



## ASSESSMENT OF FARMERS PERCEPTION ON OIL DISCOVERY IN ALKALERI AND AKKO LOCAL GOVERNMENT AREAS OF BAUCHI AND GOMBE STATES, NIGERIA

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### ABSTRACT

The study assessed farmers' perception on oil discovery in Alkalari and Akko Local Government Areas of Bauchi and Gombe States, Nigeria. Multi-stage sampling technique was used to select 200 respondents. Data were collected using structured questionnaire and analyzed using both descriptive and inferential statistics. The findings revealed that most (84.5%) of the respondents were males with mean age of 45 years. Also 64.0% were married with mean household size of 11 persons. The results also showed that 30% had attained tertiary education and 49.5% had farming experience of 6-10 years. About 60% inherited their farmland. The results further showed that, the respondents agreed that the rivers would be contaminated, air would be polluted, and farm land would be used for construction with mean scores of 4.7, 4.6 and 4.5 respectively. The perceived benefits according to the respondents include presence of electricity, better access road, and employment opportunities with mean scores of 4.1, 4.0 and 3.9 respectively. The regression results showed that age, educational level, annual income, access to credit and extension contact were significant ( $P < 0.001$ ). Also, marital status, household size and main occupation were significant ( $P < 0.01$ ) while land acquisition and source of agro input were significant ( $P < 0.05$ ) in influencing their perception on the oil discovery. The major perceived constraints were land destruction with 92%, water contamination 84%, reduction of farming activities 75% and deforestation 65% which were ranked 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup> and 4<sup>th</sup> respectively. It was concluded that the respondents had the perception of the oil effects and benefits on their community and agricultural activities in general. Based on the findings, it was recommended that government and oil companies should hold a stakeholder meeting with the communities. Oil companies should plant more trees to replace the destroyed ones, also government and oil companies should ensure adequate security in the communities.

**Keywords:** Perception, Assessment, Farmers, Oil discovery.

### INTRODUCTION

The historical backdrop of the oil business in Nigeria uncovers that oil was found in Nigeria in 1958 at Olobiri in the Niger Delta. The disclosure was made by Shell-BP. Nigeria joined the position of oil makers in 1958 when its first oil field came on stream creating 5,100 barrels each day (Samuel and Jumoke, 2022). Nigeria is rated the leading economy in Africa, with enormous contributions by the oil and gas sector, the nation's leading industry (Olusola *et al.*, 2022). Nigeria, the 12<sup>th</sup> largest producer of oil and gas in the world has its political economy around oil even though this later came to being after years of dependence on agriculture (Akinyetun, 2016). Oil production in Nigeria has taken total control of the economy (Ngwu, 2014).



Petroleum production and export play a dominant role in Nigeria's economy and account for about 90% of her gross earnings which has pushed agriculture, the traditional mainstay of the economy, from the early fifties and sixties (Sadeeq and Ahmadu, 2018). The discovery of oil in commercial quantity in the country shifted attention away from agriculture, which was the country's mainstay before independence in 1960 and made the economy totally dependent on oil exports (Omojolaibi *et al.*, 2015).

The agricultural sector has been identified as a major player in the development of the Nigerian economy despite the overriding impact of the oil and gas industry in recent times. Despite the fact that the government of Nigeria shifted its dependence on the agricultural sector as from the 1970s when the oil boom led Nigeria into the importation of food products, yet on the whole, it can still be asserted that majority of Nigerians especially in the rural areas still depend on agriculture, not only for their subsistence but for commercial purposes as well. Thus, the agricultural sector is the source for the provision of food for the teeming population of not the Nigerian society but the world over. Both food crops and the cash crops produce beneficial energy supply to the human body system. Between 1960 and 1970, the agricultural sector supplied about 90% of the total food supply in the country (Gershon *et al.*, 2019).

Nigeria is a developing country, largely rural and an agrarian in nature. Farming is been carried out by peasant farmers who employ traditional methods of farming. This implies that majority of people in Nigeria lived and worked in rural areas. Almost 75 percent are rurally based compared to less than 25 percent in urban areas. Despite this traditional approach, agricultural sector had, before the oil boom of 1970s, contributed more than 60 percent to Nigeria's Gross Domestic Product (Victor *et al.*, 2023).

## **METHODOLOGY**

### **The Study Area**

The research was conducted in Alkaleri and Akko Local Government Areas of Bauchi and Gombe States respectively.

Alkaleri is located in Western agricultural zone of Bauchi state, it lies on the geographical coordinate of  $10^{\circ}16'9N$  and  $10^{\circ}20'E$ . It has a total land mass of 5,918 km<sup>2</sup> with projected Population of 461,200 people at a growth rate of 2.41% (NPC, 2023 projection). The coldest months are December and January, while the temperature might fall as low as 17<sup>0</sup>C to 22<sup>0</sup>C. The mean annual rainfall ranges between 1000-1200mm. The raining season extends from May/June to September/October. The dry season starts September/October, to April/May. The maximum humidity may increase drastically during the middle of raining season to about 96% in August and drop sharply to about 10% during harmattan around December. Major occupation of the people includes farming, livestock rearing and trading.

Akko Local Government Area is one of the eleven Local government of Gombe state. It has latitude of  $10^{\circ}17'25.2N$  and longitude of  $10^{\circ}58'4.74E$ . It has a total land mass of 2,627 km<sup>2</sup> with a projected population of 464,700 people at a growth rate of 2.41% in 2023. The geology of the study area developed on basement complex rocks with adjoining sedimentary rocks formation (Ikusemoran *et al.*, 2018). The area has a tropical climate, with distinct wet and dry season (Abubakar, 2013). The area records about three to four months of rainfall concentrated in the months of July, August and September with the average annual rainfall of 951mm per annum (UBRBDA, 2018). The mean annual temperature ranged from 30 - 37<sup>0</sup>C, while March April and May were observed to be the dry hot months of the year. Among the crops grown include; cereals: maize, millet, sorghum, rice and wheat cowpeas, groundnuts, soy beans, bambara nuts, pepper, onions, okra, and melon. Livestock reared are



cattle, sheep, goats, poultry, rabbits and fish of different varieties. The major occupation of the farmers in the area is farming.

### **Sampling Procedure and Sample Size**

A multistage sampling technique was used in the study. At the first stage, Alkalari and Akko local government areas were purposively selected, considering their relation with oil discovery. At the second stage, four (4) districts were purposively selected from the two local government areas. At the third stage, two (2) villages were randomly selected from each district making a total of 8 villages. At the final stage, 10% of the sample frame was selected. This makes the sample size of 200 respondents.

### **Method of Data Collection**

Data for this study were collected through administration of structured questionnaire to the respondents in the study area. The data were collected on socioeconomic characteristics, perceived attitude, perceived benefits, factors influencing their perception and perceived constraint of the respondents on the oil discovery.

### **Method of Data Analysis**

Data for this study were analysed using both descriptive and inferential statistics. Descriptive statistics such as mean, frequency distribution and percentage, rankings were used in analysing objectives i, ii, iii and v. The inferential statistics used in the study was ordered-logit model to analyse objective iv, it is empirically specified in Eq. (1):

$$Y = a + b_1 X_1 + b_2 X_2 + b_3 X_3 + b_4 X_4 + b_5 X_5 + b_6 X_6 + b_7 X_7 + \dots + \varepsilon$$

Where: Y = Response of farmers to the awareness of the oil discovery and this was measured as (Yes Agreed=1. No Disagreed=0)

X<sub>1</sub>=Age (Years)

X<sub>2</sub>=Sex (male=1 female=0)

X<sub>3</sub>=Marital status (Single=1 or Married=0)

X<sub>4</sub>=Household size (Number of persons)

X<sub>5</sub>= Education (Number of years spent in formal education)

X<sub>6</sub>= Farming experience (Years)

X<sub>7</sub>= Land acquisition (Hectares)

X<sub>8</sub>=Access to credit (Access=1, Non-access=0)

X<sub>9</sub>=Annual income (₦)

X<sub>10</sub>=Membership of cooperative (Yes=1, No=0)

X<sub>11</sub>=Extension contacts (Number of times)

ε = Error term

b<sub>1</sub>.b<sub>11</sub>= Regression coefficients

## **RESULTS AND DISCUSSION**

### **Socio-economic Characteristics of the Farmers**

The result in Table 1 reveals that, the respondents had the mean of 45 years. The finding agreed to that of Sennuga *et al.* (2020) that shows that majority of the farmers were within the active age of 20-30 years. The result also shows that most (84.5%) of the respondents were male while the female constituted only 15.5%. The result also shows that majority (64%) of the respondents were married and 36% were single, this implies that majority of the farmers had certain levels of responsibilities to handle. The result further shows that 49% and 34.5% of the farmers had a household size of 1-5 persons and 6-10 persons in their household respectively, while 13% and 3.5% had a household size of 11-15 persons and 16–20 persons respectively with mean of 11 persons. The finding is affirmed by that of Musa *et al.* (2017) who reported that 43% of the respondent had a household size of 1-5 persons. The finding shows that 30%,



29% and 28.5% of the respondents had tertiary, adult and secondary education respectively. The result also shows that 50% of the farmers had farming experience of 6-10 years while 12%, 1%, 16% and 22% had between 1-5 years, 11-15 years, 16-20 years and 21-25 years respectively with mean of 13 years. This implies that the respondents in the study area had reasonable experience in their production. The result further shows that 59.5% of the farmers acquired their farmland through inheritance, while 17.5% and 13.5% acquired their land through rent and gift, only 9.5% acquired their land through purchase in the study area.

**Table 1:** Distribution of farmers according to socioeconomic characteristics n=200

Characteristics	Frequency	Percentage	Mean
<b>Age</b>			
18-30	64	32.0	45 years
31-40	61	30.5	
41-50	27	13.5	
51-60	41	20.5	
61-70	7	3.5	
<b>Sex</b>			
Male	169	84.5	
Female	31	15.5	
<b>Marital status</b>			
Single	72	36.0	
Married	128	64.0	
<b>Household size</b>			
1-5	98	49.0	11 person
6-10	69	34.5	
11-15	26	13.0	
16-20	7	3.5	
<b>Educational level</b>			
Adult education	58	29.0	
Primary education	25	12.5	
Secondary education	57	28.5	
Tertiary education	60	30.0	
<b>Farming experience</b>			
1-5	24	12.0	13 years
6-10	99	49.5	
11-15	1	0.5	
16-20	32	16.0	
21-25	44	22.0	
<b>Land acquisition</b>			
Inherited	119	59.5	
Purchased	19	9.5	
Rented	35	17.5	
Gift	27	13.5	

**Source:** Field survey, (2023)

### **Perceived Attitude of Farmers to Oil Discovery**

The result in Table 2 shows the perceived attitudes of respondents toward oil discovery. The finding shows that the respondents agreed on awareness of oil discovery, rivers will be polluted, Oil will lead to militancy in the community farm lands will be used for constructions,



community will be registered among oil communities with mean of 4.7, 4.6, 4.5 and 4.4 respectively, which implies that respondents had a good knowledge of oil discovery and its implications on the community and agriculture in general. However, the respondents disagreed that oil business is better than farming with mean of 2.4, which is not unconnected with the believe that agriculture is the pillar of wealth and the only sustainable source of income on the other hand one will argue that oil business fetch more income than farming but it's not constant and is associated with several hazards and dangers of different types and severity. The finding agreed to that of Omorede (2014) who reported oil communities suffer from militancy activities.

**Table 2:** Perceived attitude on oil discovery

Variables	Mean	Remark
Awareness of oil discovery	4.2	Agree
Oil will of benefit the community	4.2	Agree
Oil business is better than farming	2.4	Disagree
Government will collect farmlands	3.9	Agree
Government will compensate collected lands	3.9	Agree
Oil will lead to militancy in the community	4.6	Agree
There will be air pollution in the community	3.4	Agree
Most farmlands will be used for constructions	4.5	Agree
Rivers will be polluted with chemicals	4.7	Agree
Community will be registered among oil communities	4.4	Agree
Community will be known by others	4.4	Agree
Community will be rich economically	3.4	Agree
Living standard will be improved	3.2	Agree

Source: Field survey (2023) Note that mean less than 3 is Disagree and 3-5 is Agree

### **Perceived Benefit of Farmers on Oil Discover**

The result in Table 3 shows the perceived benefits of oil discovery to the respondents and community at large. The respondents had adequate knowledge of the benefits associated with oil discovery in the study area. The finding shows that the respondents perceived Security of the community will be increased, Presence of electricity, Better pipe borne water supply and Employment opportunities with means of 4.6, 4.5, 4.4 and 4.3 respectively will be the benefits in association to the oil discovery. However, the finding from Joseph (2010) reported that in spite of the large profits made by oil companies operating in the Niger Delta, the people of the region live in squalor without basic amenities. This has resulted in an upsurge of violent activities orchestrated by community-based organizations wishing to draw international attention to the plight of the people in the area.





**Table 3:** Perceived Benefits from Oil Discovery

Variables	Mean	Remark
Presence of electricity	4.5	Agree
Improved living standards	3.7	Agree
Government will increase allocation to the community	3.8	Agree
Employment opportunities	4.3	Agree
Scholarship to the community	3.7	Agree
Recognition of the community	4.3	Agree
Better pipe borne water supply	4.4	Agree
Access roads	4.0	Agree
Improved healthcare facilities	3.9	Agree
Local products value appreciation	4.3	Agree
Acculturation of cultures	3.6	Agree
Land value appreciation	4.3	Agree
Security of the community will be increased	4.6	Agree
Increase in populations	4.0	Agree

Source: Field survey (2023) Note that mean less than 3 is Disagree and 3-5 is Agree

### **Socio-economic Factors Influencing Farmers' Perception on Oil Discovery**

The result in Table 4 reveals that age, marital status, household size, educational level, land acquisition, access to credit, main occupation, annual income, source of agro input and extension contacts were significant which implies that these factors had a relationship with farmers perception on oil discovery in the study area. On the other hand the result shows that age, access to credit, annual income and number of extension contacts of farmers were found to be negative and significant ( $P < 0.001$ ) probability level. This implies that as these factors increases, perception of farmers on oil discovery decreases, this may not be unconnected to the fact that most farmers with good income are innovators, they don't wait for technology to come to them through extension agents rather they search for it in order to boost their farming activities.

The result further shows that level of education was positive and significant ( $P < 0.001$ ) in influencing farmers perception on oil discovery. This implies that as educational level increases the better the perception of farmers on oil discovery in the study area. In addition, marital status, household size were positively significant at ( $P < 0.01$ ) in influencing the perception of farmers on oil discovery. This implies that perception of farmers on oil discovery increases with increase in these factors. Furthermore, the result shows that land acquisition and source of agro input were found to be negatively significant at ( $P < 0.05$ ). This implies that decrease in these factors lead significant influence on farmers' perception on oil discovery. However, the finding shows that farming experience, livestock kept and membership of cooperatives had no significant influence on farmers' perception toward oil discovery in the study area

**Table 4:** Factors Influencing Farmers Perception on the Oil Discovery

Variables	B	Std. Error	T	Sig.
(Constant)	2.650	.133	19.995	.000***
Age	-.005	.002	-3.355	.001***
Marital status	.117	.039	2.997	.003**
Household size	.009	.003	3.176	.002**
Educational level	.148	.023	6.502	.000***
Farming experience	.004	.003	1.345	.180
Land acquisition	-.050	.020	-2.453	.015*
Main occupation	-.054	.017	-3.137	.002**
Livestock kept	.026	.026	1.019	.310
Type of livestock kept	.075	.039	1.919	.057
Access to credit	-.636	.069	-9.212	.000***
Annual income	-4.829E-7	.000	-4.851	.000***
Membership of cooperatives	.057	.061	.923	.357
Sources of agro inputs	-.030	.014	-2.212	.028*
Extension contacts	-.174	.006	-28.908	.000***

Source: Field survey (2023),

\*\*\*Significant(P<0.001)\*\*Significant(P<0.01) \*Significant (P<0.05)

### **Perceived Constraints Faced by the Respondents on Oil Discovery**

The results in Table 5 shows that all the constraint mentioned were perceived by the respondents. However most (92%) of the respondents reported that land destruction as the major constraints perceived due to the oil discovery which was ranked 1<sup>st</sup>. Jamala *et al.* (2012) who reported that land destruction bring about reduction in soil fertility, promotes soil erosion and also destroys soil micro-organisms. The result also reveals that majority (84% and 75%) of the respondents perceived water contamination and reduction of farming activities respectively were among the major constraint to oil discovery which were ranked 2<sup>nd</sup> and 3<sup>rd</sup> respectively. However 65%, 62% and 60% of the respondents also reported deforestation, Spillage of oil and erosion respectively to be among the constraint. Chijioke *et al.* (2018) reported that oil spillage significantly impacts residents of the oil-producing states in Nigeria, causing immeasurable and dehumanizing pains and anguish to the inhabitants of the area, as the individuals can no longer invest in their traditional fishing, agricultural production, and hunting activities. The result further reveals that more than half (58%) of the respondents perceived pollution as a constraint to oil discovery. Emoyan *et al.* (2008) reported that, specific negative impact on the region arising from the activities of the industries include: environmental pollution. Also the result shows that 51% and 50% of the respondents perceived disunity of kinsmen and communal conflicts respectively as constraint to their perception on oil discovery. Deekor *et al.* (2021) revealed that communal conflict influence agricultural activities among Ogoni people of Rivers State.



**Table 5:** Perceived Constraints of the Respondents due to Oil Discovery

Constraints	Frequency*	Percentage	Rank
Land destruction	184	92	1 <sup>st</sup>
Water contamination	169	84	2 <sup>nd</sup>
Reduction of farming activities	150	75	3 <sup>rd</sup>
Deforestation	130	65	4 <sup>th</sup>
Spillage of oil	124	62	5 <sup>th</sup>
Erosion	120	60	6 <sup>th</sup>
Pollution	113	58	7 <sup>th</sup>
Wild animal displacement	105	52	8 <sup>th</sup>
Disunity of kinsmen	102	51	9 <sup>th</sup>
Communal conflicts	100	50	10 <sup>th</sup>

Source: Field survey (2023)

\*Multiple Response

## CONCLUSION AND RECOMMENDATIONS

Based on the findings of this study, it can be concluded that the study on the assessment of farmers' perception on oil discovery in Bauchi and Gombe State shows that the respondents had the perception of the oil effects and benefit on their community and agricultural activities in general. Age, educational level of the farmers and their extension contact plays a significant role in their perception on oil discovery in the study area. Based on the findings of the study, the following recommendations were made:

- Government and oil companies should ensure that oil spillage on farm lands is minimized.
- There is need for the government to hold a stakeholders meeting with the communities.
- Oil companies should ensure adequate security in the community to curtail communal conflicts
- Farmers should cultivate leguminous cover crops in erosion prone areas.
- Oil companies plant more trees to replace the trees use in construction.

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