage when any research programme or education activity draws either their attention or interest. Moreover, it was observed from the response that the respondent can contribute to the success of the goals of the partnerships they engage in. In this case, a contribution to the development of human resources of Ghana through LCP for the petroleum industry may be attainable. Another institution indicated that they maintained partnerships with a foreign university and a research institution. One in Europe and the other in China. They indicated that they looked forward to a continued, stronger, and beneficial collaboration. Nonetheless, no partnership existed between them and any civil society groups. In the case of another institution, they commented that research partnerships with foreign institutions used to exist, but it had so far ended. Nevertheless, they were in the process of establishing about three with some universities in Australia, India, and Austria. For this institution too, there was no existing partnership agreement with any civil society organization. Another technical university maintains two partnership agreements with two technical universities in China. In terms of civil society organizations engagement, they assert that the CSO engage with them when any interesting activity by the institution draw their attention. They assert that their engagement is quite encouraging given the crucial advocacy role that civil society organizations play in the sustainable development of nations. Thus, a cordial partnership or an active collaboration between a civil society organization and an institution of higher learning for even an ad-hoc project appears laudable. The empirical data also revealed that there were partnerships established between another technical institution with four institutions of higher learning in the UK, US, China, and Czechia. Occasionally, the particular informant also cooperates with NGOs and civil society organizations over important education and developmental matters that they both share interests in. In the express words of another institution, this was the response, “Yes, we have partnerships with foreign education

institutions in the form of exchange programmes, research programmes, research fellowships, and others. The importance of partnerships in academia and with industry players cannot be underestimated." Responding to the question of what difference would it have made if the partnership did not exist, the same informant said, "The difference would be the absence of the benefits being accrued from the partnerships." Concerning partnership with civil society organizations, the response was "We will not call it a partnership but interactions that take the form of discussions, workshops, and conferences on pertinent education and national development matters."

Furthermore, it was learnt from another institution that out of the six (6) foreign institution partnerships they maintained, four (4) were in the north, east and west of Africa while the remaining two were found in Asia and Europe. They noted that the foreign partnerships they established were strategic and thus, had been crucial to the success of some innovative research projects they had embarked on. Regarding partnerships with civil society organizations, the same institution asserted that they had had interactions with many local and international CSOs and NGOs on diverse pertinent educational and national development subjects.

By and large, the responses to the teams under research question two suggest: a quest not only to be engaged by the government and other petroleum industry players but to equally engage the government and other industry players; an internal cohesion among the cluster of educational institutions through partnerships for knowledge generation, skill acquisition, research and innovation, and local and regional development; a fostering of international partnerships that drive innovation, knowledge transfer, and being attune with current global technology and development trends for local replication and development; and readiness and capability to contribute to knowledge and skill development for use in the oil and gas industry of Ghana wherein institution of higher learning would be considered important in local content policy development.

These show of readiness and capabilities may align with the stance of Adebayo (2012), where universities are labelled as delivering a form of education that has cognitive, psychomotor, and affective capability to drive skill acquisition, self-reliance, and employment. This may have an ultimate impact in helping to reduce poverty. Yong & Zang (2021) also submit that to control poverty, ignorance must be controlled, and to reduce poverty, knowledge must be supported. Thus, the aggregate attempts by the institutions of higher learning as discussed above may be construed as ignorance controller and knowledge propeller. Harbar (2002) connects democracy to poverty reduction. He further connects democracy to the ability to possess

democratic values and behaviours. Yet democratic values and behaviours are taught and learnt but not inborn. Therefore, the mandate of universities and technical institutions to teach knowledge and skills out of which democratic values and behaviours are derived may lead to a democratic life for citizens, and in turn a life without poverty.

4.4.1.3 To identify whether universities and technical institutions in Ghana have already established customized curriculum that meet the requisite knowledge and skills in all relevant areas of the oil and gas industry [To what extent have universities and technical institutions in Ghana developed customized curriculum that meet the requisite knowledge and skills needs of the Ghana oil and gas industry?]

Research objective and question three (3) continues from objective two (2) to imply that the capabilities of universities and technical institutions that will drive their pursuit for engagement with the government and other players in the petroleum industry must be dependent on the sufficient preparation in the form of having developed new curriculum or upgraded existing curriculum that suit the requisite needs of the oil and gas industry of Ghana. To investigate this, ten (10) questions were developed to help generate answers. The ten questions which were accompanied by sub questions seemed to be quite overwhelming, but the institutions were encouraged to complete them. The questions covered patterns and themes such as the development of new study programmes or courses pertaining to sustainable development and the petroleum industry. The others include study level at which the new programmes were being offered, enrolment rate, patronage by industry players, alumni association, graduate employment, among others. **Three themes** were developed out of the 10 questions.

Theme 1

The major focus under this theme concerned whether new study programmes pertaining to the oil and gas industry had been developed at the bachelor and master's levels, the interest shown in the study programmes by current and prospective students, and the desire to pursue PhD programmes in the same or related study programmes.

The response rate showed a distribution 6, 4, and 2 respectively for oil and gas programmes at the bachelor, master's, and PhD levels of education. That is, while 6 institutions confirmed having study programmes that pertained to oil and gas at the bachelor level, 4 have them at the master's level, and 2 institutions have them available at PhD level. All the institutions that run the programmes at the master's level also have them at the bachelor level. In effect, while the programmes are not available at the bachelor level in 3 institutions, they are not available at the master's level in 5 institutions. The programmes are also not available at the PhD level in 7 institutions. Some of the institutions disclosed that they run professional courses in oil and gas. The enrollment for the professional courses has been very encouraging, signaling the

attention the oil and gas industry has garnered. Many of the institutions that run the study programmes also attested to the keen interest that prospective students express in the study programmes. It was indicated by an institution that did not offer the programme at the master's level that "The level of interests that prospective students maintain in the study programme result in overwhelming admission applications. It has propelled the need for measures to be implemented by us for the development of master's programme in the same field of oil and gas." Another institution that did not run oil and gas related programme at any level specifically indicated that preparations were underway to make the study programme available at the bachelor level.

Theme 2

What this theme sought for, included the availability of study programmes or courses on natural resource sustainability, prioritization of natural resource sustainability programmes by the institutions, integration of courses and programmes into interdisciplinary study programmes, and the response and enrollment of the study programme by industry players.

The response on natural resource sustainability programmes garnered a strong rate. The same applied to the institutions' prioritization of these sustainable development and oil and gas study programmes and courses. Some informants further detailed that all other programmes available in their institutions are equally prioritized by them. However, the buzz around sustainable development, renewable resource, oil and gas, and climate change is driving the extra attention. Additionally, the oil and gas exploration and production in Ghana is another driving factor. Consequently, four institutions categorically affirmed that resource sustainability has been integrated into some major study programmes. One of the four stated that they have a bachelor level programme in connection with that. "That has been a commendable effort", one institution chimed in. While some of the institutions confirmed the availability of professional courses pertaining to oil and gas, others were in the process of introducing them. Another institution maintained the view that programmes on oil and gas needed to be established as independent programmes rather than being integrated with other main programmes. Yet, if it became necessary to develop specific professional courses pertaining to the petroleum industry, that would be embraced. Considering the response given by one informant, it was quite interesting to have them quoted here "We have different academic programmes that are relevant in different and wide areas of the oil and gas industry. We have programmes on sustainable development, and all our programmes receive the deserving priorities. We are constantly revising our programmes to fit into the development plan of Ghana. Yes, all our programmes are having far-reaching effects. We have PhD programmes in Geography &

Resource Development, Development Studies, Social Policy Studies, and others that are all related to sustainable development. However, not exclusively on oil and gas. The programmes are highly patronized." Regarding the question of whether industry players were patronizing and pursuing the professional programmes, the same institution responded positively by saying "Yes, there is high record of patronage by professionals." On the other hand, two technical universities expressed concern over the need to have the requisite teaching and training resources to run some of the technical oriented study programmes. Especially, because the oil and gas industry is heavily based on technology and research.

Theme 3

Alumni employment in the oil and gas industry, initiatives established to facilitate graduate employment, data availability to validate employment claims were factors considered under this theme.

Almost all informants responded that some of their alumni were employed in the oil and gas industry of Ghana. With regards to finding out whether some of those employment opportunities were through industry placement schemes established by the institutions, 5 institutions affirmed that. The question that concerned whether data existed for the percentage of alumni employed yearly and how many were through the institutions' placement scheme resulted in remarks like "It is important to give exact and reliable data in a situation like this and not approximation. The exact data could be provided later."

" While it might not be a core mandate for institutions of higher learning to help their graduates find job, the ability of alumni to find jobs on their own is a pointer to the knowledge, skill, and competence they have acquired from their university education for the job market."

"Relevant data concerning all important matters about the university's activities is available and obtainable from the institution's archives and libraries." This was also another information gathered in response to the same question on whether availability of data to validate alumni employment rate.

In the nutshell, the line of responses of the informants suggests an appreciable level of preparedness that could help to meet the knowledge, competence, and the skills that are need in the oil and gas industry of Ghana. This level of preparedness is shown by respondents in terms of development of new curriculum, precisely in sustainable development and oil and gas; upgrading existing curriculum; development of study programmmes at bachelor, master's, and doctorate level, despite only a few respondents run doctorate programmes; development of professional programmes that are even patronized by industry personnel; embarking on industry relevant research and innovation; spearheading alumni employment opportunities,

among others. All these efforts suggest the preparedness and competence of the educational institutions to render the requisite intellectual and professional abilities for the human resources of Ghana in order to excel in job functions and management of the economic resources of the country. This may in turn appeal to the government and all other stakeholders not only in the oil and gas industry but in other economic sectors of Ghana.

4.4.2 Commission for Technical & Vocational Education & Training, Accra-Ghana (CTVET)

With a focus on the same fundamental intent to discover the importance that the partners in the Oil for Development programme, namely Petroleum Commission and NORAD attach to the involvement of Universities and Technical Institutions in local content policy process, this respondent was deemed as a significant respondent. The questions presented to them were equally based on the themes, patterns, and semantics that corresponded to the three research objectives and questions.

4.4.2.1 To identify whether universities and technical institutions in Ghana have been consulted and engaged for local content policy development for the sustainable development of the Ghana oil and gas industry [How have universities and technical institutions in Ghana engaged in local content policy process for the sustainable development of the Ghana oil and gas industry?]

In connection with examining whether the commission had been consulted or engaged by other relevant government agency or authority over the discussions and development of policies for the oil and gas industry in Ghana, the respondent averred that they are a commission established by the Education Regulatory Bodies Act 2020 with the mandate to regulate, promote and administer technical and vocational education and training for transformation, innovation, and sustainable development. Therefore, they are in constant consultation with many institutions, ministries and private establishments in many industries and sectors, including the oil and gas industry. Their contributions to any national sustainable development programmes and training had always been substantial and encouraging. It was revealed that they accredit programmes, institutions, centres, facilitators, assessors, and verifiers at the formal, informal, and non-formal technical and vocational education and training institutions to ensure quality delivery. Pertaining specifically to input in the Oil for Development (OfD) progragamme, it was gathered that their functions are all-encompassing, making the OfD programme and any input given so far, a sub programme and function under their mandate. I, as a researcher, was encouraged by the respondent to visit their website and abreast myself with their functions.

They further underlined that partly because of their mandate, no direct arrangements had occurred regarding the OfD programme. Again, a mandate exists for them, and they carry that out in consultations with other public and private organizations. Concerning elicitation of responses on engagements of the respondent by key stakeholders for curriculum development, they posited that teaching and training, research, and skill development programmes for all sectors of the economy of Ghana are critically important to them, as a commission. Similarly, the employment and employment security of Ghanaians remain crucially important to them. Therefore, any direct engagement and consultations for the training and development of Ghanaians in for example, the oil and gas industry are very much welcomed.

To the question of whether they would have expected the government and the oil and gas industry players to engage technical and vocational institutions more than it had been, the respondent maintained that "Yes, in all relevant industries and not solely the oil and gas industry. The levels of cooperation have been appreciable. WorldSkills Ghana, GTVP, GJSP, and GSDI were cited as some of the projects under the commission's supervision that had immensely benefited from strong collaborations with other agencies and organizations. The respondent pointed out that the growth of every good initiative must always be encouraged. In the same way, increased involvement of many stakeholders and actors in any initiative for the development of Ghanaians and Ghana must highly be encouraged."

Without an attempt to be biased, it could be inferred from the submissions of CTVET, the respondent that, in the discharge of their functions as mandated, the extent to which they could engage with and be engaged by other stakeholders within the petroleum industry and other sectors is highly influenced by their position as already a direct representative of the government, just like the Petroleum Commission is. Even though this may not be conspicuously shown or displayed by them. They may play it on a level of diplomacy. For this reason, they may exercise a certain level of caution and restraint in their engagements and discharge of their functions to ensure that their actions are in tandem with certain extraordinary regulatory or legislative provisions only allotted to direct representatives or authorities of the government. Despite that, their conduct as provided by them in their responses above give suggestions that they have been functioning to some degree to align with the answers that research objective and question one (1) seeks to unravel. CTVET must be conscious of the fact that it is essentially important that they allow some significant degree of engagement and being engaged because the numerous institutions under their supervision in part, require varied forms of engagements with several and different forms of stakeholders in order for them to thrive.

4.4.2.2 To investigate what contributions universities and technical institutions can make in local content policy development for the sustainable development of the Ghana oil and gas industry [What contributions can universities and technical institutions make in local content policy for the sustainable development of the Ghana oil and gas industry?]

The underlining intent of research objective and question two (2) seeks to communicate that the ability and readiness of CTVET to avail themselves for engagement and to be engaged by other relevant stakeholders for discussions and initiatives on local content policy development as it pertains to the oil and gas industry, might be dependent on what contributions they could make for the development of Ghana's oil and gas industry and sustainable development. Eight (8) questions were developed under this objective or research question to elicit answers from CTVET, the respondent. The questions featured themes on vocational and technical courses relevant to the petroleum industry, vocational institutes' partnerships with institutions of higher learning, availability of study programmes or courses on economic, social, and environmental development, and whether there are study programmes or courses in business management and entrepreneurship. Collaboration with industry players for employment opportunities for vocational institutes' graduates and for practical training and internships, formed part of the themes.

Therefore, in their response to the enquiry if technical and vocational institutes offer technical courses for knowledge and skill acquisition in specific trades relevant to the oil and gas industry, and why do they consider courses in this field important, CTVET averred, "without exception, most of the courses and training in the technical and vocational institutes are relevant for many industries, including the oil and gas industry." Sounding as great or a win for collaboration efforts and initiatives, it was learnt that the respondent was in collaboration with tertiary institutions to implement competency-based training programmes based on the National Technical and Vocational Education Training Qualifications Framework. Interestingly, all parties involved were very cooperative. Continuing with the questions that followed, CTVET clarified that, of a certainty their curricula have focus on sustainable development because it is essentially important to allow students and trainees to embrace the responsibility of sustainable development and its management. They pointed out that almost every single programme on offer should be able to lead a graduate to find a job and perform as expected or even beyond expectation in the oil and gas industry. To quote one of the notable responses, this was said, "Management, entrepreneurship, and business are all important in the technical domain as well." With regards to questions such as partnership with oil and gas industry players that allow for practical and field training for both tutors and students, which

specific areas the partnerships were focused on, to what extent had the partnerships achieved results in the focus areas, and how they would have wanted increased collaboration between their institutions and civil society organizations for sustainable development of natural resources, the short response given was "My answers to some of your previous questions affirm the answer to these." It was also gathered that CTVET has industry-institute schemes in place that are meant to drive direct graduate employment. The initiative was described by them as a brilliant ongoing concept, and strengthening it was characterized as highly encouraged.

The centrality of having the capacity to contribute to local content policy for the development of the oil and gas industry of Ghana is to drive the development of the nation's human resources in a manner that is felt on individual basis. The Human Development Reports (HDR) of UNDP (2003) and Weiss & Caravannis, (2005, p. 255) are not silent on this position. Looking from an open-minded perspective at the responses of CTVET on their capacity to contribute to helping their vocational and technical institution students to gain the requisite knowledge and skills for the petroleum industry of Ghana, they appear encouraging, whereas more could still be achieved. These contributory efforts deserve to be implemented with the conscious thought that the human resources of the nation as could be defined in prospective and current students and alumni, are fundamentally change agents. These human resources possess both covert and overt human potentials for nation building that ought to be remembered in order to warrant their inclusion in development policies that matter to their present and future wellbeing (Haq, 1995, p. 24; Sen, 2000, 2006, p. 257)

4.4.2.3. To identify whether universities and technical institutions in Ghana have already established customized curriculum that meet the requisite knowledge and skills in all relevant areas of the oil and gas industry [To what extent have universities and technical institutions in Ghana developed customized curriculum that meet the requisite knowledge and skills needs of the Ghana oil and gas industry?]

In continuity from the preceding research objectives and questions, one and two respectively, research question three (3) borders on the underlining idea that, the ample preparedness of CTVET from different angles could enable them to properly engage, be engaged, and contribute effectively and efficiently to developing their institutions. This will allow their institutions to impart knowledge and train the human resources of Ghana for sustainable development and for the development and management of the oil and gas industry. To achieve the goal of assessing this, CTVET was asked four (4) main questions to help generate answers. The four questions also had some sub questions. The questions covered patterns and themes,

and semantics including the use of simulators by technical institutions, development of oil and gas-oriented programmes and courses, schemes to propel enrolment in study programmes, and the availability of programmes and courses on sustainable development.

To the question of technical and vocational education institutions having simulators of some of the equipment used in the oil and gas industry, and to what extent had the use of simulators been helpful in knowledge and skill acquisition compared to real life practice, an affirmative answer was given. The use of simulators was mentioned to have considerably helped students in vocational and technical institutions since they enable student to become abreast with the machineries and equipment in real life situations onshore and offshore on rigs, platforms, FPSOs, and other sites and bases in oil and gas exploration and production. Correspondingly, a positive response was given concerning having developed new study programmes at the technical and vocational levels that pertain to the oil and gas industry. While they were not full study programmes but integrated courses, the respondent pointed out that courses on sustainable development of natural resources had been developed at the technical and vocational levels. Those courses on sustainable development were noted to be of priority to the respondent given the propped-up narrative, discourse, and importance of sustainable development in recent times. One of the questions sought to know if there could be something more to be done by CTVET to drive increased engagement with government and industry players to enable knowledge and skill acquisition for the oil and gas industry and sustainable development. Though increased engagement with all stakeholders was indicated to be encouraged, the respondent emphasized that they were functioning within the confines of their mandate. To the best of their assessments, they had been functioning well in that area without any drawbacks.

The somewhat ambiguous response to the last question may well have more to do with the inference made earlier that the CTVET as a direct representation of the government, is governed by certain high level legal provisions that go a long way to influence the degree to which they function. In brief, it is observed that this respondent, precisely CTVET, through their various institutions, is in a proper state of preparation to some extent, that warrants their ability to engage, be engaged and contribute in varied ways to local content policy development and to deliver the requisite knowledge and skills that are needed in the oil and gas industry of Ghana.

4.4.3 Petroleum Commission, Accra-Ghana

The questions developed for this respondent did not directly follow the format used for the two preceding respondents, namely Universities and Technical Universities/Institutions and CTVET. Based on this respondent's type of organization as a direct government authority, their mandate as a government representative to spearhead the Oil for Development partnership programme between Ghana and Norway, and bearing the obligation to ensure the development and implementation of relevant policies pertaining to the oil and gas operations in Ghana, which include the local content policy (LCP), whereas some of their questions aligned with the ideas of the questions for the preceding respondents, the other questions bordered on their mandate. Despite the differences in the format of the questions, they were all relevant questions meant to extract or draw out relevant answers that would add to the answers of the other respondents to provide the answers that the research problem seeks to unveil.

Among the fifteen (15) questions that were developed for this respondent, about nine (9) were in direct connection to the questions developed for the two preceding respondents.

Their maiden question required them to respond to how they consider local content as critically important in the oil and gas activities of Ghana. In response to this, they asserted that local content is crucial because it is considered as one of the major means to ensure that Ghanaians of all classes are actively involved in the upstream and downstream petroleum business to ensure that the greatest portion of Ghana's oil and gas wealth remains in Ghana. On the note of what role, they would have liked to play in pushing for the prioritization of local content in the Oil for Development (OfD) partnership programme with Norway and the likely challenges they might have encountered, I was informed that without doubt, they prioritized local content in the OfD partnership programme. It was further recounted that "You may not have all your needs met in a partnership agreement. However, to a greater extent we pushed forward our agenda for local content development in accordance with the specific details of the partnership agreement." The primary target of the LCP for the OfD programme was said to implement the provisions in the local content regulations in all petroleum activities. I was asked to refer to the Local Content Regulation 2013 and the Amendment of 2021. Explicitly, the respondent was asked if their target for local content in the OfD partnership programme was achieved, given that the partnership is over a decade old now. In response to that, it was revealed that yes, they had come far with the achievements of some of their major targets concerning local content. Indigenous Ghanaian companies are now involved in both the upstream and downstream

petroleum businesses. There were also continuous activities and efforts by the Commission to beef up what has been established concerning local content. They also affirmed that they had been able to achieve increased participation, group diversity, transparency, disclosure, and increased employment of citizens in the oil and gas industry since they were all important elements for local content policy development.

To draw close to eliciting answers on who the respondent prioritizes as individual entities in LCP, the respondent was asked how they classified the entities to be included in LCP for the oil and gas industry. Furthermore, how did they consider those groups as important or not important for engagement or inclusion. The respondent responded to both questions and went further to respond to the question of whether representatives of institutions of higher learning and technical and vocational institutions were invited for deliberations and development of local content policies for the oil and gas industry. Below is a verbatim response: "According to Regulation 2013 and as amended in 2021, the class of people identified within local content development include Ghanaian companies of levels, individual Ghanaians, Ghanaian workers, and everything Ghanaian. They are important class of people because they constitute the targeted Ghanaians as far as the oil and gas operations are concerned. Yes, some Ghanaian academic institutions were invited for the purpose of policy discussions and even for relevant training and skill acquisition in activities pertaining to the petroleum industry. You can refer to the documents' archives on our websites."

As much as the above questions that were asked by me and the responses that were given by the respondent remain crucially important to what the research goal seeks, the following questions which formed part of the remaining questions posed to this particular respondent are equally critically salient to the research goal.

It was important to identify how the respondent assesses how keen and ready are institutions of higher learning, technical and vocational institutions to be invited for deliberations and development of local content policies for the oil and gas industry. It was also important to identify how the respondent had given the representatives of higher learning and technical and vocational institutions the opportunity to give more input or contributions on local content development. Thirdly, I found it important to know from the respondent whether specific inputs were expected from institutions of higher learning and technical and vocational institutions in the discussion and development of local content policies and why those expectations. To the first question, the respondent revealed that they had identified that keen interest had been shown by universities and technical institutions while they the respondent had also shown their keen interests in the involvement of universities and technical institutions. That keenness was

articulated and showed by both parties at any given opportunity during conferences, deliberations, and other meetings. The respondent however signalled that, further important arrangements needed to be made to ensure the increased involvement and contribution of universities and technical institutions in local content development for the oil and gas industry of Ghana. To the second key question, the respondent replied that key academic institutions were invited for relevant discussions and conferences. Regarding the third question, the respondent reacted that they did not have those expectations. That implied that the respondent, being the Petroleum Commission, did not have specific expectations from universities and technical institutions concerning what input the latter make in the discussion and development of local content policies. The remaining three questions posed to conclude on the responses needed from the respondent include the extent to which the inputs of the representatives of higher learning and technical and vocational institutions for local content policy development were implemented. Secondly, whether a mandatory order existed that placed responsibility on institutions of higher learning and technical and vocational institutions to fulfil any requirement of making inputs in the deliberations and development of local content policies for Ghana's oil and gas industry. Why or why not the existence of a mandate was a follow-up question. Then was the question of how the respondent provided support to institutions of higher learning and technical and vocational institutions for curriculum development. If there were, what specific support was provided. To the first question, the respondent indicated that they embraced every relevant input from all relevant parties to the development of the oil and gas industry of Ghana. They as the respondent, do act on the inputs of stakeholders accordingly and where necessary. In regards of the second question, the respondent concisely stated that no such arrangements existed that placed a mandatory responsibility on institutions of higher learning and technical and vocational institutions to fulfil any requirement of making inputs in the deliberations and development of local content policies for Ghana's oil and gas industry. On the concluding question, the respondent opined that the Commission assists academic institutions in Ghana for relevant curriculum development and training within and outside Ghana. I was informed to refer to the Local Content Magazine, 1st Edition (procedure used for analysis is elaborated at 3.8 under methodology).

As important as the responses of all categories of respondents in this research remain to the research objectives and questions, the responses of this specific respondent remain essentially significant. Their responses have been in-depth, aligning with the in-depthness of the questions. What is found revealing among the responses is the admittance by the respondent that the keen interest of universities and technical institutions to be involved in LCP development and

deliberations had been identified by the respondent. This admittance corroborates the responses given by universities and technical institutions that universities and technical institutions were keen about their being engaged as well as engaging key stakeholders in the petroleum industry, like this respondent. It was also profound to learn that having identified the interests and input of universities and technical institutions, further important arrangements needed to be made to spur the increased involvement and contribution of universities and technical institutions in local content development for the oil and gas industry of Ghana.

4.4.4 CSIR-Science & Technology Policy Research Institute (STEPRI), Accra-Ghana

This respondent is one of the thirteen (13) research institutes under the Council for Scientific and Industrial Research (CSIR) of Ghana. It has the primary mission to conduct research to provide knowledge-based information to contribute to the formulation and implementation of policies and programmes for Ghana's socioeconomic development, based on Science, Technology, and Innovation. It has several national, regional, and international development partners including the Norwegian Development Agency (NORAD). Their importance in being chosen as respondent to this research was inspired by their participation with Ghana National Petroleum Corporation (GNPC) and SINTEF for a NORAD-sponsored research project on local content policy for the petroleum industry of Ghana.

Nine (9) questions were developed to elicit responses from this respondent.

The respondent answered the first question of what role they had played in the OfD partnership programme between Ghana and Norway by pointing out that as a research institute, they collaborated with other local and foreign organizations and institutions to research the sustainable growth of the oil supply industry in Ghana, with specific focus on policy process analysis and local content development. The project was funded by one of the two parties of the OfD partnership programme, that is, NORAD.

In connection with the above question, I required the respondent to answer what role they had played in the OfD partnership programme concerning local content policy development. In response, it was averred that as part of the broad policy process analysis that the study focused on, their role was also to investigate the state of local content development in the oil and gas industry of Ghana. "To some extent, the research unearthed findings that drew attention to the state of local content in the petroleum industry of Ghana." This was remarked in response to the effect their role had on the implementation of local content policy in the oil and gas activities.

To draw a closer focus on universities and technical institutions, the following three questions were asked expressly in that direction. There was the need to know how the respondent consider universities and technical institutions as important entities to be included in local content policy process in the oil and gas activities in Ghana. Additionally, I wanted to understand that as a prominent research institute, how had the respondent made efforts to advocate the inclusion of universities and technical institutions in local content policy development in terms of oil and gas activities in Ghana.

It was also essential to figure out whether since the NORAD-funded local content policy research project called NKOSOO 2015 project, the respondent identify any improvement in the local content policy process in terms of increased inclusion/participation, group diversity, transparency, increased disclosure, and increased employment of citizens in the oil and gas industry. What improvements did they identify and what impacts had they had, were also of interest to me, as the researcher. The first question was attended to with the response that institutions of higher learning, technical institutes and vocational institutes must be seen as integral parts of local content development. They do not have to be excluded from important policy processes like local content development. STEPRI responded to the second inquiry by noting that their research mission was to facilitate the development, transfer, utilization and management of Science, Technology, and Innovation that was tailored to meet the specific needs of Ghana and Africa. Therefore, while their research highlights the need areas for development, they did not have the authorization to enforce and front certain policies. In continuity, the third question was answered by pointing out that "Yes. Almost a decade now! There is an increased level of awareness now. There has certainly been a significant level of improvement in many aspects of local content development in the petroleum industry of Ghana."

The responses to the last four questions are directly quoted in the following:

"It was a policy process and analysis project for the petroleum sector of Ghana carried out by researchers from STEPRI/CSIR (Ghana) and SINTEF (Norway) under the sponsorship of NORAD (Norway)."

"Every research has a time frame. Thus, we had to end at a certain point as scheduled."

"The research project under discussion has been the main one even though we have had and still have several and different forms of research collaborations."

"We play significant roles in all research collaborations which necessitate our continuous involvement in key research partnerships."

To put the responses of this respondent into perspective and as they concern this research objectives and questions, it could be observed that the respondent admits that institutions of higher learning, technical institutes and vocational institutes deserve to be seen as integral parts of local content development. Thus, those institutions do not have to be excluded from important policy processes like local content development. This admission could stem from the crucial role that universities, technical institutions, and vocational institutions play in the development of a nation's human resources, Agasisti & Bertoletti, (2020), and Nwosu & Micah (2017), Lendel et al., (2009) and Feller (1990).

4.4.5 Civil Society Organization

As explained in the methodology chapter, Civil Society Organizations (CSO) are seen as key informants to provide an additional perspective to the higher education institutions and the policy makers. Apart from their proactiveness in the subject matter of petroleum policy and legislation, they have devoted a lot of efforts specifically to Ghanaian participation in the petroleum industry and local content policy (LCP). They are also members of Civil Society Platform on Oil and Gas (CSPOG) (Osei-Tutu 2013, p. 24). Despite the limits of having data from only one CSO, the perspective complements the picture and illustrates different perspectives and priorities within the sustainable development framework. The CSO affirmed and detailed that the OfD partnership programme between Ghana and Norway aimed to contribute to manage the oil resource properly. Management, in this context, meant having an enhanced legal framework and public sector capacity to ensure inclusive growth from the petroleum revenues and avoid the paradox of plenty (Hughes, 2006; Hu, 2014; Hanssen &Nygaard, 2013). The social dimension of sustainable development, particularly equality, can be seen as a key to their argumentation. Based on the CSO's responses, they seemed well-versed in the advocacy efforts pertaining to development issues and the oil and gas industry. They presented their own role within the OfD programme as centred on making necessary interventions so that the oil resources will be beneficial to all Ghanaians. By so doing, they advocated for oil and gas policy and legislations to secure equitable exploitation of oil and gas. They also advocated first, for the protection of the right of local communities, second, for responsible and accountable governance, and third, for protection of the environment. These are areas that are significant to sustainable development. The three main dimensions of sustainable development comprise economic growth, social development, and environmental development (Wichaisri & Sopadang, 2017). Revealingly, they noted that their responsibility

did not require them to wait for invitation or consultation. They go in whether consulted or not consulted, however, through legitimate means and due process. The reason they go in without waiting for consultation or invitation is that the overall wellbeing of the society and nation is an urgent matter and those who are keen about it cannot wait for consultation before they act. Mlambo et al., (2019) argues that the advocacy role of CSO goes a long way to impact They further emphasize that being a watchdog further implies speaking of accountability. governance because of the capacity to act as watchdogs. How they did their work with advocacy and strengthening of the interests of the groups affected by the oil industry, was not a part of this research. This would require a closer investigation which was beyond the limits of this research project.

The CSO confirmed the LCP as key, but also as a challenge. They also affirmed playing a role in this themselves:

> Local content policy development in the oil and gas sector is a critically important initiative that must not be seen as just a formal process but realistically be realised and all relevant parties be included. As stated above, our responsibility cut across wider areas for society's wellbeing. Therefore, local content policy development has certainly been part of our attention on the OfD partnership programme. Yes, we have played substantial role through our several core roles which also include financial support to local civil society organizations and community-based organizations in their local participation and inclusion advocacy campaigns.

Drawing closer to local content policy, the respondent had to respond on what idea they had about local content policy development in the oil and gas industry of Ghana, and whether their role in the OfD partnership programme had any connection with local content policy development in the oil and gas industry. If it did, how did their role affect the implementation of local content policy development in the oil and gas activities? To this, they indicated, as quoted "Local content policy development in the oil and gas sector is a critically important initiative that must not be seen as just a formal process but realistically be realised and all relevant parties be included. As stated above, our responsibility cut across wider areas for society's wellbeing. Therefore, local content policy development has certainly been part of our attention on the OfD partnership programme. Yes, we have played substantial role through our several core roles which also include financial support to local civil society organizations and

community-based organizations in their local participation and inclusion advocacy campaigns."

The CSO asserted that they believed that if universities and technical institutions were given the opportunity, they would have impactful contribution at the policy development stage since they had long been part of everybody's upbringing and professional development. This position of the CSO aligns with a stance maintained by Maclean & Pavlova (2009). They posited that technology and vocational education results in empowerment, with essential attributes such as self-reliance, self-strength, independence, awakening, and capability.

The response from the CSO claimed that they advocate the inclusion of universities and technical institutions in local content policy development.

> "We have expressed that interest at every least opportunity we get in our interactions with key stakeholders in the oil and gas industry." Similarly, this response would have been followed up with another question if the instrument in use was face-to-face or telephone interview. In continuing, I sought to find out if there had been a partnership between the respondent and universities and technical institutions and what the partnership entailed if there was any at all. They responded that no specific partnerships existed between them and universities concerning local content policy development, other than the advocacy efforts by them and other organizations they support. However, they had some form of interactions with some institutions of higher learning on other pertinent subject matters."

When asked to assess the efforts of government in local content policy development the CSO concluded: "So far so good, but there is always room for improvement". With reference to the efforts of government to include universities and technical institutions in local content policy development in the oil and gas activities, the critique was more direct: "It cannot be emphatically stated that conscientious efforts had been made in that direction by the government,"

Debrah & Graham (2015) and Mlambo et al., (2019. p. 2) maintain the position that CSOs play crucial role in ensuring good governance, accountability, political participation because they have the capacity to work as watchdogs mainly for the wellbeing of people, society, nation, and national development. As their central role is connected to the primary objective of this research, the responses derived from this CSO hold some level of significance to this research. The respondent has alluded to the cruciality of the involvement of universities and technical institutions in local content policy development in the oil and gas activities of Ghana. It was also observed that the government could do more in parallel with other stakeholders like CSOs and industry players to allow for increased engagement of universities and technical institutions in local content policy development in the oil and gas activities. This might ultimately translate

into the effective knowledge and skill transfer to the human resources of the nation as it pertains to the petroleum industry as well as other sectors of the economy of Ghana.

CHAPTER FIVE
DISCUSSION OF FINDINGS

5.0 Introduction

Drawing on the problem statement, in connection with the theoretical underpinnings and chosen methodology, this research illuminated salient findings from the empirical data that helped to initiate some dialogue on the three research questions that were developed. Thus, the objective of this chapter is to relate the findings with the theories and extant literature to establish some discussions. The arrangement is done according to the order of the research questions.

5.1 Consultation and engagement of universities and technical institutions

The consultation and engagement of universities and technical institutions in Ghana for the development of local content policy in the oil and gas industry is a positive step towards ensuring sustainable development. Am and Heiberg (2014) postulate that a far more fiscal, regulatory, infrastructural, social, and technological success of the oil and gas industry thrives on a win-win public-private partnership. The position of the authors underscores the relevance of engaging educational institutions in the industry. Either way, educational institutions could be public or private entities. In a similar vein, advocacy by key organizations for the consultation and engagement of educational institutions will be a step in the right direction. This is because within the context of knowledge development and skill acquisition, the relevance of universities, vocational and technical institutions is visibly identified (Batabyal & Nijkamp, 2012; Maclean & Pavlova 2009; Yusuf & Nabeshima 2007). The findings under this theme revealed that a significant number of educational institutions admitted that they have been engaged by the government and other important stakeholders in the oil and gas industry. The engagements concerned relevant subject matters which include their inputs in the LCP process, the OfD programme, sustainable development, curriculum development, skill acquisition by students, graduate employment, practical outcomes, among others. The responses by the selected educational institutions or informants were equally corroborated by the government. They are commendable efforts as underlined by Batabyal & Nijkamp, (2012). However, Ovadia (2016) contends that as evident as many oil-rich African countries have made substantial initiatives and established legal frameworks for LCP, such efforts may only be meant to signal that they have strong frameworks. The reason is to counter the existing narrative that African states have weakened regulatory frameworks and initiatives for LCP.

Even in the presence of some initiatives like government's engagement of other stakeholders, for example, as validated in the empirical findings of this research, Ovadia (2016) and Amoako-Tuffour et al., (2015) argue that the regulatory frameworks and initiatives are beset by some limitations like fewer provisions that are deprivations to some stakeholder like locals. While Ayanoore (2018) also contributes by attributing those drawbacks to political reasons, Disch et al., (2015, p.36) also submit that other interests from the government and industry players may lead to other stakeholders like educational institutions not being prioritized. In connection with this argument, the civil society organization informant had to put out a more direct critique, "It cannot be emphatically stated that conscientious efforts have been made in that direction by the government." Relatedly, one of the educational institutions also vented out their concern by averring that "…The only limitation is that while we would want increased engagement for positive results for study programmes development, knowledge advancement, graduate employability, and the sustainability of the petroleum industry, other priorities of government and industry players might draw their needed attention away. I say this because there have been occasions when we have not recorded expected responses and results from these important entities or players."

As the sustainability theory emphasizes ((Wichaisri & Sopadang, 2017), as paramount as sustainable development is, the probability of attaining the overall positive effects is largely contingent on the individual contributions made by stakeholders. Connectedly, within the context of Human Development Theory, Haq (1995, p.3) asserted, "After many years of development, we are rediscovering the obvious – that people are both the means and the end of development. The whole idea of sustainable development is centered on developing a nation through the development of the people in a manner that is felt on an individual basis Weiss & Carayannis, (2005, p. 255; UNDP, 2003). Yet, the significance of the contribution to be made by the individual is also dependent on the resource possessed by the individual stakeholder. In other words, the lack of resource deprives a stakeholder from contributing to sustainable development. Fortunately, knowledge and skill are underscored by Skill Acquisition Theory as vital resources to be possessed by any single human (Ellis & Shintani (2013) and Taie (2014). Therefore, the ability of the ordinary citizen to contribute to the development of their nations' natural resources for the sustainable development of the nation's overall economy, largely depends on the acquisition of the requisite resources, herein requisite knowledge, and skills both for a particular sector and for democratic life. Furthermore, Harbar (2002) submits that democracy leads to poverty reduction, which is key to sustainable development. However, democratic values and behaviours are not inborn, but they are learned. Therefore, education

must be relied on to develop democratic values and behaviours. This will foster greater democracy, and in turn result in poverty reduction. To buttress this argument, Yong & Zang (2021) assert that to control poverty, ignorance must be controlled, and to reduce poverty, knowledge must be supported.

In this sense, consultation and engagement of universities and technical institutions by relevant stakeholders, and the advocacy for their being engaged will drive a sense of inclusion and recognition in them as being the agents that impart the knowledge and skill necessary to drive democracy in the human resources of Ghana for poverty reduction. This sense or element would in turn result in the generation of passionate commitment for effective and efficient contributions toward the local content policy development process. The policy discussions, research and development, internship and employment opportunities for students and graduates, and relevant training both within and outside Ghana, among others, as suggested by the findings are commendable efforts by all the stakeholders concerned. But as highlighted by one informant, there is always room for improvement.

By involving educational institutions, the government, industry players, and other key stakeholders can tap into their expertise and knowledge to create policies that align with both medium-term and long-term development goals of Ghana and address the specific needs, herein within the petroleum industry, as well as other sectors of Ghana's economy. Without not just creating a sense of inclusion and recognition, the derived sense of recognition translates into preparations and actionable efforts to contribute to initiatives that lead to human and nation development. Some of these preparations and actions are what the research objective two elaborate.

Concerning the relevance with regards to the other dimensions of sustainable development, crucially, the attainment of poverty reduction should not be at the expense of the other two important facets of sustainable development, namely social and environmental developments. Atkinson et al., (2007) dissects social development by positing that it basically concerns equity between humans of different populations and within populations, between present and future generations, along with security and good health. Institutional hierarchies or structures, gender inequality, glass ceiling, tribalism, among others are some of the elements that frown upon the themes and subthemes proposed for social development under the UNESCO framework for the UN Decade of Education for Sustainable Development (UNESCO, 2006, p. 18-21 & 2015). The subthemes proposed for social development include human rights, peace and human security, gender equality, cultural diversity and intercultural understanding, health, and governance. The engagement of educational institutions and their seeking to be engaged are in

themselves one of the many crucial efforts to embrace the propositions of social development. It is essential to note that the significance is not only in being engaged but also seeking to be engaged. It is in the search for engagement that defines that one is conscious of their state, prepared, and capability to contribute to development. The themes under research question two have essentially sought to find this from the educational institutions. To some extent some of the informants are taking steps to address some of these social development-oriented concerns. One of the NORAD official documents led me to a secondary data which in turn led me to the web pages of two of the chosen civil society organizations. The web pages showed some projects being embarked on to deal with some social issues such as human rights, education, health, and institutional transparency (isodecgh & wacamgh).

Within the domain of environmental sustainability, oil and gas exploration and production have been at the centre of global warming controversy because their exploration is exploiting or at the detriment of ecological and biodiversity serenity. Safeguarding the natural environment of a nation in a proper way goes hand in hand with the country's development. Atkinson, Dietz, & Neumayer, (2007) describe the environmental dimension as having the capacity to maintain biological diversity, sustainable ecological processes, and resiliencies. In addition to expressing this area as important by almost all categories of informants, some of the educational institutions have developed study programmes and courses for knowledge and skills acquisition that would help to address some of the concerns of environmental development. While the programme contents appear poised to achieve the intended goals, I am not in the position to indicate if there are implicit reasons to suggest otherwise. This also applies to all data from official documents and web pages.

5.2 Contributions of universities and technical institutions

The sense of recognition attained and the derived passion on the part of the educational institution due to their being consulted and engaged may propel some level of commitment in them which may lead them to bring to bear their capabilities and utilize their resources or potentials to make significant contributions to local content policy process in oil and gas industry and for sustainable development. As noted in the preceding research question, as essential as being engaged is, seeking to be engaged is equally important. It is in the search for being engaged that defines that educational institutions are conscious of their state, prepared, and capable to contribute to sustainable development. To this end, the research findings from the empirical data and official documents unveiled efforts initiated by educational institutions

which demonstrate their quest to contribute to local content development in the oil and gas industry. Spanning from reaching out to the government for engagement in discussion, establishment of partnerships with petroleum industry players, establishment of schemes to enable knowledge sharing among educational institution, through partnerships with foreign universities and research institutions, to partnerships with civil society organization within or outside Ghana, these themes largely produced positive responses. STEPRI, CTVET, and Petroleum Commission likewise gave responses which pointed to affirming most of the assertions of the educational institutions. However, some of the responses were not without contrasting views from other respondents. To put all into perspective, the preparedness and efforts made by educational institutions as suggested by the findings could translate into the following potential contributions of universities:

1. Research Expertise: Universities and technical institutions are centers of knowledge and expertise. Diebolt & Hippe, (2018) opine that institution of higher education play crucial role in determining local and regional innovation. By virtue of the diverse partnerships, they establish with other universities, research institutions, industry players and other key stakeholders both within and outside their orbit, they possess the requisite knowledge, skill, and competence well-tailored to the latest technological and research trends. This better places them to conduct research on various facets of the oil and gas industry, including environmental impact assessments, technological advancements, socio-economic implications, and policy analysis. Their research findings can provide valuable insights and evidence-based recommendations to inform the development of the local content policy. Their experts in various fields related to the oil and gas industry, including engineering, geology, environmental science, economics, and policy development can contribute their academic knowledge, research findings, and practical experience to inform the policy formulation process. Their insights can help ensure that policies are based on sound scientific principles and best practices. Their scientific findings are what have unearthed the concerning state of climate change (Asafu-Adjaye, 2010; Hitz & Smith, 2004). It is their scientific findings that have also proposed sustainable alternatives like green economy and green growth to the concerning state of climate (Li et al., 2018, Dieng & Pesqueux, 2017). It is the same in-depth knowledge translated to research in diverse disciplines that have also found the sustainable alternatives as questionable (Hickel & Kallis, 2020, p. 1; Hickel 2020). The authors that dispute the alternatives to the climate change concern argue

that the highly publicized and literally glorified green growth agenda is “likely to be a misguided objective.” The increasing concern about global warming resulting from the research expertise of educational institutions has led to more in-depth research projects. Dorninger et al., (2020) posit that high-income countries or the so-called global north depend on a large proportion of resources from the rest of the world which records a negative ecological impact on the so-called global south. From political economy and political ecology perspectives, Shanguhyia, (2013) and Eriksen, (2016) contend that the economic and ecological liberty of the global south is rid by the pervasive global economic growth agenda typically driven by the global north. The bottom line is that educational institutions are vested with the research expertise to produce prolific and crucially important research outcomes necessary tackle major development concerns for sustainable development.

2. Local Contextualization: Engaging universities and technical institutions allows for the inclusion of local context in policy development. These institutions have a deep understanding of the social, cultural, and economic dynamics of Ghana. They can provide valuable insights into the specific learning challenges faced by the nation’s human resources and provide appropriate learning processes for the acquisition of the requisite knowledge and skill for the oil and gas industry. As evidenced by this research findings, the collaborations with other universities, civil society organizations and NGOs are potential drivers for local contextualization. Furthermore, the sustenance of the alumni association by some of the informants is relevant within the context of fostering networking for local and external contextualization. On the same account of alumni networks, this could result in varied opportunities that networking brings. For example, employment, knowledge sharing, institution promotion, among others. By these forms of inclusion and engagement which may translate into involving grassroot stakeholders, the local content policy can be tailored to address the unique needs of Ghanaian communities and promote inclusive development.

3. Policy Development: These educational institutions have experts in policy development and analysis, who can contribute to the formulation of a robust local content policy. They can conduct policy reviews, comparative studies, and impact assessments to ensure that the policy aligns with best practices and supports the sustainable development of the industry. Their expertise can help create a policy framework that

promotes local participation, innovation, and long-term economic benefits. To emphasize this, institutions of higher learning and technical institutions have competent and able researchers who are specialists in all sectors of interests to society, including the three key areas of concern to sustainable development. That is, poverty reduction, social inclusion, and sustainable ecological processes. However, the opportunity to implement this role may be lacking to the institutions. The civil society organization informant in this research had a concern over this when they had to respond to the question about how they consider universities and technical institutions as enablers of sustainable development through their participation in local content development processes. They responded by remarking that they believe that if educational institutions were given the opportunity, they will have impactful contribution at the policy development stage since they have long been part of everybody's upbringing and professional development. A technical university which was also an informant in this research was fully aware of the implications of lacking relevant partnerships. Responding to the question of what difference would it have made if the partnership did not exist, the informant stated that the difference would be the absence of the benefits being accrued from the partnership.

4. Skill Development: Universities and technical institutions can facilitate the development of a skilled local workforce. Their contributions can help to align the policy with the educational curriculum, where they adapt their programmes to provide relevant training and education for students pursuing careers in the oil and gas industry. This approach helps to build a pool of skilled professionals who can contribute to the sustainable development of the industry. From the empirical data, many of the institutions and other organizations maintained that the collaborations with other institutions and industry players had led to industry-specific skills acquisition, internship training, and professors/instructors' knowledge sharing. They had also had the opportunity to abreast themselves with the latest technology and research discoveries and trends. The collaborations that had led to some major universities serving as accreditors for other university colleges and technical universities were also key examples of the extent to which collaborations can foster many benefits including skill development. According to Faggian & McCann, (2009) among the levels of education, higher education is regarded as the most successful in providing the right skills to compete in the new global economy, respond to technological transformation,

and help in achieving sustainable development. These skills, according to Vanpatten & Benati (2010), require first, contents and context knowledge, and second, considerable periods of time to reach high levels of skill. These elements are both provided by universities and technical institutions.

5. Curriculum Development: Universities and technical institutions play a crucial role in shaping the education and training of future professionals in the oil and gas sector. By actively engaging in local content policy development, these institutions can align their curricula with the policy objectives. They can introduce courses and programs that focus on the specific skills and knowledge required for the industry, such as petroleum engineering, environmental management, local content regulations, community engagement, project management, technical-oriented roles, among others This helps to develop a skilled workforce that meets the industry's needs and contributes to socio-economic and environmental development of Ghana. By reference to the empirical data and web pages of some of the informants, study programmes and courses that pertain to the oil and gas industry have been introduced by some of them. In alignment with curriculum development, the extent to which these institutions of higher learning have developed customized curriculum that meet the requisite knowledge and skills needs of the Ghana oil and gas industry is what the next research objective or question examines.

6. Knowledge Transfer and Innovation: The involvement of universities and technical institutions encourages knowledge transfer and fosters innovation, Bramwell & Wolfe, (2008). Through collaborative research projects and partnerships, industry professionals can work together with academics and students to tackle industry challenges, develop new technologies, and find sustainable solutions. This collaboration promotes a culture of innovation and continuous improvement and competitiveness of the Ghanaian petroleum industry. It also leads to operational efficiency, environmental impact minimization, and support of local value addition. In the same vein, collaboration with universities and research institutions outside Ghana drive cross border research breakthroughs, knowledge transfer and innovation. One of the technical universities indicated their partnership with four institutions in the UK, US, China, and Czechia. Another institution had to disclose that they had partnerships with six institutions where four were in the north, east, and west of Africa while the remaining two were in Asia and Europe. For another informant, while they have ended

their previous partnership. They are in the process of establishing three new partnerships with some universities in Australia, India, and Austria. This technical university indicated that even though they have partnership with other higher education institutions, they have purposely established partnerships with many vocational and lower technical institutions in Ghana to drive knowledge and skill transfer in many different study programmes. As part of the partnership agreement, a model exists that has greater focus on practical training. According to them, the model had been progressive and productive. Undoubtedly every partnership may have its challenges. Yet, with these forms of partnerships scattered around strategic regions of the globe, the benefits in knowledge transfer and innovation might outweigh the challenges.

7. Capacity Building: Through training programs, workshops, and seminars, universities and technical institutions can contribute to the capacity building of industry stakeholders, including government officials, industry professionals, and local communities. They can provide training in technical skills, project management, entrepreneurship, and other areas relevant to the oil and gas sector. Capacity building initiatives enhance the capabilities of individuals and organizations, leading to improved implementation of the local content policy and long-term sustainable development. Examples of the capacity building initiatives that resulted from the engagements with CTVET comprise WorldSkills Ghana, GTVP, GJSP, and GSDI respectively. Another is the Accelerated Oil and Gas Capacity Building training program in Northern Alberta Institute of Technology in Edmonton, Canada. This capacity building initiative was established by the Petroleum Commission for instructors/tutors of some technical universities.

8. Stakeholder Engagement: Universities and technical institutions can facilitate stakeholder engagement and dialogue among various actors in the oil and gas sector. They can organize conferences, seminars, and workshops where policymakers, industry representatives, civil society organizations, and local communities can come together to discuss the local content policy and its implementation. These platforms create opportunities for collaboration, knowledge-sharing, and addressing of concerns, ensuring that the policy is inclusive and responsive to the needs of all stakeholders.
9. Long-Term Vision: Universities and technical institutions often have a long-term perspective on development. Their engagement would ensure that the local content

policy considers the broader sustainable development goals of Ghana beyond the immediate benefits of the oil and gas industry. This long-term vision helps to promote responsible resource management, environmental protection, and social inclusiveness (NORAD, 2010, 2014).

5.3 Relevant curriculum development by universities and technical institutions

The oil and gas industry plays a significant role in Ghana's economy, and it is crucial for universities and technical institutions to provide education and training that meet the industry's needs. Moreover, two of the NORAD documents based on research by STEPRI, SINTEF, and SCANTEAM revealed that the level of knowledge and skill needed for the oil and gas industry is low among the African workforce (Disch et al., 2015, OfD Annual Report, 2010-2020). Nevertheless, Monday (2014) and Pegram et al., (2019) submit that developing human capital through progressive training and development of local competence within local content policy in oil and gas operations evidently results in sustainable business performance and long-term cost benefit.

As gathered from the research findings, Ghanaian universities and technical institutions have made considerable efforts to develop customized curricula that align with the requisite knowledge and skills required in the oil and gas sector. To ensure that students and graduates are well-prepared for careers in the industry, institutions of higher learning and technical institutions have collaborated closely with key stakeholders, including the government, local and international oil and gas companies, civil society organizations, research institutions and other industry players. This collaboration allows them to gain insights into the specific skills and competencies that are in demand, the prevailing regulatory and legislative provisions, global technological and research trends, and to tailor their curricula accordingly. Customized study programmes that could be developed for the oil and gas industry may include petroleum engineering, reservoir management, drilling operations, offshore technologies, and health, safety, and environment (HSE) practices. Business, economics, and management-oriented study programmes could also be developed while integrating science, technology, engineering, and business courses to form interdisciplinary study programmes to meet wider educational and professional needs. These study programmes and courses could provide the nation’s human resources with a strong foundation in both the technical and management aspects of the oil and gas industry and equip them with the necessary knowledge, skill, and competence to thrive and contribute effectively to the petroleum industry and other industries of the economy of Ghana.

In addition to technical skills, these curricula also emphasize the development of transferable skills that are essential for career success in the oil and gas industry. These include critical thinking, problem-solving, teamwork, communication, and project management skills. By incorporating these skills into the curriculum, universities and technical institutions aim to produce well-rounded graduates who can adapt to the dynamic nature of the industry and contribute to its growth. Furthermore, some institutions have established partnerships with international universities and industry experts to enhance the quality of their curricula. These partnerships often involve exchange programs, joint research projects, and faculty and institution collaborations, that allow students to benefit from a global perspective and the latest industry practices. To keep pace with the rapidly evolving nature of the oil and gas industry, technology and concern for sustainable development, the institutions also prioritize continuous curriculum review and updating. They actively engage industry professionals through guest lectures, industry visits, and internship opportunities to ensure that the curricula remain up-to-date and aligned with industry standards.

Importantly, the established schemes enable improved employability. By offering curricula that address the specific knowledge and skills demanded by the oil and gas industry, the institutions enhance the employability of their graduates. Students acquire industry-specific expertise, making them attractive to employers within the sector. The practical implications include increased job opportunities and reduced skills gaps, enabling graduates to contribute effectively to the sustainable development of the industry.

Overall, the findings suggest that efforts made by institutions to establish customized curricula for the oil and gas industry have yielded positive results. Graduates from these programs are increasingly sought after by industry employers due to their relevant knowledge and skills. By providing a solid foundation and a comprehensive knowledge and skill needs of the petroleum industry, the institutions are contributing to the development of a skilled workforce through the nation's human resources that can support the growth and sustainability of the oil and gas industry of Ghana and the overall economy. Diebolt & Hippe, (2018) and Bramwell & Wolfe, (2008) emphasize the crucial roles of institutions of higher learning in this regard and in determining local and regional development. For Maclean & Pavlova (2009), the capability of vocational and technological education to result in empowerment – self-reliance, self-strength, independence, awakening, and capability, was posited by them.

In summary, from the research findings, universities and technical institutions in Ghana have indicated the readiness to engage and be engaged. They have shown the potential to contribute

to the development of local content policy for the oil and gas industry and for sustainable development. Finally, they have put mechanisms in place by developing suiting curricula. These potentials include, research expertise, local contextualization, policy development capabilities, skill and curriculum development, capacity building initiatives, stakeholder engagement, and long-term vision. All these potentials or elements play vital roles in shaping an effective and inclusive policy framework while developing and imparting specific knowledge and skill sets (Ellis & Shintani, 2013). The partnership schemes that have enabled graduate employment opportunities are commendable because they may have helped to mitigate a concern raised by Obeng-Odoom (2015). He argued that international oil companies and other companies operating in different industries and sectors of Ghana's economy tend to cite low or lack of skilled workers in Ghana to shun polycentric approach of recruitment in favour of recruiting from their home country. By leveraging these potentials of universities and technical institutions, Ghana can maximize local participation, foster innovation, and ensure the long-term sustainability of its oil and gas industry. These partnerships and the identified encouraging outcomes, however, are not insulated from challenges. According to extant literature, two opposing views that exist regarding strategic partnerships for sustainable development are, either the partnership helps to translate the resources of the nations into sustainable and prolific advantages, or the partnership contributes to the worse conditions of the nations (Du Plessis, 2014; Looy, 2006; Bolt & Cross, 2010). Even with OfD, despite its acclaimed successes in all partner countries as argued by Disch et al., (2014) and NORAD (2010 - 2020), criticisms of meddling of the partnership motive with commercial motive are levelled against it (Allesina & Dollar, 2000). In other words, the criticism stems from the assumption that, "the flag follows the flesh," as a former Danish Minister figuratively puts it, (Helgesen, 2007). It often happens that the true intentions of the parties in partnerships may not be as those explicitly projected either in their words, official documents, or webpages but instead, those implicitly communicated in obscured manner. Similarly, the same concern about true intentions can be raised about the different forms of partnerships that exist among the institutions of higher education and the various organizations presented by the findings of this research. However, identifying implicit meanings to empirical findings was outside the scope of this research.

CHAPTER SIX
CONCLUSION, PRACTICAL IMPLICATIONS & LIMITATIONS

6.0 Conclusion

The primary objective of this thesis sought to investigate how universities and technical institutions are engaged in local content policy development in Oil for Development (OfD) partnership programmes in Ghana. Qualitative research method was employed. By this method, the originally intended interview instrument meant to gather the primary data was replaced with questionnaire at the express request of respondents. Official documents obtained from the public document repositories of some of the informants were also analyzed. These documents were focused on local content policy development for sustainable development. Five categories of participants/respondents/informants were purposively selected for this research. They included Universities and Technical Universities/Institutions, Commission for Technical & Vocational Education & Training, Accra-Ghana (CTVET), Petroleum Commission, Accra-Ghana, CSIR-Science & Technology Policy Research Institute (STEPRI), Accra-Ghana, and a Civil Society Organization. Thirteen (13) responses were received from these five categories of respondents. Nine (9) responses were received from the first category of respondents, namely Universities and Technical Universities/Institutions, and one (1) response each from the four subsequent.

Three major conclusions can be made from this study based on the three research questions that were developed. They include the following:

6.1.1 Consultation and engagement of universities and technical institutions

The degree to which universities and technical institutions in Ghana have been engaged and seek to be engaged by the government and industry players in local content policy process for the sustainable development of the oil and gas industry of Ghana is substantially high despite the existence of a little degree of diverging opinion. To some extent, the divergence depends on how each individual respondent relates with the experience. The engagements take forms such as public policy discussions, research and development, academia-industry training and employment schemes, capacity building programmes that take place both within and outside Ghana, development seminars, and relevant training pertaining to the oil and gas industry of Ghana.

The level of engagement of Universities and Technical Institutions is also viewed from different perspectives by the government and other organizations who are key stakeholders in

the petroleum industry. Whereas some of them maintain affirmative positions that a substantial level of engagement exists, the others have contrasting viewpoints. Overall, the engagements at the prevailing level have propelled some sense of optimism, recognition, inclusion, and empowerment in the universities and technical institutions that enable them to contribute to local content development in oil and gas and policies on sustainable development.

6.1.2 Contributions of universities and technical institutions

In terms of the efforts made by universities and technical institutions to contribute to local content policy development in the oil and gas industry, there have been significant efforts made in that direction. The means by which the contributions have been made include reaching out to relevant government agencies for engagement in discussions pertaining to oil and gas activities in Ghana, establishment of partnership with oil and gas industry players that allow practical training and internships for students and knowledge transfer and sharing among university lecturers, instructors, and professors, and extensive level of partnerships with other educational institution, research centres, and foreign educational and research organizations. The partnerships exist at all relevant levels in university and technical education including vocational education training. Some of the goals of these partnerships encompass specific skill acquisition training, sponsorship, practical knowledge acquisition, capacity building, and discharging of accreditation roles by premier universities for the study programmes of other educational institutions. These contributions have resulted in beneficial outcomes such as internship and employment opportunities, capacity building projects like Accelerated Oil and Gas Capacity Building training program in Northern Alberta Institute of Technology in Edmonton, Canada, WorldSkills Ghana, GTVP, GJSP, and GSDI. Some of these projects have been spearheaded by government agencies and commission like the Petroleum Commission and CTVET. These have been beneficial in wide ranging ways to the concerned universities, students, as well as the industry players and other stakeholders. On the other side of the coin, the Civil Society Organization maintains that there is more to be done by the government and other stakeholders if significant results were to be realised from the true engagement and participation of educational institutions in local content development in the petroleum industry, and for sustainable development. Interestingly, there is strong admission by the Petroleum Commission that Universities and Technical Institutions have shown keen level of interest to contribute to local content policy development, much the same as Petroleum Commission in turn, has shown keen interest in the involvement of Universities and Technical Institutions.

6.1.3 Relevant curriculum development by universities and technical institutions

At the levels of bachelor, master's, and PhD, some universities have developed new study programmes pertaining to the oil and gas industry. New study programmes on sustainable development of natural resources have also been established. There has also been integration of new courses pertaining to the oil and gas industry into existing study programme at both the bachelor and master's level. Specific professional programmes relevant to the oil and gas industry have been developed. In all of these, students and industry professionals alike have shown keen interest and have enrolled in their huge numbers. While institutions of higher learning have been keen about new their study programmes on sustainable development and the petroleum industry, they have accorded priority to all their study programmes without preferential treatment.

There are equally specific research initiatives in sustainable development and oil and gas underway. Some of them have been established in partnership with not only local and regional research organization and institutions of higher learning, but foreign ones as well. There are also institution and industry partnership schemes in place that facilitate industry training, internships, and graduate employment. To an overarching extent and with available data to support, several alumni of both universities and technical institutions have secured employment in the petroleum industry and other sectors through the scheme. By and large, the extent of what type of study programme is established at what degree level, the extent of partnerships with other universities and research institutions, the extent of availability of professional programmes and courses in oil and gas and sustainable development, the extent of the availability of graduates and alumni employment opportunity schemes, among others, are contingent not only on whether the educational institution in question is a university, technical university/institution or vocational institution, but also on the proactiveness and determination of the institution to engage and achieve such goals.

6.2 Contribution of research

As a significant contribution of this research, universities and technical institutions are found to be involved by the government of Ghana in the local content policy (LCP) process and development of the oil and gas industry of Ghana. Industry players including local and international oil companies, and other important stakeholders also contribute their part in the effort of the government to achieve this goal. It is against the background that the OfD programme between Ghana and Norway did not attach priority to the local content policy Disch et al., (2015, p.36). The NORAD-funded research project on local content policy in oil and gas

in Ghana revealed that educational institutions were not considered as part of the key stakeholders named (Osei-Tutu 2013, p. 12). They argue that in the petroleum industry, the state or government and international oil companies (IOC) are regarded as the primary stakeholders that have direct influence on petroleum activities. While the former is the 'corporate owner' of the discovered oil, the latter is a huge financial and technical investor in the exploration, development, and production of the oil and gas (Osei-Tutu 2013, p.36). This relegates universities and technical institutions, among other groups, to the background in the oil and gas industry. Humphrey et al., (2007) refer to oil dependent countries who do not invest in education as countries that live off their capital instead of investing in education and other sectors of the economy. It is against this background that the contribution of this research is revealing.

The OfD partnership programme, which is officially being ended by the Norwegian government in 2024 has been around for over a decade. The research that revealed the lack of participation by educational institution was carried out at the early stages of the partnership programme in Ghana. Therefore, the findings of my research may also stem from the improvements in institutional structures and LCP over the past years.

6.3 Practical implication

The findings of this research project have revealed some positive outcomes on the overall objective and the three questions developed for this research. However, the positive outcomes have not been realized without some weaknesses and gaps. Both the positive outcomes and gaps are outlined below to help inform policies, practices, procedures, and decision-making.

1. Consultation, engagement, and opportunity to participate and contribute drive sense of optimism, recognition, inclusion, and empowerment. While these could be achieved and were achieved to some extent, the resentment raised by some informants regarding limited level of consultation for educational institutions, extensive involvement of profit-oriented stakeholders, and lack of enthusiasm and readiness by industry stakeholders require proactive mechanisms to address them.

2. Employment and skill development in the petroleum industry are driven by academia-industry partnership. Yet, this opportunity may be jeopardized when industry players do not actively pursue it based on their perception that African workforce have low or lack the requisite knowledge and skill, as underscored by Obeng-Odoom, (2015).

3. Local content policy is important for driving local, regional, and national development. This is achievable and beneficial for the intended reasons when the policy development, implementation, and evaluation are executed and overseen by the locals themselves. The involvement of diverse parties that may have other interests including foreign stakeholders who may not be committed to the importance of LCP may be a great disadvantage to achieving the fundamental goals of LCP. The findings of this research discovered the active involvement of several and different kinds of stakeholders that may have other interests than the core objectives in the LCP process. While the gender composition of the parties involved in the LCP process was not defined, it is equally a crucial area to look at. Figueiredo & Perkins (2013, p. 193) and Singh, (2006) find women as better placed to possess incomparable knowledge to make invaluable contributions to local development in all areas of sustainable development.

4. Research development may be described as key determinant of the survival of institutions of higher education. This is driven on active engagement and responsibilities that pertain to the latest technological developments. When universities and technical institutions are actively engaged with research responsibilities in the oil and gas industry along with huge investment, regional and sectoral innovation, competence, and sustainable development are the outcomes. Ryggvik, (2010) argues that in the early stages of oil and gas activities in Norway, huge investment was made in the education system of the country to achieve the local content target aimed at 70%. This is evidence of the understanding held by Norway regarding the prioritization and investment in education, and education for the locals and for sustainable development. In this sense, bold and concrete actions are required from government and industry players for considerable investments in research and developments through universities and technical institutions. When there are visible and prolific research investments in place that are driving enormous national development, watch-dog groups like CSOs and institutions of higher learning themselves may not have reasons to be suspicious of the levels and outcomes of their engagements and responsibilities not only in LCPs for the petroleum industry but Ghana's economy in entirety.

5. The contributions from the government and the various stakeholders in enabling universities and technical institutions to also contribute their quota in LCP will translate into aligning with the United Nations Sustainable Development Goals (SDGs). Specifically, these SDGs would have been contributed to, 4 (Quality Education), 5 (Gender Equality), 8 (Decent Work and Economic Growth), 9 (Industry, Innovation, and Infrastructure), 10 (Reduced Inequality) and 13 (Climate Action). The reason is that all the activities that universities and technical institutions are involved in LCP in the oil and gas industry of Ghana are directly or

indirectly connected to the individual SDGs labelled above. This position is asserted by Haliscelik & Soytas, (2019), Sachs, (2012) Lomazzi et al., (2014).

6.4 Limitations

The research project has concluded that universities and technical institutions in Ghana has shown the readiness to engage and be engaged. They have shown the potential to contribute to the development of local content policy for the oil and gas industry and for sustainable development. Finally, they have developed curricula to enable the acquisition of requisite knowledge and skills needed in the oil and gas industry. The government and other key industry players have also played some roles in the outcome.

However, there were some limitations in the study. The first limitation was related to the data collection method. Originally, the data collection method was planned to be interview (Cresswell, 2013). At the request of most informants, the method had to be changed into open-ended survey questionnaire. Busy schedules and unavailability were the reasons cited by informants for their preference. The use of questionnaire to elicit response for what was originally intended to be interview limited my ability to probe responses given by informants. There were some responses that I would have liked to follow up with further questions if the method was interview. This also led to a few informants giving short answers to questions that required detailed answers. Therefore, preventing the opportunity to receive detailed responses to specific questions.

Secondly, some of the informants delayed in completing the survey and responding to the reminder e-mails and telephone calls. Those informants, especially the Petroleum Commission had to be followed up many times before they finally sent in their completed survey. This resulted in delayed data analysis. It also resulted in the need to request the extension of the submission date for this research project. These limitations affect the internal validity of the results, that is, variables within the study. If interview was used, the result might have more accuracy. Nevertheless, the reliable sources of the responses and detailed content given by most of the informants help to boost validity. Identifying the limitations is an opportunity to make suggestions for future research ((Brutus et al., 2013). On this note, in any future research, it is important to agree on the chosen data collection method with the informants ahead of time. Since the availability and willingness of key informants is important to what data to collect, when to receive them, and the data validity, it is also important to remain in regular communication with informants, even when the research commences ahead of time. It is also

important to report the findings without implicit interpretations. That is, avoid speaking on behalf of or for the participants/respondents/informants.

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APPENDICES

Appendix 1

Interview guide/Questionnaire for Universities and Technical Institutions

Your personal data

Which one of the following describes your institution?

How many years have you worked in the institution?

Which of the following describes your position in the institution?

How many years have you been in the position?

What is your highest level of education?

NB: This interview questions are focused on the period between 2007 (when oil in commercial quantities was first discovered by Ghana) and now. The responses are to be given based on the stated period.

Interview questions based on research questions 1.

(*How have universities and technical institutions in Ghana engaged in local content policy process for the sustainable development of the Ghana oil and gas industry?)*

NB: This interview questions are focused on the period between 2007 (when oil in commercial quantities was first discovered by Ghana) and now. The responses are to be given based on the stated period.

Interview questions based on research questions 1.

(*How have universities and technical institutions in Ghana engaged in local content policy process for the sustainable development of the Ghana oil and gas industry?)*

- How has your university been engaged by any government ministry or authority to participate in discussions and development of policies for the oil and gas industry in Ghana?
- What other institutions or group of organizations have participated in the policy discussion and development? How have you assessed the composition of the participants? Were they made up of both local and foreign institutions and organizations?

- How has your university been engaged for your input on the Oil for Development partnership programme between Ghana and Norway? What difference did your participation make? Would you have liked to contribute in a different manner or way?
- Has your university been consulted by any government authority for your input on sustainable development of the oil and gas industry of Ghana? Can you talk more about the specific sustainable development area of the oil and gas activities? How satisfied are you about your input? How has your input been implemented?
- Has your university been consulted by a government authority specifically on the development of new curriculum or upgrading of existing curriculum that are relevant to oil and gas activities in Ghana? What does the development of new curriculum in this specific area mean for the university? Is it appealing, welcoming or what? How do you see its short term and long-term effects in graduate employment in the oil and gas industry?
- How would you have liked to engage government in discussions about skill acquisition of your students and the employability of your graduates in the oil and gas industry?
- Has your university been engaged by companies in oil and gas activities for discussions about skill acquisition of your students and the employability of your graduates? To what extent has the level of cooperation by companies been appreciable? Have there been practical outcomes?
- Would you have expected the government and industry players to engage the universities more than it has been? How would you have contributed more to knowledge generation and skill acquisition for the oil and gas sector if you were engaged more?

Interview questions based on research questions 2.

(*What contributions can universities and technical institutions make in local content policy for the sustainable development of the Ghana oil and gas industry?)*

- Have you reached out to the Ministry of Energy or Petroleum Commission for engagement in discussions pertaining to oil and gas activities in Ghana? What was your goal in that effort? What could you have contributed? Were you satisfied with the response from the ministry? Did the ministry show keen interest in your desire for engagement?
- To what extent have you established partnership with oil and gas industry players that allow practical training and internships for students? Have the industry players been cooperative? What have been the practical results of the partnership on knowledge and skill acquisition by your students and employment of your graduates?
- What is your thought about your university establishing a scheme that allow collaboration and knowledge sharing between your professors and oil and gas industry players?

- Do you have partnerships with other educational institutions in Ghana, e.g., other universities, technical universities, polytechnics, and technical and vocational institutions? What has been the level of partnership? Has the partnership resulted in effective knowledge sharing and skill acquisition for the oil and gas industry? What other areas is the partnership focused on aside from the oil and gas industry?
- Do you have partnerships with foreign universities and foreign research institutions? How many are those partnerships and which universities, and institutions are involved? Which specific areas are the partnerships focused on? To what extent have the partnerships achieved results in the focus areas? What difference would it have made if the partnership did not exist?
- Do you have partnerships with any civil society organization in Ghana or outside Ghana that focus its activities strongly on citizen participation in oil and gas activities? Which specific areas are the partnerships focused on? To what extent have the partnerships achieved results in the focus areas? How would you have wanted increased collaboration between universities and civil society organizations for sustainable development of natural resources?

Interview questions based on research questions 3.

(*To what extent have universities and technical institutions in Ghana developed customized curriculum that meet the requisite knowledge and skills needs of the Ghana oil and gas industry?*)

- Have new study programmes pertaining to the oil and gas industry been developed at the bachelor level? Does the level of enrolment indicate keen interest in the programme? Do high number of graduates seek to pursue their master's in the same or related disciplines?
- Have new study programmes pertaining to the oil and gas industry been developed at the master's level? Does the level of enrolment indicate keen interest in the programme? Do high number of graduates seek to pursue their PhD in the same or related disciplines?
- Have new study programmes on sustainable development of natural resources been developed at both bachelor and master's levels? How has the university prioritized programmes on sustainable development of natural resources, especially oil and gas?
- Have new courses pertaining to the oil and gas industry been integrated into existing study programme at both the bachelor and master's level? How have students and industry players embraced this integration efforts by the university? Could there be something more to be done by the university to drive increased engagement with government and industry players for knowledge and skill acquisition for the oil and gas industry and sustainable development?

- Have specific professional programmes relevant to the oil and gas sector been developed? Are industry players patronizing and pursuing the professional programmes?
- Have specific research initiatives relevant to the oil and gas sector been established? Are the research initiatives making inroads into development issues and yielding positive results for sustainability of resources?
- Have PhD programmes been developed specifically for sustainable development and the oil and gas industry? Does the enrolment level show interest in the field?
- Are research activities into sustainable development and oil and gas activities actively underway and prioritized by your university? Could you mention some of them?
- Are alumni of your university employed in the oil and gas industry of Ghana? Were some of these employment opportunities through industry placement schemes established by the university?
- If yes to the above question, do you have data on the approximate percentage of graduates employed yearly and how many were through your placement scheme?

Appendix 2

Interview guide/Questionnaire for Commission for Technical & Vocational Education & Training (CTVET)

Your personal data

Which one of the following describes your institution?

How many years have you worked in the institution?

Which of the following describes your position in the institution?

How many years have you been in the position?

What is your highest level of education?

NB: This interview questions are focused on the period between 2007 (when oil in commercial quantities was first discovered by Ghana) and now. The responses are to be given based on the stated period.

Interview questions based on research questions 1.

(*How have universities and technical institutions in Ghana engaged in local content policy process for the sustainable development of the Ghana oil and gas industry?)*

- How has your university been engaged by any government ministry or authority to participate in discussions and development of policies for the oil and gas industry in Ghana?
- What other institutions or group of organizations have participated in the policy discussion and development? How have you assessed the composition of the participants? Were they made up of both local and foreign institutions and organizations?
- How has your university been engaged for your input on the Oil for Development partnership programme between Ghana and Norway? What difference did your participation make? Would you have liked to contribute in a different manner or way?
- Has your university been consulted by any government authority for your input on sustainable development of the oil and gas industry of Ghana? Can you talk more about the specific sustainable development area of the oil and gas activities? How satisfied are you about your input? How has your input been implemented?

- Has your university been consulted by a government authority specifically on the development of new curriculum or upgrading of existing curriculum that are relevant to oil and gas activities in Ghana? What does the development of new curriculum in this specific area mean for the university? Is it appealing, welcoming or what? How do you see its short term and long-term effects in graduate employment in the oil and gas industry?
- How would you have liked to engage government in discussions about skill acquisition of your students and the employability of your graduates in the oil and gas industry?
- Has your university been engaged by companies in oil and gas activities for discussions about skill acquisition of your students and the employability of your graduates? To what extent has the level of cooperation by companies been appreciable? Have there been practical outcomes?
- Would you have expected the government and industry players to engage the universities more than it has been? How would you have contributed more to knowledge generation and skill acquisition for the oil and gas sector if you were engaged more?

Interview questions based on research questions 2.

(*What contributions can universities and technical institutions make in local content policy for the sustainable development of the Ghana oil and gas industry?)*

- Have you reached out to the Ministry of Energy or Petroleum Commission for engagement in discussions pertaining to oil and gas activities in Ghana? What was your goal in that effort? What could you have contributed? Were you satisfied with the response from the ministry? Did the ministry show keen interest in your desire for engagement?
- To what extent have you established partnership with oil and gas industry players that allow practical training and internships for students? Have the industry players been cooperative? What have been the practical results of the partnership on knowledge and skill acquisition by your students and employment of your graduates?
- What is your thought about your university establishing a scheme that allow collaboration and knowledge sharing between your professors and oil and gas industry players?
- Do you have partnerships with other educational institutions in Ghana, e.g., other universities, technical universities, polytechnics, and technical and vocational institutions? What has been the level of partnership? Has the partnership resulted in effective knowledge sharing and skill acquisition for the oil and gas industry? What other areas is the partnership focused on aside from the oil and gas industry?
- Do you have partnerships with foreign universities and foreign research institutions? How many are those partnerships and which universities, and institutions are involved? Which specific areas are the partnerships focused on? To what extent have the partnerships

achieved results in the focus areas? What difference would it have made if the partnership did not exist?

- Do you have partnerships with any civil society organization in Ghana or outside Ghana that focus its activities strongly on citizen participation in oil and gas activities? Which specific areas are the partnerships focused on? To what extent have the partnerships achieved results in the focus areas? How would you have wanted increased collaboration between universities and civil society organizations for sustainable development of natural resources?

Interview questions based on research questions 3.

(*To what extent have universities and technical institutions in Ghana developed customized curriculum that meet the requisite knowledge and skills needs of the Ghana oil and gas industry?*)

- Have new study programmes pertaining to the oil and gas industry been developed at the bachelor level? Does the level of enrolment indicate keen interest in the programme? Do high number of graduates seek to pursue their master's in the same or related disciplines?
- Have new study programmes pertaining to the oil and gas industry been developed at the master's level? Does the level of enrolment indicate keen interest in the programme? Do high number of graduates seek to pursue their PhD in the same or related disciplines?
- Have new study programmes on sustainable development of natural resources been developed at both bachelor and master's levels? How has the university prioritized programmes on sustainable development of natural resources, especially oil and gas?
- Have new courses pertaining to the oil and gas industry been integrated into existing study programme at both the bachelor and master's level? How have students and industry players embraced this integration efforts by the university? Could there be something more to be done by the university to drive increased engagement with government and industry players for knowledge and skill acquisition for the oil and gas industry and sustainable development?
- Have specific professional programmes relevant to the oil and gas sector been developed? Are industry players patronizing and pursuing the professional programmes?
- Have specific research initiatives relevant to the oil and gas sector been established? Are the research initiatives making inroads into development issues and yielding positive results for sustainability of resources?
- Have PhD programmes been developed specifically for sustainable development and the oil and gas industry? Does the enrolment level show interest in the field?

- Are research activities into sustainable development and oil and gas activities actively underway and prioritized by your university? Could you mention some of them?
- Are alumni of your university employed in the oil and gas industry of Ghana? Were some of these employment opportunities through industry placement schemes established by the university?
- If yes to the above question, do you have data on the approximate percentage of graduates employed yearly and how many were through your placement scheme?

Appendix 3

Interview guide/Questionnaire for Petroleum Commission

Your personal data

Which one of the following describes your institution?

How many years have you worked in the institution?

Which of the following describes your position in the institution?

How many years have you been in the position?

What is your highest level of education?

NB: This interview questions are focused on the period between 2007 (when oil in commercial quantities was first discovered by Ghana) and now. The responses are to be given based on the stated period.

- How do you consider local content as critically important in the oil and gas activities of Ghana?
- What role would you have liked to play in pushing for the prioritization of local content in the Oil for Development (OfD) partnership programme with Norway since the partnership began?
- What challenges could you have encountered in your push for the prioritization of local content in the Oil for Development (OfD) partnership with Norway?
- What was your target for the local content policy in the OfD partnership programme?
- The partnership is a decade old now, is your target for local content in the OfD partnership programme achieved? Why do you consider your target as achieved or not achieved?
- Increased participation, group diversity, transparency, disclosure, and increased employment of citizens in the oil and gas industry are also important for local content development. How have some of them been achieved?
- Which groups do you classify them to be included in local content in the oil and gas activities of Ghana? How do you consider those groups as important or not important for engagement or inclusion?

- Are representatives of institutions of higher learning and technical and vocational institutions invited for deliberations and development of local content policies for the oil and gas industry? How do you consider them as important or not important to be engaged or included?
- How do you assess how keen and ready are institutions of higher learning and technical and vocational institutions to be invited for deliberations and development of local content policies for the oil and gas industry?
- How has your ministry given the representatives of higher learning and technical and vocational institutions the opportunity to give more inputs or contributions on local content development?
- Are specific inputs expected from institutions of higher learning and technical and vocational institutions in the discussion and development of local content policies? Why do you have those expectations?
- To what extent are the inputs of the representatives of higher learning and technical and vocational institutions for local content policy development implemented?
- Does a mandatory order exist that places responsibility on institutions of higher learning and technical and vocational institutions to fulfil the requirement of making inputs in the deliberations and development of local content policies for Ghana's oil and gas industry? Why or why not the existence of a mandate?
- How does the ministry provide support to institutions of higher learning and technical and vocational institutions for curriculum development?
- What specific support does the ministry provide to institutions of higher learning and technical and vocational institutions for development of education and sustainability of natural resources?

Appendix 4

Interview guide/Questionnaire for CSIR-Science & Technology Policy Research Institute (STEPRI)

Your personal data

Which one of the following describes your institution?

How many years have you worked in the institution?

Which of the following describes your position in the institution?

How many years have you been in the position?

What is your highest level of education?

NB: This interview questions are focused on the period between 2007 (when oil in commercial quantities was first discovered by Ghana) and now. The responses are to be given based on the stated period.

- What role have you played in the OfD partnership programme between Ghana and Norway?
- What role have you played in the OfD partnership programme concerning local content policy development? Did your role have any effect on the implementation of local content policy in the oil and gas activities?
- How do you consider universities and technical institutions as important entities to be included in local content policy process in the oil and gas activities in Ghana?
- As a prominent research institute, how have you made efforts to advocate the inclusion of universities and technical institutions in local content policy development in terms of oil and gas activities in Ghana?
- As you partnered with GNPC and SINTEF for the NORAD funded NKOSOO 2015 project which was a research project on local content policy process for the Ghana oil and gas industry, can you tell me something more about that project?
- Did you continue to carry out the research project in the subsequent years till now? If yes, what were the motivating factors. If no, what were the impediments?
- Since the NKOSOO 2015 project, do you identify any improvement in the local content policy process in terms of increased inclusion/participation, group diversity, transparency,

increased disclosure, and increased employment of citizens in the oil and gas industry? What improvements do you identify and what impacts have they had?

- Have you been engaged in a similar research project on local content development in a different partnership programme?
- Why was your involvement in the similar research project important and how were you involved?

Appendix 5

Interview guide/Questionnaire for Civil Society Organizations

Your personal data

Which one of the following describes your institution?

How many years have you worked in the institution?

Which of the following describes your position in the institution?

How many years have you been in the position?

What is your highest level of education?

NB: This interview questions are focused on the period between 2007 (when oil in commercial quantities was first discovered by Ghana) and now. The responses are to be given based on the stated period.

- Do you have an idea about the Oil for Development (OfD) partnership programme between Ghana and Norway? Can you elaborate on the idea you have about it?
- What role have you played in the OfD partnership programme? Did your role result from a consultation by a government ministry or authority?
- What is your idea about local content policy development in the oil and gas industry of Ghana? Did your role in the OfD partnership programme have any connection with local content policy development in the oil and gas industry? How did your role affect the implementation of local content policy development in the oil and gas activities?
- How do you consider universities and technical institutions as important entities to be included in local content policy process in the oil and gas activities in Ghana? How have universities and technical institutions proven their interest in this matter to you?
- How do you consider universities and technical institutions as enablers of sustainable development through their participation in local content development processes?
- How have you made efforts to advocate the inclusion of universities and technical institutions in local content policy development in terms of oil and gas activities in Ghana?
- Has there been a partnership between you and universities and technical institutions in local content development for sustainable development? What did the partnership entail?
- What is your assessment of the efforts of government in local content policy development in the oil and gas activities?

- What is your assessment of the efforts of government to include universities and technical institutions in local content policy development in the oil and gas activities?

Appendix 6

Consent/Invitation Letter

Hello,

Participation in the research project:

"Local Content Policy in Oil for Development Partnership Programmes: Are Universities and Technical Institutions Actively Engaged as Enablers of Sustainable Development?"

This is an inquiry about participation in a research project where the main purpose is to investigate the extent to which universities and technical institutions in Ghana have been engaged in local content policy processes since the oil discovery and inception of the Oil for Development programme in Ghana. In this letter we will give you information about the purpose of the project and what your participation will involve.

Purpose of the project

The project is a master's thesis which is a prerequisite for the partial fulfilment of the requirement for the award of Master of Arts in Global Development and Management.
By use of qualitative research methods, specifically survey questionnaire, the primary objective is to determine the engagements of and contributions by universities and technical institutions in Ghana in the oil and gas activities of Ghana for sustainable development. The research questions are:

- How have universities and technical institutions in Ghana engage in local content policy process for the sustainable development of the Ghana oil and gas industry?
- What contributions can universities and technical institutions make in local content policy for the sustainable development of the Ghana oil and gas industry?

- To what extent have universities and technical institutions in Ghana developed customized curriculum that meet the requisite knowledge and skills needs of the Ghana oil and gas industry?

The collected personal data will be used solely for the purpose of completing the thesis project and not for any other purposes.

Who is responsible for the research project?
The Faculty of Social Sciences, University of Agder, Norway, is the institution responsible for the project.

Why are you being asked to participate?
You are contacted because of your position and influence in research and higher education in Ghana.

What does participation involve for you?

- If you choose to take part in the project, this will involve that you will participate by answering the following questions with your own sentences between 1 to 4000 characters (including space). The questionnaire will take between 20 to 30 minutes to complete depending on the length of answers you will provide.

Participation is voluntary
Participation in the project is voluntary. If you chose to participate, you can withdraw your consent at any time without giving a reason. All information about you will then be made anonymous. There will be no negative consequences for you if you chose not to participate or later decide to withdraw.

Your personal privacy – how we will store and use your personal data.

We will only use your personal data for the purpose specified in this information letter. We will process your personal data confidentially and in accordance with data protection legislation (the General Data Protection Regulation and Personal Data Act)

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- The persons who will have access to the collected data are the thesis supervisor and the student.
- Your name and contact details will be replaced with a code. The name, contact details and respective codes will be stored separately from the rest of the collected data. The

Microsoft Forms for collecting the responses and the Microsoft OneDrive for data processing and storage are authenticated and provided by University of Agder.

- Your data that will be recognizable in the final publication will include the institution name, department name, position in the institution, and number of years of working in the institution. You may however indicate which data needs to be included or not.

What will happen to your personal data at the end of the research project?

The thesis project is scheduled to end in June 2023. The personal data will be deleted completely at the end of the project.

Your rights

So long as you can be identified in the collected data, you have the right to:

- access the personal data that is being processed about you.
- request that your personal data is deleted.
- request that incorrect personal data about you is corrected/rectified.
- receive a copy of your personal data (data portability), and
- send a complaint to the Data Protection Officer or The Norwegian Data Protection Authority regarding the processing of your personal data.

What gives us the right to process your personal data?

We will process your personal data based on your consent.

Based on an agreement with University of Adger. Data Protection Services has assessed that the processing of personal data in this project is in accordance with data protection legislation.

Where can I find out more?
If you have questions about the project, or want to exercise your rights, contact:

- University of Adger, *via*
  Arnhild Leer-Helgesen.
  Associate Professor (Thesis supervisor)
  E-mail: arnhild.leer-helgesen@uia.no
  Telephone: +47 38 14 15 37, +47 90 18 96 72

6. *Eric Ankrah*
   Student
   Email: erica@uia.no

- Data Protection Officer (University of Agder):
  Målfrid Tangedal
  E-mail: malfrid.tangedal@uia.no

- Data Protection Services, by email: (personverntjenester@sikt.no) or by telephone: +47 53 21 15 00.

Yours sincerely,

Project Leader

Student

(Research Supervisor)

Aruhild Leer-Helgesen *Eric Ankrah*

Consent form

I have received and understood information about the project: "*Local Content Policy in Oil for Development Partnership Programmes: Are Universities and Technical Institutions Actively Engaged as Enablers of Sustainable Development"* and have been given the opportunity to ask questions. I give consent to participate in online questionnaire and for my personal data to be processed until the end date of the project, approximately 15.6.2023:

☐ to participate in *online questionnaire*