International Journal of Strategic Management (IJSM)

EFFECT OF LOCAL CONTENT AND SECURITY ISSUES ON THE OPERATIONAL EFFICIENCY OF OIL AND GAS ORGANIZATIONS IN KENYA

James Okal Mobutu and Dr Joyce Nzulwa

IPRJB

International Journal of Strategic Management
Vol.1, No.1, pp 1-19, 2021

www.iprjb.org

EFFECT OF LOCAL CONTENT AND SECURITY ISSUES ON THE OPERATIONAL EFFICIENCY OF OIL AND GAS ORGANIZATIONS IN KENYA

[1*]James Okal Mobutu

Post Graduate Student: Jomo Kenyatta University of Agriculture and Technology

Corresponding Authors Email:jmobutu05@gmail.com

[2*]Dr Joyce Nzulwa

Lecturer, Department of Business Administration

Jomo Kenyatta University of Agriculture and Technology.

Corresponding Authors Email joyce@iprjb.com

Abstract

Purpose: The aim of the study is to analyze the effect of local content and security issues on operational efficiency of oil and gas organizations in Kenya.

Methodology: The study adopted a descriptive research design whereby both quantitative and qualitative data were utilized. The target population comprised of 148 participants from 37 Oil and gas exploration companies selected for this study. Stratified, random and purposive sampling techniques was applied to sample out 108 respondents calculated as sample size from the target population. Questionnaire and interview schedules were used for data collection and subsequently analyzed to work out descriptive, inferential and regression analysis.

Findings: The study concluded that there is a positive relationship between independent and dependent variables. In a hierarchical order, there exist a significantly positive correlation between independent variable issues of local content, security, community, and infrastructure to operations efficiency. The study concludes that for Kenyan situation, the contributions of independent variable are significantly different from other previous studies.

Unique Contribution to Theory Practice and Policy: Given the diversity and level of dispersion of challenges and issues clustered under the independent variable on this study, entities interested in oil and gas exploration may be required to identify all intrinsic and extrinsic issues under which the independent variables fall, identify their risk, and conduct a costing. This will be key to success of improving the contributors to operational performance metrics and will enable the entities determine what causes inefficiencies and therefore stand a better chance of planning successful oil and gas exploration projects.

Keywords: *local content issues, security issues, operational efficiency*

INTRODUCTION

Oil and Gas industry plays a significant role in the growing of economies worldwide. Despite being the core unit of production in most countries worldwide, the industry faces many structural and operational challenges that inhibit efficiency in its exploration (Brown, 2013). About 67% of global energy requirements are met with oil and gas supplies (Kamara, Anyanwu, Juel, Mondlane, & Iwayemi, 2009). The oil forecasts during 2003–2008 were associated with unexpected growth in emerging economies (Lutz & Hicks, 2013) though there is a correlation between energy consumption and economic growth (Bildirici & Tahsin, 2014). Higher oil prices decline in capacity to supply and increasing demand can be attributed to BRICTS countries and GCC members' rise in energy consumption due to faster economic growth (Al-Maamary, Kazem, & Miqdam, 2016). According to Kamara et al., (2009) with a 57% global energy demand projection, means that Africa's energy resources will be a focus of new discoveries.

Oil reserves in Africa grew by over 25 %, while gas reserves grew by over 100 % over the last 20 years (Kamara, Anyanwu, Juel, Mondlane, & Iwayemi, 2009). The discoveries occurred despite commonly diverse challenges exploration companies face such as governance frameworks in Australia (McKenzie, 2013) and the risk of external uncertainty (Akpata, Bredenhann, & White, 2013). Modern geophysical science and exploration technologies have improved Africa's geology knowhow rapidly leading to 51 out of 54 countries into exploration and encounter of oil and gas basins.

As of 2014, over 180 onshore and offshore wells had been drilled (Burkhardt, 2016) yielding significant encounter of oil and gas reserves. An optimistic view is that unexplored sedimentary basin areas may have significant reserve quantities worth exploring further (Khelil, 2012). Sudan and South Sudan may have total oil reserve estimates at 700^6 TOE (Dudley, 2016). But with challenges in security, labour and governance, no progress has been observed in the industry (Auge, 2015) including forecasting on exploration activities (WorldOil, 2017).

In Rwanda, Vanoil completed both an aerial survey over Lake Kivu and southwest Rwanda and acquired 2D marine seismic geophysical data (Vanoil, 2010). Following passive data collection exercise and expiry of the Technical Evaluation Agreement, Vanoil and the Government agreed to terminate exploration on Lake Kivu in June 2013 (Vanoil, 2014). Discussions with BGP (exploration company) failed where Ngali Mining (indigenous company) was awarded exploration rights on Lake Kivu in 2017. Owing to operational challenges, Ngai mining is yet to make known their production plans (Mugisha, 2017).

In 2012, Tullow Oil Plc and Africa Oil Plc encountered oil in South Lokichar basin Blocks 10 BB and 13T (Angus, 2012). In 2013, Afren Plc and the two companies discovered Ltd. oil in Blocks 10A within the Anza basin (Africa Oil Corp., 2013) . Africa Oil owns 25 % of Blocks 10BB, 10BA, 13T and 100 % interest of Block 9 and farmed out from Block 12A. In May 2017, it announced further oil discoveries in Block 13T (Andrew & Keith, 2017) leading to estimation of South Lokichar basin oil reserves to potential of 108^6 TOE (Heavey & Thompson, 2013). Africa Oil Plc. is studying the geophysical data for Block 9 following exploration drill wells Sala-1, Sala-2, which was dry, and the Bhogal-1 drilled by CNOOC (Keith, 2017).

Octant Energy Plc. owns 80% of Block 1 and Block L17/L18 located in the coastal region (Richard & McLean, 2017). Taipan Resources Plc. has operator interest on Block 2B and owns 20 % of

Block 1 (Birley, 2015). Zarara Oil & Gas Ltd. owns 75% of Block L2 on Lamu Basin with Swiss Oil Holdings International owning 15 % whereas National Oil Company of Kenya owns 10 %. CEPSA Kenya Ltd. owns 55 % of Block 11A, ERHC owns 35 % and Government owns 10 %. CEPSA withdrew its ownership following a dry well discovery (Keeney, 2016).

Exploration has an uncertainty factor (Omontuenmhem, Bredenhann, & Bedwei, 2016), (Uyi ,Akpata ;Chris, Bredenhann ;Darcy, White, 2013). The absence governance structures reminds investors that investments in exploration may worsen if the political and economic situations go fragile (Auge & Nakayi, 2014). Kenya's maritime border disputes causes uncertainty for exploration companies such as ENI Ltd. and Total Ltd. (Brown, 2013). Lake Malawi border dispute between Malawi and Tanzania withholds investments by exploration companies ((Ihucha, 2014).

Statement of the Problem

Exploration organizations should address emergent challenges that spur performance to achieve.

Objective

To analyze the effect of local content and security issues on operational efficiency of oil and gas organizations in Kenya.

LITERATURE REVIEW

Exploration companies rely on social performance elements to secure social license to operate. Non-technical risks such as local content agenda are normally risk mitigated during project timing (Moore & Buchman, 2017). Previous studies assert that there are positive and negative influence of oil and gas exploration projects. (Ana, Coyne, & Moreno, 2013). Local content issues are diverse and include local employment; local infrastructure improvement; displacement and resettlement of locals; inflation of lifestyle; restrictions on access to local resources; unsatisfactory compensation; environmental degradation and culture degradation which are potential sources of conflict (Ogwang, Vanclay, & Arjanvan, 2018). Capacity of local suppliers to fulfil stringent supply requirements is a recent concern (Giuseppe & Terje, 2017).

Public education in local communities imposes productivity and remedial-training costs for host companies in which educated local workforce will be a future benefit for company (Porter & Kramer, 2011). Against this background, studies have reported lifestyle changes and work-related safety incidents during exploration activities in which companies bear local community lifestyle burdens (Janis, Marcello, Jean, Malcolm, & Mieke, 2011) whereby associated costs jeopardize production costs and efficiency (Porter & Kramer, 2011).

A need to create shared value arises whereby, the company productivity efficiencies is enhanced by addressing gaps in the local content conditions (Porter & Kramer, 2011). Collaboration for example foster logistical efficiency which boost company productivity which, conversely productivity efficiencies suffers (Porter & Kramer, 2011). By improving or strengthening local suppliers to focus on their efficiency, yields, product quality, and sustainability, both collaborators benefit from productivity profit due to lean operations and innovation (Porter & Kramer, 2011).

Violence and outlawed activities continue to draw anxiety from oil companies and investors in oil and gas organizations (Kathryn, 2015). Security issues influence or have the potential to influence

oil and gas exploration operations. Areas where actual oil and gas exploration activities occur are subject to acts of sabotage and disruption on project cycle operations or to display a warning (Kathryn, 2015).Labour unrest targeting company assets has been a recent security issue(Davis & Franks, 2011). Kathryn (2015) assert that deteriorating security affect peace and lack of appropriate response by the government compound the security risk during exploration (Kathryn, 2015) where security function becomes costly operation (Mercer, 2015)**.**

Security issues such as vandalization and theft impact on productivity by limiting optimization of operations and production. (Saheed & Egwaikhide, 2012). Accruing impairment has additional costs that lead to material loss (Saheed & Egwaikhide, 2012) such as community agitation against environmental issues that stop operations leading to a complete decommissioning. Most incidents morph to security issues which are classified as operational cost in attempt to remedy and account for their effect on financial performance ratios (Davis & Franks, 2011).Labour makes about 60% of operating costs resulting to the need for effective labour utilization, efficient labour measurement and determination of its effect to productivity (Neingo & Cawood, 2014). Causes of labour inefficiencies affect unit costs and total cost of production and recently, it has been an issue squeezing the overall profit margins (Neingo & Cawood, 2014).

RESEARCH METHODOLOGY

This study applied descriptive research design and employ exploratory research to explore the variables. The population of interest in this study comprised of 37 selected entities involved in exploration. The 37 entities formed the study units from which respondents were drawn from community liaison, management, operations, quality and security departments giving a target population of 148 respondents. Stratified sampling method was used to select respondents from community department; purposive sampling method will be used to select respondents from security, quality and management departments and random sampling method was used to select respondents from operations department. Selection of respondents from strata and sub-stratum from the units of analysis used stratified sampling method. Purposive sampling method was used to select significant respondents from units of analysis. Random sampling method was used to select respondents with operational experience as their participation aims to complement the study. The study adopted a structured questionnaire as main instruments data collection tool.

A follow-up an interview either via phone or via face interview was organized with respondent to accord the interviewer a clearer perception should the feedback on questionnaire not be properly populated. Data was also analyzed using descriptive statistics and presented in tables and charts. Frequencies and percentages were used to explain data sets and results. Inferential statistics were drawn based on findings of the descriptive statistics whereas qualitative data was drawn from open-ended questions in the questionnaire, document analysis and interview guide to present the findings.

DATA ANALYSIS AND FINDINGS

Response Level

The Likert scale questionnaire was administered to the respondents from the selected organizations. 108 questionnaires were administered, and 106 responses were obtained giving a response rate score of 98%. Mugenda & Mugenda (2008) assert that above 50% response rate is

adequate for descriptive study. Above 95% response rate sought by study is acceptable (Hussey & Collis, 2009).The response rate of this study met and exceeded the minimum threshold and therefore sufficient for the researcher to conduct data analysis.

Local Contents

Descriptive analysis was carried out for the test variable Local Content. Table 1 summarizes the analytical results. The data analysis indicates that test variable for health, workplace injuries and social ills constitute lifestyle risks (mean=4.65), incapacity, local politics and uncertainty risks of local supplier (mean 4.36) and substandard product/services, compliance costs and unsustainable standards constitute quality risks (mean=3.87) all effect operations efficiency. The average mean was 4.29.

The average standard deviation score was 0.782. In hierarchical order, substandard product/services, compliance costs and unsustainable standards constitute quality risks (standard deviation=1.13), incapacity, local politics and uncertainty risks of local supplier (standard deviation=0.958) and health, workplace injuries and social ills constitute lifestyle risks (standard deviation=0.707), were all above the average standard deviation mean score. This indicates that the local content issues are significantly dispersed or diverse and effect operations efficiency a finding which concurs and asserts research conclusions by Ogwang, Vanclay & Arjanvan (2018) and Janis, Marcello, Jean, Malcom & Mieke (2011).

Table 1: Local Content

Statements	Never	Rarely	Sometimes	Often	Always	N	Mean	Standard Variation
Health, workplace injuries and social ills and other lifestyle risks affect exploration operational efficiency metrics?	1.90%	0%	10.40%	11.30%	76.40%	105	**4.65**	**0.707**
Incapacity, local politics and uncertainty of local supplier affect exploration operational efficiency metrics?	0%	6.60%	14.20%	16%	63.20%	105	**4.36**	**0.958**
Substandard product/services, compliance costs, unsustainable standards and other quality related risks affect exploration operational efficiency metrics?	0%	15%	25.50%	17%	42.50%	105	**3.87**	**1.13**
Average							**4.29**	**0.782**

Security

Descriptive analysis was carried out for the test variable Security. The results are summarized in Table 2 below. The data analysis indicates test variable go slows, local politics, transportation, unqualified/untrained worker constitute (mean=3.78), civil unrest, standoffs, labour unrest/ strikes, untimely government interventions/in actions (mean=3.69) and Intra/extra community conflicts, asset loss or violence and theft (mean=3.56) effect operations efficiency. The mean score was 3.676. The average standard deviation score was 0.769. Arranged in hierarchical order, civil unrest, standoffs, labour unrest/ strikes, untimely government interventions/in actions (standard deviation=1.116), go slows, local politics, transportation, unqualified/untrained worker constitute standard deviation=1.024), and intra/extra community conflicts, asset loss or violence and theft (mean=0.996) were observed to be above average standard deviation score indicative that security issues were diverse and significantly affect operations efficiency . This finding is in tandem with research conclusions by Saheed & Egwaikhide (2012), Kathry (2015) and Davis & Frank (2011).

Table 2: Security

Statements	Never	Rarely	Sometimes	Often	Always	N	Mean	Standard Deviation
Intra/extra community conflicts, asset loss or violence, theft and other security threats affect exploration operational efficiency metrics?	3.90%	10.60%	27.40%	43%	15.10%	160	**3.56**	**0.996**
Civil unrest, standoffs, labour unrest/ strikes, untimely government interventions or in actions and other security challenges affect exploration operational efficiencies?	1.90%	14.40%	28.40%	24%	31.30%	160	**3.69**	**1.116**
Go slows, local politics, unqualified or untrained worker and other similar items are security threats that affect exploration operational efficiencies?	3.80%	3.80%	31.10%	33%	28.30%	160	**3.78**	**1.024**
Average							**3.68**	**0.769**

Operational Efficiency

Descriptive analysis was carried out for the dependent variable Operational Efficiency and Table 3 below presents a summary of the analytical results. The data analysis indicates test variable economic performance indicators (mean=3.44), social performance indicators (mean=3.77), health, safety, environment performance indicators (mean=3.19), quality (mean 2.59), cost of compliance (mean=1.95) and project downtime (mean 2.42) are performance metrics effected by

independent variable. The average mean was 2.89. The average standard variation score was 0.808. In hierarchical order, health, safety, environment performance indicators (standard deviation=1.28), social performance indicators (standard deviation=1.08), quality (standard deviation=1.22), project downtime (standard deviation=1.16), economic performance indicators (standard deviation=1.16) and cost of compliance (mean=1.03) were above the average standard deviation score. This indicates the diversity of the operational efficiency performance metrics , their use and value and assert previous research finding on their significance in measuring the value derived from each (Roshni, Siti-Nabihaa, Dayana, & Yousif, 2016), (Porter & Kramer, 2011) (Devold, 2013).

Table 3: Operational Efficiency

Statements	No extent	Small extent	Moderate extent	Great extent	Very great extent	N	Mean	Standard Deviation
Economic performance Indicators	8.50%	12.30%	22.30%	39.60%	17.00%	106	**3.44**	**1.163**
Social performance indicators	3.80%	8.50%	23.60%	34.90%	29.20%	106	**3.77**	**1.080**
Health Safety Environment performance indicators	14.20%	13.20%	30.20%	24.50%	17.90%	106	**3.19**	**1.280**
Quality	15.10%	43.40%	20.80%	9.40%	10.40%		**2.59**	**1.217**
Cost of compliance	45.30%	23.60%	21.70%	9.40%	0.00%	106	**1.95**	**1.027**
Project downtime	18.90%	45.30%	19.80%	7.50%	7.50%	106	**2.42**	**1.162**
Average							**2.89**	**0.808**

Inferential Statistics

Correlation Analysis

Correlation analysis was performed to establish the strength of relationship between the variables. Table 4 below presents a summary of the findings. Correlation coefficient defines the magnitude between two variables where a positive coefficient means there is a positive relationship between variable and a negative coefficient means opposite and a zero coefficient means there is no relationship.

Table 4 Correlation Matrix

Variable Statements	Local content	Security	Operational Efficiency
Local content	1		
Security	**.368****	1	
Operational efficiency	**.877****	**.495****	1

Local Content issues are positively and (very strongly) significantly correlated with operational efficiency (R=0.877, p<0.001). Security issues are positively and weakly correlated with operational efficiency (R=0.495, p<0.001). This indicates that security issues alone will effect operational efficiency of oil and gas exploration entities.

Regression Analysis

Regression analysis was performed to illustrate the existing relationship between the variables. Table 5 presents the model summary. R shown in Table 5 is the correlation between the observed and predicted values of dependent variable implying that the association of 0.902 between the factors (local content, and security) and operational efficiency was very good. R-Square is coefficient of determination and measures the proportion of the variance in the dependent variable – factors - that is explained by variations in the independent variables - local content, and security. 81.4% of variations or changes in operational efficiency are caused by the factors.

Table 5: Regression Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.902[a]	.814	.806	.33289

An F-significance value of p=0.000 was established showing that there is a probability of 0.0% of the regression model presenting a false information.

This means that the model is statistically significant in predicting the how the independent variable effect the operational efficiency of oil and gas exploration entities. The ANOVA regression model compares the magnitude of the coefficients of the independent to determine which one had more effects on operational efficiency. Therefore, the model is very significant.

Table 6: ANOVA

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	48.895	4	12.224	110.306	.000
Residual	11.192	101	.111		
Total	60.087	105			

Regression Analysis

A multiple linear regression formula was adopted for this study. Table 7 Regression coefficient presents the summary of results. The adopted linear regression formulae attempts to model a relationship between four exploratory variable and responders variable by plotting a linear equation to the response variable as stated by Cresswell (2009).

Table 7: Regression Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-.154	.226		-.681	.497
Content	.856	.058	.754	14.752	.000
Security	.132	.047	.154	2.819	.006

a. Dependent Variable: Operational efficiency

From Table 7, the following regression model is established:

Operational efficiency = -0.154 + 0.856X_1 -+0.132X_2 P = 0.000

Where $X_{1=}$ Local content, $X_{2=}$ Security; β_0 = -0.154; β_1= 0.856; and β_2= 0.132.

Holding other factors (security issues) constant, a unit increase in local content would lead to a 0.856 increase in operational efficiency ($p<0.001$). A unit increase in security would lead to a 0.132 increase in operational efficiency these statistics being significant ($p<0.01$) at 95% of significance. Findings imply that local content, and security each are positively related with operational efficiency with the effect being significant.

In Table 7, there are various issues that constitute local content. Though researchers have a wide scope of issues that constitute local content (Ogwang, Vanclay, & Arjanvan, 2018). It has been asserted that investing in local community is a costing with an added future operational cost (Porter & Kramer, 2011). Respondents in this study had identified local content issues as dispersed and significantly effect operational efficiency. Previous study have not asserted local content as unavoidable (Huq, Stevenson, & Zorzini, 2014) and that the value of local content and efficiency was unclear (Walker, Seuring, Sarkis, & Klassen, 2014). This study found and asserts that local content is positively and very strongly correlated with operational efficiency. It agrees with other researchers that local content is diverse. In Kenyan context, local content is only positively weakly correlated with Security and assertion that is effects operational efficiency a view which was previously not clear from previous results (Blome, Paulraj, & Kai, 2014)

Respondents indicated that security issues are diverse. This view is supported by many authors who view that Security issues take many forms of threats (Saheed & Egwaikhide, 2012) (Kathryn,, 2015). In Table 2, challenges on other independent variables will have a positive correlation effect on Security. Hence security issues are significant on their own instances (Davis & Daniel, 2014). Indeed, oil and gas explorations companies operating in high security threat areas such as a hostile jurisdiction, will often be subjected to closure each and every time. Ultimately, the financial

performance of such companies will be affected at a great level (Saheed & Egwaikhide, 2012). The extent to which these effects operational efficiency has not been digested (Walker, Seuring, Sarkis, & Klassen, 2014) (Kathryn,, 2015) and this study asserts and postulate new matter. That security issues positively and strongly correlated to operational efficiency.

CONCLUSIONS AND RECOMMENDATIONS

Conclusion

Evidence from prior research studies had identified multiple operational challenges that oil, and gas exploration companies face, which has negatively affected the performance of these companies. With the projected increase in demand for energy and significant increase in oil and gas supplies to meet this demand, many entities have increased their interest in oil and exploration companies. The significant and challenging issues faced by exploration organizations are diverse and dispersed in their nature. The exploration organizations have to face the risks whether they emanate internally or externally as they operate or envision to operate in Kenya.

The challenges have been clustered as local content issues and security issues. The pertinent issues around these variables have been identified as diverse and dispersed in nature. Given their positive correlation to operational efficiency, this study has asserted that their very nature results into operational inefficiencies and that the performance metrics for operational efficiencies are effected. Organizations have to factor these variables in order to avoid drawing operational inefficiencies and thus their organizational performance metrics when it comes to carrying out oil and gas exploration activities.

Multiple researchers have discussed and still continue to investigate and explore the variables under this study with view to enrich the topic of operational management in oil and gas industry. Involving various respondents from the organizations within the field had helped to assert that operational challenges indeed effect the operational efficiency of these companies and their general efficiency performance metrics.

Recommendations

Operational management acts are measured by an organization efficiency performance metrics. Given that operations management is evolving into a service activity, operational managers need to visit research papers to ascertain what the contributors to their performance metrics are. This study has attempted to demystify the notion that all the independent variables have equal probability of affecting operational efficiency and instead has instead discovered that there exists a positive correlation and each independent variable has a hierarchical contribution towards the score of an operational efficiency performance metric.

Areas of Further Study

The study was limited to oil and gas entities engaged in Kenya situation. Given that their operations scatter within the East African region, further research may be considered to encompass cross border operations which may also have rich unfettered information. In addition, further research may consider the effect of other diverse and dispersed operational variable that this study may have not covered but may have a significance of research study.

REFERENCES

A. B. (2015). *Oil and Gas in Eastern Africa: Current Developments and Future Perspectives.* Paris: French Institute of International Relations & OPC Policy Center (IFRI).

Adati, A. K. (2012). Oil Exploration and Spillage in the Niger Delta of Nigeria. *Civil and Environmental Research, 2*(2), 38-51.

Africa Oil Corp. (2013). *Operations Update 2013 Year End Report.* Vancouver: Africa Oil Corp.

Akpata, U., Bredenhann, C., & White, D. (2013). *PwC Report: From Promise to Performance: Africa Oil and Gas Review.* South Africa: PricewaterhouseCoopers. Retrieved April 3, 2017, from www.pwc.co.za

Al-Maamary, H. M., Kazem, H. A., & Miqdam, T. C. (2016, November). The impact of oil price fluctuations on common renewable energies in GCC countries. (L. Kazmerski, Ed.) *Renewable & Sustainable Energy Reviews, 75*, 989-1007. Retrieved from https://doi.org/10.1016/j.rser.2016.11.079

Ana, M. E., Coyne, B., & Moreno, A. (2013, July). *Local Content Initiatives: Enhancing the Subnational Benefits of the Oil, Gas and Mining Sectors.* Oil, Gas and Mining for Development. London: Natural Resource Governance Institute.

Angus, M. (2012). *Twiga South-1 Oil Discovery.* London: Tullow Oil Plc. Retrieved 11 10, 2017, from https://www.tullowoil.com/media/press-releases/twiga-south-1-oil-discovery

Aniefiok, E. I., Udo, J. I., Margaret, U. I., & Sunday, W. P. (2013, September 4). Petroleum Exploration and Production: Past and Present Environmental Issues in Nigeria's Niger Delta. *American Journal of Environmental Protection, 1*(4), 78-90.

API. (2010). *Glossary of Oil and Gas Terms.* Washington: American Petroleum Institute. Retrieved July 25, 2018

B. D. (2013). *Africa's Booming Oil and Natural Gas Exploration and Production: National Security Implications For The United States and China.* Carlisle, Pennsylvania: US Army SSI & US Army War College Press, Carlisle Barracks.

Bildirici, M. E., & Tahsin, B. (2014, February). The relationship among oil, natural gas and coal consumption and economic growth in BRICS (Brazil, Russian, India, China, Turkey and South Africa) countries. (H. Lund, Ed.) *Energy, 65*, 134-144. Retrieved from https://doi.org/10.1016/j.energy.2013.12.006

Birley, M. (2015, 01 8). *Molori Energy Inc.* Retrieved 11 11, 2017, from Molori Energy Inc. website: http://www.molorienergy.com/kenya-block-2b.html

Blome, C., Paulraj, A., & Kai, S. (2014). Supply chain collaboration and sustainability: a profile deviation analysis. *International Journal of Operations & Production Management, 34*(5), 639-663. Retrieved from https://doi.org/10.1108/IJOPM-11-2012-0515

Brenda L., P. (2015, October). Avoiding the Resource Curse: Indigenous Communities and Canada's Oil Sands. *World Development, 74*, 425-436.

Burkhardt, P. (2016, October 31). African Oil Explorers Poised for Comeback After Drilling Low. *Bloomberg Market News*. New York, USA: Bloomberg LP.

Burns, I. (2012). *Polo Resources: Unaudited Interim Results for the six months ended 31 December 2012.* London: Polo Resources website. Retrieved April 10, 2017

C. N. (2017, December 29). Ophir Energy Conclusion of Tanzania Drilling. London: Ophir Energy Press release. Retrieved January 10, 2018, from https://www.ophir-energy/press-release/conclusion-tanzania-drilling/

Chahin (a), E. (2015). *Preliminary Results Announcement.* London: Bowleven Plc. Retrieved 11 11, 2017, from http://www.bowleven.com/system/files/uploads/financialdocs/prelims-10112015_0.pdf

Chahin (b), E. (2016). *Preliminary Results Announcement.* London: Bowleven Plc. Retrieved 11 11, 2017, from http://www.bowleven.com/system/files/uploads/financialdocs/prelims-results-announcement-30-june-2016.pdf

Chee Yew, W., Sakun, B.-i., & Christina, W. W. (2011, September). The contingency effects of environmental uncertainty on the relationship between supply chain integration and operational performance. *Journal of Operations Management, 29*(6), 604-615.

Ciaran, O. (2012). Community development agreements in the mining industry: an emerging global phenomenon. *Community Development, 44*(2), 222-238.

Collier, P., & Ireland, G. (2015). *Shared-use mining infrastructure: Why it matters, and how to achieve it (BSG-WP-2015/009).* Oxford, UK: Univerity of Oxford.

ConocoPhillips(a). (2012). *ConocoPhillips Announces Intended Sale of Algerian Business Unit.* ConocoPhillips Newsroom. Retrieved April 4, 2017, from http://www.conocophillips.com/newsroom/news-release-archives

ConocoPhillips(b). (2013). *ConocoPhillips Completes Sale of Algeria Business Unit.* ConocoPhillips Newsroom. Retrieved April 4, 2017, from http://www.conocophillips.com/newsroom/news-release-archives

Cooper, D. R., & Schindler, P. S. (2006). *Business Research Methods* (9 ed.). Irwin, USA: McGraw-Hill/Irwin.

Cresswell, J. W. (2009). *Research Design: Quantitative, Qualitative and Mixed Method Approaches* (3 ed.). (V. Knight, Ed.) Thousand Oaks, California, USA: Sage Publications Inc.

Cristina Udelsmann, R. (2017, November). Configuring the living environment in mining areas in Angola: Contestations between mining companies, workers, local communities and the state. *The Extractive Industries and Society, 4*(4), 727-734.

D. H. (2013). *Oil and gas production handbook: An introduction to oil and gas production, transport, refining and petrochemical, industry.* ABB Oil and Gas. Oslo: ABBAS.

Daskon, C., & Binns, T. (2010). Culture, tradition and sustainable rural livelihoods: exploring the culture–development interface in Kandy, Sri Lanka. *Community Development Journal, 45*(4), 494-517.

David Saxowsky. (2010, 08 10). The process of Oil and Gas Exploration and Production. Fargo, North Dakota, USA: Department of Agribusiness and Applied Economics, North Dakota State University. Retrieved from North Dakota State University website.

Davidson, W. (2012, September 20). Ethiopian Government Forms Company to Develop Oil, Gas Resources. Addis Ababa, Ethiopia: xaajo.com. Retrieved April 11, 2017

Davis, R., & Daniel, M. F. (2014). *Costs of Company-Community Conflict in the: Corporate Social Responsibility Initiative Report No. 66.* The University of Queensland in Australia. Cambridge, MA: Harvard Kennedy School.

Davis, R., & Franks, D. M. (October 2011). The Cost of Conflicts With Local Communities in The Extractive Industries. *SR Mining 2011: First International Mining Seminar on Social Responsibility in Mining* (pp. Chapter 6 pages 1-13). Santiago: CommDev.

De Clerk, E., & Lane, A. (2013). *The Oil & Gas business in Africa: Drilling for Success.* Johannesburg: Deloitte SA website. Retrieved April 10, 2017

Denenga, K. (2015). *Update On Signet Petroleum.* London: Polo Resources Ltd. website. Retrieved April 10, 2017

Devold Havard. (2013). *Oil and gas production handbook: An introduction to oil and gas production, transport, refining and petrochemical, industry.* ABB Oil and Gas. Oslo: ABB AS. Retrieved 2 20, 2018, from HTTP://www04.abb.com/global/setup/seitp202.nsf/0/f8414ee6c6813f5548257c14001f11f2/$file/Oil+and+gas+production+handbook.pdf

Donovan, J. (2012). *Shell Is First Major To Exit Oil Blocks In Post-War Libya.* Royal Dutch Shell Group. Hague: Dow Jones Newswire.

Dr Nick, C. (2016). *Annual Report and Accounts for 2016.* London: Ophir Energy. Retrieved 11 12, 2017

Dudley, B. (2016). *BP Statistical Review Of World Energy 2016.* British Petroleum Plc. London: BP Plc. Retrieved April 6, 2017

Duke, J. (2015). *Government geoscience to support mineral exploration: public policy rationale and impact.* Geoscience Committee of the Prospectors and Developers Association of Canada. Toronto: NGSC. Retrieved March 7, 2018

Emah, P. E., Mehraz, B., & Mridula, G. (2017, December). Third Party Logistics Outsourcing: An Exploratory Study of the Oil and Gas Industry in Nigeria. *SAGE Open, 7*(4).

Eriksen, E. (2015). Where we are in Tanzania. Oslo: Statoil. Retrieved January 5, 2018, from https://www.statoil.com/en/where-we-are/tanzania.html

Fisher, J. A. (2016). Developing a Regional Geological Framework for the Horn of Africa. *East Africa: From Research to Reserves* (p. 96). London: Genel Energy.

Frynas, G. J. (2010, June). Corporate Social Responsibility and Societal Governance: Lessons from Transparency in the Oil and Gas Sector. *Journal of Business Ethics, 93*(2), 163-179.

George, W., & Paul, G. (2009, December). Decision making and planning under low levels of predictability: Enhancing the scenario method. *Elsevier: International Journal of Forecasting, 25*(4), 813-825.

Ghauri, P. N., & Grønhaug, K. (2010). *Research Methods in Business Studies: A Practical Guide* (4 ed.). London: Financial Times Prentice Hall.

Giuseppe, C., & Terje Ingebrigt, V. (2017, April). Supplier Development in Tanzania; Experiences, expectations and motivation. *The Extractive Industries and Society, 4*(2), 385- 397.

Goldratt, E., & Cox, J. (2004). *The goal* (Vol. 3 Rev. Ed.). Great Barrington, MA: North River Press.

Gunasekarana, A., & Ngai, E. W. (2012, February). The future of operations management: An outlook and analysis. *International Journal of Production Economics, 135*(2).

Gupta, M., & Doug, S. (2009). Comparing TOC with MRP and JIT: A literature review. *International Journal of Production Research, 47*(13), 3705-3739.

Hammer, M. (2014, 11 4). Introduction, Methods, and Information Systems: What is Business Process Management? (B. J. Vom, & M. Rosemann, Eds.) *International Handbook on Information Systems: Handbook on Business Process Management 1:* 3-16.

Hammer, M., & Champy, J. (1993). *Reengineering the Corporation: A Manifesto for Business Revolution: Harper Business Essentials.* New York: Harper Business.

Heavey, A., & Thompson, S. (2013). *Tullow Oil Plc. 2013 Annual Report.* London: Tullow Oil Plc. Retrieved November 11, 2017

Heritage. (2010, January). Uganda—Disposal of the Interests in Blocks 1 and 3A. *Heritage Oil and Gas About Us - Our History 2010-2011*. Kampala, Uganda: Heritage Oil and Gas website. Retrieved April 8, 2017

Hevina S., D., & Puplampu B., B. (2015). Multi-Stakeholder Partnerships in Mining: From Engagement to Development in Ghana. (W. Compaoré, M. Mitchell, & A. J. Grant, Eds.) *New Approaches to the Governance of Natural Resources. International Political Economy Series*, 131-153.

Holdaway, K. R. (2014). *Harness Oil and Gas Big Data with Analytics: Optimize Exploration and Production With Data-Driven Models.* Hoboken, New Jersey: John Wiley & Sons.

Huq, F. A., Stevenson, M., & Zorzini, M. (2014). Social sustainability in developing country suppliers: An exploratory study in the ready-made garments industry of Bangladesh. *International Journal of Operations & Production Management, 34*(5), 610-638.

Hussey, R., & Collis, J. (2009). *Business Research: Practical Guide For Undergraduate and Postgraduate Students* (3 ed.). Basingstoke/Hampshire, UK: Palgrave MacMillan. Retrieved March 10, 2016

Idemudia, U. (2009, September). Assessing corporate–community involvement strategies in the Nigerian oil industry: An empirical analysis. *Resource Policy*, *34*(3), 133-141.

Ihucha, A. (2014, January 4). UK's Afren in $200 Million Exploration Deal In Dar. *The East African*. Nairobi: Nation Media Group Print. Retrieved January 5, 2018

IPIECA. (2016). *Local content: A guidance document for oil and gas industry 2nd Ed.* London: IPIECA.

Ireland, G., & Sophie, T. (2015, January). Shared-use mining infrastructure in sub-Saharan Africa: challenges and opportunities. *Mining Law Committee Newsletter: IBA Annual Conferences 2015-2016, 7*(1), 9-11.

Janis, A. S., Marcello, M. V., Jean, S., Malcolm, S., & Mieke, K. (2011, June). Perspectives on Community Health Issues and the Mining Boom-Burst Cycle. *Resource Policy*, *36*(2), 178-186.

Jason, P., & Slocombe, D. S. (2012). Exploring the origins of 'social license to operate' in the mining sector: Perspectives from governance and sustainability theories, *Resources Policy, 37*(3), 346-357.

K., (2017). *Operations Update - 3rd Quarter Update.* Vancouver: Africa Oil Corp. Retrieved November 14, 2017

K. H. (2015). *Addressing the Concerns of the Oil Industry: Security Challenges in Northeastern Mexico and Government Responses.* Wilson Center. Mexico: Wilson Center Mexico Institute.

Kamara, A. B., Anyanwu, J. C., Juel, M., Mondlane, S., & Iwayemi, A. (2009). *Oil and Gas In Africa.* African Development Bank and the African Union. New York: Oxford University Press Inc.

Kaplan, A. M., & Haenlein, M. (2010, Jan-Feb). Users of the world, unite! The challenges and opportunities of Social Media. *Business Horizons*, *53*(01), 59-68.

Karagkounis, V. (2010). Introducing a community work perspective in local policy-making: a pilot community intervention in the Municipality of Aigeiros, Thrace, Greece. *Community Development Journal*, *45*(2), 237-252.

Keeney, D. (2016, 11 14). *ERHC Energy*. Retrieved 11 11, 2017, from ERHC Energy website: https://www.erhc.com/news/erhc-energy-inc-issues-november-2016-shareholder-update/

Khelil, C. (2012, November). A Framework for Investment in Africa's Energy Infrastructure. *Oxford Energy Forum, 90*, 8-10.

Kombo, D., & Tromp, D. (2006). *Proposal and Thesis Writing: An Introduction.* Nairobi, Kenya: Paulines Publication Africa.

Kothari, C. R. (2004). *Research Methodology: Methods and Techniques.* New Delhi, India: New Age International Publishers.

Kvale, S. (2007). *Doing Interviews.* City Road, London, UK: Sage Publications.

Lionel, C. M., & Christopher, D. H. (2015). *CAMAC Energy Completes 2D Seismic Acquisitions in Kenya.* Houston: CAMAC Enegy Inc.

Lutz, K., & Hicks, B. (2013, August). Did Unexpectedly Strong Economic Growth Cause the Oil Price Shock of 2003–2008? *Journal of Forecasting, 32*(5), 385-394.

M. L. (2015). *Erin Energy Obtains Extension of Exploration Period Offshore Kenya.* Houston: Erin Energy Corporation. Retrieved November 12, 2017

Mackenzie, B., & Cusworth, N. (2016). The Use and Abuse of Feasibility Studies - Has anything changed? *Project Evaluation Conference: Good Practice and Communication* (pp. 133-148). Melbourne: Australasian Institute of Mining and Metallurgy (AusIMM).

Mahesh, C. G., & Lynn, H. B. (2008). "Theory of Constraints: A theory for operations management". *International Journal of Operations & Production Management, 28*(10), 991-1012.

Maslin, E. (2016, November 1). Thorn of Africa. *Offshore Engineer (OE).* Houston, Alabama, USA: OE & At Comedia, LLC.

Mason, J. (2006, February). Mixing Methods in a Qualitative driven way. *Qualitative Research, 6*(01), 9-26.

McKenzie, F. H. (2013, August). Delivering Enduring Benefits from a Gas Development: governance and planning challenges in remote Western Australia. *Australian Geographer, 44*(3), 341-358.

McMillan, J., & Schumacher, S. (2006). *Research In Education: Evidence-based enquiry* (6 ed.). Boston, MA, USA: Pearson Education.

Mercer, P. (2015, Nov 03). Oil and Gas Security: Standardization and Continuity in Security Risk Assessments Improve Decision-Making. *Oil and Gas Financial Journal, 12*(3), 50-52.

Miles, M. B., Huberman, A. M., & Johnny, S. (2014). *Qualitative data analysis: A Methods Source Book* (3rd ed.). Thousand Oaks, California: Sage Publications.

MoMPNG. (2016). *Ethiopia - Mining Sector and Business Prospects.* Addis Ababa: Ministry of Mines, Petroleum and Natural Gas (MoMPNG). Retrieved April 11, 2017

Monitor. (2012, December 15). Uganda's oil field sold again five months later. Kampala, Uganda: Daily Monitor Newspaper website.

Moore, E., & Buchman, A. (2017). Social Performance SP in Challenging Times: Lessons Learned Regarding Major Projects, Non-Technical Risk, and SP in the Lean Years. *SPE Health, Safety, Security, Environment, & Social Responsibility Conference - North America 18-20 April.* Louisiana, New Orleans, Society of Petroleum Engineers.

Mugenda, O., & Mugenda, A. (2008). *Research Methods: Quantitative and Qualitative Approaches.* Nairobi, Kenya: African Centre of Technology Studies.

Mugisha, I. (2017, February 8). Rwandan firm wins the bid to search for oil in Lake Kivu. Kigali, Rwanda: The East African Newsletter website.

N. (. (2016). *FAR Annual Report 2016.* Melbourne: FAR Limited.

Narasimhan, R. (2014, April). Theory Development in Operations Management: Extending the Frontiers of a Mature Discipline via Qualitative Research. *Decision Sciences, 45*(2), 209-227.

Neingo, P., & Cawood, F. (2014). Correlation of productivity trends with market factors at three selected platinum mines. *The 6th International Platinum Conference, 'Platinum - Metal for the Future',* (pp. 181-188). The Southern African Institute of Mining and Metallurgy.

Nenibarini, Z., & Gustaf, O. (2017, August). Conflicts – Oil Exploration and Water. *Global Challenges, 1*(5).

Nicholas, J. L. (2013). *FAR Limited 2013 Annual Report.* Melbourne: FAR Limited. Retrieved November 12, 2017

Nickle, J. (2012). *Tullow Files Suit Against Uganda.* Mahe: Petroleum Africa.

Obi, C. (2010, December). Oil as the 'curse' of conflict in Africa: peering through the smoke and mirrors. *Review of African Political Economy, 37*(126), 483-495.

Ogwang, T., Vanclay, F., & Arjan van, d. A. (2018, January). Impacts of the oil boom on the lives of people living in the Albertine Graben region of Uganda. (G. Hilson, Ed.) *The Extractive Industries and Society*.

Oil & Gas Authority. (2018). *About Us: Glossary of Terms*. Retrieved July 15, 2018, from Oil & Gas Authority Website: https://www.ogauthority.co.uk/site-tools/glossary-of-terms/

Omontuenmhem, p., Bredenhann, C., & Bedwei, A. (2016). *The Choice to Change: Africa Oil and Gas Review.* South Africa: PricewaterhouseCoopers.

Ophir. (2011, October 14). Offer for Dominion Petroleum Limited – Convertible Note Holders. Kampala, Uganda: Ophir Energy website. Retrieved April 8, 2017

Passion, J. (2014). *Vanoil Commences International Arbitration Against the Government of Kenya.* Vancouver: Vanoil Energy Ltd. Retrieved December 5, 2017

Patton, M. Q. (2005). *Qualitative Research: Encylopedia of Statistics In behavioural Science.* (E. Brian, & H. David, Eds.) London, UK: John Wiley &Sons.

Porter, M. E., & Kramer, M. R. (2011, Jan-Feb). The Big Idea: Creating Shared Value: How to Re-invent Capitalism and Unleash a Wave of Innovation and Growth. *Havard Business Review*(R1101C), 1-17.

Richard, S., & McLean, C. (2017). *Octant Energy Corp to acquire key oil blocks in Kenya and Tanzania from Afren oil.* 2017. Retrieved January 31, 2018

Robert, M. L. (1997). Disciplined independent definition of information. *American society of information science, 48*(3), 254-269.

Roehrich, J. K., Johanne, G., & Hoejmose, S. U. (2014). Reputational risks and sustainable supply chain management: Decision making under bounded rationality. *International Journal of Operations & Production Management, 34*(5), 695-719.

Roshni, A., Siti-Nabihaa, A., Dayana, J., & Yousif, A. (2016, 11 10). Barriers to and enablers of sustainability integration in the performance management systems of an oil and gas company. *Journal of Cleaner Production, 136*(Part A), 197-212.

Rytter, J. H., Urban, K., & Haugeruda, O. (2009, July). The decision on oil and gas exploration in an Arctic area: Case study from the Norwegian Barents Sea. *Safety Science, 47*(6), 832-842.

Saheed, Z. S., & Egwaikhide, C. I. (2012, June). Impact of Social Crises on Economic Development: Theoretical Evidence from Nigeria. *American International Journal of Contemporary Research, 2*(6), 176-184.

Salkin, P., & Lavine, A. (Fall 2017/Spring 2018). Negotiating for Social Justice and the Promise of Community Benefits Agreements: Case Studies of Current and Developing Agreements. *Journal of Affordable Housing, 17*(1-2), 113-144.

Schwartz, P. (1996). *The Art of Long View: Planning For Future in Uncertain World* (2 ed.). USA: Doubleday Dell.

Shell Media Relations. (2016). *Publication of a second supplementary prospectus.* Hague: Shell Media Relations. Retrieved November 12, 2017

Shepherd, B. (2013). *Oil In Uganda: International Lessons for Success.* London: Chatham House (The Royal Institute of International Affairs). Retrieved April 8, 2017

Shimoon, E. (2011). *Calvalley Petroleum Inc.: 2011 Annual Report to Shareholders.* Alberta: Calvalley Petroleum Inc. website. Retrieved April 11, 2017

Simon, H. (2015). *BG Group Annual Reports and Accounts 2015.* Berkshire: BG Group Limited. Retrieved November 12, 2017

SouthWest. (2011, February 1). Ethiopian Government Intervenes In the Petronas Deal. Ethiopia: SouthWest Energy website. Retrieved April 11, 2017

SouthWest(b). (2012, February 12). SouthWest Energy Projects. Addis Ababa, Ethiopia: SouthWest Energy website. Retrieved April 11, 2017

SPE. (2010). *Glossary of Terms and Definitions Used in Petroleum Reserves and Resources.* Washington: Society of Petroleum Engineers.

Steve, B., Bessant, J., & Lamming, R. (2013). *Strategic Operations Management* (3 ed.). New York: Routledge.

Thielsen, P. (2017). *01 October - 31 December Q4 Report.* Melbourne: FAR limited. Retrieved December 10, 2017

Uwafiokun, I. (2009, October). Rethinking the role of corporate social responsibility in the Nigerian oil conflict: The limits of CSR. *Journal of International Development, 22*(7), 833-845.

Uyi, Akpata; Chris, Bredenhann; Darcy, White. (2013). *From Promise to Performance: Africa Oil & Gas Review.* Johannesburg: PricewaterhouseCoopers ("PwC"), South Africa.

Vanoil. (2010, March 16). Vanoil to Commence 2D Seismic Program on Its 1,631 Square Kilometer Exploration Area Covering The Lake Kivu Sedimentary Basin, Rwanda. *VanOil News Release*. Kigali, Rwanda: Vanoil Energy Ltd website.

Vanoil. (2014, January 22). Vanoil Announces Settlement Accord with the Government Of Rwanda. Kigali, Rwanda: Vanoil Energy Ltd. website.

Wack, P. (1985). Shooting the Rapids: How Medium-Term Analysis Illuminated the Power of Scenarios In Shell Management. *Havard Business Review, 63*(6), 139-150.

Walker, P. H., Seuring, P. S., Sarkis, P. J., & Klassen, P. R. (2014). Sustainable Operations Management: Recent Trends and Future Directions. *International Journal of Operations & Production Management, 34*(5).

Wellman, C., Kruger, F., & Mitchell, B. (2005). *Research Methodology* (3 ed.). New York, USA: Oxford University Press.

Whillans, P. T. (2017). Underground Mining: The Difference Between Optimal and Real. *Management and Mineral Economics Society,* Toronto.

William, J. S. (2012). *Operations Management* (Vol. 7th Ed.). New York: McGraw-Hill.

WorldOil. (2017). *World Oil, Drilling, Production and Reserves: Forecast and Data 2017.* World Oil. Retrieved April 6, 2017

Wu, Z., & Pagell, M. (2011, September). Balancing priorities: Decision-making in sustainable supply chain management. *Journal of Operations Management, 29*(6), 577-590.

Yamane, T. (1967). *Statistics: An Introduction Analysis* (2 ed.). New York, USA: Harper & Row. Retrieved March 9, 2016

Zikmund, W. (2010). Business Research Methods. Florida: The Dryden Press.