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PIPELINE VANDALISATION AND FARMERS' SITUATION: EXPOSITION FROM OBAFEMI OWODE LOCAL GOVERNMENT AREA OF OGUN STATE, NIGERIA

***[1]O. OYEKUNLE, [1]O.T. ONIFADE, [2]I.F. AYANDA AND [3]A.S. AMUSAT**

[1]Agricultural Media Resources and Extension Centre (AMREC), Federal University of Agriculture, P.M.B 2240, Abeokuta, Nigeria.
[2]Department of Agric. Econs. And Ext., Kwara State University, Malete, Kwara State, Nig.
[3]Institute of Agricultural Research and Training (I.A.R. & T.) Moor Plantation, Ibadan.
***Corresponding author:** lekbidoye@yahoo.com **Tel**: +2348035086059

ABSTRACT

The study assessed the effects of pipeline vandalisation on the socio-economic life and activities of farmers in Obafemi Owode Local Government Area of Ogun State. Purposive and simple random sampling techniques were used to select 80 farmers from the affected villages in the Local Government Area. Primary data were obtained with interview guide. Chi-Square was used to analyze the data collected. The mean age of the farmers was 43.37 years and 78.7% were male. Majority (76.3%) were married while 61.2% were Christians. More than half (57.5%) had no formal education and they cultivated an average of 4.94 hectares of land. Most (92.0%) of the farmers operated on full time basis. Nearly all the farmers (97.5%) were aware of the incidents of pipeline vandalisation in their area. Efforts of the farmers at reducing the menace included warning messages through town criers, reporting cases to the law enforcement agents, threat of killing the vandals and the use of "charms" to scare the vandals. Majority (52.5%) claimed that the efforts made by the farmers and the government had no effect on the incident of pipeline vandalisation. Farmers' perceived effect of pipeline vandalisation on their activities and livelihood included non-availability of labor due to the youths' involvement in the practice (82.5%), destruction of farmlands (76.25%) and pollution of rivers and atmosphere (65.0%). Farmers were constrained by corrupt law enforcement agents in charge of surveillance, uncooperative attitude of fellow farmers, non-challant attitude of the government and lack of fund to organize campaigns against pipeline vandalisation. Chi-square analysis showed a significant association between pipeline vandalisation and farmers' agricultural production. It was concluded that pipeline vandalisation was a regular occurrence in the study area and that it constituted a health hazard and posed a problem to the environment as well as the agricultural activities of the farmers.

Keywords: Pipeline vandalisation, farmers, vandals, oil

INTRODUCTION

Prior to 1970, agriculture remained the mainstay of Nigerian economy, but with the discovery of oil in the 1970s, the significance of the agricultural sector as a source of food, shelter and raw materials for industries took a downward trend. Many able-bodied men and women particularly the youths left the rural areas for the urban centers for better employment and improved standard of living (Adinna 2004). It is no gainsaying that the discovery of oil has trans-

formed the economy of Nigeria in the past years, but the question is; what has happened to the agricultural sector, the environment as well as the socio-economic life of the rural dwellers. There is growing concern in the world today about the relationship between agriculture and the environment, especially with regards to the need for sustainable development of the global agricultural system in general and the third world agriculture in particular (Okoji, 1992). Many young people who could have engaged in agricultural activities now engage in pipeline vandalisation to make "quick money" from this illegal business. This activity has negative and detrimental effects on the environment, socio-economic life of the people as well as agricultural development.

The environment has been known over the years to have effects on the health of man, livestock and crop. Man, through his economic and social activities has changed the nature of Nigerian environment consciously and unconsciously and each of these activities has one effect or another on agricultural systems in Nigeria (Ibe, 1998). Pipeline vandalisation is one of such human activities that constitute an environmental problem. Similarly, the World Bank (1990) has analyzed the environmental problem of Nigeria and found that soil degradation, water contamination, deforestation, gully erosion, air pollution and the invasion of water hyacinth are the priority environmental problems facing the country. For the survival of human and animal life, the environment has to be well protected. Yapp (1972) pointed out that environmental protection has three aspects: the protection of the natural environment, the protection of man himself and his fellows against his own action and the protection of future generations against the actions of modern man. Sankoh (1999) found out that the quality of human life depends ultimately on the quality of the environment in which he lives, and the ability of this environment to provide food, shelter and natural resources needed to generate employment and a well secured life. According to him, there can be no meaningful economic development unless the health of the people and safety of the environment are ensured.

FORMECU (1990) posited that water, air and noise form part of the constituents of environmental pollution. Other constituents are chemicals, radiation and micro organisms. Air pollution can occur as smoke, fog, dust and it can also be formed as a result of fossils, fuels, chemical metallurgical industry and vehicles. Pollution can also be derived from rain water which is normally slightly acidic. It absorbs carbon dioxide as it passes through the atmosphere forming a weak acid known as carbonic acid which has effect on many forms of plant and animal life. It damages leaves, affects roots and inhibits germination in plants (Dorothy, 1995). Soil pollution takes place where there is direct or indirect introduction of substances or energy into the soil capable of resulting in such deleterious effects to living resources, hazard to human health, hindrance to human activities and impairment of qualitative use of soil (USEPA, 1992).

The activities of the pipeline vandals have resulted in many places to spillage of fuel on farmers' land and water, thereby affecting the soil and consequently plant growth. Aquatic animals including fish have also been destroyed in many places. Oil spillage grossly affects stomata of leaves and causes morphological aberrations. Residual oil on land usually contaminates underground

waters through seepage and leaching, the lives of soil inhabiting insects are also endangered (Beeby, 1993). Oil spillage also results to fire outbreak. Industrial and municipal discharges as well as urban run-offs, atmospheric deposition and natural seeps also account for petroleum hydrocarbon pollution of the environment (Baker, 1983). Pipeline vandalisation also has detrimental effects on people lives and livelihood. Petroleum hydrocarbon pollution of the environment may also arise from oil well drilling production operations, transportation and storage in the upstream industry, and refining, transportation and marketing in the downstream industry. Petroleum hydrocarbon pollution can also be from anthropogenic sources (Better *et al.*, 1996). The pollution of water bodies from pollutant through surface runoff and uncontrolled discharge of untreated and partially treated sewage has been reported severally by Inoue and Ebise, 1999). The risk of drinking water contaminated by oil can be extrapolated from its effect on rats that developed hemorrhagic tendencies after exposure to water soluble components of crude oil (Onwurah, 2002). According to Odu (2007), the negative impact of oil spillage remains the major cause of depletion of the vegetative cover and the mangrove ecosystem of the Niger Delta Area of Nigeria.

It is against this background that the study provided answers to the following research questions: what are the effects of pipeline vandalisation on the socio-economic life of the farmers and their agricultural activities? What are the effects of pipeline vandalisation on farmlands? What had the people and government done to reduce the incident of pipeline vandalisation? How do the farmers perceive the incident and what are the constraints associated with the control of pipeline vandalisation by farmers and government?

The general objective of the study was to assess the effect of pipeline vandalisation on the socio-economic life and activities of famers in Obafemi Owode Local Government Area of Ogun State, Nigeria, while the specific objectives were to:

(1) Identify the socio-economic characteristics of the farmers in the affected areas;
(2) identify past efforts of the farmers and government at reducing the incident of pipeline vandalisation;
(3) determine farmers' perception of pipeline vandalisation;
(4) determine the effect of pipeline vandalisation on farmers' lands;
(5) determine the effect of pipeline vandalisation on the socio-economic life of the farmers;
(6) (6) identify the constraints associated with the eradication of pipeline vandalisation by the farmers.

The following hypothesis stated in a null form was tested to determine the relationship between the identified variables:

$H0_1$: Pipeline vandalisation has no significant effects on farmers' agricultural production and socio-economic life.

Based on the findings of the study, appropriate conclusions were drawn and recommendations made.

METHODOLOGY

The Study Area

The study was carried out in the Obafemi Owode Local Government Area of Ogun State. The Local Government covers about 114,167 hectares of land. It is situated

within the tropical rain forest zone of Nigeria with an annual rainfall estimated at 1200 – 1400mm and with characteristic feature of high but uniform temperature ranging from 27 – 32^{o}C which favour agricultural production. The crops cultivated by farmers in the Local Government include: rice, maize, cassava, cowpea, oil palm, kolanut, vegetables among others. The local government is inhabited mainly by Yoruba speaking people but with sub-group of dialect from other states such as Hausa, Igbo and Fulanis.

The population of the study consisted of farmers who live in the villages where there had been an incident of pipeline vandalisation. Purposive and simple random sampling techniques were used to select the respondents for the study. Four villages within the local government where there had been incidents of pipeline vandalisation were purposively selected. The villages are: Ajebo, Oyebola, Owojo and Isan-Orileoko. Twenty households were randomly selected from each of the villages given a total of eighty households. The heads of each of the households were sampled, making a total of eighty (80) farmers as respondents for the study.

Data were collected with the aid of structured interview schedule administered to the 80 selected farmers. The exercise was carried out with the assistance of the Village Extension Agent, covering the cells where the villages were located. This was necessary because of the sensitive nature of the information elicited from the farmers. Additional relevant information was gathered through personal observations as well as publications from libraries.

The survey instrument was critically reviewed by experts in questionnaire design and administration. The reliability test using the test-retest method provided an 'r' value of 0.92 indicating a high degree of consistency and reliability. Dependent and independent variables of the study were measured. Variables such as sex, marital status, farming status and education were measured at the nominal level while age of the farmers, farm size and annual income were measured at the interval level.

Farmers were asked whether they were aware of the incident of pipeline vandalisation in the area. Regularity of the incident was determined on a four point scale of very regular, regular, seldom and never. Efforts of the farmers at stopping the incident in their area were determined through a frequency table while government efforts were also presented by frequency and percentage tables. The effects of pipeline vandalisation on farming activities were measured by ranking to determine the severity of such adverse effects. Effect on farmers' health was also ranked to determine the severity. Farmers' perception of the incident of pipeline vandalisation was measured through a 5-point Likert Scale of Strongly Agree, Agree, Undecided, Disagree and Strongly Disagree. The constraints experienced by the farmers in proffering solution to the problem at their own level were also ranked to determine the degree of severity of each of them.

Descriptive statistics such as percentages and frequency counts were used to describe the socio economic characteristics of the farmers while inferential statistics such as the Chi-Square was used to test the significance of association between the study variables.

RESULTS AND DISCUSSION

Socio-economic characteristics of the farmers

Results in Table 1 showed that 50% of the famers were between 41 – 50 years of age with a mean age of 43.37 years. This category of farmers, according to the Food and Agriculture Organization (FAO, 1997) constitute the majority of farmers in developing countries and are the economically active part of the population. This result is corroborated by the findings of Oladoja and Adisa (2006) which stated that most Nigerian farmers are of active age between 41 – 50 years. Majority (78.8%) were male while 76.3% were married. Many (46.0%) of the farmers had no formal education, 25.0% had primary education and only 9.0% had secondary education. This implies that the educational status of the farmers is low. Majority (62.5%) of the farmers cultivated less than 5 hectares of land and 92.0% of them were full time farmers. Majority (72.5%) had 1 – 20 years of farming experience. The implication of this is that majority of the respondents were real farmers who will be able to feel the effect of the pipeline vandalisation on their farming activities and livelihood. Majority (82.5%) of the farmers earn between N50,000 and N100,000 per annum. This shows that the farmers are low income earners.

Farmers' awareness and regularity of incident of pipeline vandalisation

Data in Table 2 show that majority (97.5%) of the farmers were aware of the incidents of pipeline vandalisation in their area. The implication of this is that the incidents were well known by the people and this might have impacted negatively on the socio-economic life of the people as well as their agricultural production. It also means that majority of the farmers have information on the incident of pipeline vandalisation.

Similarly, more than half (58.8%) of the farmer claimed that the incident occurred regularly in their area. This implies that the incident might have taken its toll on the socio-economic life and agricultural production of the farmers.

Efforts of the villagers and government at stopping pipeline vandalisation

Data in Table 3 showed that majority (52.5%) of the villagers indicated that they gave warning message to the vandals through the town crier while 33.75% indicated that they reported the incident of pipeline vandalisation to the law enforcement agents. Some (33.75%) of the villagers claimed the use of juju to scare the vandals while 10.0% indicated that the vandals were threatened with death/killing. This result suggests that the villagers saw pipeline vandalisation as a serious problem militating against their economic well-being and that, efforts must be made to stem the spate of the vandalisation. Furthermore, majority (81.25%) of the farmers claimed that they saw surveillance carried out by the law enforcement agents in the area while 60.0% indicated that they listened to government warnings of the vandals through radio and television messages. Some (22.50%) of the villagers heard about the arrest and prosecution of vandals while few (18.75%) were aware of the "shoot at sight" order by the government.

Table 1: Socio-economic characteristics of the farmers

Variables	Frequency	Percentage	Mean
Age (years)			
20 - 40	22	27.5	
41 – 50	40	50.0	43.37
51 – 60	16	20.0	
61 and above	2	2.5	
Sex			
Male	63	78.7	
Female	17	21.3	
Marital Status			
Single	8	10.0	
Married	61	76.3	
Widowed	10	12.5	
Divorced	1	1.25	
Religion			
Islam	20	25.0	
Christianity	49	61.2	
Traditional	11	13.8	
Educational level			
No formal education	46	57.5	
Primary education	25	30.8	
Secondary education	9	11.25	
Tertiary education	0	0	
Farm Size (ha)			
1-5	50	62.5	
6-10	27	33.75	4.94
11-15	3	3.75	
Farming Status			
Full time	74	92.0	
Part time	6	8.0	
Income / Annual (N)			
57,000 – 100,000	66	82.5	
101,000 – 150,000	08	10.0	
151,000 – 200,000	4	5.0	88, 837
More than 200,000	2	2.5	

Source: Field Survey, 2009

Table 2: Farmers' awareness and regularity of incident of pipeline vandalisation

Variable	Frequency	Percentage
Awareness	78	97.5
Regularity		
Very Regular	1	1.25
Regular	52	65.0
Seldom	25	31.25
Never	2	2.5

Source: Field Survey, 2009

Table 3: Farmers' and government efforts to stem the tide of pipeline vandalisation

Variable	Frequency	Percentage
Farmers' Efforts		
Threat of killing the vandals	8	10.0
Warning message through the town criers	42	52.5
Reporting cases to the law enforcement agents	27	33.75
Use of juju to scare the vandals	3	3.75
Government Efforts		
Surveillance by the law enforcement agents	65	81.25
Arrest and prosecution of vandals	18	22.50
Shooting of vandals at sight	15	18.75
Warning through radio and television	48	60.0

Source: Field survey 2009 *Multiple responses

Perceived effect of farmers and government efforts at stopping pipeline vandalisation

Data in Table 4 show that majority (52.5%) of the farmers believed that the efforts made by the farmers and the government had no significant effect on the incident of pipeline vandalisation while 37.5% believed that the efforts had reduced the incident. Very few (10.0%) of the farmers claimed that the incident had become more prevalent despite the efforts of the farmers and the government. The implication of this is that pipeline vandalisation is still on-going in the area and that more efforts are needed to reduce or stop the menace.

Table 4: Perceived effect of farmers and government efforts at stopping pipeline vandalisation

Farmers' Efforts	Frequency	%
It has reduced pipeline vandalisation	30	37.5
It has no significant effect on the incident	42	52.5
Incident becomes more prevalent	8	10.0

Source: Field Survey, 2009

Effects of pipeline vandalisation on farming activities and farmers' livelihood

Data in Table 5 showed that 82.5% of the farmers believed that pipeline vandalisation had reduced labour force in their area because many youths engaged in the act. Majority (76.25%) were of the opinion that the incident contributed to the destruction of farm land while 65.0% claimed that the incidents polluted rivers and the atmosphere. Less than half (40.0%) said pipeline vandalisation had reduced their crop yields while a few (30.0%) claimed fear of attack by the vandals.

Table 5: **Effects of pipeline vandalisation on farming activities and farmers' livelihood**

Effect	Frequency	%	Rank
Non-availability of labor due to youths involvement in pipeline vandalisation	66	82.5	1
Destruction of farm lands	61	76.25	2
Pollution of rivers and atmosphere	52	65.0	3
Reduction in crop yield	32	40.0	4
Fear of attack by the vandals	24	30.0	5

Source: Field Survey, 2009 *Multiple Responses

Constraints experienced by the farmers when reducing the menace of pipeline vandalisation

Data in Table 6 showed that majority (85.0%) of the farmers were constrained by the corrupt practices of the law enforcement agents. This might discourage the farmers and encourage the pipeline vandals to continue with their activities. The non-challant attitude of the government towards the eradication of pipeline vandalisation was ranked second among the constraints (77.50%). The farmers expected the government to proffer lasting solution to the problem and considered it as a threat to security of life and property as well as their farming activities. Many (63.75%) indicated lack of fund to organize campaigns against pipeline vandalisation as another challenge they faced in their efforts at reducing the menace. More than half (60.0%) of the farmers complained about the non-cooperative attitude of some of their fellow farmers at collectively waging war against the vandals, while 43.75% said the non-repentant attitude of the vandals, not minding the penalty and the risks associated with the practice was another constraint militating against the total eradication of pipeline vandalisation in their communities.

Table 6: Constraints experienced by the farmers

Effect	Frequency	%	Rank
Corrupt practices by the law enforcement Agents in charge of surveillance	68	85.0	1st
Non-challant attitude of the government Towards waging war against the vandals	62	77.50	2nd
Lack of fund to organize campaigns	51	63.75	3rd
Uncooperative attitude of some of the Farmers	48	60.0	4th
Vandals not minding the penalty for pipeline vandalisation	35	43.75	5th

Source: Field Survey, 2009 *Multiple Responses

Association between farmers' agricultural production, socio-economic characteristics and the effects of pipeline vandalisation

Data in Table 7 showed a significant association between farmers' agricultural production and pipeline vandalisation at 0.5% level of significance. The implication of this is that the activities of the vandals had a negative effect on the agricultural production of the farmers. Other variables such as age, sex, marital status, education and farmers' income had no association with pipeline vandalisation. This implies that these variables or farmers' characteristics do not affect or alter the effect the pipeline vandalisation had on the farmers.

Table 7: Chi-Square results of the association between farmers' agricultural production, socio-economic characteristics and the effects of pipeline vandalisation

Variable	π^2	df	P value	Decision
Agricultural production	13.64	6	0.03	S
Age	7.36	9	0.59	NS
Sex	0.61	3	0.89	NS
Marital Status	2.55	9	0.97	NS
Educational background	13.54	9	0.13	NS
Income/Annum	13.64	6	0.03	NS

Source: Field Survey, 2009

CONCLUSION AND RECOMMENDATIONS

The study established that pipeline vandalisation was a regular occurrence in the study area. The incident posed a problem to the environment, the health of the farmers and their agricultural production and other economic activities. Most of the farmers were aware of the incident of pipeline vandalisation and therefore made frantic efforts to reduce or cub the activities of the vandals. With limited efforts and little effect, the need for government intervention, therefore, became imperative. The Government efforts slightly reduced the incident but the presence of the law enforcement agents in the area created fear for the farmers. Despite the efforts of the farmers and the intervention of the government, the perpetrators remained adamant and pipeline vandalisation was still a regular occurrence in the study area. There is, therefore, a need for more aggressive approach to stopping the incident in the study area and in Nigeria as a whole. If the activities of the vandals continued unabated, the socio-economic activities of the farmers could be impaired, their health threatened and youths totally discouraged from involving themselves in farming. This situation, therefore, justifies the significant association that existed between pipeline vandalisation and farmers' agricultural production.

Based on the findings of this study, the discussions therein and the conclusion drawn, it was recommended that youths should be empowered by the government through provision of jobs because most of the pipeline vandals were youths. The governments should also introduce innovations, such as the use of helicopters in their surveillance, and assure the farmers of their continued efforts at stopping the incident of pipeline vandalisation.

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