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Analyses of Quality of Life Variation in Nun River Oilfield Communities, Bayelsa State Nigeria

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ABSTRACT

This study examined quality of life variations in Nun River Oilfield Communities and Adjoining Communities. The study covered fifteen communities; ten oil and gas bearing communities within Nun River Oilfield and five Adjoining communities which are non-oil and gas bearing, all in Southern Ijaw Local Government Area of Bayelsa State. The survey method was the main of primary data collection; a well-structured questionnaire was administered on 398 respondents in sampled communities. The respondents were selected using simple random sampling technique. Data was both descriptively and statistically analysed using appropriate statistical tool. Both the descriptive and results from statistical analyses of an ANOVA test showed that F-ratio calculated 101.812 was greater than the tabulated value of 3.84, and the P-value 0.000 was less than significant 0.05 indicating that quality of life significantly varied between the Nun Oilfield Communities and Adjoining Communities. Secondly, results indicated that corporate social responsibility interventions of companies were largely responsible for the variation in quality of life. The study also revealed inadequate provision of essential goods and services in the sampled communities, most especially in Adjoining Communities which foreshadows negative consequences for quality of life. Government should design and carry out deliberate policies and programmes on rural infrastructure development, as this will improve the quality of life of individuals and communities.

INTRODUCTION

Quality of life (QoL) is a geographical variable condition as it varies not only between people, but also between places, basically because of the characteristics of people and places (Gramer *et al.*, 2004). The World Health Organisation Quality of Life Group (1995) underscored that QoL is largely the assessment of one's position in life as regards culture and the value system of the society as compared to the individual's objectives, expectations, standards and concerns. The definition suggests that QoL entails a mix of physical, psychological and social dimensions in people and communities. In the same vein, Sirgy and Jin (2016) posited that QoL refers to a subjective and objective assessments centered on the socio-cultural and ecological aspects of individuals and communities. Ortegem and

Verhofstadt (2015) averred that both the subjective and objective indicators or factors of QoL are suggestive of two different things; the subjective factors focuses on pleasure as key to human happiness and satisfaction as QoL, and the objective factors focuses on the health status, housing, economic viability, educational and nutritional levels etc.

Ejechi and Ejechi (2008) and Weaver (2014) asserted at different times that the determination of QoL involves assessment of demographic and socio-economic characteristics of the people as well as the environmental conditions of the community. According to Kele (2012) noted that QoL is affected primarily by certain factors

such as housing, leisure and recreation, economic stability, neighbourhood environment, job opportunities, public goods and services amongst others. The author also highlighted three main characteristics of individuals QoL; one, it reflects individuals life satisfaction and his perception, two, QoL is a dynamic concept covering multiple life domains such as housing, condition, educational attainment, job and work life balance, access to institutions, and public facilities, and three, it brings objective information on living conditions with subjective views and attitudes to offer a portrait of overall life satisfaction or comfort.

Furthermore, Kele (2012) described community QoL as a group of socio-economic and environmental indicators such as crime, health, jobs, educational attainment, justice systems and recreation that adds to the desirability and liveability of community. In differences and effects of socioeconomic dynamics on QoL, Boroah, Dineen, and Lynch (2011) asserted that even within communities, variations in financial status, employment status, availability and access to basic amenities could trigger variations in QoL. Akinyemi *et al.* (2012) stated that due to demographic and socio-economic dynamic and availability of basic amenities, QoL in one rural community could ultimately vary from QoL of another rural community. The authors further stated that QoL in rural areas with natural resources and amenities shows a significantly different QoL when contrasted with sterile rural area.

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Reports have shown that small communities are at a disadvantage regarding QoL as is the case with many oil and gas bearing communities which are mostly at the bottom in the hierarchy of settlement, and frequently bearing the added burden of negative externalities from the oil industries. Now, in a bid to ameliorate the plight of host communities caused by the multiple disadvantages they suffer as a result of small size and by devastations from oil and gas operations, industry operators undertake several development projects as part of their Corporate Social Responsibilities (CSR).

CSR refers to practices and policies undertaken by corporations that are intended to have a positive impact or benefit on society (Lee, 2008). The author also noted that the key idea behind CSR is for corporations to pursue other pro-social objectives in addition to maximising profit. Moir (2001) concluded that objectives of CSR include building sustainable growth for business in a responsible manner; to minimise negative environmental externalities, thus promoting improved living standards.

Has these CSR interventions of operators of the oil and gas industry improve the QoL of the individuals and host communities. It is against this backdrop that this paper is purposively undertaken to fulfil the following objectives; identify the factors responsible for variation in QoL and ascertain QoL variation in Nun River Oilfield Communities and Adjoining Communities covered by this study.

The Study Area

The study area is situated on both banks of the Nun River and Silver Creek, which for now form the main access routes to the communities. The study area consisted of fifteen (15) communities; ten Nun River Oilfield Communities which include; Oporoma, Onyoma, Angiama, Agiama-gbene, Luduon, Aguobiri, Bolou-Aguobiri, Igeibiri, Obololi and Osokama, and five Adjoining Communities which include; Otuan, Oweikoroghe, Anyama, Ondewari and Ozezebiri, all in Southern Ijaw Local Government Area of Bayelsa State. See map of the study area in Figure 1.

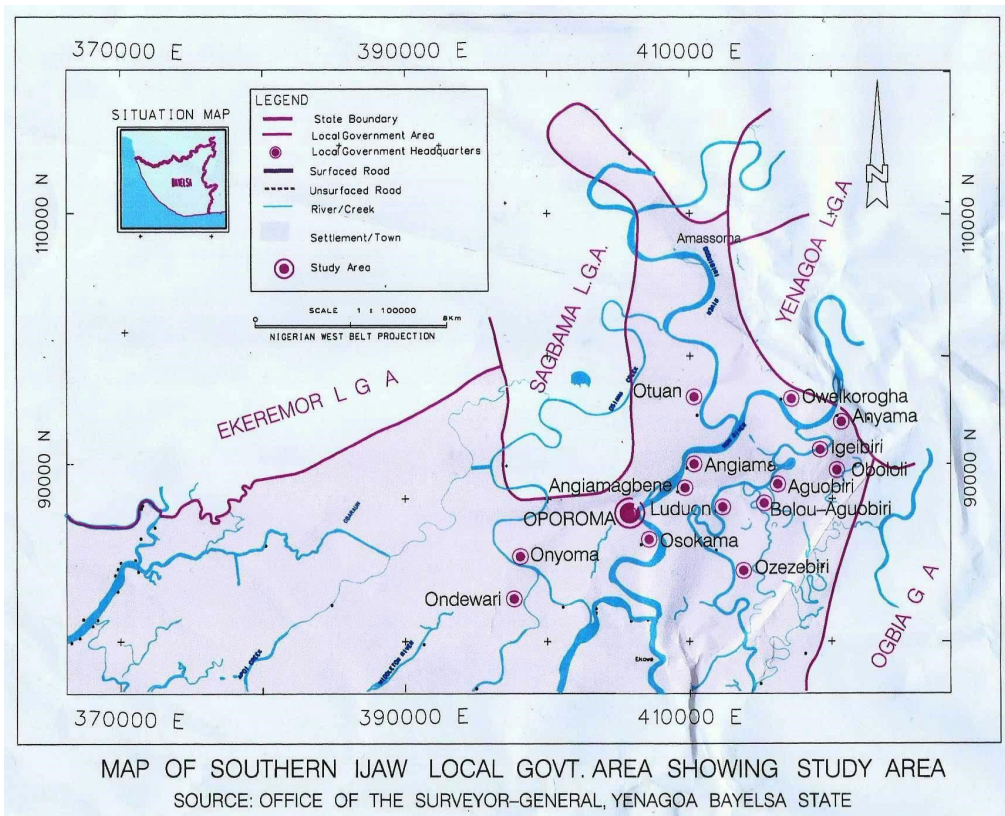


Figure 1: Map showing Study Area in SILGA
 Source: Office of the Surveyor-General, Yenagoa, Bayelsa State

The Nun River Oilfield Communities are classified into three categories; oil bearing, pipeline and impacted

communities. The classification of the Nun River Oilfield Communities are shown in Table .1

Table 1: Classification of Nun River Oilfield Communities

S/No	Community	Classification
1.	Oporoma	Oil bearing Community
2.	Onyoma	Oil bearing Community
3.	Angiama	Oil bearing Community

4.	Osokama	Oil bearing Community
5.	Aguobiri	Pipeline Community
6.	Bolou-Angiama	Pipeline Community
7.	Angiama-gbene	Pipeline Community
8.	Obololi	Pipeline Community
9.	Igeibiri	Pipeline Community
10.	Luduon	Impacted Community

The geographical coordinate of the central point of the study area which is Oporoma is in latitude 40481 1711 North and longitude 600414411 East. The Geology is made up from top to bottom with Benin, Agbade and Akata formations (SPDC 1998). The report further revealed that the area lies within the outcropping Benin formation made up of continental deposits, and is also characterised by fresh water swamps, back swamps and meander belts of flat plain. SPDC (1998) also noted severe drainage problems with seasonal and temporary flooding due to heavy rainfall and rise in ground water table.

The area lies in the wet equatorial climate region of the Niger Delta. It is typically a humid tropical climate characterised by high rainfall and high temperature (Gobo, 1998). The area experiences both dry and wet seasons. The dry season is experienced between November and March, while the wet season is between April and October. The mean annual rainfall ranges from 2,000mm to 4,000mm and spread over a period of 8 to 10 months with episodes occurring all year round, even during the dry season. The temperature of the area ranges between 23 and 32°C with little monthly variations. The lowest monthly temperatures (23°C-25°C) are recorded during the rainy season months (June-September), while the highest temperatures (30-32°C) are recorded in February and March. The area experiences high relative humidity with values varying between 60 and 100%. However, periods of very low humidity occur during the harmattan spell when the North East trade wind is dominant (Gobo, 1998).

The vegetation cover of the study area and that of the Bayelsa State is typical of the fresh water areas characterised by grasses and trees (Allison-Oguru *et al.*, 1999). The authors also stated that the fresh water swamp forest constitutes the bulk of the vegetation of the area. This vegetation has two distinct features, namely, economic tree species and lianes and thick undergrowths.

The surface soil of the area shows moderately adequate for crop production. The area is rich in natural resources which include oil and gas, with oil wells in most communities and oil/gas pipelines criss-crossing the area. Major economic activity of the area include fishing, farming, forestry, lumbering, hunting, gathering of wild forest products and tapping of palm wine and brewing of local gin (Allison-Oguru *et al.*, 1999). The inhabitants of the area are predominantly IZONS (Alagoa, 1999).

MATERIALS AND METHODS

The secondary data was population figures of sampled communities (National Population Commission, 1996). The primary data was collected with a well-structured questionnaire which comprised both open and close-ended questions which were organised in two sections; demographic and socio-economic characteristics and quality of life indicators. The total population of the study area was 103,608. However, to determine the actual sample size for effective administration of research instrument, the Taro Yamene Formula in Israel (2003) was adopted;

$$n = N / (1 + Ne^2) \tag{1}$$

Where; n= required sample size

N= Population

e= Level of significance (0.05)²

1= Constant

Substituting values into the formula;

$$n = 103,608 / 1 + 103,608 \times (0.05)^2 = 398$$

The calculation showed that 398 households are to be selected for the study. So, 398 questionnaires were distributed among the sampled communities with different population sizes using the proportionate stratified random sampling technique (Kpolovie, 2011). Table 2 shows the number of questionnaires distributed and retrieved from respondents in sampled communities.

Table 2: Distributed and Retrieved Questionnaires

Oilfield Communities			
S/N	Name of Community	Administered	Retrieved
1	Oporoma	78	67
2	Onyoma	19	19
3	Angiama	50	44
4	Luduon	4	4
5	Aguobiri	35	30
6	Bolou-Aguobiri	12	10

7	Angiama-gbene	6	6
8	Igeibiri	25	24
9	Obololi	11	10
10	Osokama	7	6
Adjoining Communities			
1	Otuan	74	63
2	Oweikoroghe	20	12
3	Anyama	21	15
4	Ondewari	30	24
5	Ozezebiri	6	6
	Total	398	340

The simple random sampling technique was used to select the 398 respondents. However, 340 were retrieved and used for analyses of data. Data were analysed using descriptive and statistical tools such as percentage, means and graphical illustrations. Analysis of variance (ANOVA) was used to analyse data relating to QoL variation in Nun River Oilfield Communities and Adjoining Communities.

Discussion of Findings

This section entails presentation of results and discussion of findings to show attainment of the key objective of the study. As earlier stated a total of 398 questionnaires were administered, out of which 380 representing 68% was retrieved and analysed as follows; see table 3.

Table 3: Distributed and Retrieved Questionnaires

S/N	Essential goods and services	Nun-River Oil Field Communities		Neighboring Communities		All Communities	
		F	%	F	%	F	%N
1	Electricity						
	Not Available(NA)	120	55	56	47	176	52
	Available not in Use(ANU)	52	28	44	37	96	28
	Available, in use (AIU)	48	22	20	16	68	20
	Total	220	100	120	100	340	100
2	Portable Water						
	Not Available(NA)	125	57	57	48	182	54
	Available not in Use(ANU)	37	17	36	30	73	21
	Available, in use (AIU)	58	26	27	22	85	25
	Total	220	100	120	100	340	100
3	Road Network						
	Not Available(NA)	144	65	67	56	211	62
	Available not in Use(ANU)	13	6	9	8	22	6
	Available, in use (AIU)	63	29	44	36	107	32
	Total	220	100	120	100	340	100
4	Communication Network						
	Not Available(NA)	92	42	16	13	108	32
	Available not in Use(ANU)	10	5	11	9	21	6
	Available, in use (AIU)	118	53	93	78	211	62
	Total	220	100	120	100	340	100
5	Market						
	Not Available(NA)	142	65	72	60	214	63
	Available not in Use(ANU)	71	32	32	27	103	30
	Available, in use (AIU)	7	3	16	13	23	7
	Total	220	100	120	100	340	100

6	Supermarket						
	Not Available(NA)	216	98	115	98	331	97
	Available not in Use(ANU)	4	2	3	3	7	2
	Available, in use (AIU)	-	-	2	1	2	1
	Total	220	100	120	100	340	100
7	Departmental Shops						
	Not Available(NA)	201	91	110	96	331	91
	Available not in Use(ANU)	19	9	10	3	29	9
	Available, in use (AIU)	=	-	-	1	-	-
	Total	220	100	120	100	340	100
8	Bread Bakeries						
	Not Available(NA)	210	95	98	82	308	91
	Available not in Use(ANU)	7	3	18	15	26	7
	Available, in use (AIU)	3	2	4	3	5	2
	Total	220	100	120	100	340	100
9	Water Factory						
	Not Available(NA)	197	90	105	88	302	89
	Available not in Use(ANU)	15	7	10	8	25	7
	Available, in use (AIU)	8	3	5	4	13	4
	Total	220	100	120	100	340	100
10	Tailoring Shops						
	Not Available(NA)	120	55	89	74	209	61
	Available not in Use(ANU)	9	4	8	7	17	5
	Available, in use (AIU)	91	41	23	19	114	34
	Total	220	100	120	100	340	100
11	Barbers/Hair shops						
	Not Available(NA)	126	57	94	78	220	65
	Available not in Use(ANU)	4	2	7	6	11	3
	Available, in use (AIU)	90	41	19	16	109	32
	Total	220	100	120	100	340	100
12	Shoe Maker						
	Not Available(NA)	178	81	99	83	277	81
	Available not in Use(ANU)	34	15	17	14	51	15
	Available, in use (AIU)	8	4	4	3	12	4
	Total	220	100	120	100	340	100

Table 4: Access to Goods, Services and Utilities

S/N	Essential goods and services	Nun-River Oil Field Communities		Neighboring Communities		All Communities	
		F	%	F	%	F	%N
13	Pharmacy						
	Not Available(NA)	194	88	104	87	298	88
	Available not in Use(ANU)	21	10	12	10	33	10
	Available, in use (AIU)	5	2	4	3	9	2
	Total	220	100	120	100	340	100
14	Public Transport						
	Not Available(NA)	139	63	25	21	164	48
	Available not in Use(ANU)	17	8	5	4	22	6

Available, in use (AIU)	4	29	90	75	154	46
Total	220	100	120	100	340	100

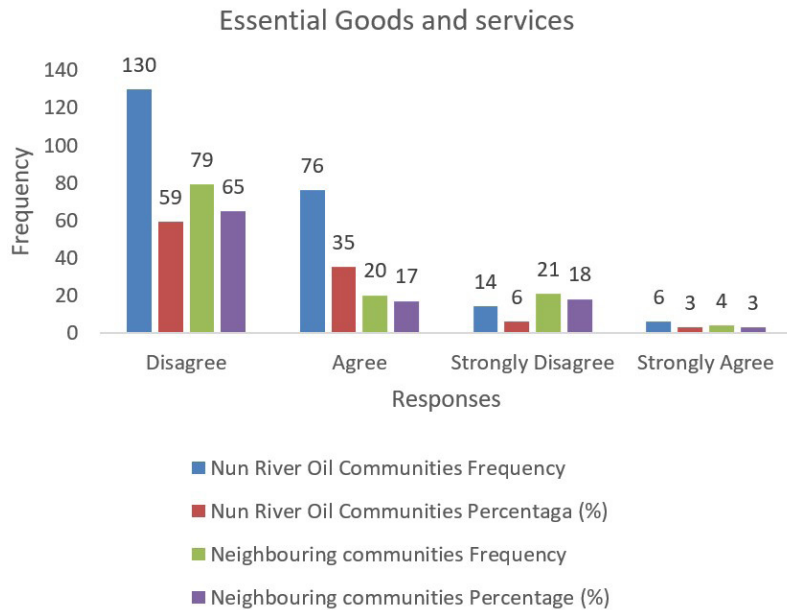
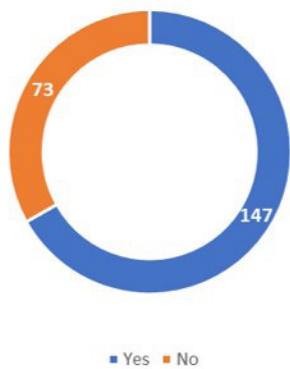


Figure 2: Essential Goods and services in Nun River Oilfield Communities and Adjoining Communities

On the availability and impact of essential goods and services, results in Figure 2 revealed that in Nun River Oilfield Communities 130(59%) of respondents affirmed availability of essential goods and services have had a positive impact on quality of life (QoL), 70 (32%) agreed, 14(6%) strongly disagreed and 6(3%) strongly agreed.

In the Adjoining Communities 79(66%) disagreed, 16(13%) agreed, 21(18%) strongly disagreed, and 4(3%) strongly agreed that the availability of essential goods and services have positive impacts on quality of life in their communities. See figure 3.

Answers to whether or not CSR's intervention was beneficial by Nun River Oil Field communities



Answers to whether or not CSR's intervention was beneficial by neighbouring communities

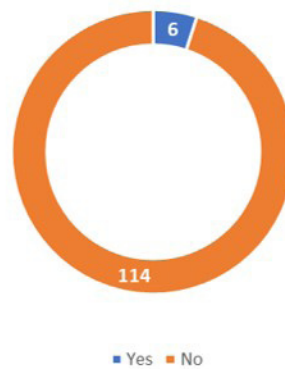


Figure 3: Beneficial intervention of CSR in Nun River Oilfield Communities and Adjoining Communities

Results showed that in the Nun River Oilfield Communities 147(67%) of the respondents said that CSR interventions projects undertaken by the SPDC was beneficial, and 73(33%) said that they were not beneficial. In the Adjoining Communities the results showed that only negligible 6(5%) of respondents said that CSR interventions were beneficial and 114(95%) of

respondents said CSR interventions were not beneficial to their community.

Quality of Life Rating

A comparison of QoL rating between the Nun River Oilfield Communities and Adjoining Communities was determined, the rating ranged from poor, good and very good, and the distribution of result is presented in Figure 4

Table 5: QoL Rating in Sample communities

SN	Comm.	F	%	SN	Comm.	F	%	SN	Comm.	F	%
1.	Oporoma			6.	Bolou-Aguobiri			11.	Otuan		
A	Poor	20	30	A	Poor	5	50	A	Poor	30	48
B	Good	25	37	B	Good	2	20	B	Good	7	11
C	Very Good	7	11	C	Very Good	1	10	C	Very Good	3	5
D	Very Poor	15	22	D	Very Poor	2	20	D	Very Poor	23	36
	Total	67	100		Total	10	100		Total	63	100
2.	Onyoma			7.	Angiamagbene			12.	Oweikoroghe		
A	Poor	5	26	A	Poor	3	50	A	Poor	3	25
B	Good	8	42	B	Good	2	33	B	Good	2	16
C	Very Good	2	11	C	Very Good	-	-	C	Very Good	2	17
D	Very Poor	4	21	D	Very Poor	1	17	D	Very Poor	45	42
	Total	19	100		Total	6	100		Total	12	100
3.	Angiama			8.	Igeibiri			13.	Anyama		
A	Poor	15	34	A	Poor	10	42	A	Poor	6	40
B	Good	21	48	B	Good	8	33	B	Good	5	34
C	Very Good	2	5	C	Very Good	-	-	C	Very Good	2	13
D	Very Poor	6	13	D	Very Poor	6	25	D	Very Poor	2	13
	Total	44	100		Total	24	100		Total	15	100
4.	Luduon			9.	Obololi			14.	Ondewari		
A	Poor	2	50	A	Poor	5	50	A	Poor	10	42
B	Good	1	25	B	Good	4	40	B	Good	7	29
C	Very Good	-	-	C	Very Good	-	-	C	Very Good	2	8
D	Very Poor	1	25	D	Very Poor	1	10	D	Very Poor	5	21
	Total	4	100		Total	10	100		Total	24	100
5.	Aguobiri			10.	Osokama			15.	Ozezebiri		
A	Poor	10	33	A	Poor	3	50	A	Poor	2	40
B	Good	13	44	B	Good	2	33	B	Good	1	20
C	Very Good	1	3	C	Very Good	-	-	C	Very Good		
D	Very Poor	6	20	D	Very Poor	1	17	D	Very Poor	2	40
	Total	30	100		Total	6	100		Total	5	100

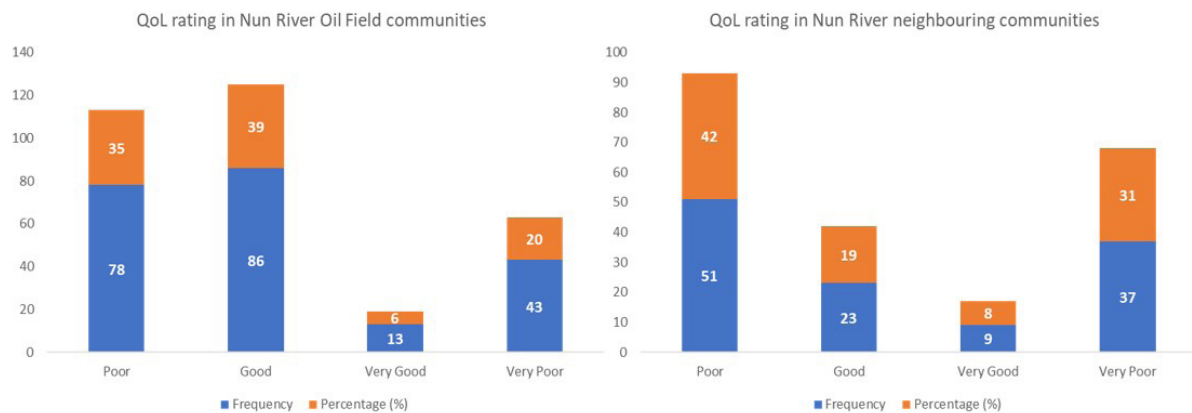


Figure 4: QoL rating in Nun River Oilfield Communities and Adjoining Communities

Results in fig 4. showed that in Nun River Oilfield Communities the results showed that 78(35%) of the respondents rated QoL as poor, 86(39%) rated QoL as good, 13(6%) rated QoL as very good and 43(20%) as very poor. In the Adjoining

Communities the results showed that 51(42%) rated QoL as poor, 23(19%) rated QoL as good 9(8%) of respondents said QoL was very good and 37(31%) as very poor.

The result of ANOVA test revealed that the value of the f-ratio calculated 101.812 were greater than the tabulated value 3.84 at 5% level of significance. Secondly, the p-value 0.000 is less than the significant level of 0.05. Therefore, the null hypothesis was rejected and the alternative accepted showing significant variation in QoL in Nun River Oilfield Communities and Adjoining Communities. Given the results from both descriptive and statistical analysed, there is no gainsaying that there is significant QoL variation in Nun River Oilfield Communities and Adjoining Communities, and that CSR interventions were largely responsible for the variation. The result confirms the conclusion of Senlier *et al.* (2008) whose results also showed a significant QoL variation in various cities covered by the study, and that of Babatunde (2020) who concluded that QoL of one rural community vary from the QoL of another due to economy and population dynamics and availability of social amenities. Likewise, Akinyemi *et al.* (2012) also concluded that QoL in natural resources rich area are likely to present a significantly different and improved QoL compared to adjoining sterile areas.

RECOMMENDATIONS

The study observed a general lack of basic amenities in the study area, most especially in the adjoining communities.

1. We therefore, recommend that government at all levels should design and undertake rural infrastructure development such as road networks, pipe-bone water, electricity, health and educational facilities as well as public amenities to enhance QoL in rural neighbourhoods.

2. Secondly, government at all levels; Federal, State and Local Government should revive the agricultural sector by providing technical assistance through extension services and ensure the provision of storage techniques/ facilities and market. This will also generate employment and as such reduce the level of poverty in the area and inherent rural – urban migration’

CONCLUSION

The concept of QoL is not a recent ideology in the field of geography and other related disciplines. The concept is described both subjectively and objectively and can be studied both at the individual and community level. The study focused on identifying and analysis of QoL variation in Nun River Oilfield Communities which are host to oil and gas companies benefitting from CSR interventions and Adjoining Communities without such CSR interventions. Key recommendation are made for the various levels of government and agencies to timely address the identified problems through the design and implementation of appropriate physical planning policies/programmes aimed at provision of basic facilities to improve QoL of individuals and communities.

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