ISSN 2522-9400 **European Modern Studies Journal** Vol 5 No 3
available at journal-ems.com

Enhancing Oil and Gas Sector Attractiveness: The Use of Local Content Policies to Offset Regressive Tax Tools in the Design of Upstream Contracts (Case Study of the Democratic Republic of Congo)

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Abstract. The oil and gas industry is facing big challenges towards its future. Among these challenges is listed the trendy energy and economy decarbonization as the core of a fast-pacing energy transition. This particular challenge threatens huge amount of oil and gas reserves throughout the world to remain 'in limbo', thereby causing the weakening of the oil and gas sector's attractiveness which is translated through the scarcity of financing options for exploration and production activities. The Democratic Republic of Congo (DRC) with its big oil and gas potentials faces, beyond this general and crucial context, the threat of a wild competition within the sub-Saharan Africa's market of petroleum licenses as a result of abundant new discoveries in the Southern and East regions of the continent. However, the DRC, compared to its competitors, suffers a considerable competitive disadvantage due to the geographic isolation of the major part of its resources, implying costly investments to develop oil and gas reserves within its national territory. Therefore, the design of an efficient fiscal regime matching the country's objectives to create a sustainable wealth from the exploitation of its resources appears as the optimal strategic response to these challenges. This research proposes to the DRC a contractual framework that incentivizes E&P activities without selling off its resources. The proposed framework, labelled as the '*Local content based-contract model*', is a tax system that integrates neutral local content variables in replacement of regressive petroleum tax instruments so as to alleviate investments risks for oil and gas companies and help the DRC to convert quite directly its resources into a real socio-economic development.

Keywords: Local content, petroleum fiscal regimes, regressive tax instruments, progressive tax instruments, neutral local content provisions, neutral tax instruments, local content-based contract

Introduction

The oil and gas sector has been the pillar of the modern economy's expansion for the last six decades, in which oil and gas energy sources stand as the most prominent fuels in the energy mix with a compounded share above fifty percent. The rush to oil and gas as primer energy fuels has been generating enormous revenues, known as the petroleum rent, which is shared out between all the sector's stakeholders, most importantly oil and gas companies and governments of resource-rich countries that host petroleum investments. Themes around resource-rich countries' dependency on petroleum rent abound in the literature and examples of countries that succeed or failed to build prosperity within their nations through oil and gas rents are legion (Alami, 2006; Al-Moneef, 2006; Daniel, Keen & McPherson, 2010).

More recently, evolving environmental concerns has driven countries throughout the world to engage towards a fast-pacing energy transition embodied in the trendy energy and global economy's decarbonization. Several initiatives have been launched as well at national level as worldwide, with clear-cut targets to undergo that transition; among them, the German's 100% renewable electricity supply towards 2050 (Klaus, Volimer, Werner, Lehmann & Müchen, 2010), the decarbonization of the roads and seas transport systems. This fact associated with new challenges of the oil and gas industry such as, uprising costs of oil

discovery and production, and scarcity of funds for oil and gas investments, to cite a few, make uncertain the future flows of petroleum rent in resource-rich countries. The combining effect of these issues rises the so-called "*Janus risk*", which is the dilemma faced by oil and gas companies on whether to invest or not in "*oil in limbo*", referring to oil reserves whose exploitation timing is under uncertain horizon because of a probable fast-pacing energy decarbonization as a consequence of stronger climate change policies (Mitchell, Marcel & Mitchell, 2015). Therefore, to counteract the risk that could impede the expansion of their petroleum sectors, oil-rich countries have to develop strategic tools capable to attract petroleum investment; and one of these tools is a well-designed petroleum fiscal regime that incentivizes exploration and production activities (E&P) and reduces risks raised by uncertainties, without selling off host countries' ultimate goal to bring forth economic development within their States. The design of such a regime requires governments to strike the right balance between some tax burden instruments susceptible to deter investments and effective policy mechanisms capable to lever up economic diversification and boost inclusive growth, and further an economic development. The academic literature on petroleum fiscal regimes points out a number of regressive and non-neutral tax instruments very unpopular with oil and gas companies, of which are bonuses, royalties, rental fees, etc. (Boadway & Keen, 2008; Boadway & Keen, 2013; Nakhle, 2008; Daniel, Keen & McPherson, 2010; Kyari, 2013; Tissot, 2010). Most of scholarly works in the field of petroleum fiscal regimes and economics discuss on the design of an optimal or effective tax system and thus, propose a cluster of fiscal models that recommend Governments to use progressive and neutral fiscal tax instruments in detriment of regressive ones in order to optimize the exploitation of their resources. However, these studies do not expose on how host countries can draw a thorough-compensation from the loss of earnings due to the suppression of regressive tools. The purpose of this research is to propose a contractual framework within the oil and gas sector that enables country to incentivize the conduct of E&P activities without selling off its resources but rather translating quite directly its oil endowment into socio-economic benefits.

More specifically, this research aims to build, under a inductive approach, an attractive petroleum contract model for the Democratic Republic of Congo (DRC) whose big potentials of oil and gas resources, recorded through its three main basins *(appendix 1)*, are exposed both to the risk to remain "in limbo" (underground without any prospect to be exploited) because of their particular context shaped by the evolving oil and gas industry's configuration, the fast-pacing energy transition, and the shrinking of financing opportunity for oil and gas activities, and to the fierce competition that has being announced on the Sub-Saharan Africa's market of petroleum licenses. Indeed, the DRC is not the sole country in Sub-Saharan Africa to dispose of great petroleum potentials, there are numerous countries, such as Nigeria, Cameroun, Chad, Gabon, Republic of Congo, Angola, and so on, which are big competitors in the license market. Recent big discoveries of oil and gas in East Africa signal the entry on the market of newcomers like Kenya, Uganda, Ethiopia, Mozambique, Madagascar, and so on, besides traditional players (D'Alessandro, 2017). The DRC, compared to most of its competitors, suffers a disadvantage due to the isolation of almost the totality of its basins. This issue heightens the risk profiles of and increases the size of investment in the country's oil and gas activities since the total value of investments in the DRC would include beside the basic investments, additional investments for infrastructures such as pipeline networks and junction to petroleum ports. Thence, the necessity for the DRC to set a mechanism that levies a comparative advantage of and enhances the attractiveness of its oil and gas sector.

In regard of the preceding, we can draw the path line of the research by delineating its scope through the follow questions:

a) How should be the designing process of a contract model that counterbalances Regressive tax tools by Local Content Policies?
b) What shape should such a model take to be implemented successfully?
c) How effective can be this proposed contract model?

Literature Review

The theoretical framework of this research evolves around two fundamental concepts, namely the Petroleum Fiscal Regimes (or Systems) and the Local Content Policies, which are distinctly developed through series of theories and approaches. This section aims to provide a comprehensive overview of these theoretical background.

Petroleum Fiscal Regime Framework

Petroleum Contractual Frameworks

Petroleum fiscal schemes are embodied in the petroleum contractual frameworks so as they are often perceived as synonyms. Tissot (2010), as many other authors, considered that the petroleum contract typology could be named as there are oil plays in the world but instead, most of them are arranged into a defined family of models. Thus, it appears important to scrutinize petroleum contract typology in order to study the overall fiscal components within the oil and gas sector.

The concept "petroleum contract" coincides most of time with that of petroleum fiscal system since the last constitutes the foundation of their classification. Petroleum fiscal systems are classified in two main categories: concessionary systems and contractual systems (Kaiser and Pulsipher, 2004). Under a concessionary system (also called royalty/tax system), the State's government or land owner (in the USA, only) grants a concession or license to the oil company, thereby transferring the title of minerals to the lessee which is then subject to the payment of royalties and taxes (Kaiser and Pulsipher, 2004; Mazeel, 2010). Whilst the contractual systems, with their two major branches, the Production Sharing Contracts or Agreements (PSCs or PSAs) and the Service Contracts, do not give to oil companies any right to the minerals. Actually, the PSA gives to an oil company the right to explore and produce oil in a defined contract area for a fixed period of time. The contractor engages all expenses and just the same, bears all risks of the exploration and development stages in counterpart of a share of oil and gas production. Service contracts, on the other hand, do not give to oil companies any right but instead, the commission for conducting exploration and development activities on behalf of the host country or its national oil company, if any, and perceives fees, or repayment oil in the case of a risk service contract.

The difference of these contract models lays on both the nature of tax instruments associated with them and the mechanism of rent collection by the host government i.e. the manner wherewith tax instruments are levied by the resource-rich country. This is illustrated by Kjemperud (2003) who presented the beginning of production sharing contract's implementation in Indonesia, Philippines and Peruvian, and noted that the same tools were used but differently to produce specific schemes fitting these countries proper goals.

Tax Instruments Used in Petroleum Contracts

There exist no detailed and standardized classification of petroleum tax instruments, and as such, different authors try to proposed broad and comprehensive frameworks that reflect the adequacy between practices in use within the oil and gas sector and economic principles on taxation. Nakhle (2008) for instance, underscored gross royalties, brown tax (BT), resource rent tax (RRT), and income tax (IT) as main categories of tax instruments which can be split in turn, into output-based tax (gross royalties), levied on the value of gross

production, and profit or cashflow based taxes (BT, RRT, and IT), imposed on operating income after capital investment or on net profit. Kyari (2013), for his part, distinguishes oil and gas tax instruments into indirect taxes, direct taxes and quasi-taxes. He describes indirect taxes as those tax instruments that are imposed against the petroleum deposit or input. They are non-profit based and have a direct impact on a project's variable costs, and include, among others, royalty taxes, import duties, value-added taxes, and so on. To the contrary, direct taxes are imposed on a company's profits and can be accompanied with incentives provisions that modify their timing, such as tax holidays, depletion allowances, accelerated capital allowances, permission to carry losses forward or backward, and so on. Direct taxes include, income taxes, resource rent taxes, brown taxes, and withholding taxes on dividends (Nakhle, 2008; Kyari, 2013). And at last, quasi taxes are non-tax instruments employed by oil producing countries to generate additional revenue to tax instruments (Kyari, 2013). Among them, they are bonuses (signature, production and discovery bonuses), production sharing, government participation, taxes related to environmental obligations, etc.

Notwithstanding, Kemp (n.d.) notes that rent collection instruments can range in either regressive schemes or progressive ones. According to Kjemperud (2003) regressive tax elements are non-profit based such that the lower profitability the higher effective tax and vice versa, whereas progressive elements are profit-based. Therefore, it can be assumed that indirect, direct, and quasi-taxes instruments fall in the broad categories of regressive, progressive and somewhat neutral according to the timing of their imposition i.e. whether they are imposed ex-antes (before profit is made) or ex-post (after profit is made), or their impacts on the project's cash flows. This implies that regressive instruments are definitely non-neutral since they are not profit-based and as such they create distortions in the project's cash flows; on the other hand, it can be noted that not all progressive instruments are neutral. Therefore, all indirect taxes and some quasi-taxes, such as bonuses and rental fees (during the exploration stage), are regressive whereas all direct taxes and some quasi-taxes, like profit sharing and rental fees (during production stage), are progressive but not all are neutral. This broad classification is of particular importance since its components appear among criteria of an efficient tax system such as efficiency (less or not distortive), neutrality (progressive and not affecting decisions on production), etc. (Kyari, 2013; Nakhle, 2008).

Fiscal Regimes' Attractiveness

Oil and gas resource-rich countries seek investments to develop their resource potentials in order to finance their economic development through the taxation of petroleum rents. Nevertheless, the taxation scheme used by a petroleum country plays a significant role in determining the flow of investments in its the oil and gas sector. While a resource-rich country focuses on taxation as a mean to draw the maximum of petroleum rent, investors equally pay more attention, especially in this time of persisting low prices, to the county's fiscal regimes with regard to the valuation of oil and gas exploration and production (Swe & Emodi, 2018). Thenceforth, petroleum taxation appears to be both a mechanism of rent generation and investment flows regulation within an oil and gas rich-country. This contrasting perception around petroleum taxation requires governments to fine-tune their fiscal systems in a way to attract investments within their petroleum sector and ensure a fair share of the resource rent.

Furtado, Gonçalves and Costa (2019) used the concept of exploratory risk and indifference curves to address how the risk component can be included within the fiscal regime analysis framework. They suggest that governments need to take the risk into account when designing or changing a fiscal regime. In order words, there is not a 'one-size-fits-all' fiscal scheme for all petroleum fields, but this one should be tuned with the level of the overall risk (geological, political, market, etc.) presented by the prospect in view; so, it is

likely for a government to set a robust fiscal system within a prospect bearing low geological risk and high volume in the context of high or medium prices while in the reverse case, a smoothened scheme would better fit. These reflections bring the discussion over the taxation scheme on the ground of the use of tax instruments categories. This is in line with Boadway and Keen (2013, p.1) who stated that "a fundamental issue in designing any fiscal regime for non-renewable resources is the balance between rent taxes and royalties." The term "*rent taxes*" refers here to direct taxes, which are charges levied on exploitation revenues after costs have been deducted, and "royalties" is used as umbrella term to name all taxes that are charged ex-antes (indirect taxes).

Progressive fiscal regime is mostly considered as performant scheme since it is essentially based on direct tax instruments such as income tax, withholding taxes, etc. and some almost non-distortive quasi-tax instruments as profit-sharing, production bonus, and so on. However, a progressive fiscal regime does not necessarily prove optimal from the government take (the total share of rent perceived by government) perspective. Kankam and Ackah (2014), evaluating the Ghanaian upstream fiscal regime observed that though this regime was progressive and offered a fast-paced return on investment, it remained non-optimal since it provided the State with a low revenue margin. But in practice, the optimality of a fiscal regime cannot only be measured by the volume of government share of rent since a low take can be a strategy of a resource-rich country to attract investors when its prospects present higher risk profile and/or low volume of oil and/or gas (Davis & Smith, 2020). The case of Ghana for instance, might be the country's strategy to attract investors because the prospects were risky at the starting of oil and gas activities in the country (from 1970 to 2007) with the Saltpong Field as the only producing block (Kankam & Ackah, 2020).

Regressive scheme, however, is fundamentally associated with indirect taxes like royalties or rental fees during the exploration stage, and is also reputed to be highly distortive. Regressive elements are of particular interest in this research since the contract model construction process intends to cut them off from the standard contract model so that to integrate neutral local content variables in replacement. And, royalties deserve a special attention since they are considered as playing a deterrent role for petroleum investments, despite the fact that they provide governments with substantial upfront revenue from petroleum production. Nellor (1995), cited by Kyari (2013) discussed that royalties raise the marginal cost of resource extraction, thereby discouraging the development of marginal projects. In the same line of thought, Ghebremusse (2014) argued that royalties have an impact not only on a company's decision to invest but also to continue operations, especially in circumstances of low oil prices. Bonuses too, should be given attention as regressive, but less distortive since they are one-off payments and not regular ones.

It is therefore relevant to mention that neutrality is the touchstone of an attractive fiscal system because a non-neutral tax can affect adversely investment decisions in marginal fields or Enhance Oil Recovery (EOR) projects (Nakhle, 2008). This particularly concerns some progressive instruments like production sharing or income tax which can prove non-neutral and thence, distortive if they are not aligned with the rate of the project's return on investment. Davis and Smith (2020) making an analysis on comparative effects that emanate from seven tax provisions, confronted progressive instruments such income tax, production sharing with a fixed government share in profit- oil, and R-Factor based production sharing where government's share of profit oil increases as operator recovers more of the cumulative costs incurred in the project, and found that the R-factor version of production sharing is the most performant and the least inefficient tax instrument. It is therefore important to note that the higher distortionary a tax instrument, the bigger deadweight losses (DWLs) it creates. Deadweight losses are fiscal inefficiencies or social costs of taxation that have the effect of shrinking the size of the rent available to be shared between government and the operator

(Davis & Smith, 2020). Put simply, Deadweight losses represent theoretically rents a government could perceive under a less or non-distortionary fiscal regime.

Local Content Policies

Definitions

The concept of Local Content has been variously defined according to different jurisdictions. In Nigeria, for instance, the *Nigerian Oil and Gas Industry Content Development Act, 2010*, the Nigerian content is defined as "the quantum of composite value added to or created in the Nigerian economy by a systematic development of capacity and capabilities through the deliberate utilization of Nigerian human, material resources and services in the Nigerian oil and gas industry" whereas Ghanaian's *Regulations 49* of the *Petroleum Regulation* 2013 defines the local content as "the quantum or percentage of locally produced materials, personnel, financing, goods and services rendered in the petroleum industry value chain and which can be measured in monetary terms" (Nwapi, 2016, p.8). These definitions bear obviously the same essence, which is the aim of maximizing the host governments' benefits from the exploitation of their petroleum resources through an array of mechanisms associated to specific targets. Though, an important remark has to be made around the ambiguity of the term "*Local*". Indeed, with consideration to the two preceding definitions, the term "local" does not bear the same meaning; according to the Nigerian's definition "local" refers to "national" whilst the Ghanaian's definition relates the term "local" to the concept of territoriality, and not necessarily to that of nationality (Tordo, Warner, Manzano & Anouti, 2013; Nwapi, 2016). This difference of perception over this term is significant since it implies different scales of local content policies performance within an oil and gas rich-country. For example, in the case of enforcement for local firms' participation in the oil and gas activities, even multinationals' local subsidiaries might be taken into account if the term "local" does not refer to the nationality but rather to the territoriality of firms. Then, just a small part of the captured spends of oil and gas operators will be used locally since multinationals' subsidiaries repatriate their earnings.

At last, Acheampong, Ashong & Svanikier (2016, p.285) considered "Local Content Policies" as "part of a broader category of policies known as '*Productive Development Policies*' and include all government interventions, measures or programmes that aim to increase shares of employment, services, manufacturing provisions and overall financial value to the local industry value chain."

Local Content Policies Approaches

Approaches on Local Content Policies (LCPs) differ according to the type and mechanisms of governments interventions. As regard to the type of governments intervention, there are three different domains, namely (1) the Recruitment, Training, and Promotion of Nationals, (2) the Domestic Preference for goods and services procurement, (3) the Promotion of Nationals participation either in oil, gas or minerals activities or on the international companies' equity (Tordo, Warner, Manzano & Anouti, 2013; Acheampong, Ashong & Svanikier, 2016; McCulloch, Balchin, Mendez-Parra & Onyeka, 2017; Geipel & Hetherington, 2018). The government may choose to act in all these three domains using various variables types.

Therefore, as noted Tordo et al. (2013), the main challenge in designing optimal local content policies remain the misalignment between policy objectives and instruments. As it will be discussed further in this research, this mismatch of government's objectives and instruments it uses may provoke overweighed constraints for petroleum companies, and whereby deter the conduct of oil and gas operations. Nwapi (2016) proposes a valuable

perspective to prevent this misalignment, suggesting that pragmatism should lead countries' decisions on whether to implement a broad or a compartmentalized (or incremental) approach to local content targets setting. In fact, there is not a generalized local content implementation model to be applied to countries and all circumstances since local content policies are framed within the context of a nation's level infrastructure development, industrial base, entrepreneurship capability and growth, institutional stability, domestication of assets, and so on, to fully realize the nation's strategic development goals (Balouga, 2012; Aoun & Mathieu, 2015). For instance, Norway, which is considered as an international role model as regard to local content implementation, owes its success to a specific context shaped as well by endogenous factors as exogenous ones. Endogenous factors were constituted by its industrial competence of high international standards, developed through its shipping industry, its large process facilities (e.g. metal production), its mining industry, and a robust and well-established educational system with relevant programs for maritime activities, energy intensive process industries, metals and materials, and geology, building a domestic knowledge base for petroleum off-shore activities; while exogenous factors were namely, the fact that off-shore operations were at their early stage throughout the world and the international oil companies had been experiencing difficult access to resource-rich countries (Heum, 2008). It should be noted that Norwegian's early policy to enhance local content development was a compartmentalized approach to local content since it was essentially directed towards areas where it disposed of a large knowledge base. The country moved gradually towards a broad approach by leaning to the expansion of its knowledge base through a thorough focus on innovation and local firms' experience gaining. Aoun and Mathieu (2015) noted that the Norwegian focus on innovation was materialized by the early establishment of the RF- Rogaland Research Institute with the purpose of developing expertise in oil and gas technologies, the funding of the University of Stavanger by the Norwegian government in order to develop research programmes in petroleum engineering, and the use of incentives to bring oil and gas companies to develop locally their research and development activities.

Neutral Local Content Variables

Local content policies should not constitute a burden on oil and gas activities but they might rather help both oil and gas companies and host countries to build sustainability within the entire petroleum operational chain. The development of local content is instrumental for international oil and gas companies because it provides them with significant cost-saving opportunities such as costs reduction from supplying activities, when local capacities meet international standards, and workforce utilization since importation manpower costs more than local recruitment provided that the required skills are met.

Nevertheless, the development of local content policies in oil and gas developing countries faces multidimensional challenges, among others are thin industrial base, lack of infrastructure to support an expanded manufacturing base, lack of well-structured small and medium-sized enterprises with real executive capacity, dearth of funds to back up the development of local competencies, etc. (Balouga, 2010). Thus, most of these countries try to act too ambitiously when setting their local content policies, embracing a prescriptive and broad approach without taking into account their contexts. Acheampong, Ashong, and Svanikier (2016) pointed out the example of Ghana whose local content law compels international companies to achieve 90% to 100% local participation within a limited timeframe of 10 years, and this, despite the country's current state of industrial development. Prescriptive laws, as noted Acheampong, Ashong, and Svanikier, may create barriers for investment and can serve as a disincentive to developing an effective supply chain and critical linkages. They suggest that countries with limited industrial base should adopt an

incremental approach based on the level of production input. Almost in the same line of thoughts, Warner (2007), as cited by Ihua (2010), argued that an incentivizing scheme should accompany the incremental (or compartmentalized) approach to be applied in case of a country with an inconsistent industrial base. However, Ihua (2010) discussed that an effective local content policy is the one that is driven by an optimal balance of both incentives and strict regulations.

To conclude, prescriptive local content provisions can be considered as non-neutral and regressive since they may deter investments or create distortions within undergoing projects, whereas incremental or step change provisions are merely progressive and, neutral when supported with incentives.

Research Design and Methodology

This research will be conducted with qualitative methods as we are intending to gain insights into the design of the petroleum contract model that uses less or no regressive tax tools but rather neutral local content policies to make an oil and gas sector more attractive than competition.

Research Philosophy

Research philosophy crucially helps to determine the nature of a research study and justify the approach to be adopted by the researcher. According to TerreBlanche and Durrheim (1999), the research process has three major dimensions, namely ontology, epistemology, and methodology. Ontology and epistemology relate to the researcher's views of the world, and constitutes the foundation of the research philosophy. In this research, we are working under two philosophical approaches: subjectivism and interpretivism. Subjectivism is our ontological approach since we consider that the problem that this research is intending to solve is emerged from the perceptions of the oil and gas sector by all its stakeholders. Even though Eriksson and Kovalainen (2008) argued that several textbooks label all qualitative research as being interpretative, our choice towards interpretivism as epistemological approach to the research is grounded on reasons beyond the above statement. Our first assumption is that there can be different approaches on how the Democratic Republic of the Congo should deal with the two major challenges that threaten to hamper its oil and gas resource development, and as such, our research comes as a valuable alternative. Again, this research is essentially underpinned by observation and interpretation, and strives to put the process of designing a new petroleum contract model in the very context of energy transition and the fierce competition looming in the horizon of the Sub-Saharan licenses market.

Research Approach

This research is conducted under an inductive approach since it uses known premises about petroleum fiscal regimes and Local Content Policies to generate untested conclusion on the effectiveness of a petroleum contract model that integrate neutral local content variables in detriment of regressive tax tools. In other words, the research is going to use data collection to explore the Sub-Saharan oil and gas licenses market and challenges awaiting the Congolese (DRC) oil and gas sector, identify processes and means for this sector attractiveness, and develop a new petroleum contract framework.

Research Strategy

This research will be operationalized through the case study of the Democratic Republic of Congo which will be facing big challenges for valuing its big potentials of oil and gas resources. Most importantly, the research will collect data from the same segment of

the Sub-Saharan oil and gas licenses market in order to define the context in which the competition is going to take place.

Research Design, Data Collection and Analysis Methods

This research aims to introduce a new contractual framework in the exploitation of oil and gas, which enables to incentivize the E&P investment and activities and translates quite directly the resource potential to socio-economic benefits. In this sense, and in accordance with the research questions and underpinning philosophy (ontology and epistemology), and strategy, the research purpose and objectives will be achieved through the following stages:

- Stage 1: The process of the petroleum contract model construction;
- Stage 2: The construction of the contract model design.

The stage one is dedicated to settle the clear-cut process line to construct the labelled *local content-based contract* model. This process includes first, the establishment of a neutral local content framework for oil and gas, taking into accounts the particular case of the DRC, and secondly, the analysis of the common fiscal instruments used in the Sub-Saharan oil and gas licenses market. As for the purpose of concision and specificity, only 9 sub-Saharan countries, mostly Eastern newcomers and, including the Democratic Republic of Congo, will be part of the latter analysis (see Appendix 2).

The first task of establishing a neutral local content framework for oil and gas will requires the use of documents review so that to evaluate the neutrality of some common local content variables from the perspective of the oil and gas industry. Meanwhile, the task will help to make an overview of local content policies in the Democratic Republic of Congo (DRC) and particularly within its oil and gas sector, and propose a suitable and coherent framework that will support the proposed contract model.

The second task of enumerating and assessing common fiscal tools used in most Sub-Saharan oil and gas countries is grounded on the utilization of documents review too, consisting of the review of most of, if not all, these countries' petroleum fiscal framework. The aim of this task is to point out similarities and differences, evaluating the real impact of each fiscal tool in order to edge a comparative advantage within the regional licenses market.

The stage 2 focuses on the contract design construction which will take place within three operational tasks. The stage starts with the check-out of regressive tax elements and the restructuration of other non-neutral tax instruments used in the market, and ends with the integration of neutral local content variables upon an incremental approach.

Ethical Issues

This research reports no significant ethical problems for two particular reasons. First, the research addressed a question related to public policy and intended to propose an alternative way to solve the identified problem without hurting people sensibility. Second, almost all information used in this study are for common use and made public by governments or organizations via their site webs or printed papers. Finally, we have made our best to remain objective when analyzing those data all along our research work.

Critical Evaluation of Secondary Data

Local Content Framework

The DRC's Hydrocarbons law (Law No. 15/12) and regulation (Decree No.16/010) seem too dubious vis-à-vis the development of local content in the oil and gas industry. Indeed, these two legal frameworks limited themselves to setting requirements regarding the priority locals (workforce and companies) should be given in recruitment and procurement process without clearly defining provisions and targets. This uneasiness for the Congolese

government to define a comprehensive local content policy comes from the lack of a national's broad development policy that supports sectorial policies and promotes sector linkages. Notwithstanding, the quest for establishing a local content framework within the oil and gas industry offers to the country, the opportunity to build up a holistic view on national governance goals. To define effective local content provisions and rationale metrics for their assessment, the Congolese government needs to frame a favorable national context, focusing on the development of an industrial baseline and the enhancement of educational system.

The process of industrial baseline development consists on the assessment of existing capacities against the needs of the oil and gas companies, and on the other hand, the identification of potential capacities. The same approach has been adopted in Uganda where CNOOC Uganda Limited, Total E&P Uganda and Tullow Uganda Operations Pty Ltd have carried out a broad "*Industrial Baseline Survey*" whose results help all Ugandan oil and gas sector's stakeholders to identify the potential of jobs creation through different phases of Upstream operations and as regard to the local supply chain, sectors with high potential for local content (Aoun & Mathieu, 2015). Setting such a background will enable the definition of effective local content approach with rationale and achievable targets, and further, the establishment of cross-sectors networking and connections between international oil and gas companies and local business partners. Local companies networking is a worthwhile strategy to build local executive capacity. Actually, local companies can network to win procurement bids whose requirements, either financial or technical, may be out of the reach of a single small or medium-size (SME) local company, so that the won contracts can be broken into small orders for their execution.

Almost the same steps should be taken concerning the enhancement of educational system. Although the Congolese's Hydrocarbons regulation compels oil and gas companies to submit their needs for manpower with required profiles before to launch a recruitment process, this remains an indicative prescription since the government does not possess any statistics or register about competences related to oil and gas industry. There are two main academic institutions within the country, and tens others which are not well-identified, where petroleum engineering and management programmes are delivered. However, these local training programmes face big challenges in order to do meet high international standards; among these challenges, there are a shortage of qualified training personal, lack of a national curricular in petroleum studies, and the under-equipment of teaching institutions. The Congolese government should address these challenges by conducting a national survey to identify local competencies and potential to develop more petroleum or other related competencies; building up a standardized curricular in petroleum training programmes; partnering local training institutions with internationally-reputed petroleum training schools or universities, and incentivizing international oil and gas companies to develop their R&D activities locally as did Norway (Aoun & Mathieu, 2015; Heum, 2008). It is worth noting that competencies should be developed in such way to enable reconversion so that whenever oil and gas activities come to cease, the acquired experiences and competences should be serving other sectors.

After the national context has been delimited, the next step will be the design of the local content framework which encompasses the definition of the approach to be adopted, the setting of provisions and targets. In this case study, an incremental, and compartmentalized, approach to local content development policy is the best option since it suggests the use of progressive local content provisions (variables). An incentivizing scheme (fiscal incentives) is integrated to this approach in order to make provisions more neutral; again, to enhance their neutrality, provisions or targets should be scaled with economic parameters of the project under consideration.

The overall stage of local content framework construction can be summarized by the following diagram:

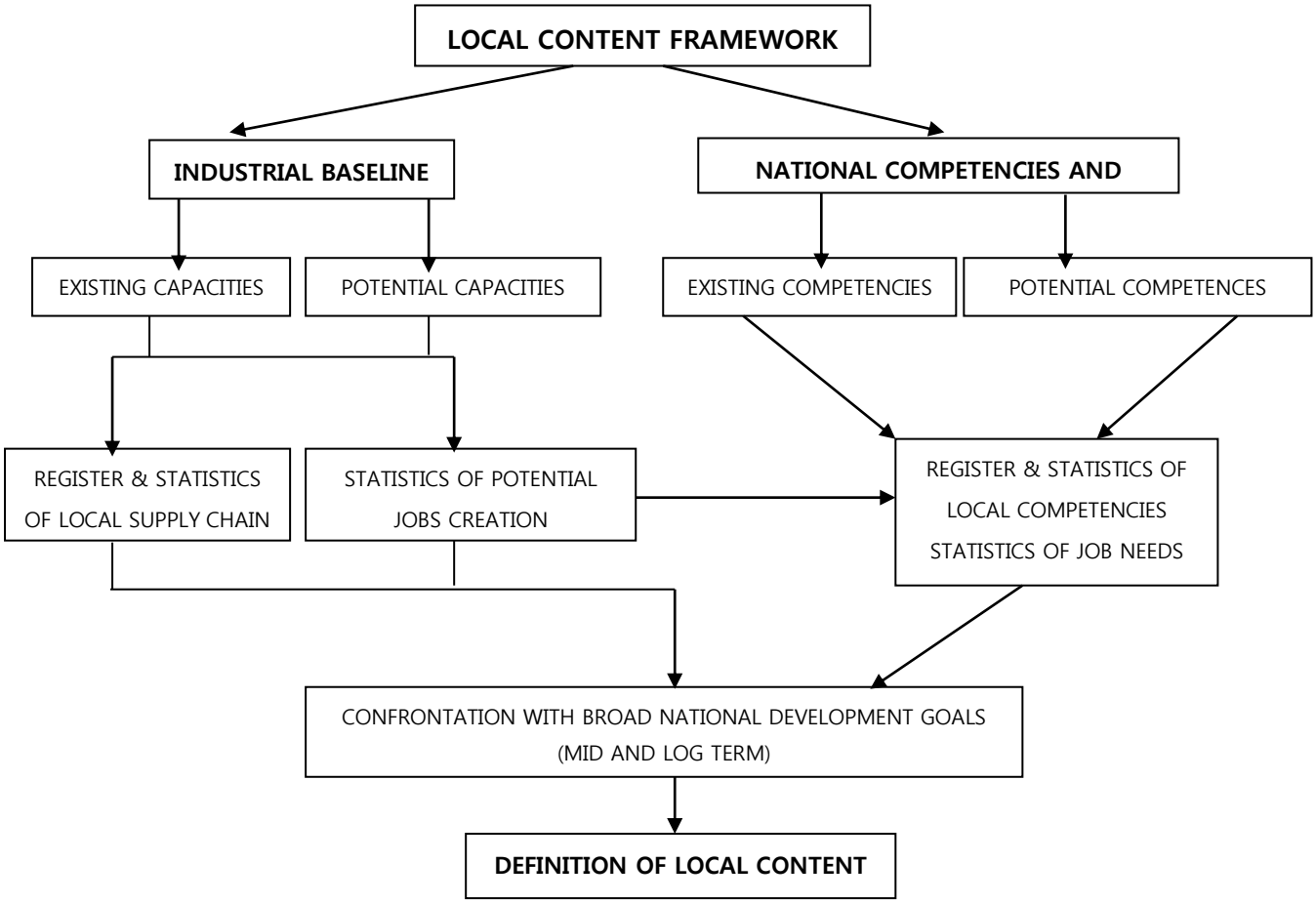

Figure 1. Steps for local content framework construction

Fiscal Regime Analysis

Analysis on fiscal regimes of 7 Sub-Saharan oil and gas-rich countries (Ethiopia, Kenya, Mozambique, South Sudan, Sudan, Tanzania, and Uganda), and mostly Eastern newcomers, reveals that practically all of these regimes follow a progressive scheme, each of them with a different pitch of neutrality (see Appendix 2a). Most of the analyzed fiscal systems are very flexibles, displaying either very low or negotiable rates of royalties, bonuses, rental, and production sharing, and some others are even almost perfectly neutral. Kenya for instance, has no bonuses, no royalties, no rental fees, negotiable equity participation; while the production share of the government, which is inclusive of contractor's income tax, is based on the volume produced. An important note should be made on the fact that most of these countries are newcomers in the petroleum license market and some were (or still are) in exploration phase at the time of petroleum laws release, and as such, they may be playing strategically to enhance their respective attractiveness. Therefore, oil and gas companies have yet to challenge political risk emerging from time consistency issues, as host countries try to alter initial policy in order to capture as much of the petroleum rent as possible (Osmunden, 2010). However, this kind of risk is rather diluted in a country's reputation on political stability and performance in doing business. The better reputation a country benefit of, the lower the risk of time inconsistency, and vice versa.

The DRC's law No.15/012 displays a regressive fiscal scheme with royalties' rates ranging from 8 to 12.5%, and government share of profit oil varying from 35 to 45% according to the fiscal zone's category (see Appendix 2b). These numbers inform how the DRC's fiscal regime is not competitive compare to those of its neighboring competitors. Thus, with consideration to geological, environmental, technical, and political risks raised both by the *Janus risk* and the fact of basins being landlocked, oil and gas companies may find it safer to invest elsewhere, for example in Kenya, than in the DRC.

Local Content-Based Petroleum Contract Model

The local content-based contract framework reposes on the understanding of fiscal competition in the Sub-Saharan petroleum license market and local content framework construction. This contract model is supposed to edge a competitive advantage in the considered market and, as such, it should be as neutral as possible. The neutrality can be achieved through the integration of progressive local content provisions with an incentivizing scheme built upon the removal of regressive tax instruments. The contract model can take the form of a R-factor based production sharing with no distortionary instruments such as royalties or rental in exploration phase. Nonetheless it is relevant to note that the effectiveness of such a model require more considerations towards DRC's institutional framework; there should be a well-trained and committed administration, a strong political will to undergo reforms and promote transparency at all institutional levels, a strong commitment to avoiding the "*Knowing doing gap*" (the difference between formulated laws, regulations, and reforms, and the level of their implementation).

Conclusions and Recommendations

This research discussed on how oil and gas sector's attractiveness can be enhanced through the use of local content policies in replacement of regressive tax tools in the design of an upstream petroleum contract. The background of the study lays on the search for strategies to counteract threats that the so-called "Janus risk" and other challenges oppose to the future of oil and gas activities. The aim of this research was to propose a petroleum contractual framework whereby the host country incentivizes E&P activities in a way that translates quite directly its oil endowment into socio-economic benefits. This purpose led to the questions on how the designing process of the contractual model to be proposed, and on what shape should such a model take to be implemented successfully.

In order to respond to these questions, relevant literature was reviewed on petroleum fiscal regimes and local content policies, covering issues relating to petroleum contractual frameworks, petroleum tax instruments, fiscal regimes' attractiveness, local content definitions and policy approaches, and neutral local content policies. This critical review revealed, in one hand, that the attractiveness of a petroleum fiscal regime is measured by the degree of the neutrality of instruments it uses; and on the other hand, that the definition of a local content development policy within a country strongly depends on its context (level of industrial development, educational system, institutional stability, etc.), and as such, oil and gas developing countries should adopt incremental (or departmentalized) approach, with an incentivizing scheme in order to successfully frame and implement local content policies and achieve neutrality of local content provisions.

A thorough methodological analysis underscored the research philosophy, approach, and strategy. The research strategy consists on the case study of DRC whose oil and gas resources are exposed to the so-called "*Janus risk*" and a fierce competition. Our research philosophy has been translated by subjectivism and interpretivism, respectively as ontological and epistemological approaches; subjectivism is justified by the fact that the research problem is considered as emerging from stakeholders' perception over the oil and gas

industry whereas interpretivism corroborated the assumption according to which there is not a single way to deal with challenges faced by the Democratic Republic of Congo, and this being said, this research constitutes a valuable alternative solution.

Findings of the research reveal that there exist crucial prerequisites to the development of the local content-based petroleum contract. In fact, the proposed model's designing process underscored the necessity to develop an effective local content framework which, in turn, is sensitive to the national context encompassing industrial base, educational system, economy diversification, cross-sectoral dynamics, institutional stability, etc. Thus, the Democratic Republic of Congo should start by framing a strategic national development vision and goals, and conducting at the same time, broad institutional reforms that might support and drive the performance of the proposed contract framework. Again, the complexity surrounding the conception, designing process, and implementation of such a contract model forces the country to enhance national competences, through a robust educational system, and build an information-tracking system that enables a real-time comparative analysis of competing parameters in the petroleum license market instead of developing blind sector strategies and policy.

Notwithstanding, the research presented some limitations as regard to designing a clear metrics baseline for assessing the performance of the local content-based contract model since there is no mathematical evidence on whether its implementation will effectively generate more benefits than the traditional framework or not. The second limitation consists on the fact that the research does not provide a quantitative measure of the probable competitive advantage the Democratic Republic of Congo will achieve through the use of local content-based petroleum contract. For this very reason, we thought this limitation as an opportunity for future research in the same context.

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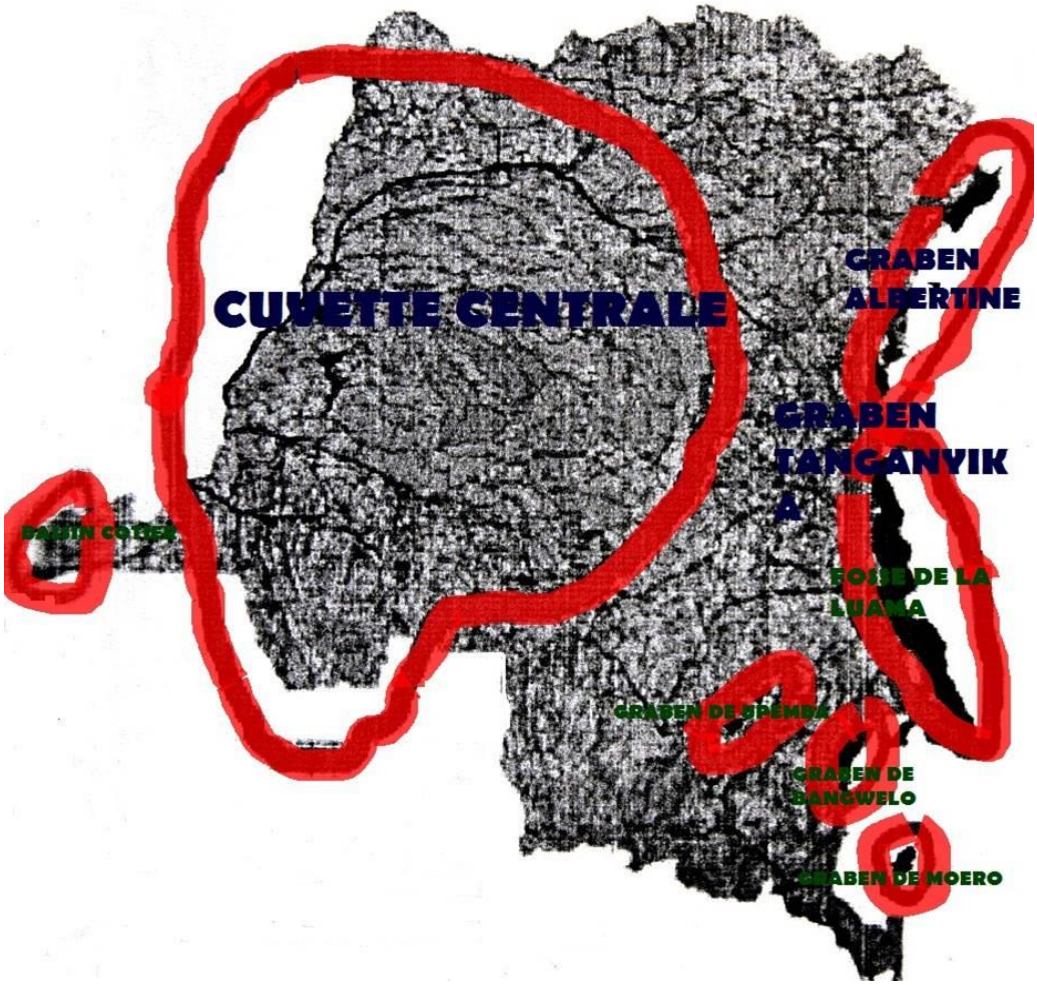
Appendix 1. Sedimentary Basins of the Democratic Republic of Congo



The three basins with proved potentiality expand over about 862,492 Km² divided in proportion of 1% for the Coastal basin, 7% for Basins of the West Branch of the Eastern African's rift, and 92% for the Central Basin.

The Coastal Basin, which includes a fourty-two-long maritime coastal, is the sole under exploitation with a feable production evolving around 25,000 barrels per day. However, only 10% of the basin is exploited and the remaining is under exploration.

The West Branch of the Eastern African's rift encompasses two great basins, namely the Albertine Graben and the Tanganyika Lake Basin, and is opened to exploratory activities.

In the Southern part of the Country, three basins (Upemba, Bangwelo, and Moero) are under prospecting activities.

Moreover, the Kivu Lake, situated in the gulf bordering the DRC and Rwanda, disposes of a high potential of methane.

(Ministry of Hydrocarbons/Drc/2020)

Appendix 2

a) Synopsis of the Petroleum Fiscal Regime of Seven Eastern Africa Oil and Gas Countries

	PSA Gvt. take	Royalties rate	Bonuses	Rental fees USD/Km²	Equity share	Income Tax rate	Withholding Tax rate on Dividends
Ethiopia*	Depends on the volume of production	Negotiable in the contract	Negotiable in the contract	Negotiable in the contract	Negotiable in the contract	30 %	30 %
Kenya*	Depends on the volume of production	NO	NO	Negotiable in the contract	Negotiable in the contract	Included in PSA (Gvt.Take)	10 – 20 %
Mozambique *	N/a	10 % (oil) 6 % (gas)	0,5-5 % value of Assets	2 -5 % on Assets	Not specified	32 %	20 %
South Sudan**	Negotiable	Negotiable	Negotiable	Negotiable	Negotiable	Ref. Tax Law	Ref. Tax Law
Sudan***	› 50 %	10 %	Not specified	Not specified	Not specified	Ref. Tax Law	Ref. Tax Law
Tanzania*	Based on the return on Investment	5 %	Not specified	200	Not specified	30 %	10 %
Uganda*	Depends on the volume of production	Negotiable	Negotiable	Negotiable	Negotiable	30 %	15 %

* The Deloitte Guide to Oil and Gas in East Africa, 2013
** South Sudan's Petroleum Act, 2012.
*** Yassin (2015)
N/a: Not applicable

b) Synopsis of DRC's Petroleum Fiscal Regime

The Congolese's law No 15/012 divided petroleum blocks into 4 fiscal zones according to their geological and environmental features (Art. 124). And the hydrocarbons regulation defined conditions for blocks to be categorized as part of a given fiscal zone (Art. 46), and ranges them from those with highest criteria (A) to those with the least appealing criteria (D) as regard geological risk, accessibility of the site, environmental sensitivity, depth of reservoirs, reserves identification, etc.

The synopsis of the DRC's fiscal system is presented as follows:

	PSA Gvt. take	Royalties rate	Bonuses	Rental fees USD/Km²	Equity share	Cost top
Zone A	45%	12.5%	*	100 - 500	Min. 20%	55%
Zone B	40%	11%	*	100 - 500	Min. 20%	55%
Zone C	40%	9.5%	*	100 - 500	Min. 20%	60%
Zone D	35%	8%	*	100 - 500	Min. 20%	65%

Law No. 15/012, Art. 124-138