

A Measurement Device for Estimating Local Firm Capabilities in New Oil Producing Countries: The Case of Uganda

**Marcelo Neuman, Roger Tissot
and Daniel Mabrey**

About KAPSARC

The King Abdullah Petroleum Studies and Research Center (KAPSARC) is a non-profit global institution dedicated to independent research into energy economics, policy, technology and the environment, across all types of energy. KAPSARC's mandate is to advance the understanding of energy challenges and opportunities facing the world today and tomorrow, through unbiased, independent, and high-caliber research for the benefit of society. KAPSARC is located in Riyadh, Saudi Arabia.

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Summary

In this paper we present an overview of KAPSARC's local content project, its methodological approach and objective. We describe a measurement device (questionnaire) used to quantify different features of local firms surveyed in Uganda. The data collected in these questionnaires provides essential information to help analyze the current state of local firms in Uganda as they gear up to join the oil and gas supply chain. We also comment on each section of the form explaining its purpose. The questionnaire is attached as part of this document in the Appendix.

The design of the questionnaire allows for a combined approach to examining local firms. On the one hand, it is based on selected basic requirements of the oil and gas industry, which companies must usually fulfill if they aspire to be a supplier. On the other, it also considers the local

firms from a dynamic perspective, focusing on their potential to adapt and carve a role in the oil and gas supply chain. This perspective is centered on the concepts of innovation and absorptive capacity, which are increasingly considered when evaluating small and medium enterprises (SMEs) at the firm level.

The questionnaire was designed to be used in face-to-face interviews, which is usually recommended for surveys carried out in Africa. The document is relatively lengthy and is intended to be utilized in developing nations, although a few questions would have to be adapted to the characteristics of each country based on the level of development and exposure to the oil and gas industry.

The questionnaire includes five sections to make it more comprehensible. The data collected is extensive, allowing for a variety of analytical approaches.

Introduction

Local content in Eastern Africa is part of KAPSARC's research on natural resource-led development in new producing countries. The project's main goal is to understand how natural resource extraction can support inclusive economic growth. The Eastern African countries considered in this project are newcomers to the oil and gas industry, including Uganda, Kenya, Tanzania and Mozambique. Uganda is where the survey was implemented and where recommendations about assessing local firms for the purpose of designing local content policies are suggested.

This project aims to provide a supply- and demand-based analysis of the local content potential in these developing countries. The supply side refers to the ability of local firms to provide goods and services to the oil and gas industry. The demand side consists of an analysis of investments, referring to the overall capital and operating expenses (CAPEX, OPEX) expected to be spent by the operators during the life span of the projects. A large percentage of the CAPEX and OPEX funds are for the procurement of goods and services. Together, they provide an understanding of the countries' ability to promote industrialization by taking advantage of its oil and gas resources.

The project's main goal is to assess the potential of local firms to participate in the oil and gas value chain by focusing on their capabilities. The study is a useful instrument that offers valuable information to policymakers for designing local content policies. Moreover, it provides information to interested stakeholders related to the goals and objectives of the local content policies.

The methodology used was face-to-face interviews with managers and owners of local firms. Quality control protocols were adopted and closely monitored ensuring the success of the field work. When the interview process was completed, data was uploaded onto software that helped support the statistical analysis.

The main difference between our study and typical studies carried out by oil and gas companies is the analysis of a firm's capabilities. Our study emphasizes the importance of measuring innovation capabilities and absorptive capacity, which gives the study a broader perspective. The information derived is not only useful for the design of local content policies related to the oil and gas industry, but also other areas of industrialization.

Sampling by International Standard Industrial Classification (ISIC)

The type of companies included in a survey is an important consideration when assessing a local firm's potential to participate in the oil and gas value chain. All types of local procurement have an impact on the domestic economy, and it is important to acknowledge the direct and indirect members of the supply chain. Since oil and gas companies procure a diversity of items, many of which are not directly associated with operations (including office furniture, paper, hotels, computers and cell phones), we evaluated all types of firms and their ability to adapt and supply the industry. With this in mind, we focused our efforts on i) providing qualified information for developing local content policies that promote a local supplier base for oil and gas industrial activities and ii) examine suppliers of general goods and services that are used by, but not exclusive to, oil and gas companies.

ISIC codes are the international reference for classifying economic activities. The main objective is to provide a set of categories that can be used for the collection and reporting of statistics used in economic analysis, decision making and policy. These economic activities are subdivided in a hierarchical, four-level structure of mutually exclusive categories that facilitate a detailed examination of the economy in an internationally comparable, standardized manner.

KAPSARC developed a sample of 10 economic sectors as classified by the Fourth Revision of the ISIC code. In developing the sample, we also considered the national representation and geographic distribution of firms in the examined sectors.

KAPSARC's Enterprise Survey Questionnaire

The next sections describe specific areas of the questionnaire. For reference, the actual form used in Uganda can be found in the Appendix. The design of the questionnaire itself is based on prior works, such as those from the World Bank enterprise survey questionnaire from which we borrowed questions 64 to 67. We also analyzed work done by PYGERA Global on potential suppliers for the AMA1 LNG project in Mozambique, leading to the inclusion of questions 24 and 25. Many of the other questions originate from a survey conducted by the Universidad Nacional de General Sarmiento for suppliers to the oil and gas industry in Argentina.

General information

This section gathers general information about the firm, such as its location, legal status, ownership structure, whether they supply the oil and gas industry, what segments of the value chain the firm supplies, when it started doing business, its motivations, if the firm is a subsidiary and other general information. These features, common in any survey about local firms, provide an overview of the company's status.

Economic performance

To estimate the economic performance of these firms, we developed a set of questions related to their sales, products, clients and markets. We specifically asked about their sales performance, number of clients and exports over the last three years.

Questions 16 through 20 address their market structure by considering the number of competitors and degree of competition, and also whether the firm faces competition from unregistered companies

or imports. Questions 21 and 22 inquire about certain key aspects of a firm's economic performance such as price, scale, productivity, brand recognition or commercial reputation. We also asked the firm to benchmark itself against competitors on a number of issues, which we have collated into three main categories: market, production and finance. We use the information collected in this section to analyze the economic performance of the companies on a comparative basis.

Operations and manufacturing

This section contains a number of questions related to the firm's operations or manufacturing performance. Surveys used to prequalify local companies as potential suppliers to the oil and gas industry typically include this category of questions. The central focus is for suppliers to meet certain standards required by the industry.

The skill level of a firm's workforce is a key factor in developing new capabilities and is used to approximate absorptive capacity. Training efforts are another mechanism used to develop new capabilities in their operations.

To assess the use of standards, we asked if the firm has an internal policy regarding health, safety and environment (HSE) and how developed is this policy. We also asked if the company has a quality management system and if it uses tools such as process control charts, fishbone diagrams and other methods to improve the system. We inquired about the three basic standards that are widespread in the oil and gas industry, i.e., the ISO 9000 Quality Management System, ISO 14000 Environmental Management System and OHSAS

18000 Occupational Health and Safety Management System. We wanted to know whether firms work with these standards to some extent or have implemented these standards and received certification.

Questions 32 to 44 assess different aspects of the workforce. In questions 32 and 33 we characterized the size of the firm by measuring the number of employees. We distinguished between permanent and temporary staff and by gender. We then inquired about workforce education, a key feature for estimating the firm's absorptive capacity. Here we considered two main aspects: i) formal education and ii) years of experience. We broadly differentiated between types of workers to estimate the proportion of skilled and unskilled labor. Questions 37 through 39 investigate potential obstacles and problems the firm might have had with its workforce. Finally, questions 40 through 44 focus on training, which is important for developing new capabilities.

Investments and innovation

Measuring innovation is an important part of the assessment process because it is widely accepted as a significant feature of economic growth. This section is focused on the collection of qualitative data concerning innovation activities. Typically, in less developed countries the availability and reliability of quantitative data on innovation is scarce. We acknowledge the importance of collecting quantitative data and approximate this by inquiring about the firm's investments.

The questionnaire measures innovative activities at the firm level by focusing on the company's innovation efforts, results and linkages to other entities. This section is closely related to the previous because the underlying hypothesis is that firms that develop more innovation capabilities are more proactive and make greater efforts to enhance their operations or manufacturing capabilities.

This section is covered by questions 45 through 56. We begin by asking about the firm's investments for the three-year period under review and the reasons behind them. We then inquire about relevant internal and external innovation activities. Internal innovation activities are developed by the firm's employees and external ones are acquired from outside. We also investigate the frequency of internal innovative activities and the number of persons in charge of them as well as their education levels. The last part of this section addresses the degree of novelty by inquiring whether the innovations developed are new to the firm, new to the domestic market or new to the international market.

Innovation is usually associated with research and development (R&D), which is a crucial activity for increasing a firm's competitiveness, but is not the only innovative activity. For example, introducing software for operations related to a new product, process, organizational or marketing technique is also an innovative task. New software involves selecting, adapting and implementing the tool and training staff before the system can run smoothly. If the company acquired the software, we categorize it as an external innovation; and if the software was developed in-house, we classify it as an internal innovation.

Central to is how the firm engages with its environment and how information circulates between the company and other agents. This flow of information is much more important for SMEs than larger, more established firms. We address this aspect by estimating the linkages of the firms with different institutions including government, clients, suppliers and academic and research entities. Linkages and information flow are closely related to the concept of absorptive capacity, defined as the firm's ability to recognize external knowledge, assimilate it and apply it to commercial ends.

Context and strategy

This section explores the context under which firms operate in order to provide a clear understanding of the different types of obstacles that impact their growth strategy. At the same time, it searches for the firms' main strategies and most important strengths from the respondent's perspective. This section is covered by questions 57 to 61.

Finance

This section provides an overview of the firm's financial position. Given that unregistered companies are common in Africa, Questions 62 and 63 attempt to filter them out by inquiring whether they have a bank account and if their financial statements are certified by an external auditor.

We then ask how the firm funds its working capital and fixed assets, to estimate its financial situation at a particular point in time. The last questions in this section ask about the firm's participation in financial transactions such as applying for a loan and if the loan was granted. The assumption is that firms that have obtained a loan went through an evaluation process that assessed issues of concern.

Oil and gas companies usually evaluate the financial position of their suppliers to ensure the viability of their supply chain, with periodic reevaluations as necessary. For potential suppliers, this financial examination is probably conducted during the later stages of qualification after the basic prequalification conditions have been met.

Final considerations about the questionnaire and its sections

Dividing the questionnaire into sections is a useful way to categorize the questions, provide a framework for collecting the data and organize the process. Our analysis, however, will interrelate many of the dimensions explored and will not focus on individual sections.

Uganda has a low level of industrial development with a ranking of 115 out of 144 countries in the 2015-2016 Global Competitiveness report. Due to this, the survey covered all firms that could potentially benefit from oil and gas industry investments. This includes companies that are most likely to provide industry related products and those that could provide general products that are not directly related to oil and gas. Based on this scenario, KAPSARC chose to work with 10 economic sectors according to their linkages to the oil and gas business:

- Manufacturing.
- Electricity, gas, steam and air conditioning supply.
- Water supply, sewage, waste management and remediation activities.
- Construction.
- Transportation and storage.
- Accommodation and food services.
- Information and communication.
- Finance and insurance.

- Professional, scientific and technical activities.
- Administrative and support services.

The questionnaire was developed as a tool to be used in interviews with any type of company regardless of their economic sector. In some cases,

the standards we used in the questionnaire (ISO 9000, ISO 14000 and OHSAS 18000) did not apply. This is particularly true in sectors that do not supply industry specific products. However, it is important to include these three standards as they are often required by their potential clients.

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UGANDA

INDUSTRY QUESTIONNAIRE

INTRODUCTION

Good Morning/Afternoon. My name is _____. I am from the Economic Policy Research Centre. We are conducting research on Local Content in the oil and gas industry in Uganda (The capacity of Ugandan firms to service the oil industry). I am here to ask you some questions on your business and company. We seek your consent to conduct this study.

IMPORTANT INFORMATION

The Economic Policy Research Centre (EPRC) in partnership with the Petroleum Exploration and Production Directorate (PEPD) of the Ministry of Energy and Mineral Development (MEMD) are conducting a survey examining how natural resources can be developed in a way to promote inclusive economic development. The survey aims to examine the implications of **national content policies for the oil and gas industry in Uganda** as well as the potential for the Ugandan private sector to engage in the oil and gas sector. Your firm was selected for the survey. We would like to request you or your representatives to take part in this very important survey. We kindly request you to provide the necessary data, information and support to our research team. The information contained in each survey is meant for research and policy purposes only and will be treated with the strictest confidence and will be used to produce aggregate measures only. Your participation in this study will entitle you to access the results of the study and how your company compares with the rest of the sample.

The business card of the respondent should be attached to the questionnaire after you have completed the interview and before it is handed for review to the supervisor or supervisor's team.

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SECTION A: GENERAL INFORMATION

Starting Time: HH:MM

1. Firm's general information

1a. GPS Coordinates (N=1, S=2)	LAT										
	LONG										
1b. Name of firm											
1c. Legal status (Fill in the appropriate bubble)	<input type="radio"/> ① Sole proprietor <input type="radio"/> ② Private limited <input type="radio"/> ③ Partnership <input type="radio"/> ④ Government <input type="radio"/> ⑤ Others [SPECIFY]										
1d. Address											
1e. Telephone											
1f. District (Code book)						1g. Region (Code book)					
1h. Country	UGANDA										
1i. Are you a subsidiary (Fill in the appropriate bubble) IF ANSWER IS "NO" SKIP TO QUESTION 1K.	<input type="radio"/> ① Yes <input type="radio"/> ② No		1j. Subsidiary of				<input type="radio"/> ① Local firm <input type="radio"/> ② Foreign firm				
1k. Number of facilities in the country											
1l. Ownership structure (Fill in the appropriate bubble) IF ANSWER IS 2, 5 OR 6 PLACE 0 IN QUESTION 1M. IF ANSWER IS 1 PLACE 100% IN 1M. IF ANSWER IS 3, 4 OR 7 PLACE % IN 1M	<input type="radio"/> ① Private, local owners only <input type="radio"/> ② Foreign owners only <input type="radio"/> ③ Private local and foreign owners <input type="radio"/> ④ Government and local private owners <input type="radio"/> ⑤ Government owned <input type="radio"/> ⑥ Government and foreign private owners <input type="radio"/> ⑦ Government, foreign and local private owners										
1m. Local private share (%)											
1n. In what year did this firm begin operations in the country? (YYYY)						1o. In what year was this firm formally registered in the country? (YYYY)					
2a. What is the main activity of the firm?						2b. ISIC Code Rev. 4					

BE AS PRECISE AS POSSIBLE

FILL OUT AFTER INTERVIEW

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3. What motivated the firm to start business?

(Fill in the appropriate bubble)

a. Previous experience in the sector	① Yes ② No
b. Government contract opportunities	① Yes ② No
c. Ownership of specific assets useful for the business	① Yes ② No
d. Specific skills of the founding owner(s)	① Yes ② No
e. Personal relationships with key business community	① Yes ② No
f. Others [SPECIFY]	

4. Is the firm a current supplier to the oil and gas industry? (IF ANSWER IS “NO” SKIP TO QUESTION 7)	① Yes ② No
5. Please state in what year the firm began supplying the oil and gas industry in the country. (YYYY)	

6. What segments of the oil and/or gas industry does your firm supply?

(Fill in the appropriate bubbles)

6a. Oil industry		6b. Gas industry	
1. Exploration	① Yes ② No	1. Exploration	① Yes ② No
2. Development	① Yes ② No	2. Development	① Yes ② No
3. Production	① Yes ② No	3. Production and liquid extraction	① Yes ② No
4. Oil treatment	① Yes ② No	4. Gas treatment	① Yes ② No
5. Transport	① Yes ② No	5. Storage	① Yes ② No
6. Pipeline	① Yes ② No	6. Compression	① Yes ② No
7. Storage	① Yes ② No	7. Pipeline	① Yes ② No
8. Oil refining	① Yes ② No	8. LNG, liquefaction, transport and regasification	① Yes ② No
9. Oil trading	① Yes ② No	9. Industrial and residential	① Yes ② No
10. Oil products distribution	① Yes ② No	10. Power plants	① Yes ② No
11. Other activities not considered above (SPECIFY)		11. Other activities not considered above (SPECIFY)	

SECTION B: ECONOMIC PERFORMANCE

(Fill in the appropriate bubble)

7. What is the nature of the firm's <u>main</u> business activity? (IF THE ANSWER IS 2 - SKIP TO QUESTION 9)	<input type="radio"/> ① A goods supplier <input type="radio"/> ② A service supplier
8a. As a good supplier, your main activity is: (IF THE ANSWER IS 1 - SKIP TO QUESTION 9)	<input type="radio"/> ① The sale of goods manufactured by the firm <input type="radio"/> ② The adaptation of goods manufactured by other firms <input type="radio"/> ③ The sale of goods manufactured by other firms
8b. If answer in 8a above is either 2 or 3: Are most of these imported?	<input type="radio"/> ① Yes <input type="radio"/> ② No

9. Please describe the distribution of the firm's sales in percentage for the year **2015** by type of client.

Type of client	(%)
a. National oil & gas companies	
b. International oil & gas companies	
c. Mining companies	
d. Other companies (Non-oil & gas and mining)	
Total	100%

10. Describe **IN DETAIL** the most important good or service in terms of annual sales for the year **2015** and whether this good or service is delivered to the oil and gas industry.

Good or service (Describe)	Sales participation in % of Total Sales of 2015	Is the good or service supplied to the oil and gas industry
a.	b.	c. <input type="radio"/> ① Yes <input type="radio"/> ② No

11. State the distribution of your sales in percentage for the year **2015**.

Sales	(%)
a. Domestic Market: Goods	
b. Domestic Market: Services	
c. Export of goods	
d. Export of services	
Total	100%

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12. Please state in the table below the firm's range of sales in local currency for the year **2015** and its performance in the last three years.

(Fill in the appropriate bubble)

(Fill in the appropriate bubble)

12a. Sales in local currency for the year 2015
① Less than 12 Million
② Between 12 Million and 128 Million
③ Between 128 Million 244 Million
④ Between 244 and 360 Million
⑤ Between 360 Million and 1 billion
⑥ Between 1 and 3 billion
⑦ Between 3 and 7 billion
⑧ Between 7 and 10 billion
⑨ Between 10 and 50 billion
⑩ Above 50 billion

12b. Sales performance in the last 3 years	
① Decreased	
② Stayed the same	
③ Increased	③a 10%
	③b between 11% and 20%
	③c between 21% and 30%
	③d between 31 and 40%
	③e between 41 and 50%
	③f between 50% and 90%
③g 90% or more	
④ Doesn't apply	

13. Please state the firm's number of clients in the following categories for the year **2015 (only firms)**.

13a. Oil and gas companies and international suppliers*	13b. Mining industry	13c. Other industries

*International suppliers: oilfield service companies like, drilling companies, EPC (Engineering Procurement and Construction), etc.

14. State the total exports for 2015 as a percentage of the total annual sales. Select if these are sporadic or regular exports (if there are NO exports place 0). Note: these are direct exports performed by the firm.

IF "0" GO TO QUESTION 16

14a. Exports year 2015 as % of sales year 2015	14b. Are the exports regular or sporadic?
	① Regular ② Sporadic

15. Select the most important region where your firm exports. (Fill in the appropriate bubble)	<ul style="list-style-type: none"> ① East African Common Market* ② Rest of Africa ③ Europe ④ North America ⑤ Asia ⑥ Others [SPECIFY]
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* East Africa Common Market: Rwanda, Burundi, Kenya, Tanzania, Uganda and South Sudan.

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16. What is the degree of competition for your main product (good or service) in the domestic market?
(Fill in the appropriate bubble)

a) Number of competitors	b) Degree of competition
① 0	① Very low
② 1-5	② Low
③ 6-10	③ Intermediate
④ 11-50	④ High
⑤ Above 50	⑤ Very high

17. Does the firm experience competition from the informal sector?
(IF NO GO TO QUESTION 19)

① Yes ② No

19. Does the firm experience competition from imports?
(IF NO GO TO QUESTION 21)

① Yes ② No

18. What is the degree of competition from informal establishments?
(Fill in the appropriate bubble)

Informal competition
① Very low
② Low
③ Intermediate
④ High
⑤ Very high

20. What is the degree of competition from imports?
(Fill in the appropriate bubble)

Competition from imports
① Very low
② Low
③ Intermediate
④ High
⑤ Very high

21. State how your firm performs in each of the following areas with respect to competitors. (Fill in the appropriate bubble)

Competitors* in the local market			
a. Price	① Disadvantage	② Same level	③ Advantage
b. Scale (volume)	① Disadvantage	② Same level	③ Advantage
c. Productivity	① Disadvantage	② Same level	③ Advantage
d. Goods/services quality	① Disadvantage	② Same level	③ Advantage
e. R&D capacity	① Disadvantage	② Same level	③ Advantage
f. Brand recognition/commercial reputation	① Disadvantage	② Same level	③ Advantage
g. Capacity to introduce new goods/services	① Disadvantage	② Same level	③ Advantage
h. After sales services	① Disadvantage	② Same level	③ Advantage
i. Financing facilities offered	① Disadvantage	② Same level	③ Advantage
j. Labor skills	① Disadvantage	② Same level	③ Advantage

* Both formal and informal competitors, as well as imports.

22. What are the main challenges your firm faces in the following categories? (Fill in the appropriate bubbles)

Areas	Challenges	
22a. Market (SELECT UP TO 3)	① Identifying customers	
	② Accessing customers	
	③ Identifying the sales price of your products	
	④ Lack of timely market information of the demand of your products	
	⑤ COMPETITION (FOR THIS OPTION SELECT 1)	⑤a Price
		⑤b Quality
		⑤c After sale service
		⑤d Credits offered to customers
		⑤e Image/branding
	⑥ ESTABLISHED RELATIONSHIPS (FOR THIS OPTION SELECT 1)	⑥a By foreign competitors
		⑥b By local competitors
	⑦ Customers' complicated/difficult bidding process	
	⑧ High marketing costs	
⑨ Others [SPECIFY]		
⑩ None		
22b. Production (SELECT UP TO 3)	① Unable to meet customers' specifications	
	② Unable to adapt/acquire required technology	
	③ Technology or product specifications not available in the country	
	④ Unable to meet minimum volumes with existing capacity	
	⑤ Unskilled workforce	
	⑥ Unable to deliver on time	
	⑦ Others [SPECIFY]	
	⑧ None	
22c. Finance (SELECT UP TO 2)	① Unable to invest in required machinery/technology	
	② WORKING CAPITAL (FOR THIS OPTION SELECT 1)	②a Too expensive
		②b Lack of access
	③ Customers' payment policies	
	④ Others [SPECIFY]	
	⑤ None	

SECTION C: OPERATIONS AND MANUFACTURING

23. Does your company have a HSE* policy? *HSE: Health, safety, environmental	<input type="radio"/> Yes <input type="radio"/> No
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24. Does your company have a Health and Safety plan or manual? (IF ANSWER IS NO SKIP QUESTION 25)	<input type="radio"/> Yes <input type="radio"/> No
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25. Please state the areas that are covered in the plan/manual. (Fill in the appropriate bubble)

Areas	
a. Training/SOPs	<input type="radio"/> Yes <input type="radio"/> No
b. Safety audits	<input type="radio"/> Yes <input type="radio"/> No
c. Material safety data sheet	<input type="radio"/> Yes <input type="radio"/> No
d. Record keeping and analysis (including incident, near miss, accident reporting)	<input type="radio"/> Yes <input type="radio"/> No
e. Accident prevention	<input type="radio"/> Yes <input type="radio"/> No
f. Hazard analysis	<input type="radio"/> Yes <input type="radio"/> No
g. Environmental responsibility and management	<input type="radio"/> Yes <input type="radio"/> No
h. Define HSE roles and responsibilities	<input type="radio"/> Yes <input type="radio"/> No
i. Incident management process	<input type="radio"/> Yes <input type="radio"/> No
j. Emergency response plan (ERP)	<input type="radio"/> Yes <input type="radio"/> No
k. Management of change procedures	<input type="radio"/> Yes <input type="radio"/> No
l. Preventive maintenance (PM) program	<input type="radio"/> Yes <input type="radio"/> No

26. For GOODS suppliers, please state the capacity utilization:

Capacity utilization	26a	26b
	2013 () %	2015 () %

27. For SERVICES suppliers, please state the capacity utilization:

Capacity utilization	27a	27b
	2013 () %	2015 () %

28. Please state which of the following activities of quality management are used by your firm.
(Fill in the appropriate bubble)

Process control, culture of quality and tools for improvement	
a. Do you have technical specifications for raw materials or critical inputs?	① Yes ② No
b. Do you have technical specifications on critical aspects of the process, goods or services?	① Yes ② No
c. Do you usually communicate with suppliers to solve problems?	① Yes ② No
d. Do you have formal or informal tracking systems (traceability) for your goods or services?	① Yes ② No
e. Do you usually work in teams to solve problems or to improve your process?	① Yes ② No
f. Do you have frequent communication with customers to improve products?	① Yes ② No
g. Do you conduct internal audits?	① Yes ② No
h. Do you use a cause and effect diagram (fishbone diagram)?	① Yes ② No
i. Do you use tools to analyze non-conformities or defects of your goods or services?	① Yes ② No
j. Do you have personnel dedicated to quality management?	① Yes ② No
k. Do you have a department dedicated to quality management?	① Yes ② No

29. Has your firm started to implement or implemented international management standards? (IF NO GO TO 32)	① Yes ② No
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30. For each standard listed in the table below, state if firm uses the standard to some extent, the degree of implementation, and if they are certified.

Standards		Uses the standard?		Degree of implementation (%)		Certified?
a. ISO 9000	1	① Yes ② No	2		3	① Yes ② No
b. ISO 14000		① Yes ② No				① Yes ② No
c. OHSAS 18000/1		① Yes ② No				① Yes ② No
d. Others [SPECIFY]						

IF ALL THE STANDARDS ARE CERTIFIED GO TO QUESTION 32

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31. In case of not having certified standards, please list the reasons. (Fill in the appropriate bubble)

Reasons	
a. Lack of financial resources	① Yes ② No
b. Lack of skilled personnel for this task	① Yes ② No
c. I wouldn't know how to implement	① Yes ② No
d. Not aware of the certified standards	① Yes ② No
e. Doesn't apply	① Yes ② No
f. Others [SPECIFY]	

32. Please state how many permanent full time employees* worked in the firm in the years 2013, 2014 and 2015.

a. Total employees (permanent)	2013		2014		2015	
	M	F	M	F	M	F
b. Nationals						
c. Foreigners						

*Include managers, administrative staff and owners that work actively in the company.

33. Please state how many temporary employees** worked in the firm in the year 2015.

Temporary**workers 2015		
a. Total temporary employees		
	M	F
b. Nationals		
c. Foreigners		

** Workers hired for a specific job and for less than a year period.

34. State the total number of permanent employees in year 2015 according to their level of education.

Education level (Local employees)	Number of employees year 2015
Total number of permanent employees	
a. Incomplete primary education	
b. Up to complete primary education	
c. Up to complete lower secondary education (O' levels)	
d. Up to complete upper secondary education (A' levels) or Diploma Certificate	
e. Incomplete higher education (university)	
f. Complete higher education (university)	

Local Content in East African Oil and Gas Projects

35. State the total number of permanent employees in year **2015** according to years of experience.

Qualification level (experience for the job) (Local employees)	Number of employees 2015
Total number of permanent employees	
a. More than 15 years	
b. Between 10 and 15 years	
c. Between 4 and 9 years	
d. Up to 3 years	

36. In the year **2015** how many permanent employees were skilled or unskilled workers?

Year 2015 (Local employees)	Number
a. Skilled*	
b. Unskilled	
c. Total	

*All individuals that work in manufacturing, operations, management or in administrative tasks that require some level of knowledge (exceptions are cleaning staff, cadets).

37. To what degree is an inadequately educated or trained workforce an obstacle to the current operations of the firm?
(Fill in the appropriate bubble)

Inadequately educated or trained workforce
① NO obstacle
② Minor obstacle
③ Moderate
④ Major obstacle
⑤ Very severe obstacle

38. Do you have problems with your workforce? (IF ANSWERS IS NO GO TO QUESTION 40)	<input type="radio"/> Yes <input type="radio"/> No
--	---

39. Does the firm have any of the following problems with its workforce?
(Fill in the appropriate bubble)

Problems with the workforce	
a. Absenteeism	① Yes ② No
b. High turnover	① Yes ② No
c. Bad time keeping	① Yes ② No
d. Lack of effort on the job	① Yes ② No
e. Poor quality of work	① Yes ② No
f. Strikes	① Yes ② No
g. Sabotage	① Yes ② No
h. Theft	① Yes ② No
i. Others [SPECIFY]	

40. Has your firm provided formal training activities for its permanent employees during the period 2013 – 2015? (IF ANSWER IS NO GO TO QUESTION 44)	<input type="radio"/> Yes <input type="radio"/> No
--	--

41. Estimate the percentage of permanent employees that received formal training in years	a. 2013	b. 2014	c. 2015
	() %	() %	() %

Local Content in East African Oil and Gas Projects

42. Please select the most relevant topics of the formal training. Also state if the training was provided by the firm's employees or by external organizations or persons. **IF ALL INTERNAL GO TO 44.**

(Fill in the appropriate bubble)

Training topics			Type of Training
a. Management and strategy		<input type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> Internal <input type="radio"/> External (local) <input type="radio"/> External (international)
b. Finance and costs		<input type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> Internal <input type="radio"/> External (local) <input type="radio"/> External (international)
c. Marketing		<input type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> Internal <input type="radio"/> External (local) <input type="radio"/> External (international)
d. Operations, manufacturing	1	<input type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> Internal <input type="radio"/> External (local) <input type="radio"/> External (international)
e. Health safety and environment		<input type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> Internal <input type="radio"/> External (local) <input type="radio"/> External (international)
f. Technical: hydraulic, pneumatic, computerized machine control, etc.		<input type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> Internal <input type="radio"/> External (local) <input type="radio"/> External (international)
g. Quality control		<input type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> Internal <input type="radio"/> External (local) <input type="radio"/> External (international)
h. Others [SPECIFY]			

43. Please state which of the following entities was in charge of the external training.

(Fill in the appropriate bubble)

a. Customers	<input type="radio"/> Yes <input type="radio"/> No
b. Suppliers	<input type="radio"/> Yes <input type="radio"/> No
c. Universities/research institutions	<input type="radio"/> Yes <input type="radio"/> No
d. NGO*	<input type="radio"/> Yes <input type="radio"/> No
e. Trade associations or chambers of commerce	<input type="radio"/> Yes <input type="radio"/> No
f. Consultant firms/consultants	<input type="radio"/> Yes <input type="radio"/> No
g. Government agencies	<input type="radio"/> Yes <input type="radio"/> No

*Non-governmental organization.

44. Does the company have a unit or person responsible for detecting the training needs and organizing the training activities?	<input type="radio"/> Yes <input type="radio"/> No
--	--

SECTION D: INVESTMENTS AND INNOVATION

45. Estimate the investments of the period 2013-2015 as percentage of sales. IF ANSWER IS A POSITIVE NUMBER GO TO QUESTION 46a. IF ANSWER IS "0" GO TO QUESTION 46b.	() %
---	----------------------------

46a.

INVESTED BECAUSE OF: (Fill in the appropriate bubble)	
1. Competition	① Yes ② No
2. Change of sector or activity	① Yes ② No
3. Demand increased	① Yes ② No
4. Technological change	① Yes ② No
5. Business opportunity	① Yes ② No
6. Influence of large customers	① Yes ② No
7. Influence of large suppliers	① Yes ② No
8. Others [SPECIFY]	

46b.

NOT INVESTED BECAUSE OF: (Fill in the appropriate bubble)	
1. The firm's owners do not want to grow any further	① Yes ② No
2. The size of domestic market is too small	① Yes ② No
3. The market growth is not sufficient for investing	① Yes ② No
4. The firm has invested in previous years (before 2013) and therefore it was not necessary.	① Yes ② No
5. Lack of information about business opportunities	① Yes ② No
6. Lack of management capability	① Yes ② No
7. Lack of financial resources	① Yes ② No
8. Others [SPECIFY]	

Local Content in East African Oil and Gas Projects

47. During the period (2013-2015) did the firm carry out some of the following activities?
IF THE ANSWERS ARE NO FROM l TO q GO TO QUESTION 53. IF NO IN ALL OPTIONS (FROM a TO q) GO TO 53 AND SKIP QUESTIONS 55 AND 56. (Fill in the appropriate bubble)

ACTIVITIES		
a. Purchase machinery related to new or significantly improved products*/processes		① Yes ② No
b. Purchase licenses related to new or significantly improved products/processes		① Yes ② No
c. Purchase specific software for the company**		① Yes ② No
d. Consultancy to carry out products, processes, organizational or marketing innovations		① Yes ② No
e. Incorporation of generic software/hardware**		① Yes ② No
f. Training required for implementing a product innovation		① Yes ② No
g. Training required for implementing a process innovation		① Yes ② No
h. Organizational changes		① Yes ② No
i. Changes in sales channels or product promotion, placement and/or pricing strategies		① Yes ② No
j. The efforts made in order to solve environmental problems		① Yes ② No
k. External R&D: same tasks as internal R&D but purchased by the firm		① Yes ② No
l. Development of specific software**	If the answer is 'NO' to ALL these questions, skip to Question 53	① Yes ② No
m. Implementation of continuous improvement programs		① Yes ② No
n. Reverse engineering and adaptation		① Yes ② No
o. Design of new or significantly improved products (goods or services)		① Yes ② No
p. Design of new or significantly improved processes		① Yes ② No
q. Internal R&D: creative work carried out systematically by the firm to create new knowledge		① Yes ② No

*Products: refer to goods or services. **Related to the introduction of new or significantly improved products and processes, and/or new organizational or marketing methods.

48. If any of the options from 'l' to 'q' was 'yes', was a specific individual or group responsible for the activities described? (IF ANSWER IS NO GO TO QUESTION 53)	① Yes ② No
--	------------

49. On average how many persons were included in that group in the year 2015?	() Persons
---	-------------------------------------

50. What is the frequency of their activities?	① Regular ② Depending on specific situations
--	---

Local Content in East African Oil and Gas Projects

51. For this group, state the number of persons in each profession type.

Profession	Number of persons
a. Technicians (professionals)*	
b. Professionals (not technicians)**	
c. Technical personnel (not university level)	
d. Operative/production personnel	
e. Others [SPECIFY]	
f. Total	

*Engineers, chemists, geologists, physicists; **Accountants, economists, business administrators.

52. State if this group constitutes a formal department of the firm such as R&D.	<input type="radio"/> Yes <input type="radio"/> No
--	--

53. State for the period **2013-2015** if the firm has introduced **innovations** and if they were new to the firm, the domestic market, or the world. **IF THE ANSWER IS NO IN (a) AND AT LEAST ONE OPTION IS YES IN 47 GO TO 55.** (Fill in the appropriate bubble)

TYPE OF INNOVATION			IT WAS A NEW INNOVATION TO	
a. New products (goods or services)	1	<input type="radio"/> Yes <input type="radio"/> No	2	<input type="radio"/> The World <input type="radio"/> The Domestic Market <input type="radio"/> The Firm (but not for the Market)
b. Improved products		<input type="radio"/> Yes <input type="radio"/> No		<input type="radio"/> The World <input type="radio"/> The Domestic Market <input type="radio"/> The Firm (but not for the Market)
c. New or improved processes		<input type="radio"/> Yes <input type="radio"/> No		<input type="radio"/> The World <input type="radio"/> The Domestic Market <input type="radio"/> The Firm (but not for the Market)
d. New marketing methods		<input type="radio"/> Yes <input type="radio"/> No		<input type="radio"/> The World <input type="radio"/> The Domestic Market <input type="radio"/> The Firm (but not for the Market)
e. New organizational methods		<input type="radio"/> Yes <input type="radio"/> No		<input type="radio"/> The World <input type="radio"/> The Domestic Market <input type="radio"/> The Firm (but not for the Market)

54. State the most relevant innovative goods or services the firm has introduced to the market in the period **2013-2015** and mark if it was an innovation for the firm, the domestic market or the world. Also state its share of total sales for the year **2015**.

	Description	% of sales 2015	New to
a. New good			<input type="radio"/> The World <input type="radio"/> The Domestic Market <input type="radio"/> The Firm (but Not for the market)
b. New service			<input type="radio"/> The World <input type="radio"/> The Domestic Market <input type="radio"/> The Firm (but Not for the market)

Local Content in East African Oil and Gas Projects

55. State if your firm developed linkages for carrying out innovation activities in the period 2013-2015. Consider both formal and informal linkages: IF ANSWER IS NO GO TO 57

- ① Yes
② No

56. Complete in the following table the most important linkages for developing innovation activities in the period 2013-2015. Please also state if they are informal or formal (for example a signed agreement).

(Fill in the appropriate bubble)

Linkages			Type of linkages
a. Customers	1	① Yes ② No	① Formal ② Informal
b. Suppliers		① Yes ② No	① Formal ② Informal
c. Competitors		① Yes ② No	① Formal ② Informal
d. Universities/research institutions		① Yes ② No	① Formal ② Informal
e. NGO		① Yes ② No	① Formal ② Informal
f. Trade associations or chambers of commerce		① Yes ② No	① Formal ② Informal
g. Government agencies		① Yes ② No	① Formal ② Informal



SECTION E: CONTEXT AND STRATEGY

57. State the **main** obstacles that the firm currently faces. **SELECT UP TO 5** (Fill in the appropriate bubbles)

Obstacles	
(a) Lack of adequate technology/equipment	(j) Lack of demand information from customers*
(b) Lack of skilled workers	(k) Customers' procurement policies
(c) Limited internal financial capacity	(l) Competition
(d) High requirements from the financial sector to lend capital	(m) Lack of demand stability
(e) Difficulties to export	(n) Labor regulations
(f) Difficulties to import	(o) Lack of relationship with educational and research institutions
(g) Productivity lower than competitors	(p) Lack of public incentives for the industry
(h) Labor (cost & availability)	(q) Others [SPECIFY]
(i) Lack of domestic suppliers	

* Define as procurement program of buyers.

58. State the **main** strategies of your firm for the next three (3) years. **SELECT UP TO 5**

(Fill in the appropriate bubbles)

Strategies	
(a) Introduce new goods/services	(j) Increase workforce
(b) Enter new markets	(k) Improve quality or design
(c) Change the firm's sales channels	(l) Improve branding and advertisement
(d) Licensing from others firms	(m) Train human resources
(e) Subcontract some processes to others firms (outsourcing)	(n) Cooperate with others firms to gain more important contracts or works
(f) Substitute imported inputs for production	(o) Open new commercial offices
(g) Reduce personnel	(p) Open new productive or operative plants
(h) Register patents of products	(q) Do nothing, stay the same
(i) Buy new equipment/adapt new technology	(r) Others [SPECIFY]

Local Content in East African Oil and Gas Projects

59. What are the main strengths of your firm? **SELECT UP TO 5** (Fill in the appropriate bubbles)

Strengths	
<input type="radio"/> (a) The design of parts or products	<input type="radio"/> (k) Flexibility to meet demand specific requirements
<input type="radio"/> (b) High volume of output	<input type="radio"/> (l) Ownership of exclusive contracts with clients
<input type="radio"/> (c) Goods/services with certified quality for the oil and gas industry	<input type="radio"/> (m) Ownership of exclusive contracts with suppliers
<input type="radio"/> (d) Goods/services with certified quality for others industries	<input type="radio"/> (n) Logistic capacity
<input type="radio"/> (e) Low prices	<input type="radio"/> (o) After sales services
<input type="radio"/> (f) Operating in a specific niche segment	<input type="radio"/> (p) Positioning of brand in the market
<input type="radio"/> (g) Ownership of specific technology	<input type="radio"/> (q) Experience of managers and owners in the oil and gas industry
<input type="radio"/> (h) Capability to coordinate with suppliers (domestic and foreign)	<input type="radio"/> (r) Experience of the firm in the oil and gas industry
<input type="radio"/> (i) Large number of customers	<input type="radio"/> (s) Others [SPECIFY]
<input type="radio"/> (j) Meets international standards	

60. Please tell us if the following **external** factors are a problem or Not. (Fill in the appropriate bubbles)

Factors	
a. Electricity supply	<input type="radio"/> 1 Yes <input type="radio"/> 2 No
b. Water supply	<input type="radio"/> 1 Yes <input type="radio"/> 2 No
c. Transport	<input type="radio"/> 1 Yes <input type="radio"/> 2 No
d. Roads	<input type="radio"/> 1 Yes <input type="radio"/> 2 No
f. Waste disposal	<input type="radio"/> 1 Yes <input type="radio"/> 2 No
e. Air and sea ports	<input type="radio"/> 1 Yes <input type="radio"/> 2 No
g. Security	g.1 Civil unrest <input type="radio"/> 1 Yes <input type="radio"/> 2 No
	g.2 Labor unrest <input type="radio"/> 1 Yes <input type="radio"/> 2 No
	g.3 Crime/theft <input type="radio"/> 1 Yes <input type="radio"/> 2 No
	g.4 Terrorism <input type="radio"/> 1 Yes <input type="radio"/> 2 No
h. Corruption	<input type="radio"/> 1 Yes <input type="radio"/> 2 No
i. Political uncertainty	<input type="radio"/> 1 Yes <input type="radio"/> 2 No
j. Others [SPECIFY]	

61. Considering your **main** product (good or service) please state how the price is set. Select yes/no for each strategy.
(Fill in the appropriate bubble)

Pricing strategies	
a. No strategy: takes market prices as given	① Yes ② No
b. Mark up over costs	① Yes ② No
c. Adjust prices to keep up with import prices	① Yes ② No
d. Charge different prices for the same product in different markets	① Yes ② No
e. Keep prices high to signal superior quality	① Yes ② No
f. Follow the market leader(s)	① Yes ② No
g. Negotiate price with buyer	① Yes ② No
h. No strategy: industry association set the price	① Yes ② No
i. No strategy: government set the price	① Yes ② No
j. Others [SPECIFY]	

SECTION F: FINANCE

62. Does your firm have a bank account?	① Yes ② No
--	---------------

63. Did the firm have its annual financial statements certified by an external auditor in years...?

(Fill in the appropriate bubble)

a. 2013	① Yes ② No
b. 2014	① Yes ② No
c. 2015	① Yes ② No

64. For year 2015, estimate the proportion of the firm's working capital that was financed through:

Institutions	Percentage (%)
a. Internal funds	
b. Borrowed from banks	
c. Borrowed from non-bank financial institutions (credit cooperatives, credit unions, financial companies)	
d. Credit from suppliers	
e. Advances from customers	
f. Moneylenders, friends, relatives, etc.	
g. Others [SPECIFY]	
Total	100%

65. In the year 2015 did the firm invest in fixed assets (machinery, equipment, vehicles, land or buildings)? IF ANSWER IS NO GO TO QUESTION 68	① Yes ② No
--	---------------

66. State how much the firm spent on the following fixed assets for the year 2015 as a percentage of total expenditure.

Fixed assets 2015	% of Total Expenditures
a. Machinery, vehicles and equipment	
b. Land and buildings	

67. Estimate the proportion of the firm's total purchase of fixed assets that was financed from each of the following sources from the year **2015**.

Institutions	Percentage (%)
a. Internal funds	
b. New partners	
c. Borrowed from banks	
d. Borrowed from non-bank financial institutions	
e. Credit from suppliers	
f. Advances from customers	
h. Others [SPECIFY]	
Total	100%

68. Did the firm apply for loans during year 2015? IF ANSWER IS <u>NO</u> END INTERVIEW	<input type="radio"/> Yes <input type="radio"/> No
--	--

69. Was the loan obtained? IF ANSWER IS <u>YES</u> END INTERVIEW	<input type="radio"/> Yes <input type="radio"/> No
---	--

70. Please state the reasons why the loan was not obtained? (Fill in the appropriate bubble)

SITUATION	
a. Firm did not have adequate banking collateral	<input type="radio"/> Yes <input type="radio"/> No
b. Did not properly present financial statements	<input type="radio"/> Yes <input type="radio"/> No
c. Weak financial position	<input type="radio"/> Yes <input type="radio"/> No
d. Financial requirements too high from local lenders	<input type="radio"/> Yes <input type="radio"/> No
e. Others [SPECIFY]	<input type="radio"/> Yes <input type="radio"/> No

END OF THE INTERVIEW

The following must be completed by the interviewer

Date of the interview	
Number of interviews carried out by the interviewer	
Name of the respondent or respondents	
Positions of respondents	
Duration of interview	

Name of the interviewer {BLOCK CAPITALS}:

Signature:

Supervised by {BLOCK CAPITALS}:

Signature:

Ending Time: HH:MM

About the Authors



Marcelo Neuman

Marcelo is a visiting researcher collaborating with KAPSARC's Local Content Project in East Africa. He is an associate professor and researcher at the Universidad Nacional de General Sarmiento (National University of General Sarmiento) in Argentina.



Roger Tissot

Roger is a research fellow specializing in local content. He holds an M.A. in Economics and an MBA. He has also worked in business development and as an advisor to government petroleum authorities.



Daniel Mabrey

Daniel Mabrey was formerly a research fellow at KAPSARC leading a team focused on Eastern Africa. He has returned to his position as an associate professor at the University of New Haven in Connecticut, USA.

About the Project

Natural Resource-led Development in New Producing Countries

Our project seeks to understand how natural resource extraction can drive inclusive economic growth in new producing countries. We are engaged in a multiyear multidisciplinary study with four objectives:

- Understand the human geography of new producing countries.
- Assess the magnitude of new discoveries and estimate direct fiscal impact.
- Understand how industry can be localized to create economic growth.
- Estimate spillovers and welfare impacts to society.

We recognize that policymaking in new producing countries is a complex process, and our project also seeks to understand the interactions of actors' interests that drive energy sector policies.

Our initial focus is on four countries – Kenya, Mozambique, Tanzania and Uganda – that expect to develop significant oil and gas reserves in the next 5-7 years. Through natural resource development, these countries hope to achieve middle-income economic status by 2030-2040. This project is conducted through close collaboration with leading think tanks and NGOs in Africa.

Notes



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