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Host Communities' Attitude towards Benefit Sharing from Natural Gas Extraction: Insights from Kilwa District, Tanzania

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Abstract*: Tanzania is among the blessed countries in Africa in terms of minerals endowment. However, natural gas extraction is in its infancy stage. The existing studies on natural gas extractions in Tanzania focused more at the national level with limited understanding of the host community's issues. This study was conducted to examine the host community's attitude on natural gas extraction in Kilwa District. Specifically, the study assessed: (i) host communities' attitude towards benefits sharing, and (ii) factors that influence host communities' attitude towards benefit sharing. A structured questionnaire was administered to 373 respondents. A Likert scale was used to measure the attitude of host community members towards benefit sharing. An Ordinal Logistic Regression (OLR) technique was used to examine factors influencing attitudes of communities towards benefits sharing. The findings revealed that overall the respondents had a negative attitude (60%) towards benefits sharing from the extractive industry. Distance from extraction activities, access to electricity, the relationship between the community and extractive companies and sex of respondent were important determinants of attitude ($p < 0.05$). The study concludes that the high level of negative attitude implies host communities dissatisfaction towards natural gas investment that may translate into resource curse in the country. This calls for immediate practical interventions by policymakers, planners, and extractive companies to address challenges that limit equitable access to various benefits by host communities.*

Keywords: host community's attitude, natural gas, benefit-sharing, Tanzania

1. Introduction

Minerals are blessing and gift of nature available to be sold and developed for the benefit of all citizens in a given nation (Amponsah-Tawiah and Dartey-Baah, 2011). This is why any discovery of minerals in any country raises high hopes for benefit sharing among host communities (Ross, 2014). Unfortunately, almost half of the populations in the world where extraction activities are taking place are still poor, and women are in the most disadvantaged position compared to men (World Bank, 2016). This is because benefits accrued from extractive companies (EC) have not benefited women and men living close to the extraction areas in equally, hence locals develop a negative perception towards benefit-sharing from mining activities (Moffart and Zhang, 2014; Shanghvi and Kang'uJingu, 2013). This support the hypothesis that natural resource curse is related to the gap between mineral resource endowment and poor economic performance which fail to improve living standard at the community level (Macartan *et al.* 2008).

Tanzania is among the blessed countries in Africa in terms of mineral endowment. However, natural gas extraction is in its infancy stage (URT, 2016). In 2001 Tanzania Petroleum Development Corporation (TPDC) on behalf of the government entered into the Production Sharing Agreement (PSA) with Songas for natural gas production. SONGAS has contracted Pan Africa Energy Limited Tanzania to operate Songosongo wells on behalf of Songas (Songas, 2001). Within the PSA, there is mandatory requirement for licence holders, contractors and subcontractors to make sure benefits flow to the community in terms of employment, education, water, health, skills training, payment of service levy, and technology transfer to the locals, utilisation of the local market and prepare a credible corporate social responsibility plan.

The 17 years of natural gas extraction investment, host communities around extraction activities reported to benefit from various projects like purification of seawater for domestic use, electricity supply and transportation of gas from Songosongo to Dar es Salaam completed (Mwakyambiki, *et al*, 2018). This can lead to a logical conclusion that Songosongo and Somanga Fungu communities where this study was conducted accessed different benefits that could improve their livelihoods hence having a positive attitude about the stinvestments. The review of different literature on gas and oil extraction revealed skewness in terms of focusing on previous studies on national level variables of interest with limited focus to the host communities where extraction activities are taking place. Generally, the focus is more on how to make the extractions sustainable (Shanghvi, 2013; Kibendela, 2013) and having national framework to guide extraction activities (Boma, 2013). It is in this juncture, this study was conducted to assess community attitude towards benefit sharing from natural gas extractations.

It is important to evaluate community attitude that would highlight specific areas for vulnerabilities of women and men in access to benefits, with an objective to prepare strategic interventions to address factors contributing to negative attitudes. Mismanagement of negative attitude is generally maladaptive and can cause harmful behavioral, affective and cognitive consequences (Petty and Cacioppo, 1986). Moshi (2013) observed poor economic performance due to unequal distribution of mineral benefits leading to negative perception, confusion in Mtwara, Mara, Mwanza, Shinyanga and Arusha and ending up in civil conflict. Once civil conflict developed through negative attitude, community's engagement in achieving a social license will negatively be influenced (Dare *et al,* 2014). Ignoring host communities' attitude towards benefits sharing may create disruptive social tensions, thereby increasing business risks and jeopardizing social license to operate for extraction companies (Humphreys, 2002). In this way, assessment of community attitude towards benefits sharing was an important aspect to generate empirical information which could be used to minimize risks of the resource curse in the country at this infant stage of natural gas production.

There has been a plethora of literature evaluated attitude towards economic, political, social and environmental impacts of mining in Tanzania. These studies include: impacts of gold extraction on local livelihoods (Kitula, 2006), Natural Gas Conflict in Tanzania and the impacts to the Population in Mtwara Municipality (Ndimbwa, 2013), corporate community involvement and local institutions (Lange and Kolstad, 2012), challenges ahead for Tanzania in the gas industry (Simbakalia, 2011), opportunities of natural gas in Tanzania (Moshi, 2013), as well as utilization of oil and natural gas (Shanghvi and Jingu, 2013). However, a plethora of literature that exists none of them link the concepts of benefits sharing from natural gas extraction and host community attitude at this time of infancy stage of natural gas extraction in Tanzania and, hence the rationale for research on which this thesis is based.

2.0 Theoretical Debate

The theory of attitude has been widely used in measuring individuals' attitude towards something. Fishbein and Ajzen (1975) hypothesized that studies on attitude are based on explaining what govern an individuals' beliefs, perceptions or feelings. Therefore, Nathan and Eleanor (2011) define Attitude as a predisposition to the behaviour of a person or an individuals' tendency to evaluate objects, but it varies in degree, implying that individual's reaction towards an object can be positive, neutral or negative, Likewise, Fishbein and Ajzen, (1975) refers an attitude as a behaviour that is consistently favorable or unfavorable towards something. Attitude is evaluated in a three-correlated dimension of an object but distinctly including self-measures of feeling about objects, physiological measures, and cognitive measures. In this paper, all three dimensions used to evaluate attitude towards sharing benefit from EC. With respect to communities living close to extraction sites, attitude referred to as individual opinion about benefits-acrued from extractive companies investments and their ideas of what it is like. It is expected that the level of host communities access to different benefits will facilitate development of an attitude towards benefit sharing. However, individuals' attitudes towards benefit sharing are influenced by a complex interaction of positive and negative factors (Plank *et al.,* 2016). These include factors such as sex, education, and distance from extraction sites and access to information which has the potential to affect attitude (Fishbein and Ajzen, 1975; Devine-Wright, 2007, Ndibwa, 2014). Consequently, Plank e*t al.* (2016) noted that once community members receive enough information from reliable sources they are likely to develop a positive attitude. On the other hand, the host community's participation in decision-making is an important aspect in the development of community attitude (Wüstenhagen *et al*. 2007). In the same way, individual attitude is also linked with access to different benefits from extraction projects including access to electricity, water, education and health services benefits, dependence on a natural gas resource, and distance from the natural gas activities (Plank *et al.,* 2016).

This theory plays a basic role in the evaluations of individual attitude towards benefits sharing from extractive companies, unearth factors that shape individuals' attitudes towards benefits sharing and provide the way forward to improve host communities' access to benefits from ECs. Since attitude is learned, therefore, it is likely to change (Fishbein and Ajzen, 1975). It is assumed that host communities' attitude will be largely influenced by the extent at which community member's benefit from the extractive companies' investments in the study area. Once host communities register negative attitude implies poor satisfaction that may lead into limited social support for future investment in the same sector. The findings of this study are valuable to ECs and policy makers to understand factors that shape host communities' attitudes that might lead to civil conflicts and remove social license to operate in the host communities.

3.0 Methodology

3.1 The study area

The study was conducted in Kilwa District in Lindi Region, Tanzania. The study covered two wards namely Songosongo and Somanga Fungu. Songosongo ward is found 247 km from Dar es Salaam and has a population of 3,032 of people, while Somanga Fungu Ward is located 217 km from Dar es Salam and has the population of 10,161 people (URT, 2013). The two wards were selected for the study due to the presence of natural gas activities including wells, gas processing unit and a power generation plant**.**

3.2 Research design and sampling techniques

The study employed a cross-sectional research design whereby data were collected at one point in time (Bailey, 1994). The sample size was determined by using Cochran's (1977) formula whereby 373 respondents were involved in the study out of a populations of 13 193 people. From the sample size of 373 respondents proportionate stratified sampling was used to get two strata as representatives for Songosongo (n = 86) and Somanga Fungu (n = 287). Six villages were purposely selected, one from Songosongo and five from Somanga Fungu. Respondents from six villages

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were randomly selected using village registers to avoid bias.

Quantitative data were collected using a structured questionnaire which was administered to the 373 respondents. The measurement of the attitude used in this paper applied a Likert scale as it was a reliable and effective method of scaling attitude (Likert, 1932; Tittle and Hill, 1967). This measurement comprised 12 statements that tested various benefits from natural gas extraction. Six of the statements in the scale had positive connotations, while the other six statements had negative connotations. The scale included five alternative responses on the attitude of host community benefits from extractive companies: strongly disagree (1 point), disagree (2 points), undecided (3 points), agree (4 points) and strongly agree (5 points).

A checklist of questions was used to collect information from key informants and focus group discussions. Fifteen key informants were interviewed based on their positions and information they held. Eight Focus Group Discussions (FGD) sessions were conducted whereby four FGDs were for women and four for men. FGDs involved 6 participants in each discussion session. Participants of FGDs were purposeful selected based their location of residence and experience about natural gas. In ensuring the questionnaire used for this study was reliable, Cronbach's alpha coefficient for internal consistency reliability was calculated (Warmbrod, 2001). Table 1 shows that the Cronbach's alpha for attitude scale was 0.714. Lance (2006) recommends on accepted value for Cronbach alpha is 0.70 for social science research, 0.80 for basic research and 0.90 for applied scenarios such as health. This indicates that the questionnaire for this study was reliable. The internal consistency reliability coefficient for the 12 statements ranged from 0.68 to 0.75 (Table 1).

Table 1. Descriptive statistic and reliability analysis for attitudinal scale

Attitudinal Statements	Mean	Std. Deviation	Item-Total Correlation	Cronbach's Alpha if Item Deleted
Equal opportunities between men and women would influence women to access benefits	2.505376	1.159735	0.314459	0.715087
Extractive companies have created work opportunities that improve women's wellbeing.	2.459677	1.168309	0.32797	0.713591
Friendly work environment with attractive payment could influence youth to work in extractive companies	2.604839	1.166596	0.315502	0.714971
Health services have improved after coming of natural gas extraction.	2.41129	1.271789	0.339128	0.712266
Education opportunities have improved after coming natural gas extraction.	2.663978	1.312389	0.515891	0.689539
Opportunities created by extractive companies have enabled local to access and own properties	2.728495	1.234694	0.417199	0.702961
Extractive companies have not created enough indirect opportunities from development projects that could benefit host communities	2.63172	1.173087	0.356062	0.710445
Extractive companies have not opened different work opportunities to the community	2.991935	1.304126	0.268537	0.720993
Education opportunities have improved but, teachers and facilities were not enough	3.201613	1.423597	0.447438	0.697721
Health services have improved through construction of hospitals but staffs and medicines are not being enough	3.196237	1.485487	0.519687	0.686651
Lack of education and skills required by extractive companies causes women to lose jobs opportunities	3.376344	1.333087	0.403416	0.704099
Natural gas industry is dangerous, risky and hazardous hence should be done by men	2.728495	1.262755	-0.01566	0.752708

The overall Cronbach's alpha = 0.714. Calculated from scores on a five point scale: 1= strongly disagree, 2 = Disagree, 3=Undecided, 4=

3.3 Data analysis

Qualitative data from key informants and FGDs were analysed using content analysis whereby the information was categorized into themes and sub-themes, reflecting the specific objectives. Quantitative data were analysed using the Statistical Package for Social Sciences (SPSS) version 16 whereby descriptive and inferential statistics were employed. The questionnaire comprised 12 statements which were used to assess attitude towards benefits sharing. Six statements in the scale had negative connotations while other six statements had positive connotations. The minimum of 12 scores would be extremely negative, obtained if one selected strongly disagree for all the 12 statements. A maximum of 60 points would indicate extremely positive attitudes obtained if one selected strongly agree for all the 12 statements. A score of 36 would donate neutral attitude. In this study 12 < 36, 36 and 36 < points represented negative, neutral and positive attitudes respectively towards benefits sharing

An Ordinal Logistic Regression model (OLR) was used to determine the factors influencing community's attitudes towards benefit sharing. The ordinal regression model was selected because the dependent variable was measured at three categories which were in a logical order namely: positive, neutral and negative attitudes (Field, 2009; Wesbard and Britt, 2014). The model analysis involved Z-statistics and significant level of P value at 5%. The coefficient Z value bears a negative or positive sign implying that negative or positive impact on the chances of the higher category in shaping attitude (Field, 2009). The Z–statistics was used to assess the contribution of the predicators to the outcome. If the variable is significant at a p value less or equal to 5%, then the predictor is making a significant contribution to the prediction of the dependent variable (Weisburd and Britt, 2014).

The Ordinal Logistic Regression (OLR) model as adopted from Agresti and Finlay (2009) is presented in Equation:

$$P(Y) = \frac{e^{\alpha + \beta 1 X1 + \ldots\ldots + \beta k X k}}{1 + e^{\alpha + \beta_1 X_1 + \ldots + \beta_k X_k}} \quad \ldots\ldots\ldots\ldots\ldots\ldots \text{Equation (i)}$$

Where:

P(Y) = the probability of the success alternative occurring, e = the natural log, α = the intercept of the equation, β_1 to β_k = coefficients of the predictor variables, X_1 to X_k = predictor variables entered in the ordinal regression model, and Y = outcome (dependent variable).

Table 2. The variables used in the ordinal logistic regression question

Variables Symbol	Variables Name	Explanation
P(Y)	Ordinal	The probability of respondents being grouped in the positive attitude category.
X_1	Sex of the household head	1 = Male, 0 = Female
X_2	Age	The age of respondent (in years)
X_3	Maritul status	1 = Married, 0 = Otherwise
X_4	Ethnic	1 = Matumbi, 0 = Otherwise
X_5	Distance	1 = Living 1 km from natural gas activities, 0 = Otherwise
X_6	Access to information about natural gas benefits	1 Access, 0 = No access
X_7	Participation in desicion making at community level	1 = Yes , 0 = Otherwise
X_8	Perceived relationship between extractive companies and communities	1 = Good relationship, 0 = Otherwise
X_9	Access to electricity	1 = Access to electricity, 0 = No access to electricity

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4.0 Findings and Discussion

4.1 Respondents' attitude towards benefit sharing

The results in Table 3 show that out of the 12 statements of the Likert scale, the respondents rated nine statements as mostly negative. The majority (69.1%) of the respondents had negative attitude towards health services improvement, while 65.6% indicated negative attitude towards employment opportunities and equal opportunity between men and women influencing women to access benefits (60.8%). These findings imply that the majority of the respondents living close to extraction sites were not satisfied with the support they got from EC as far as health services provision was concerned, job opportunities and gender equality in access to benefits. In contrast with work done by Moffat and Zhang (2014) who assessed community attitude toward benefit sharing extraction and found that benefits sharing from the extraction sites were positively rated by the host communities as they benefited from employment and training opportunities and improvement in health services.

Table 3. Respondents' perception towards benefits sharing

Attitudinal Statements	Negative (%)	Neutral (%)	Positive (%)
Equal opportunities between men and women would influence women to access benefits.	60.8	13.9	25.3
Extractive companies have created job opportunities that improve women's wellbeing.	65.6	9.7	24.7
Friendly working environment with attractive payment could influence youth to work in extractive companies.	58.8	11.5	29.8
Health services have improved after coming of natural gas extraction	69.1	7.2	36.6
Education opportunities improved after coming of natural gas extraction.	56.6	18	33.3
Opportunities created by extractive companies have enabled locals to access and own property of various kinds.	49.1	18	32.9
Extractive companies have not created enough indirect opportunities from development projects that could benefit host communities	52.6	20.9	26.5
Extractive companies have not opened different work opportunities that host communities could benefit.	45.3	32.4	42.9
Education opportunities have improved but teachers and facilities are not enough	31.3	17.7	51.1
Health services have improved through construction of hospitals but staffs and medicine are not enough.	40.5	6.7	52.8
Lack of education and skills required by extractive companies could cause women to lose job opportunities	33.8	8.6	57.6
Natural gas activities are dangerous, risky and hazardous hence should be done by men.	40.5	20.6	38.9

It was observed that 52.8% of the respondents agreed that lack of education and skills required by the EC caused women to lost job opportunities (Table 3). This implies that women from communities close to gas extraction sites were excluded from accessing different job opportunities due to low level of education. As a result, the number of women employed as engineers, technicians or geologists in the extraction sector was low compared to that of men. One Key from PanAfrica Energy Limited said that:

> "*At Songosongo camp only 6% of the women were employed and most of them were doing teaching, social work, washing and cleaning activities. There were no women doing technical and maintenance roles. Likewise, the majority (94%) of the men were employed in technical works, rigs engineering, and maintenance and as security guards".*

In response to the above situation, a key informant from the University of Dar es Salaam at the Engineering department said that:

> *"Inadequate number of female lecturers to act as role models to inspire female students to pursue science subjects in physical, and engineering, sciences, and in technological fields contribute to few women aspiring for working in the extractive industry".*

This concurs with arguments by Bengu e*t al*. (2011) who affirmed that extraction constitutes the most masculine of all industries, where women benefit the least in the development of this sector due to low level of education. This maintains labour segregation, producing genuine occupational stereotypes.

Table 3 further shows that 52.8% of the respondents showed favourable attitude towards the statement that, through ECs, construction of dispensaries and health services were improved. However, there had not been enough staff and other equipment including drugs. This implies that host communities had dispensaries but in most cases, there were not enough staff and medicines. Different FGD participants expected that these extraction companies would further support the health services in terms of works and drugs. Observation showed that both Somanga Fungu dispensary and Songosongo hospitals were not fully operating, during data collection the Songosongo hospital was operating with only one auxiliary nurse.

About a half (51.1%) of the respondents agreed that education opportunities had been improved. However, teachers and facilities were not enough. In responding to this challenge, one key informant from Kilwa District Office said that:

> *"We employed different staff including nurses, doctors, and teachers to support Songosongo community. However, most of them resigned due to poor transport system from Songosongo to Kilwa Kivinje and lack of other social services such as bank services."*

This implies that extractive companies have done their part to support communities, but the Government is responsible for the provision of health staff and teachers, especially in government hospitals and schools. This is according to directives and principles on the right to education enshrined in Article 11 of the Constitution (URT, 1977) of Tanzania and the right to health as indicated in the Public Health Act of 2009 (URT, 2007) and the National Health Policy of 2007(URT, 2007).

4.2 Overall attitude towards benefit-sharing from extractive companies

As shown in Fig 1, 60% of the respondents had an overall

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negative attitude towards benefits sharing. This could mean that the majority of the community members living close to the extraction sites did not appreciate the initiatives of EC in the distribution of natural gas benefits. The results by Plank *et al.* (2016) in Australia are similar to the findings of this study, that despite the neighboring communities recognizing economic contribution of extraction activities, they still had low trust with extraction companies, accompanied by negative attitudes due to low access to benefits. It was also suggested that negative attitudes were due to unmet host communities' expectations. This further implies that men had inadequate alternative livelihood strategies after which they lacked other sources of fishing activities. On this, members of one focus group discussion at Songosongo Village said that:

> *"In respect to fishing activities, some areas that were rich in fishing resources have been prohibited against fishing activities due to natural gas extractions"*

Figure 1 further reveals that a quarter (25%) of the women had a positive attitude towards benefits sharing from natural gas extraction while men who had such attitude were only 12%. This implies that women appreciated the reduction of gender roles in terms of water services, electricity and construction of hospitals and schools that influenced more positive attitude compared to men. Rolfe *et al.* (2007) argue in the same direction that local communities had a positive attitude towards benefit-sharing from the extraction industry because communities perceive benefits in the form of improved infrastructure and social services.

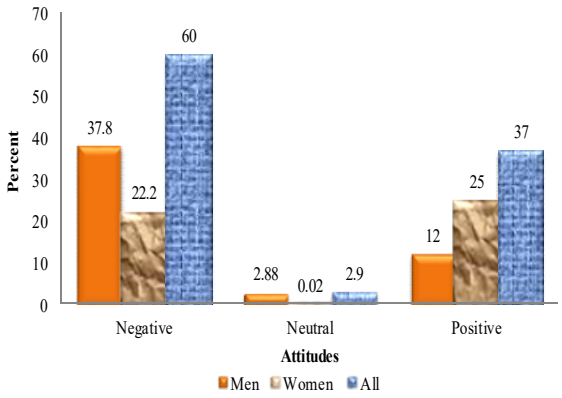

Figure 1. Overall host community members' attitudes towards benefit-sharing

4.3 Determinants of host community member's attitude towards benefit-sharing

The Ordinal Regression model was used to predict factors shaping attitude towards benefit sharing. The overall model p-value of chi-squared score test was significant (LR $\chi 2$ (12) = 83.84, $p \leq 0.000$). This indicates that the model performed better in the prediction of nine variables for factors influencing attitude. The likelihood ratio of $R^2L = 0.2454$, which is the Pseudo R^2, and also called McFadden's R^2, suggests that the model fitted the data well (Table 4). According to McFadden (1974), a value from 0.2 - 0.4 indicates excellent model fit.

Table 4. Factors influencing respondents' attitude towards benefit-sharing (n = 373)

Variables	Regression Coef. (β)	Standard. Error	Z	p-Value
Sex	-0.482	0.242	-1.99	**0.047**
Age	-0.261	0.137	-1.90	0.058
Marital status	-0.706	0.268	-2.63	0.009
Ethnic	0.093	0.027	3.44	0.006
Distance	-1.096	0.325	-3.36	**0.001**
Access to information	-0.454	0.249	-1.82	0.069
Participation in decision making at community level	0.044	0.119	0.37	0.712
Relationship between extractive company and community	-0.723	0.285	-2.49	**0.011**
Access to electricity	0.778	0.277	2.80	**0.005**
Model evaluation				
Number of obs	373			
Log Likelihood	-246.28525			
Prob > Chi²	0.000			
LR chi²(11)	83.84			
Pseudo R²	0.2454			

The findings indicate that four out of the nine independent variables including distance, the relationship between community and extractive companies, sex of respondent and access to electricity were significant predictors influencing attitude towards benefits sharing from natural gas ($p \leq 0.05$). (Table 4).

The findings show that distance ($\beta = -1.096$, $Z = -3.36$, $p > 0.05$) had a significant negative effect on shaping respondents' attitudes (Table 4). These results suggest that respondents who were residing 10 km from extraction sites had a more negative attitude towards benefits sharing compared to respondents who were residing more than 1 km from the extraction sites. This implies that community living close to extraction sites accesses more benefits than those who live far from the mining sites. One male discussant from Somanga Fungu Ward said that:

> *Our fellows at Songongoso ward are privileged from extractive companies including PAT, Songas, and TPDC in compared to us living 10 Km from extraction sites.*

The same privilege was described by Songas (2001) report that residents who were living in extraction boundaries will be provided with free drinking water as well as electricity by Songas Company. With respect to distance, Devine – Wright (2005) noted that distance from mining activities influence positively community's attitude towards sharing of benefits. On the other hand, the finding contradicts the one by Plank *et al.* (2016) that there was no direct link between extraction sites location and positive host communities' attitude towards benefits sharing. However, several studies have shown that communities living close to extraction sites (less than 50 km) were more likely to have positive attitudes towards benefit sharing because they had access to various services (Lange and Kolstad, 2012 and Ratable, 2014).

The results, further, point out that access to electricity services ($\beta = 0.778$, $Z = -2.49$, $p = 0.005$) had a significant positive effect on shaping respondents' attitudes towards benefit sharing from natural gas (Table 4). This implies that respondents who accessed electricity services generated from natural gas free of charge or with low tariffs had positive

attitudes towards benefits sharing compared to those who had no access to electricity services.

It can also be observed that the relationship between extractive companies and communities (β = -0.723, Z = -3.45, p = 0.011) had a negative effect on influencing host communities' attitudes. This result suggests that a bad relationship between ECs and host communities' influences negative attitude towards benefits sharing compared to good relationships (Table 4). This means that the failure of ECs to provide services required by communities residing close to mining areas creates poor relationship. This finding concurs with those of Ventura and Jauregui (2017) that trustful relationship supported by a beneficiary-society approach builds good relationships with host communities that influence positive attitude.

On the other hand, results showed that sex of respondents (β = -.482, Z = -2.52, p = 0.012) had a negative significant effect on shaping respondent's attitude towards benefit sharing from natural gas (Table 4). This result suggests' that men had a more negative attitude towards benefits sharing than women. This implies that inadequate access to alternative livelihoods sources influenced men to have a negative attitude as they failed to support their families compared to women. During the survey and FGDs, different men participants expressed their concerns about loss of income due to unemployment in the ECs and lack of alternative activities after some fish catchment areas were being protected for natural gas activities. Observation of coastal culture shows that men were perceived as breadwinners and most of them were doing fishing related activities while women worked in the domestic domain. Any obstruction of fishing activities through the fencing of fish catchment areas influences men to have a negative attitude because they lose employment and income. Another study conducted in Ghana by Peprah, (2011) shows that women livelihood from oil and gas discovery, and found that daily economic activities were affected by oil and gas activities because they perceived a decrease in fish catch, culture change, and loss of jobs for husbands and reduction in income levels.

5.0 Conclusion and Recommendations

The study concludes that the majority of community members in Kilwa District had a negative attitude towards benefits sharing from extractive companies. The negative attitude implies host communities dissatisfaction towards natural gas investment that may translate into resource curse in the country. It is further concluded that negative attitude is attributed to the limited opportunities offered by extractive companies and diminishing access to fishing resources a key livelihood strategy for the host communities. It is recommended that extractive companies should expand the basket of opportunities and benefits to host communities. Again in collaboration with Kilwa District Council, the extractive companies should design alternative livelihood strategies that will replace a key fishing activity that has been affected by extractive investments.

References

Ajzen, I. (2005). Attitude, Personality and Behavior. NY: open University press. 23pp

Amponsah-Tawiah, K. and Dartey-Baah, K. (2011). The mining industry in Ghana: A blessing or a curse. *International Journal of Business and Social Science 2*(12): 62 - 69.

Bailey, D. K. (1994). *Method of Social Science Research* (4th Ed.). The Free Press Collier Macmillan Publishers, London. 70pp.

Bengu, C. K. A. and Hülya, F. (2011). Attitudes towards women's work roles and women managers in a sports organization: The case of Turkey, gender. *Work and Organization Journal 18(6): 592 – 612.*

Boma, K. J. (2013). *The Natural gas sector in Tanzania. Suggestions for a better framework to benefit the Country. Dissertation for Award of MA Degree at University of Lapland, Rovaniem, Finland.*

Cochran, W. G. (1977). *Sampling Techniques.* (3rdEd.), John Wiley and Sons, New York. 6pp.

Dare, M. L., Schirmer, J. and Vanclay, F. (2014). Community engagement and social license to operate: Impact Assess. *Project Appraisal* 32(3): 188 – 197.

Devine-Wright, P. (2005). Beyond nimbyism: Towards an integrated framework for understanding public perception of wind energy. *Wind Energy* 8(2): 125 – 139.

Devine-Wright, P. (2007). *Reconsidering Public Attitudes and Acceptance of Renewable Energy Technologies; A critical Review*. Working Paper No. 4 School of Environment development, Univeristy of Manchester. Working Paper 1.4. A working paper of the research project "Beyond Nimbyism: a Multidisciplinary Investigation of Public Engagement with Renewable Energy Technologies. [http://geography.exeter.ac.uk/beyond_ nimbyism/deliverables/ bn_wp1_4. pdf] site visited on 15/5/2017.

Field, A. (2009). *Discovering Statistics Using SPSS.* (3rd Edition). SAGE Publications Pvt Ltd, New Delhi, India. 871pp.

Fishbein, M. and Ajzen, I. (1975). *Belief, Attitude, Intention and Behaviour: An Introduction to Theory and Research*. Addison Wesley Publishing Company Inc., Philippines. 584pp.

Humphreys, D. (2002). From economic to sustainable development: *Establishing a New Framework for Mineral Extraction, Minerals and Energy* 17(4): 3 – 9.

Kitula A.G.N. (2006). The environmental and socio-economic impacts of mining on local livelihoods in Tanzania: A case study of Geita District. *Journal of Cleaner Production* 14: 405 – 414.

Kibendela, E.(2013). Making *Natural Gas guarantee sustainable development: plans and progress by VETA to prepare Tanzanians to engage in*

the Natural gas Value chain Process. ERSF Discussion paper No.50.

Lance, C. E., Butts, M. A. and Michel, L. C. (2006). The source of four common report cutoff criteria what did they really say. *Organization Research Methods* 9(2): 202 – 220.

Lange, S. and Kolstad, I. (2012). Corporate community involvement and local institutions: Two case Studies from the mining industry in Tanzania. *Journal of African Business* 13(2): 134 – 144.

Likert, R. (1932). A technique for the measurement of attitudes. *Archives of Psychology* 22(140): 1 – 55.

Macartan, H., Jeffrey, D., and Joseph, E.S (2008). Escaping the Resource Curse. New York, Columbia University Press

McFadden, D. (1973). *Conditional Logit Analysis of Qualitative Choice Behavior. In Frontiers in Econometrics* (Edited by P. Zarembka). Academic Press, New York. 42pp.

Moffat, K., and Zhang, A. (2014). The paths to social license to operate: An integrative model explaining community acceptance of mining. *Resources Policy* 39: 61 – 70

Moshi, H. P. B. (2013). *Opportunities and Challanges for the Extraction of Natural Gas in Tanzania: The Imperative of Adequate. Preparedness.* Discussion Paper No. 49. The Economic and Social Research Foundation (ESRF) Dar es Salaam. Tanzania. 4pp.

Mwakyambiki, S.E., Sikira, A.N. and Massawe, F.A. (2018). Factors influencing extractive companies benefits sharing with host communities in Kilwa district, Tanzania. *International Journal of Research in Social Sciences,* 8, (5) 375-395.

Nathan, M. and Eleanor, E. M. (2011). Encyclopedia of consumer culture. *Attitude Theory* 1(4): 16 – 64.

Ndimbwa, M. R. (2014). *Natural Gas Conflict in Tanzania and the Impacts to the Population in Mtwara Municipality.* Norwegian University of Life Sciences, Faculty of Social Sciences, Department of International Environment and Development Studies. Norwegian. 43pp.

Peprah, J. A. (2011). Women, livelihood and oil and gas discovery in Ghana: An exploratory study of cape three points and surrounding communities. *Journal of Sustainable Development* 4(3): 185 – 195.

Petty, R. E. and Cacioppo, J. T. (1986). The elaboration likelihood model of persuasion: advances in experimental social psychology. *Academic press, Inc.* 19: 123 – 192.

Plank, S., Walsh, B. and Behrens, P. (2016). The expected impacts of extraction: Stakeholder perceptions of a proposed mineral sands mine in rural Australia. *Resources Policy* 48: 129 – 136.

Rolfe, J., Gregg, D., Ivanova, G., Lawrence, R. and Rynne, D. (2010). The economic contribution of the resources sector by regional areas in Queensland, *Economic Analysis and Policy (EAP) 41(1): 15 – 36.*

Ross, M. L. (2008). Oil, Islam and Women. *American Political Science Review* 102 (1): 107 – 123.

Shanghvi, I. and Jingu, J. A.K (2013). *Tanzania and the Quest for sustainable Utilization of Oil and Natural Gas.* Discussion Paper No. 49. The Economic and Social Research Foundation (ESRF), Dar as Salaam, Tanzania. 2pp.

Simbakalia, J. L. (2011). *Challenges Ahead for Tanzanian to Build New Capacities for gas Industry Development*. Discussion Paper No. 51. The Economic and Social Research Foundation, Dar as Salaam, Tanzania. 16pp.

SONGAS (2001). *Environmental and Social Assessment and Management Plan. A Summary of Environmental and Social Impact Studies and Detailed Management Plan*. Songas Publishers, Dar es Salaam. 10pp.

Tittle, C. and Hill, R. (1967). Attitude measurement and prediction of behaviour: An evaluation of conditions and measurement techniques. *Stoichiometry* 30 (2): 199 - 213.

URT (1977). *The Constitution of the United Republic of Tanzania of 1977*. Government Press. Dar es Salaam, Tanzania. 12pp.

URT (2013). Population and housing census 2012. Population distribution by administrative areas. [www.nbs.go.tz/takwimu/ census2012/Census_General_Report.zip] Site visited on 20/4/ 2017.

URT (2016). *Tanzania Review,* (7th Ed), Ministry of Industry and Trade, Dar es Salaam. 39- 56pp.

URT (2007). *Health Policy*. Government Press, Dar es Salaam, Tanzania.

URT (2009). *Public Health Act.* Government Press, Dar es Salaam, Tanzania.

Ventura, J. and Jauregui, K. (2017). Business community relationships for extractive industries: A Case Study in Peru. *Brazilian Administrative Review* 14 (2): 1 – 24.

Warmbrod, J. R. (2001). *Conducting, Interpreting, and Reporting Quantitative Research*. Pre-Session, New Orleans, Louisian.12pp.

Weisburd, D. and Britt, C. (2014). *Statistics in Criminal Justice, Fourth Edition.* Springer Science Business Media, New York. 783pp.

World Bank (2016). Accelerating poverty reduction in Mozambique: Challenges and opportunities.[http://www.worldbank.org/en/country/mozambique/publication/accelerating-poverty-reduction-in-mozambique-challenges-and-opportunities] site visited on 20/3/2017.

Wüstenhagen, R., Wolsink, M. and Bürer, M. J. (2007). Social acceptance of renewable energy innovation: an introduction to the concept. *Energy Policy* 35 (5): 2683 – 2691.