

# Participation of Tanzanians in the Gas Sector: Challenges and Strategies

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**Abstract:** *The study analyzed the challenges thwarting the participation of Tanzanians in the gas sector. It also uncovers strategies for effective participation of Tanzanians in the sector. The study collected data from 280 participants through the interview, focus group discussion, and questionnaire. Data were analyzed using descriptive statistics for the ones obtained through a questionnaire, and thematic analysis was employed for interview data. The study found that Tanzania has inadequate skilled and competent human resources in the gas sector. In addition, the capacity of local firms to participate in the industry as suppliers of goods and services was found to be inadequate. As the strategies for effective Tanzanian participation, the study proposed human resources development, enhancing the capacity of Training institutions, imposing mandatory courses related to gas in all tertiary institutions, and enhancing the local content as the strategies for enhanced participation of Tanzanians in the gas sector.*

**Keywords:** Participation, Tanzanians, Gas, Challenges and Strategies

## 1. Introduction.

Over recent years since 2010, Tanzania has experienced massive discovery and exploitation of natural gas. The exploration activities in a large part of the country, the discovery of a remarkable amount of natural gas both on and offshore provides optimism and anticipation to significantly contribute to the socio-economic development of the country and certainly raise the living standards of Tanzanians. To realize such anticipations, the government of Tanzania has taken steps to establish and implement institutional, policies and legal frameworks to guide the management of natural gas. Development of Natural Gas Policy (NGP) 2013 and Local Content Policy for oil and Gas (LCP) 2014 signifies the deliberate steps in developing a vibrant oil and gas sector.

Literature has demonstrated that the discovery and extraction of natural gas have essentially attracted attention and optimistic views among different scholars and economists that perhaps will boost the national economy and improve social services if managed properly (Lange & Kinyondo (2016). Mmari and Bukurura (2016) reveal the existence of mixed feelings and perceptions among scholars, private organizations, and Tanzanian citizens about the proper management of the resources. The primary feelings are evident and only limited on the how the government will manage these resources in better ways to bring economic and social benefits to the country and on the control of overall governance and management of resources, the government or International Oil Companies (IOCs) (Mmari & Bukurura, 2016). Scholars like Moshi (2014) suggest that adequate leadership preparedness is required in the management and effective use of the revenues obtained from extracting natural gas.

As an effort to ensure participation of Tanzanians in the gas sector by securing direct and indirect opportunities for employment and procurement, at the same time as fostering the development of local skills, technology transfer, and use of local human resource and manufacturing in capital projects, the Local Content Policy (LCP) was developed. The LCP intends to provide guiding principles for the participation and transformation of Tanzanians in the development of the oil and gas industry to ensure optimal benefits to Tanzanians and attain sustainable national economic development in the short, medium, and long-term perspectives.

However, in the real sense, participation of Tanzanians in the gas sector has been limited. It is uncertain whether Tanzania has prepared Tanzanians to effectively participate in the sector as employees (highly technical skills), suppliers, and providers of local technology. Mwanyoka et al. (2021) reveal that the expectations of the local community members for employment dwindled as the gas sector requiring skilled workers. Moreover, the utilization of Tanzanian human and material resources and services in the gas sector to stimulate the development of capabilities indigenous of Tanzania and to encourage local goods and services is still indeterminate. Given the potential for new gas discoveries and investment in gas production in Tanzania, changes to promote meaningful local community participation are essential. Therefore, this study intends to explore the challenges facing the participation of Tanzanians and uncover the possible strategies for their effective participation in the sector.

## 2. Methodology

Data of this study were collected through interviews, questionnaires, focus group discussion, and documentary sources. A total number of 280 participants were involved in the study where 250 participants responded to questionnaires and 30 participants were interviewed. Simple random sampling was employed to select the 250 participants while purposeful sampling was employed to obtain 30 participants for the interview. Secondary data were obtained through government policies related to gas and literature was

used to supplement or support the data and justify the findings. Data obtained through questioner were analyzed through descriptive statistics, while interview data were thematically analyzed.

### 3. Results and Discussion

#### 3.1 Challenges

##### 3.1.1 Inadequate Human Resources Capacity

Descriptive statistics show participants' agreement mostly stood at *agreeing* and *strongly agree* ( $M=3.016$ ,  $SD=0.808$ ,  $n=250$ ) that inadequate human resource capacity of Tanzanians impedes participation of Tanzanians in the gas sector.

Qualitative results suggested that inadequate human resource capacity impedes the participation of Tanzanians in the gas sector. For example, one respondent pointed that that

*"... There are many available energetic and brilliant young boys and girls in Tanzania, but they do not have any required qualifications to be employed in the gas sector". Another three respondents testified that Tanzania has inadequate human resource capacity in terms of skills and competencies to enable them employed in the gas sector.*

Precisely another respondent stated

*"...the problem with Tanzanian job seekers is that they do not possess required skills related to oil and gas despite their degrees/diploma certificate they have.*

Consequently, another respondent concludes,

*"...for sure we do not have well trained, skilled and competent human resources to take charge the gas sector".*

Qualitative results validate quantitative results. Participants mentioned that despite having many energetic and brilliant Tanzanians, they lack the required qualifications, skills and knowledge to be employed in the oil and gas sector. At the same place, one participant a Human Resource Manager in one of the Oil and Gas Company testifies that;

*".....Tanzania has inadequate human resource capacity in terms of skills and competencies to enable them employed in the oil and gas resources. Based on the experience he had, he was concerned with employment practices in the gas sector, he as well testified that ".... despite having bright and talented people, the problem is they lack requisite knowledge and skills required in the sector". As a result, most of them when applying for employment fail to meet the employment criteria, despite having degrees/diplomas".*

Moreover, the literature review validates the qualitative and quantitative findings. Nwapi (2016) confirms that most resource-rich countries in Africa are confronted with a shortage of skills to realize their potentials. Correspondingly, Tordo, Warner, Manzano, & Anouti (2013) states that shortage of qualified human resources with requisite skills is an obstacle to the development of the oil and gas sector and implementation of policies such as Local Content Policy (LPC). Also, Anyanwu (2009) opines that lack of technical and human resources in most oil and gas producing countries undermines the growth of the sector and long-term benefits of the resources to the entire generations. At the same place, Regulation 14(3) of the Local Content Policy as cited by Scurfield, Woodroffe, & Olan (2017) allows PURA and EWURA to approve and engage non-Tanzanian citizens in semi-skilled employment if found that there are no Tanzanians capable of performing the required employment position. This provision implies that still a shortage of human resources in Tanzania's gas sector is a challenge.

##### 3.1.2 Inadequate Capacity of Local Firms

As for the participation of businessmen and local firms in the gas sector, the findings confirm a lack of expertise, fund, and technology to engage entirely in the sector. One respondent for example revealed that

*"....Tanzania has not yet prepared competitive businessmen in the sector in such way, it hinders their effective participation".*

Connected to that, another respondent state *".... local suppliers have in any case no capacity to produce and supply quality and good services to the oil companies".* In addition, another respondent provides, *"Tanzania companies and individual businessmen in many circumstances, do not to comply with health and safety standards as a requirement in the oil and gas sector something which strictly leads to their disqualification".*

##### 3.1.3 Limited involvement of local citizens in the Sector

Descriptive statistics showed participants' responses at agreeing and strongly agree on the ratings ( $M= 3.008$ ,  $SD=0.806$ ,  $n=250$ ). Moreover, descriptive statistics show that participants mentioned the limited involvement of citizens in many decisions concerning the overall management of oil and gas as the most compelling challenge. They categorically mentioned that their involvement is very limited even to the matters that affect their lives including land valuations and compensations. For example, one participant mentioned that

*"Local people are not involved in the decisions concerning issues of oil and gas and their related development efforts".*

Another participant cited that

*"...it is not only citizens who are not involved in many decisions concerning gas, but also, other key stakeholders including civic organizations and political parties".*

Participants believe that their involvement and participation in the gas sector and its associated decisions will enhance the sustainability of the resources for the present and future Tanzania generations. The results altogether suggest that as the case it is, the sustainability of oil and gas resources in Tanzania shall not be realized if the key and pertinent stakeholders such as citizens are left behind in all processes.

Literature reveals a lack of involvement of citizens and other stakeholders is a thorn to the development of the sector. Kinyondo & Villanger (2017) points that the involvement of citizens in all processes of oil and gas extraction, enables the government to communicate potential plans and decisions effectively; manage and win public trust. In this case, divergent views among the citizens are communicated effectively.

#### **3.1.4 Limited Employment Opportunities for Tanzanians**

The interview results revealed that Tanzania has a limited number of skills required in the oil and gas sector. Concerned participants mentioned this as the most problem impeding the participation of Tanzanians in the sector. One participant pointed that

*"..... Tanzanians has inadequate educational qualifications and experiences to take positions in the oil and gas industry compared to their counterparts".*

Other participants mentioned that

*".... Education provided in most universities and colleges does not prepare Tanzanians to be competent employees in the sector".*

In addition, another participant shared his view that

*".....Though the gas sector has higher prospects for local employment, we fail as a country because we did not initially prepare human resources with the requisite knowledge to take charge of the sector.*

Likewise, another echoed

*"...even if we reserve some employment cadres for local Tanzanians, we fail to get them because most of them do not possess the competencies and skills we want".*

Citizens from Msimbati Village in Mtwara also revealed limited employment opportunities where gas fields are located. For example, one respondent mentioned:

*Here in Msimbati, we have been victims of low education, skills, and competencies concerning gas, as results, we have remained a witness of employment opportunities taken by foreigners".*

Other participants stated that

*"....Tanzania has a bright and talented young people but the problem is they lack requisite knowledge and skills required in the sector".*

In the same place, respondents claimed that

*"....the problem with Tanzanians job seekers is that they do not possess the required skills. Either majority fails to meet the employment criteria, even though some have degrees"*

Another respondent revealed that,

*"You know qualification to employment in the oil and gas industry requires applicants to have a good command of English both spoken and written, university or college certificate (degrees/diplomas or certificate) plus industrial trade, good working attitudes, knowledge of swimming, valid passports, etc. In an actual sense, most of the Tanzanian job seekers are missing. Most of them have a poor command of English, poor attitude, badly written CVs and falsified certificates, lack of industrial trade skills, etc."*

Based on the experience he has with employment practices in the oil and gas industry, one participant justifies that

*"....despite having bright and talented people, the problem Tanzanians have is lack of requisite knowledge and skills required in the sector"*.

Equally,

*"....the problem with Tanzanians job seekers is that they do not possess the required skills. When applying for a job majority fails to meet the employment criteria, even though some have degrees/diplomas."*

The National Energy Policy, 2015, pg.36, which clearly states that Tanzania has an inadequately skilled workforce in the oil and gas sector, also supported participants' arguments. Participants had the concern that if human resources with required skills are readily available, employment in the sector will be for local Tanzanians who will be performing their duties and responsibilities for a wide benefit of the nation.

### **3.2 Strategies**

#### **3.2.1 Human Resource Development**

Quantitative results suggest that human resource development is paramount for the sustainable development of gas resources in Tanzania. Descriptive statistics indicate the participants' rating of generating and promoting an adequate supply of local workforce with the necessary knowledge and skills to take charge of the oil and gas sector is *agree* and *strongly agree* ( $M=3.292$ ,  $SD=0.876$ ,  $n=250$ ). Indeed, these results hint the development of the local workforce has a major role to play in ensuring Tanzanians participation in the gas sector.

Quantitative results match with qualitative results where interview results revealed similar results to that of quantitative. Qualitative results reflect the participants' concern about the importance of developing human resources to have skills and competencies be recruited in the sector for wider ownership and benefits to Tanzanians. For example, one participant stated

*"... Enhancing the sustainability of oil and gas resources, Tanzania needs to do more on human resources development"*

In addition, another participant suggested that,

*"..... Development of oil and gas sector requires qualified staff in all areas of production, exploration, processing, and transportation"*.

These results are meaningful because an oil and gas resource in Tanzania is at the initial stages of extraction and there is limited human resource capacity in Tanzania to drive the sector. The combined results find it pertinent for Tanzania to have a pool of human resources with the requisite knowledge, skills, and competencies, without it, extended benefits of oil and gas resources to the local Tanzanians will not be realized.

Subsequently, literature contemplates the importance of building the capacity of local human resources as a prerequisite for sustainable oil and gas resources. Gberevbie (2012) and Marcel (2016) urge, achieving competitive advantage and enhancing sustainable organizational growth, human resource development should be obligatory. Anjo, Amaro, & Martins (2017) submit that investing in human capital is essential for building a competitive oil and gas sector. Investing in human capital is profoundly crucial to sustained employment and returns (Hodgson, 2014; Obeng-Odoom, 2015). Abdulai (2013) advances that training local human resources enables them to engender their participation in the oil and gas sector hence realize sustainable benefits to the nation. Likewise Brown (2015) advances that human resource development is imperative to sustain the four phases surrounding the oil and gas extraction namely exploration, appraisal, development. Furthermore, Kinyondo & Villanger (2017) asserts that human resource development is an investment rather than a cost as local skilled workforce participation in the oil and gas employment will generate experience and bring high income to the country

Based on the qualitative, quantitative, and findings from the literature, it makes sense to mention that human resource development is imperative for the sustainable development of oil and gas resources in Tanzania. Results suggest deliberate efforts to be done by the government of Tanzania to ensure readily available competent and skilled Tanzanians to run the gas sector.

### 3.2.2 Enhance the Local Content

The sustainability of oil and gas resources depends on devised local content and implementation strategies, which allow human resource development, the participation of businessmen in the supply and value chain, and the progression of technology. According to the National Energy Policy, 2015, local content involves the participation of local businesses and Tanzanians in the value chain, acquisition of relevant technologies, employment opportunities for Tanzanians in the extractive sector, fabrication, manufacturing, and maintenance service as well as financing options for Local Businesses and Tanzanians. In that way, local content may entail capacity building and developing local skills in the entire oil and gas value chain, promotion of local assets in the operation, increase the multiplier effect to encourage the establishment of support industries, and generating sustainable employment opportunities through developed local human resources.

In this respect, both qualitative and quantitative results revealed the importance of enhancing the local content to facilitating the smooth and effective participation of Tanzanians in the sector. According to quantitative results, descriptive statistics indicated that participants rated this strategy as agreeing and strongly agree ( $M=3.312$ ,  $SD=0.951$ ,  $n=250$ ). These results suggest that the majority were positive that enhancing the local content is the best strategy for the sustainability of oil and gas resources.

Qualitative results validate the quantitative results. In this case, participants through interview and focus group discussions were very much concerned with enhancing the local content as a strategy for sustainability of oil and gas resources. Participants urged the government to give local businessmen/industries subsidies so that they can participate effectively in the oil and gas sector. In the same place, participants were concerned about enhancing the capacity of local firms in terms of soft loans so that they can effectively take part in the development of the sector. For example, one participant posted that

*".... local financial institutions should be involved in the oil and gas activities to enable businessmen to secure soft loans to enable them effectively supply goods and services in the sector"*

Another participant suggested that

*"..... to develop the oil and gas sector and spur economic development, the government should provide a wide range of assistance and promotion programs to the local citizens and the private sector."*

Moreover, participants proposed that local content should be the national priority if at all Tanzania is candid enough to make oil and gas a strategic promoter of sustainable development. They suggested that there have to be developed implementation strategies for the local content policy, which requires joint efforts among the concerned government ministries and institutions where businesspersons and local Tanzania are mandatorily supported in terms of financial credits and competencies.

Similarly, participants mentioned that

*".....enhancing the local contents among others should concentrate on building capacity of local human resources so that they can benefit from the employment opportunities happening in the oil and gas sector"*

Another participant cited,

*"... to have a pool of human resources, priorities should be channeled to building the capacity of Tanzanian so that they obtain skills and competencies needed in the oil and gas sector".*

Participants, therefore, advanced that to have a large pool of skilled Tanzanians in the oil and gas sector; there must be joint efforts between the government, oil companies, and training institutions. As the case may be, though it may look very difficult especially at this time where Tanzania does not have well-developed capacities in many fields of oil and natural gas, the government should require international oil and natural gas companies to make preferences to Tanzanians when conducting recruitment processes and engage local business as sub-contractor.

The same results were echoed by Scurfield, Woodroffe, & Olan (2017) who believes that local content is an important government component strategy for ensuring that oil and natural gas potentially contribute to the sustainable development of the nation and its people, see also (Kinyondo & Villanger (2016). He also points that government intervention is paramount, but to realize extended benefits, the government should see the necessity of local involvement and participation in extractive industries.

Again, (Scurfield et al., (2017), even (Kinyondo & Villanger, 2016; Ovadia, 2013; Tordo & Anouti, 2013) asserts that effective local participation is pursued through local employment, procurement, and supply of local goods and services, and local capacity development, and it should be well stated in the Local Content Policy (LPC) and implemented effectively. Moreover, Oyejide, Kaplan, & Robbins, (2011), echoes that a well-developed Local content Policy encourages oil and gas linkages and so permits citizens' gainful advantage from exploration, production, and development of the industry.

**3.2.3 Institute Mandatory Gas Training curriculum to Tertiary and Vocational Education** Descriptive statistics indicate that participants' rating of instituting mandatory training curriculums to higher learning institutions and vocation training stood at agreeing and strongly agree ( $M=3.259$ ,  $SD=0.875$ ,  $n=250$ ).

Qualitative results corroborate quantitative findings. Qualitative results indicate participants' consensus on instituting mandatory oil and gas training curriculum in tertiary and vocational education as the superlative policy option and strategy for sustainability of oil and gas resources in Tanzania. Participants stated that when tertiary and vocational institutions are involved in building skills for local people in a very short period, Tanzania would have a large pool of skilled personnel to take charge in various positions surrounding the natural gas sector.

Indeed, though participants acknowledged the efforts made by the government including training Tanzanians in both long and short courses inside and outside the country. However, for sustainability purposes, they propose that the local training institutions should be strengthened to take charge in training Tanzanians in the gas fields as this will reduce the cost of training and involve many Tanzanians. One respondent cited that "...one way of increasing skilled and competent Tanzanians in the oil and gas sector is to involve tertiary, vocational and technical colleges to develop and run courses related to oil and gas. This should be made mandatory to all institutions in a way it may increase ownership and allow Tanzanians to participate at a very reasonable cost.

Some scholars echoed similar findings. Shirley (2015) points that ensuring a pool of skilled human resources fit for employment in the oil and gas sector, all concerned TVET stakeholders should participate in identifying all areas in the oil and gas sector that need skills development. He went further suggesting that TVET should review, develop curriculum, and conduct competency-based practical training concerning oil and gas to Tanzanians.

Likewise, Sendegeya & Chiguvare (2016) proposes capacity building through technical education as the best strategy towards sustainable development of extractive resources. To ensure the long-term sustainability of the resources, he, therefore, suggested that professional training institutions including vocational, technical, and tertiary institutions (Universities and colleges) take a pertinent role in building the capacity of Tanzanians in that field. However, Nwapi (2016), mentions the best applicable policy option and strategy used by many countries to curbing skills shortage is the development of forceful Local Content Policy.

The strategies may involve building the capacity of local training institutions in terms of finance and knowledgeable trainers so that they can introduce an oil and gas training curriculum (long and short). On a serious note, the government should make gas training compulsory in tertiary and vocation education to increase the pool of local skills in the oil and gas fields. This may solve the problem of inadequate human resource capacity required in the sector. While developing the local training institutions, the process of training many Tanzanians abroad in the fields of oil and gas should continue.

In relation to that, the government should build the capacity of local firms and the entire private sector to encourage their effective participation as suppliers of goods and services. The strategies may include giving entrepreneurial skills and investment knowledge required in the sector and allowing them to have access to financial institutions for soft loans as an investment in the oil and gas sector. This may reduce the existing mismatch between the demand for goods required by gas companies and the capacity of local suppliers.

### **3.2.4 Enhancing the Capacity of Training Institutions**

Participants suggested the development of local human resources skills and competencies through capable training institutions. They mentioned institutions like the University of Dar es Salaam, Madini Institute and VETA should develop both long and short courses targeting all areas of exploration, extraction, processing, and exportation. To achieve this task, the institutions should be facilitated with competent staff to deliver those courses and have in place financial incentives for curriculum development and associated needs.

Descriptive statistics indicate that 237(94.8%) participants agreed and strongly agreed that enhancing the capacity of local training institutions may provide a large pool of competent and skilled Tanzanians to participate effectively in the gas sector.

As for factors for sustainable development, participants pointed skills development as the primary requirement to ensure Tanzanians' participation in the sector. They believe that building the capacity of local Tanzania will increase their skills required in the sector there a large number of local Tanzania will be able to compete in the employment market. One participant stated,

*“...Training institutions in Tanzania has a responsibility of helping the national produce competent human resources that will lead the oil and gas sector”.*

He poses a challenge to colleges and universities to think of developing tailor-made courses in the field of oil and gas to reach a great number of Tanzanians and for it should be compulsory in all stages of education.

Results indicate the necessary efforts the government should take to build the capacity of the local training institutions to deliver courses in the field of oil and gas. These results compel the government to increase the number of competent and skilled local personnel in the field and avoid reliance on foreign expertise even on the posts that need to be recruited from within. In this case, many Tanzanians will be recruited in the gas sector and enjoy the benefits from their resources.

One participant pointed that,

*“... indeed efforts have been done by the government including training Tanzanian both long and short courses outside Tanzania in some cases.... However, for sustainability purposes, I may propose that the local training institutions be strengthened to take charge in training Tanzanians in different fields of oil and gas to increase the pool of local experts to take charge of the sector for the benefits of Tanzanians”*

#### 4. Conclusion

This study is concerned with the participation of Tanzanians in the gas sector. The focus of the study was an analysis of the challenge and strategies for effective participation of Tanzanians in the sector. The study exposed the challenges impeding the participation of local people in the sector including limited human resource capacity, poor local content, and inadequate participation of local firms in the sector. In addition, the study has proposed human resources development, enhancing the capacity of Training institutions, imposing mandatory courses related to gas in all tertiary institutions, and enhancing the local content as the strategies for enhanced participation of Tanzanians in the gas sector. Further, the study concludes that effective participation of Tanzanians in the gas sector requires amalgamated efforts of both the government, citizens, local firms and businessmen, and Training Institution. The joint efforts may provide a conducive environment for skills development, robust local content, and mechanisms for citizens' participation and involvement in the sector.

#### References

- [1] Abdulai, Nasuralai. (2013). Ways to achieve sustainable development in the oil and gas industry in Ghana. *International Journal of ICT and Management*, 1(2), 107.
- [2] Anjo, A. B., Amaro, S., & Martins, Z. (2017). Skills for Work–The Oil & Gas Case in Mozambique. *Journal of Education and Human Development*, 6(4), 99-104.
- [3] Anjo, Antonio Batel, Amaro, Soraia, & Martins, Zeferino. (2017). Skills for Work–The Oil & Gas Case in Mozambique. *Journal of Education and Human Development*, 6(4), 99-104.
- [4] Anyanwu, J. C. (2009). Oil and Gas in Africa. *African Development Review*, 21(3), 590-591.
- [5] Brown, J. P. (2015). The Response of Employment to Changes in Oil and Gas Exploration and Drilling. *Economic Review* (01612387), 100(2).
- [6] Gberevbie, D. E. (2012). Impact of human resource development and organizational commitment on financial sector employees in Nigeria. *Annals of the Alexandru Ioan Cuza University-Economics*, 59(2), 29-41.
- [7] Hodgson, G. M. (2014). What is capital? Economists and sociologists have changed its meaning: should it be changed back? *Cambridge Journal of Economics*, 38(5), 1063-1086.
- [8] Kinyondo, A., & Villanger, E. (2017). Local content requirements in the petroleum sector in Tanzania: A thorny road from inception to implementation? *The Extractive Industries and Society*, 4(2), 371-384.
- [9] Moshi, H. P. (2014). Opportunities and challenges for the extraction of natural gas in Tanzania: the imperative of adequate preparedness. *African Journal of Economic Review*, 2(1), 25-37.
- [10] Mmari, D., & Bukurura, S. (2016). Strategic Significance of National Oil Companies: Lessons for Tanzania.

- [11] Mwanyoka, I., Mdemu, M., & Wernstedt, K. (2021). The reality of local community participation in the natural gas sector in Southeastern Tanzania. *The Extractive Industries and Society*, 8(1), 303-315.
- [12] Nwapi, C. (2016). A Survey of The Literature on Local Content Policies in the Oil and Gas, 9(16)
- [13] Obeng-Odoom, F. (2015). Oil boom, human capital, and economic development: Some recent evidence. *The Economic and Labour Relations Review*, 26(1), 100-116.
- [14] Oyejide, T. A., Kaplan, D., & Robbins, G. (2011). Enhancing linkages of oil and gas industry in the Nigerian economy.
- [15] Scurfield, T., Woodroffe, N., & Olan, S. (2017). Localizing Tanzania's gas sector: Determining optimal policies for an emerging producer. Natural Resource Government Institute, August, 1-21.
- [16] Sendegeya, A.-M., & Chiguvare, Z. (2016). The Role of Academia in Capacity Building for Sustainable Energy Development: The Case of Namibia. *Energy Procedia*, 93(March), 218–222. <https://doi.org/10.1016/j.egypro.2016.07.173>.
- [17] Shirley, A. C. (2015). Technical and vocational education and training (tvvet): a model for addressing the skills shortage in Nigerian oil and gas industry. *American Journal of Educational Research*, 3(1), 62-66.
- [18] Tordo, S., Warner, M., Manzano, O., & Anouti, Y. (2013). Local content policies in the oil and gas sector: The World Bank.