

Local suppliers in Tanzania: Ready for the petroleum sector?

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Abstract

This study examines the gaps between the international oil companies' (IOCs) expectations and the Tanzania's industrial base regarding the requirements of the oil and gas sector. The focus is on perceived IOC sourcing priorities and intra-firm improvement priorities as perceived from the perspective of the locally owned, managed and operated firm. A cross-sectional survey of 110 Tanzanian controlled firms focused on three major areas: perceived buyer expectations, identified improvement areas, and experience in improvement processes. The findings indicate that development priorities on the supplier (or seller) side are generally in balance with what they assume to be buyer priorities when it comes to product and delivery processes. One exception is quality, which is considered less important to improve than assumed customer priorities. Less than a half of the local firms have formalized improvement processes, and a quarter of these have experience with foreign firm collaborations. Nevertheless, Tanzanian firms have a long way to go in order to qualify for demanding customers in the oil and gas industry. The extent of local participation is primarily a result of government policies and local content legal requirements imposed on the IOCs, but also on the local firms' willingness and ability to improve towards international standards within the petroleum sector.

Introduction

The exploration and exploitation of natural resources in developing countries, such as Tanzania, are dominated by multinational enterprises (IOCs). Many studies question how the host countries benefit from these resources (Nollet, Leenders and Diorio, 1994; Ihua, Olabowale, Eloji and Ajayi, 2011; Mwakali, Heum, Ekern, Byaruhanga, Koojo and Bigirwenkya, 2011; Nnamdi and Owusu, 2014). Very few empirical studies have been

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focusing on African suppliers meeting the international oil companies (IOCs)'s requirements in their home countries (e.g. Nollet, Leenders and Diorio, 1994; Mwakali, Heum, Ekern, Byaruhanga, Koojo and Bigirwenkya, 2011; Nnamdi and Owusu, 2014; Vaaland, 2015), and to the best of our knowledge none from a supplier perspective. Foreign-based companies and suppliers are highly involved in the exploration and exploitation of natural resources in African countries. Whereas the mining industry has been going on for centuries, the petroleum industry is relatively new in sub-Saharan nations (SSA). New oil and gas nations such as Ghana, Uganda, Tanzania and Mozambique are now facing challenges in applying natural resources as a means of creating national wealth and benefit for society (Ihua, Olabowale, Eloji and Ajayi, 2011; Tordo, Warner, Manzano and Anouti, 2013; URT, 2014; Vaaland, 2015).

The upstream value chain activities in this industry are dominated by international oil companies and foreign suppliers (IOCs), which are increasingly exposed to local content expectations and requirements. The World Trade Organization (WTO, 2011) defines local content requirements synonymously as referring to domestic content requirements, as a requirement that the investor purchase a certain amount of local materials for incorporation in the investor's product. The fundamental task is to "involve and enhance the domestic knowledge base through arrangements that allow for a dynamic industrial and technological development that gradually expands domestic competence and capabilities to competitive levels" (Heum, 2008:4). In so doing, it brings an opportunity to locally build a sustainable culture of service quality and capabilities that exceeds customer expectations and meets international standards (Ihua *et al.*, 2011). This involvement can take many forms such as employment, value addition, transfer of technology and knowledge (Vaaland, 2015), use of local materials, services produced by local employees and local firms, use of local facilities (Mwakali *et al.*, 2011), and the development of national, regional or local industrial infrastructure (Bordmann *et al.*, 2010). However, the inclusion of local suppliers in an emerging economy is not easy. Firstly, highly competitive global suppliers are already available; secondly, the level of and industrial base of the host country is not yet ready for meeting the minimum standards for inclusion.

A host country's interests are fueled by the IOC's relative ability to: (i) offer employment and tax revenues, (ii) share in foreign trade or replacement of imports, and (iii) contribute to domestic economic growth (Nygaard and Dahlstrom, 1992). The host country's use of laws and regulations in

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controlling an IOC's activities represents the regulation policy, as government intervention can be characterized along an offensive-defensive policy continuum. Defensive policy is based on a non-interventionist philosophy, whereas offensive towards the IOC implies proactive and exploitative adaption within the industry. For the suppliers, an offensive regulation and, given a favourable host country's strategic position relative to the IOC, can improve the attractiveness of indigenous companies in the supply chain. In the early stages of the Norwegian petroleum industry in the late 1960s, the IOCs' strong strategic position (cheap oil elsewhere) allowed them to oppose an offensive regulation that included investment and cooperation with domestic industries and the transfer of technology. Increased oil prices in 1973-1974 strengthened the strategic position of the Norwegian regulators relative to the IOCs, which opened up opportunities for the Norwegian industry and the supplier industry. License rounds and awards of promising blocks were connected to the IOCs' ability and willingness to develop Norwegian suppliers (Heum, 2008).

Local content requirements are an offensive regulation policy, with the intention of breeding local participation in the industry, largely dominated by IOCs and global suppliers. However, its value is contingent upon a strong strategic position in relation to the IOCs. In emerging petroleum nations such as Tanzania, factors such as low oil and gas prices, high field developing costs and political uncertainty help reduce the power of local content requirements and hamper local participation, unless local firms are fully competitive with international suppliers. Regardless of the maturity and technological content in the industry, IOCs increasingly face explicit expectations to involve local suppliers in the petroleum value chain for the benefit of the host nation (Vaaland, 2015).

In the early stages of the development of the petroleum sector, the capacity to meet professional industry requirements is likely to be low, particularly in developing countries with a weak industrial base (Tordo *et al.*, 2013). The industrial base in these countries, for example Tanzania, has yet to provide adequate suppliers and employees with the internationally required qualifications (URT, 2014). These challenges are illustrated by Parris (2013), who suggests eight major challenges to process excellence in Africa: (i) low level of economic development, (ii) lack of timeliness, (iii) high level of corruption, (iv) people not following written instructions, (v) "poor quality is the norm", (vi) "it is not a problem until it is a problem", (vii) "life is unpredictable", and finally, (viii) "workers are not expected to innovate".

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Anderson's (2011) study of SMEs in Tanzania identified: (i) inadequate international business skills and management capacity, (ii) poor access to finance, and (iii) imperfect market information and links as main challenges. Adebajo *et al's* (2013) study in Nigeria identified that the vast majority of potential suppliers failed to achieve the minimum acceptable performance. They further suggest that supplier performance in countries similar to Nigeria has a very significant scope for improvement, thus casting doubt on the ability of many suppliers to compete internationally, or with international competitors.

These findings illustrate major obstacles for an indigenous company in meeting international sourcing criteria and expectations from IOCs. The way these obstacles can be reduced is primarily by developing the local companies' product offerings and resource bases. In this study, we focus on local firms' own ability to improve and align with perceived sourcing requirements. This is especially important, given a host country's weak strategic position (i.e. forcing the host country towards a defensive policy) in relation to IOCs. In other words, no local content requirements, particularly given a weak host country's strategic position, can secure local business participation unless the businesses themselves are able to improve towards an internationally competitive level.

There is much that is unknown about business activities in developing economies (Adebajo *et al.*, 2013), and very few empirical studies have focused on African suppliers meeting demanding IOCs in their home countries, although to the best of our knowledge, none from a supplier perspective. This study focuses on three issues of importance for the buyer-seller dyad, and in the end, how the host country's economy can be boosted by means of local participation in the petroleum supply chain. Firstly, what does a local firm perceive to be the potential customer is looking for when it comes to the delivery and background resources within the firm? Secondly, what are the main priorities for improvement within the company when it comes to deliveries and resources? Are these priorities aligned with what they expect the IOCs are looking for? Thirdly, to what extent is inter-firm collaboration an appreciated way of improving, and what are their experiences with collaborative improvement processes?

The paper is organized in six sections. A literature review is presented immediately after this introduction. The third section deals with the methodology of the study. In the fourth and fifth sections findings and

discussions and implications are presented. The sixth section concludes the paper.

Literature review

There is a lack of consensus in the literature regarding which generic selection criteria are important for an industrial buyer (Oke *et al.*, 2009). There have been over 60 generic criteria used across a variety of procurement contexts across different industries (Kar and Pani, 2014). Furthermore, the sourcing criteria employed in industrialized countries like the US and throughout Europe are not necessarily similar to a developing country's context. In line with this, Sing *et al.* (2010) indicate that although certain sourcing criteria similarities have been observed in different business contexts, the business dynamics in emerging economies are often different from global business dynamics.

Oke *et al.* (2009) claim that there is a lack of studies that examine the factors for selecting suppliers focusing on developing countries' contexts, while only a few studies in the purchasing literature have focused on the selection criteria for choosing suppliers located in developing countries (Bozarth *et al.*, 1998). This is in line with Nnamdi and Owusu's (2014) observation regarding sourcing issues in Africa. In comparison with the large amount of contributions of the emerging economies in Asia and developed economies, there is a need for research on sourcing and SCM issues in a sub-Saharan African (SSA) context, and further, to extend the sourcing debate from an over-emphasis on technology sourcing, knowledge-intensive services and component sourcing to lower value-added products sourced in SSA. They also claim that studies focusing on sourcing strategies of large MNEs are rare in this context (*ibid*). This study attempts to address this gap by focusing on perceived MNE sourcing priorities and intra-firm improvement priorities as perceived from the perspective of the local firm.

However, a few studies address our main concern. Anderson (2011) investigated the challenges for the internationalization of Tanzanian SMEs, and claims that inadequate business skills, weak access to finance and imperfect marketing information and links hamper the competitive power of the SMEs. Nollet *et al.*'s (1994) study of supply chain challenges among SSA firms included a low credibility in purchasing and material management, long lead times, high prices and supplier apathy. A subsequent study by Voordijk (1999) identified the challenges and obstacles of logistics and manufacturing improvement and poor level of infrastructural development.

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A study by Amoako-Gyampah and Gargeja (2001) focused on manufacturing practices in Ghana, and stressed the importance of improving quality and production processes to gain competitiveness. Besides, Oke *et al.* (2009) studied industrial buyers (sourcing from developing countries) located in the US, UK and Scandinavia, which we assume have the same contextual characteristics as the IOC operating in a developing country. They found that costs, including labour wages, logistics costs and/or transaction costs, remain a primary criterion for choosing among developing country suppliers. Nonetheless, a lack of sourcing experience, poor work ethics, delivery issues and national and organizational cultural issues could be potential disqualifiers. Quality and reliability were identified as key differentiators for selection among prospective suppliers (Oke *et al.*, 2009).

Furthermore, Kar and Pani (2014) studied industrial sourcing evaluation criteria in a context where both the buyer and seller were located in India. They indicated seven criteria of critical importance across manufacturing industries with the following ranking: 1) product quality, 2) delivery compliance, 3) price, 4) production capability, 5) technological capability, 6) financial position, and 7) e-transaction capability. This is consistent with findings of Ho *et al.* (2010), who claimed that over 80% of studies of selection criteria include product quality, delivery compliance and price as relevant criteria for the evaluation of suppliers. Adewuyi and Oyejide (2012) studied 115 firms involved in oil and gas in Nigeria, and 15 oil producing firms, mostly foreign owned. With regard to quality, which is a critical success factor in the oil industry, there was a close alignment in the perceptions of the oil firms and their suppliers. Much of local sourcing occurs on an arm's length basis, thereby suggesting that there is a considerable amount of leeway for the promotion of better links between the IOCs and their suppliers. Adebajo *et al.* (2013) studied buyers and sellers within the service sector in a Nigerian oil industrial context, and found a gap between the local firm's corporate practices and increasingly more stringent and specific demands by many customers. Quality in product and delivery processes and financial capability were addressed in particular. Marsha's study (2000) of SSA businesses claims a lack of management effectiveness, responsiveness to customer needs and quality improvement in order to meet the demanding customer as major challenges in SSA countries. In the current study, we follow Adebajo *et al.*'s (2013) two-category classification of selection criteria and associated intra-firm development criteria, performance (output) factors and capability (resources or input) factors. The factors are summarized and categorized in Table 1:

Table 1: Selection criteria

Performance factors	Studies	Capability (resource) factors	Studies
Product quality	Adewuyi & Oyejide (2012), Oke et al. (2009), Kar & Pani (2014), Adebajo et al. (2013), Mersha (2000), Ho et al. (2010), Nollet et al. (1994), Parris (2013)	Managerial capacity & administrative systems	Oke et al. (2009), Mersha (2000), Parris (2013), Amoako-Gyampah & Gargeja (2001), Anderson (2011), Adebajo et al. (2013)
Pricing	Oke et al. (2009), Kar & Pani (2014), Adebajo et al. (2013), Ho et al. (2010), Nollet et al. (1994)	Production capacity	Kar & Pani (2014), Voordijk (1999)
Delivery lead times	Oke et al. (2009), Kar & Pani (2014), Ho et al. (2010), Nollet et al. (1994), Nollet et al. (1994), Parris (2013), Voordijk (1999), Amoako-Gyampah & Gargeja (2001)	Technology	Kar & Pani (2014)
Product features	Mersha (2000)	Finance	Adebajo et al. (2013), Kar & Pani (2014), Anderson (2011)
Delivery process quality	Oke et al. (2009), Kar & Pani (2014), Mersha (2000), Ho et al. (2010), Nollet et al. (1994), Parris (2013), Voordijk (1999)	Infrastructure	Kar & Pani (2014), Voordijk (1999).
		Marketing	Anderson (2011)
		Sourcing & purchasing	Oke et al. (2009), Nollet et al. (1994)

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Methodology

The present study focuses on the perceived IOC sourcing priorities and intra-firm improvement priorities as perceived from the perspective of the local firm. With a view that Tanzanian firms will be crucial in developing and operating in the emerging petroleum sector, the specific local supplier-survey was conducted in Dar es Salaam and Mtwara between May and July 2015. The two study areas represent, respectively, urban and rural actors in the country's emerging petroleum sector. Dar es Salaam is the country's administrative and commercial capital city, which is also headquarters of most IOCs operating in Tanzania. Most of the country's petroleum extraction activities take place in Mtwara, also considered the "petroleum town" of Tanzania.

To carry out the suppliers' survey, a stratified sampling was informed by a list of 200 companies established by Mwananchi Communications Ltd and KPMG (2015). The list represents the top 100 fastest growing medium-size companies in Tanzania in terms of business excellence, annual turnover, innovation in operations, leadership, service offerings, productivity, human capital, client relationships, contribution to corporate social responsibility, commitment, and success. The selected respondents in the survey had an annual turnover of between TZS. 1 billion and TZS 20 billion (i.e. exchange rate of US\$1 = TZS. 2150) as a basis for their inclusion in the top 100 mid-sized companies. A total of 120 suppliers were selected and grouped according to the nature of their businesses, namely, service provider, physical production or trading company. In this context, the supplier was defined as any legally registered business unit capable of competitively supplying goods, work or services to the oil and gas sector without compromising the international required standards, safety and security, and so forth. Of the distributed questionnaires, the completed and considered useful ones were a total of 110, equivalent to 92% of the total.

The survey tool focused on three major areas: perceived buyer expectations, identified improvement areas, and experience in improvement processes. The guiding questions include: What does the firm perceive as buyer expectations? What kind of improvement areas are focused on within the firms? What is the firm's experience with improvement processes? The questions required the respondents to rank the criteria given as *least important* (1) to the most important (5) in order to capture the relative importance assigned by the respondent supplier (or seller) on each identified criterion, in this case, assumed to be buyer's priorities. These are: Criteria 1.

[product/service quality; product/service features; reduction of cost base; short delivery lead time; delivery process quality; Criteria 2. [Managerial capacity and admin system; production capacity; technology; financial position; others]; and Criteria 3. [managerial capacity and admin systems; marketing capacity; sourcing/purchasing capacity; production capacity; technology; financial position; infrastructure].

In order to see whether there is any statistically significant difference between the suppliers' responses by the business location, type of business and experience in improvement processes, the aggregate-case summaries were carried out while the equality of the mean was analysed using a one-way ANOVA (F-test) and Chi-Square (χ^2) test, where $H_0 : \mu_1 = \mu_2 = \mu_3 = \dots$ against the alternative hypothesis means are not equal. Likewise, to avoid the outlier effects in the respondents' rankings, the differences between each observation from the mean were captured by using standard deviation, which allowed us to measure how far the respondents' rankings (from 1 to 5) spread apart. The correlation between the respondent profile and the identified areas of the study focus were analysed by estimating a multinomial logistic model that permits us to model the supplier's decisions as the function of the determinants, and to determine whether there are significant differences between parameters.

For example, respondents were asked the question, "During the last three years, has your company been involved in any formalized improvement processes?" with the follow-up question, "If yes, with who has your company been involved in any formalized improvement processes? The five response options - [Alone, as a pure internal process (No collaboration with other institutions or companies); Together with one external institution or company based in Tanzania; Together with one foreign owned/based company/institution; Together with two or more companies/institutions based in Tanzania; Together with two or more foreign companies/institutions]. Therefore, multinomial logistic regression was considered appropriate since the dependent variable was nominal, with more than two explanatory variables. The multinomial logistic model was estimated as follows:

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$$P_{i,j} = \frac{e^{X'_i\beta_j}}{\sum_{k=1}^J e^{X'_i\beta_k}}$$

Where: $X'_i\beta_j = \beta_0 + \beta_1 loc_i + \beta_2 bus_i + \beta_3 exp_i + \sum_{j=3} \beta_j Z_{ij}$

Whereby: $P_{i,j}$ denotes the probability of choosing alternative j (in this case, "alone", "one foreign in Tanzania", "one foreign in foreign", "=>2 foreign in Tanzania", or "=> 2 foreign in foreign") by the i th respondent supplier; X_{ij} is the set of predictor variables, loc represents the location of the supplier respondent, bus represents the nature of the interviewed business, exp stands for experience in the improvement process, while Z_{ij} represents a dummy variable that equals 1 for individuals belonging to category j or 0 otherwise. The next section presents the findings of the study.

Findings

The findings are based on 110 respondents of whom 82 (74.5%) were located in urban Dar es Salaam, and 28 (25.5%) in rural Mtwara. The findings reveal significant differences between urban Dar es Salaam and rural Mtwara when it comes to perceptions of buyer expectations, their own improvement areas, and perceived readiness for inclusion in international supply chains. Differences are also identified across the three company categories, of which 48 (43.6%) are service providers, 41 (37.3%) are producing physical goods, and 21 (19.1%) are trading companies. In the following, findings related to the four focus areas of the paper will be presented, both in relation to differences across geographical location (rural/urban) and in terms of the three company categories.

Perceived buyer expectations

Product quality is assumed to be ranked the highest (regardless of rural or urban location ($\mu=2.12$ and 2.00) or nature of business. Product quality is described as an "ability to deliver according to customer's expectations regarding quality and agreed quantity". The service company has the lowest ranking at $\mu=2.44$ compared to 1.76 for trading and 2.1 for physical production. In other words, the quality aspect is assumed to be most important for a customer.

The second most important issue is *pricing*, ($\mu=2.56$). This issue is described as the "price for the product/services is less than competitors for the same level of quality". As is the case with the issue of quality, there are similar perceptions

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across location and nature of industry. However, within industry, companies producing physical goods are ranked highest ($\mu=2.12$), then trading ($\mu=2.48$) and finally service providers ($\mu=2.98$). This indicates that the price of the product or services is regarded as less important in the service industry than others. Is this because service costs are assumed to be less emphasized on the buyer side? In total, the cost base of the seller, and hence the price, is regarded as a significant element in a competitive environment.

The third most important issue across geography and industry is *delivery lead time* ($\mu=3.09$). This element is described as “*elapsed time from order to delivery is lower than our competitors.*” Like the two earlier attributes, the ranking is third across location and industry. However, there are some minor differences in localization, urban higher ($\mu=3.07$) compared to rural ($\mu=3.14$). Here as well, physical producers are more concerned about customer expectations ($\mu=3.00$) compared to services ($\mu=3.15$) and trade ($\mu=3.14$).

The next issue of importance is *product features* ($\mu=3.56$), defined as “*the product/services that solve customer problems better than competitors*”. Informants from urban and rural areas agree that product features are important ($\mu=3.54$ and 3.64). The most awareness of product features is related to service companies ($\mu=3.21$) and the least to physical production ($\mu=4.00$). This can be related to the assumption that the buyer makes specific specifications for physical products, leaving no options for improvements, compared to services in which the product features leave more alternatives or flexibility in meeting the needs of the customer.

The least important issue seems to be *delivery process quality* ($\mu=3.65$), defined as; “*deliveries are made exactly at the agreed delivery time, not too early, not too late. No unexpected variations over time.*” The findings suggest the same patterns as product features.

All in all, there seems to be a uniform understanding among the 110 informants whom the customer ranks the product and delivery processes such as: 1) quality, 2) pricing and 3) low lead times. Within the rankings, quality and pricing seem the least important for service companies compared to physical producers. Likewise, service companies put more of an emphasis on product features than the other two.

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**Table 2: The product and delivery process versus location and nature of business
(A value of 1 expresses a higher perceived importance than 5)**

Location	Business		Product Quality	Product Features	Pricing	Delivery Lead Time	Delivery Quality
Urban	Service Provider	Mean (μ)	2.64	3.12	2.91	3.18	3.15
		Std. Deviation (σ)	1.41	1.24	1.47	1.47	1.50
	Physical Production	Mean (μ)	1.79	4.00	2.21	2.93	3.90
		Std. Deviation (σ)	1.05	1.28	1.24	0.75	1.18
	Trading	Mean (μ)	1.75	3.55	2.55	3.10	4.05
		Std. Deviation (σ)	1.02	1.23	1.57	0.79	1.23
Total	Mean (μ)	2.12	3.54	2.57	3.07	3.63	
	Std. Deviation (σ)	1.26	1.30	1.43	1.10	1.37	
Rural	Service Provider	Mean (μ)	2.00	3.40	3.13	3.07	3.40
		Std. Deviation (σ)	1.31	1.40	1.41	1.28	1.40
	Physical Production	Mean (μ)	2.00	4.00	1.92	3.17	3.92
		Std. Deviation (σ)	1.48	0.85	0.90	0.94	1.38

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	Trading	Mean (μ)	2.00	3.00	1.00	4.00	5.00
		Std. Deviation (σ)
	Total	Mean (μ)	2.00	3.64	2.54	3.14	3.68
		Std. Deviation (σ)	1.33	1.19	1.35	1.11	1.39
Total	Service Provider	Mean (μ)	2.44	3.21	2.98	3.15	3.23
		Std. Deviation (σ)	1.40	1.29	1.44	1.40	1.46
	Physical Production	Mean (μ)	1.85	4.00	2.12	3.00	3.90
		Std. Deviation (σ)	1.17	1.16	1.14	0.81	1.22
	Trading	Mean (μ)	1.76	3.52	2.48	3.14	4.10
		Std. Deviation (σ)	1.00	1.21	1.57	0.79	1.22
	Total	Mean (μ)	2.09	3.56	2.56	3.09	3.65
		Std. Deviation (σ)	1.27	1.27	1.40	1.10	1.37

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The next group of issues is related to a company's resources or capacities and their perceived importance in the eyes of a customer. No large differences are identified between the four issues related to the resource base, as is assumed important in the eyes of the customer. *Managerial capacity and administrative systems* are described as: "Formal employment contracts with employees are established. Health, safety, environment and quality systems are implemented. Systems for accounting, public audits and tax-issues are in place." *Production capacity* is described as the "supplier is able to produce and deliver the agreed volumes within the agreed scope of work/specifications. Equipment is systematically maintained to avoid interruptions in production". The next, *technology* is described as the "supplier is able to use modern equipment, tools and processes, both in relation to production and administrative support activities. Modern materials are applied in production". The fourth issue, *finance*, is described as the "supplier has sufficient running capital available for operations, and is also able to fund equipment renewal and maintenance. There is a low risk of insolvency". The last group is labelled *others*.

The five issues do not display significant differences across location and nature of business, although the assumed importance is nevertheless ranked accordingly: technology ($\square=2.54$), production capacity ($\square=2.62$), other ($\square=2.67$), finance ($\square=2.70$), and management systems ($\square\square2.77$).

When comparing urban and rural locations, the urban is more aware of production capacity ($\square=2.58$) versus the rural ($\square=2.75$). When it comes to finance, it is the opposite, as the rural finds the financial position of the seller more important for a customer ($\square=2.57$) compared to the urban ($\square=2.74$). The others display a similar perception. When comparing the type of industry, most differences are found in service companies, assuming more importance on technology ($\square=2.45$ vs. 2.61 and 2.62) and production capacity ($\square=2.45$ vs. 2.78 and 2.71) than the other two. Lastly, trading companies consider financial position more important than the other two ($\square=2.52$ vs. 2.77 and 2.80).

Summing up on capacity and resources, there are relatively similar priorities across all informants, albeit some differences across geography and nature of business. The most interesting findings are that management and systems, which support the deliveries, are ranked lowest in importance, albeit somewhat higher in rural areas.

Table 3: The capacity and resources of the local firm versus location and nature of business

Location	Business		Managem ent and Systems	Producti on Capacity	Technol ogy	Finance	Others
Urban	Service Provider	Mean	2.78	2.41	2.34	2.88	2.69
		<i>Std. Deviation</i>	0.42	0.76	0.70	0.61	1.40
	Physical Production	Mean	2.76	2.69	2.66	2.69	2.76
		<i>Std. Deviation</i>	0.51	0.60	0.72	0.54	1.35
	Trading	Mean	2.70	2.70	2.65	2.60	2.85
		<i>Std. Deviation</i>	0.47	0.66	0.59	0.50	1.39
Total	Mean	2.75	2.58	2.53	2.74	2.75	
	<i>Std. Deviation</i>	0.46	0.69	0.69	0.57	1.37	
Rural	Service Provider	Mean	2.73	2.53	2.67	2.73	2.40
		<i>Std. Deviation</i>	0.46	0.74	0.72	0.59	1.45
	Physical Production	Mean	2.92	3.00	2.50	2.50	2.50
		<i>Std. Deviation</i>	0.51	0.00	0.52	0.67	1.45

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	Trading	Mean	3.00	3.00	2.00	1.00	2.00
		<i>Std. Deviation</i>
	Total	Mean	2.82	2.75	2.57	2.57	2.43
		<i>Std. Deviation</i>	0.48	0.59	0.63	0.69	1.40
Total	Service Provider	Mean	2.77	2.45	2.45	2.83	2.60
		<i>Std. Deviation</i>	0.43	0.75	0.72	0.60	1.41
	Physical Production	Mean	2.80	2.78	2.61	2.63	2.68
		<i>Std. Deviation</i>	0.51	0.52	0.67	0.58	1.37
	Trading	Mean	2.71	2.71	2.62	2.52	2.81
		<i>Std. Deviation</i>	0.46	0.64	0.59	0.60	1.36
	Total	Mean	2.77	2.62	2.54	2.70	2.67
		<i>Std. Deviation</i>	0.46	0.66	0.67	0.60	1.37

Identified improvement areas

In order to be able to compete in a market, a company needs to improve in certain areas. In this sub-section, the informant displays their priorities within the five areas identified above in relation to the need for intra-company improvements. The informants display the following ranking of priorities: pricing ($\square=2.20$), product quality ($\square=2.64$), delivery lead times ($\square=2.75$), product features ($\square=3.49$) and quality in the delivery process ($\square=3.65$). Urban companies are more concerned about cost and price as competitive elements than rural companies ($\square=2.11$ vs. 2.46). Across industry, pricing has the highest priority among the producers of physical goods ($\square=1.46$) compared with trading and service ($\square=1.70$ and 3.04). Service companies do not display a strong concern about cost reduction and price as competitive elements, whereas cost reduction seems to be a top priority among physical production companies. *Product quality* is more important among rural companies compared with urban companies ($\square=2.25$ vs. 2.78). Across the nature of business, the quality of service is regarded as being at a par between service and physical production ($\square=2.54$ and 2.52), while for trading companies quality is ranked very low ($\square=3.11$).

Delivery lead time is the third priority not adjusted for location or nature of business, and there are no obvious differences across urban ($\square=2.73$) and rural ($\square=2.79$) informants. Across businesses, the companies display similar patterns, with the highest ranking on physical production ($\square=2.66$) and lowest on trading business ($\square=2.86$). *Product features* display minimal differences across urban and rurally located companies ($\square=3.48$ vs. 3.52). Service companies rank the highest within the group ($\square=3.11$) and production companies the lowest ($\square=4.03$), with trade companies in between ($\square=3.41$). The last prioritized issue is *quality of the delivery process*. Across location, the urban location has a slightly higher priority than the rural one ($\square=3.62$ vs. 3.74). Physical production companies rank the highest ($\square=2.66$) and trading companies the lowest ($\square=2.86$), with service companies in the middle ($\square=2.77$).

In summary, pricing, product quality, and delivery lead times seem to rank the highest among priorities. Even so, there are some differences between the location and the nature of business on the first and second priorities of pricing and quality.

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Table 4: Product and delivery processes versus location and nature of business

Location	Business		Product Quality	Product Features	Pricing	Delivery Lead Time	Delivery Quality
Urban	Service Provider	Mean	2.58	3.16	2.94	2.76	3.16
		<i>Std. Deviation</i>	1.59	1.32	1.34	1.32	1.42
	Physical Production	Mean	2.71	3.96	1.45	2.62	4.15
		<i>Std. Deviation</i>	1.21	1.16	0.74	0.94	0.88
	Trading	Mean	3.22	3.38	1.68	2.85	3.65
		<i>Std. Deviation</i>	1.17	1.50	1.16	1.04	1.42
Total	Mean	2.78	3.48	2.11	2.73	3.62	
	<i>Std. Deviation</i>	1.37	1.34	1.30	1.12	1.32	
Rural	Service Provider	Mean	2.47	3.00	3.27	2.80	3.36
		<i>Std. Deviation</i>	1.46	1.25	1.49	1.42	1.45
	Physical Production	Mean	2.08	4.18	1.50	2.75	4.08
		<i>Std. Deviation</i>	1.24	0.75	0.52	0.87	0.90
	Trading	Mean	1.00	4.00	2.00	3.00	5.00

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		<i>Std. Deviation</i>
	Total	Mean	2.25	3.52	2.46	2.79	3.74
		<i>Std. Deviation</i>	1.35	1.19	1.43	1.17	1.26
Total	Service Provider	Mean	2.54	3.11	3.04	2.77	3.22
		<i>Std. Deviation</i>	1.53	1.29	1.38	1.34	1.41
	Physical Production	Mean	2.52	4.03	1.46	2.66	4.13
		<i>Std. Deviation</i>	1.24	1.04	0.67	0.91	0.88
	Trading	Mean	3.11	3.41	1.70	2.86	3.71
		<i>Std. Deviation</i>	1.24	1.46	1.13	1.01	1.42
	Total	Mean	2.64	3.49	2.20	2.75	3.65
		<i>Std. Deviation</i>	1.38	1.29	1.34	1.13	1.30

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Competitive products and delivery processes depend on an adequate resource base and capabilities. In the following, aspects are ranked in terms of importance for the local firm to further develop.

Management and systems, production capacity, technology and finance were also addressed in “perceived customer importance” above. The list of items was expanded, with three items reflecting areas of importance within the company. These include: *marketing capacity* defined as: “We need to improve the way we communicate with the potential customer, so that we understand their real needs and problems to be solved. We need to improve our interaction with the customer, both before we get an order, and after delivery is finished. We need to measure customer satisfaction.” The second item is *sourcing and purchasing capacity*, described as: “We need to develop procedures to follow up our suppliers. We need to improve collaboration in order to reduce inefficiencies across firm boundaries.” The third item is *infrastructure*, which is described as: “We need to improve our infrastructure, such as telecom, electricity and water.”

The assumed importance displays the following ranking: *Marketing capacity* and *infrastructure* are relatively similar ($\mu=2.55$ and 2.60), with two subsequent items closely ranked; *technology* and *sourcing & purchasing capacity* ($\mu=3.03$ and 3.04). The third ranking comprises *finance* ($\mu=3.14$), followed by *production capacity* ($\mu=3.29$), and finally and least important: *Management and systems* ($\mu=3.41$).

Furthermore, rural companies rank *marketing capacity* significantly higher than those located in urban areas ($\mu=2.11$ vs. 2.67). The other issue with a high overall priority is *infrastructure*, which the urban company ranks higher than the rural ($\mu=2.58$ vs. 2.84). Whereas *sourcing* and *technology capacity* ranks similar on an overall basis, there are very different rankings geographically. Improving *sourcing* is found to be significantly more important in urban areas than in the rural ones ($\mu=2.88$ vs. 3.56). Besides, improving *technology* is regarded as being quite the opposite in rural, which has a higher priority ($\mu=2.5$ vs. 3.2). The last priority is *management & systems*, in which rural informants regarded this item as more important than those in urban areas ($\mu=3.00$ vs. 3.54). The other items display minor differences across location. Taken together, the main differences between urban and rural companies are within *sourcing*-, *marketing*- and *management & system capacities*.

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Across the nature of business, *marketing capacities* are considered the most important in trade and the lowest on physical production ($\mu=2.20$ vs. 2.88). As expected, *infrastructure* is more important for physical production than trading ($\mu=2.38$ vs. 3.50). *Technological capacity* is ranked highest on service and physical production ($\mu=2.85$ and 2.88), but very low on trading ($\mu=4.0$). *Sourcing* is ranked the highest among trading companies ($\mu=2.47$) and lesser on production ($\mu=3.19$). The remaining items display minor differences. In total, service providers rank the development of *marketing, infrastructure* and *technology capacities* highest. The physical production company *infrastructure* is ranked the highest, which is followed significantly lower by *technology* and *market capacities*. As expected, trading companies rank *marketing* and *sourcing capacities* significantly higher than the two other groups.

To sum up, marketing has a significantly higher priority compared with the other six issues when it comes to improvement within the firm. This is particularly important in rural areas and in trading businesses. The capacities and resources are not very different across the location of the industry sector, and it is interesting to note that management and systems are considered to have a low importance, especially among firms located in urban areas.

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Table 5: The capacity and resources of the firm versus location and nature of business

Location	Business		Management and Systems	Marketing	Sourcing, Purchasing	Product. Capacity	Technology	Finance	Infrastructure
Urban	Service Provider	Mean	3.44	2.62	2.95	3.37	3.11	3.11	2.56
		<i>Std. Deviation</i>	1.65	1.12	1.51	1.15	1.24	1.60	1.50
	Physical Production	Mean	3.86	3.16	3.13	3.12	2.89	3.20	2.12
		<i>Std. Deviation</i>	1.35	1.34	1.14	1.48	1.23	1.47	1.48
	Trading	Mean	3.44	2.26	2.50	2.83	4.00	3.06	3.50
		<i>Std. Deviation</i>	1.15	1.37	1.42	1.47	1.32	1.25	1.56
Total	Mean	3.54	2.67	2.88	3.21	3.20	3.13	2.58	
	<i>Std. Deviation</i>	1.44	1.28	1.35	1.32	1.29	1.43	1.57	
Rural	Service Provider	Mean	2.60	2.20	4.00	3.82	2.14	3.20	2.71
		<i>Std. Deviation</i>	1.58	1.32	0.76	1.40	0.69	1.21	1.54
	Physical Production	Mean	3.50	2.14	3.33	3.09	2.86	2.86	3.00
		<i>Std. Deviation</i>	1.31	1.35	1.32	1.45	1.35	1.68	1.61

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		<i>Deviation</i>							
	Trading	Mean	3.00	1.00	2.00	4.00		5.00	
		<i>Std. Deviation</i>							
	Total	Mean	3.00	2.11	3.56	3.48	2.50	3.17	2.84
		<i>Std. Deviation</i>	1.45	1.28	1.15	1.41	1.09	1.37	1.55
Total	Service Provider	Mean	3.22	2.51	3.26	3.50	2.85	3.15	2.62
		<i>Std. Deviation</i>	1.65	1.17	1.40	1.22	1.19	1.42	1.50
	Physical Production	Mean	3.73	2.88	3.19	3.11	2.88	3.11	2.38
		<i>Std. Deviation</i>	1.32	1.40	1.18	1.45	1.24	1.50	1.55
	Trading	Mean	3.41	2.20	2.47	3.00	4.00	3.17	3.50
		<i>Std. Deviation</i>	1.12	1.36	1.39	1.41	1.32	1.29	1.56
	Total	Mean	3.41	2.55	3.04	3.29	3.03	3.14	2.66
		<i>Std. Deviation</i>	1.45	1.30	1.33	1.34	1.28	1.40	1.56

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Experience in improvement processes

The third area of investigation was to reveal prior experience in change processes within the firm. Change of business activities can be related to more or less conscious and emergent processes, or to more formalized and deliberate processes. The informants were asked to state to which formalized improvement processes have taken place within the firm over the past three years. The informants were asked to state to which formalized improvement processes have taken place within the firm during the last three years. For the emerging economy, there are positive responses as majority of the informants (at least 55% on each category, average of 60%), regardless of their location, have embarked on improvement processes. This suggests that, in the long run the local content can be realized as long as the local industrial base improves their supplies to the IOCs, particularly on product quality, product features, pricing, delivery lead time, and delivery quality.

Table 6: Involvement in formalized improvement processes versus location

Location		Yes	No	Sum
Urban	Count	47	35	82
	<i>Percentage of location group</i>	57.3%	42.7%	100%
Rural	Count	19	9	28
	<i>Percentage of location group</i>	67.9%	32.1%	100%
Total	Count	66	44	110
	<i>Percentage across location</i>	60%	40%	100%

Among the 110 firms, 66 (60%) had been involved in formalized improvement processes, while the remaining 44 (40%) have never been involved in any formalized development process. Within the rural group, 68% have been involved in improvement processes, compared to 57% in the urban group. However, based on the Fisher's exact test ($\mu = .377$) – there is no significant difference between the location of the business and the improvement experience.

Table 6b: Chi-square tests

	Value	Df	Asymp . Sig. (2- sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-square	.966 ^a	1	.326		
Continuity Correction ^b	.577	1	.448		
Likelihood Ratio	.984	1	.321		
Fisher's Exact Test				.377	.225
Linear-by-Linear Association	.957	1	.328		
N of Valid Cases ^b	110				
a. 0 cells (.0%) have an expected count less than 5. The minimum expected count is 11.20.					
b. Computed only for a 2x2 table					

When it comes to the *nature of business* versus improvement experience, no association between the type of business and improvement experience can be identified ($\mu = .812$). Among the companies having prior experience with formal improvement processes, the next question is with whom. Out of 63 companies with these processes, 26 (41.3%) have driven the improvement process internally without formalized interfirm collaboration. Twenty-one (33.3%) companies have collaborated with one or more Tanzanian companies, whereas 16 (25.4%) have collaborated with one or more foreign companies.

Table 7: Involvement in formalized improvement processes versus nature of business

Nature of business		Yes	No	Total
Service Provider	Count	30	18	48
	<i>Percentage of business</i>	62.5%	37.5%	100%
Physical Production	Count	23	18	41
	<i>Percentage of business</i>	56.1%	43.9%	100%
Trading	Count	13	8	21
	<i>Percentage of business</i>	61.9%	38.1%	100%
Total	Count	66	44	110
	<i>Percentage across business</i>	60.0%	40.0%	100%

Table 7b: Chi-square Tests

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-square	.417 ^a	2	.812
Likelihood Ratio	.416	2	.812
Linear-by-Linear Association	.042	1	.837
N of Valid Cases	110		
a. 0 cells (.0%) have an expected count less than 5. The minimum expected count is 8.40.			
Symmetric Measures			
		Value	Approx. Sig.
Nominal by Nominal	Phi	.062	.812
	Cramer's V	.062	.812
N of Valid Cases		110	

In total, the figures indicate that improvement processes can be categorized into three fairly equal groups: “doing it alone” and interfirm collaboration with both “Tanzanian” and “foreign” partners. Furthermore, the data indicate a significant relationship between the independent variables *location of business, nature of business and experience in formalized improvement processes*, and with whom they collaborate (*alone/Tanzanian/foreign*). In detail, the model Chi-square value of 26.433 has the significance of 0.048, so at 5% we can conclude that there is a significant relationship between the dependent variable and the set of independent variables.

Multinomial logistic regression

The choice of the explanatory variables has considered the ones that contribute significantly ($\mu=5\%$) to the final model as it is summarized in the model fitting information (Table 9). Thus, at the 5% level of significance, the considered variables are significant contributors to the mode (16, .048). The dependent variable “*with whom in improvement process (alone, foreign in TZ, foreign in foreign, ≥2 foreign in TZ, ≥2 foreign in foreign)*” is explained by *location, nature of business and experience in improvement process* as independent variables. The informants based in the rural areas were more likely to work alone in the improvement processes, compared to the urban counterparts who recognize the importance of collaboration as one of the efforts to reduce transaction costs and increase efficiency and market share. The physical production-oriented firms were more likely to collaborate with locally based foreign companies as a means to improve technologically, compared to trading firms (such as wholesalers and retailers) and service providers (including research and consultancy enterprises).

Table 8: Model Fitting Information

Model	Model Fitting Criteria	Likelihood Ratio Tests		
	-2 Log Likelihood	Chi-square	df	Sig.
Intercept Only	114.678			
Final	88.245	26.433	16	.048

Discussion and implications

The most interesting gaps between *assumed buyer priorities* and seller improvement priorities are related to quality and price issues (related to the output of the seller) and the management resource base (input related). Quality is highest ranked on the buyer- than the seller side ($\mu= 2.09$ vs. 2.64). In other words, the seller side seems to underestimate the buyer’s assumed emphasis on quality. The good thing is that the seller seems to have a reasonable view and understanding of quality importance, whereas the bad thing is that this concern is not reflected as a primary target for improvement. A possible explanation can be that the seller assumes quality as being sufficient and not an apparent competitive weapon, given local content requirements and local location advantages. However, the quality aspect is a second priority as an improvement item, while still having a relatively high priority.

The second item is price, in which the seller has this as the highest priority compared with the buyer ($\mu=2.20$ vs. 2.56). In other words, the seller seems to prioritize their own development on pricing rather than improving quality. Pricing is not only about achieving a competitive pricing to satisfy a buyer, but is also related to the cost base of the firm and its ability to make a profit, whereas a low price can be beneficial to a customer, at least in the short run, but disastrous if the cost base remains unchanged.

The gap between assumed sourcing priorities on quality and their own development priorities indicates that the seller side underestimates its importance as a competitive weapon, i.e. an imbalance in the price/quality equation. Local firms need a reorientation and stronger focus on quality management.

The third issue is related to the resource base and the importance of effective management processes and systems. The informants, all from the seller side,

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rank this issue the lowest among the five issues. In other words, management processes and systems are relatively low on importance for the assumed buyer, and when prioritizing intra-firm improvement processes ($\mu=2.77$ for the buyer and 3.41 for the seller). Hence, the local firm (the seller) seems to neglect the assumed buyer need for improving management processes and systems.

Nonetheless, one may argue that the importance of an issue is not necessarily related to improvement processes. In cases where the level of management and systems is excellent, as perceived from the local firm, no improvement is necessary unless there is a risk for a decline in resources from the current level. We oppose such an explanation because existing literature focusing on developing country sourcing clearly indicates that a lack of managerial capacity is a competitive threat to the indigenous firm.

In sum, the findings indicate that improvement priorities on the seller side are not fully aligned with what they believe to be important for the international buyer (i.e. IOCs), which is illustrated in Figure 1:



Figure 1: Buyer versus seller priorities

Weak focus on management processes and systems

Management processes and systems seem to be a low priority issue compared to the other resources necessary to develop and deliver products and services to the demanding customer. This is surprising given the fact that improving quality in the product and delivery processes has to be properly managed and supported by monitoring systems and organizational structures and processes. One example of this is the introduction of quality systems (TQM) and demand-driven production principles (e.g. just-in-time production). Pricing and the associated cost base cannot be improved without tight managerial control and system capacity. The findings indicate that local firms are neglecting the importance of management resources as a vehicle for enhancing competitive forces.

Collaboration

A local Tanzanian firm has to compete with global suppliers well connected with IOCs worldwide. When dealing with IOCs and other foreign companies, one important challenge is to cope with cultural barriers. These barriers can be related to, e.g. different concepts of time or aspects related to formalizing business processes. For instance, barriers can be closed by challenging existing attitudes or redesigning procedures and structures, as these changes are rarely made in a vacuum. When 41% of the firms carry out formalized improvement processes as an intra-firm activity, this indicates a potential for improvement among many companies. Moreover, 25% collaborate with foreign companies, which indicate that capabilities can be strengthened by supposing that these foreign firms are internationally competitive.

Conclusion

This study has examined the gaps between the international oil companies' (IOCs) expectations and the Tanzanian industrial base on the requirements of the oil and gas supply chains. With the main purpose being to improve the local linkages between IOCs and local suppliers, the guiding questions include: What does the local firm perceive as buyer (IOC) expectations? What kind of improvement areas are focused on within the local firms? What is the local firm's experience with improvement processes? A cross-sectional survey of 110 Tanzanian controlled firms focused on three major areas: perceived buyer expectations, identified improvement areas, and experience in improvement processes. The findings indicate that development priorities on the supplier (or seller) side are generally in balance with what they assume are buyer priorities when it comes to product and delivery processes.

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One exception is quality, which is considered less important to improve than assumed customer priorities. Surprisingly, the improvement of management processes and systems is considered a low priority issue. Less than a half of the local firms have formalized improvement processes, and a quarter of these have experience with foreign firm collaborations.

Tanzanian firms have the following priorities when it comes to the improvement of their product offerings: 1) Price - "The price of the product/services is less than the competitors for the same level of quality." This is directly associated with cost reductions in order to compete on price; 2) Quality - "The ability to deliver according to the customer's expectations regarding quality and the agreed quantity"; 3) Delivery lead times - "The elapsed time from order to delivery is lower than the competitors"; 4) Product features - "The product/services solve the customer's problems better than competitors", and 5) Delivery process quality - "Deliveries are made exactly at the agreed time, not too early, not too late, with no unexpected variations over time."

These priorities are broadly spoken in line with what the same informants assume a customer expects, though with one difference: While quality has the highest ranking on customer expectations, price (i.e. reduction of the cost base) is ranked the highest when improving the selling company. This is a bit surprising, given results from former studies, which emphasize a lack of quality as a major obstacle to competitiveness.

In addition, competitive offerings require an effective resource base, and the importance of strengthening seven types of resources was ranked as: 1) Marketing capacity; 2) Infrastructure; 3) Technology; 4) Sourcing and purchasing capabilities; 5) Finance; 6) Production capacity, and 7) Management processes and systems. These priorities were in accordance with assumed customer expectations. The weak emphasis on improving managerial processes and systems is surprising, given the crucial role of management when initiating and sustaining improvement processes.

Formalized improvement processes are undertaken by 60% of the respondents, of which 42% of these carry out improvement processes independently, while 25% are engaged in an inter-firm collaboration with foreign companies to help facilitate improvement processes. This suggests that 16 out of 110 companies (15%) collaborate with foreign firms, and has access to systems and processes to enhance competitive power. Some of the

limitations of the study include the limited number of categories involved, as there might be a large number of “other” groups. The findings only rely on sellers’ assumptions, and no real measures of the customer’s preferences. The ranking does not display importance per se, but rather a relative importance. The users of the findings should take into account the differences across location and the nature of the businesses involved.

Finally, further research should explore how improvement processes in local firms can be aligned with the requirements of a demanding foreign customer. Can a new innovative type of enterprise developing programme connect the competitive foreign buyer with the local firm? More knowledge is needed about how the industrial base can be improved given a weak governmental strategic position versus foreign multinational companies, which is further weakened by low oil and gas prices and less attractive conditions for foreign direct investments.

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