

Investigation of Pipeline Vandalism and Its Implications on Business Activities in Nigeria

Mmeje, David Uchechukwu¹, Dr. Bello Ayuba², Dr. U.D. Mohammed³

¹(M.Sc. Student, Department of Business Administration, University of Abuja, Gwagwalada, Abuja, FCT- Nigeria).

²(Department of Business Administration, University of Abuja, Gwagwalada, Abuja, FCT- Nigeria).

³(Department of Business Administration, University of Abuja, Gwagwalada, Abuja, FCT- Nigeria).

Abstract

The recent pipeline vandalism by the Niger Delta Avengers and other militants groups have attracted both national and international condemnations due to its implication on not only business activities in Nigeria but the Nigerian economy as a whole. The consequences of their actions had affected most businesses which paralyzed business activities as a result of power failure and rising cost of production through the provision of alternative power source which have significant impact on both the organizations and the country's economy in general. It is for this reason that the study was conducted with the main objective of investigating pipeline vandalism and its implications on business activities in Nigeria. The study employs the use of both primary and secondary sources of data from managers and customers of business organizations in the Nigeria's power sector. A Simple Linear Regression was used to analyze the data obtained from the formulated hypotheses. Findings based on the analysis reveals that, pipeline vandalism in Nigeria significantly affects business activities in Nigeria as it's resulted to destruction of critical pipeline installations and constant power failure which affects the smooth operations of business organizations and subsequently, retard economic development. The study recommended that Federal Government of Nigeria should through the NNPC collaborate with the nation's military and other security agencies to ensure adequate policing and protection of critical pipeline infrastructure throughout the country so as to checkmate the activities of pipeline vandals which is having a devastating effects on the economy. The study concludes that the actions of the militant groups is a serious economic sabotage which if allowed to go unchecked will continue to be having a devastating effect on the country's economy.

Keywords: Business Activities, Pipeline Vandalism, Power Generation, Revenue Generation

1.1 Background to the Study

The Nigeria's pipeline infrastructure has been subjected to incessant attacks by militants and pipeline vandals across the country. The frequency of such attacks has been very alarming which is affecting all fabrics of life and the country's economy as a whole. This is making investors (domestically & internationally) to be losing interest in the country's Oil sector due to the security implication and effects on power generation as well as decline in profit and general socio-economic development of the nation which is making it difficult for business organizations to achieve their goals of been in business.

The incidence of pipeline vandalism by Niger Delta Avengers and other militant groups has been on the rise in Nigeria which is affecting Oil production thereby making the country's output projection of 2.2million bpd to now drop to less than 1.1million bpd (CBN, 2016). This has affected Gas supply for electricity generation and distribution in the country thereby crippling business activities and economic growth which calls for immediate action that will put a stop to the ugly situation so as to restore confidence into the power and energy sector which will pave way for business activities to thrive and subsequently, economic growth and development.

It is in view of this that this study on investigating pipeline vandalism and its implications on business activities in Nigeria was conducted to examine the extent of the implications on business activities in Nigeria. The findings of this study will be of great benefits to business organizations, government, students and researchers, as well as stakeholders in the Oil and Gas industry. The study focused on South-South and South-Western regions of Nigeria where major cases of pipelines vandalism were recorded. The study covered the period 2015 to the first quarter of 2017; the period which witnessed heavy attacks on pipeline infrastructure in the regions. The study focused on those business activities with the most significant impact on the energy/power sector of the economy (i.e. Crude Oil revenue, availability of Petroleum Motor Spirit [PMS] & Electricity Generation). Managers and other categories of employees of stakeholder organizations including their customers were part of the study focus.

1.2 Statement of the Problem

The major challenges of pipeline vandalism are poor policing and protection of pipeline infrastructure, political/militant agitation and endemic corruption. However, the fundamental issues are the attendant

consequences of pipeline vandalism such as decline in Crude Oil revenue, scarcity of PMS and decline in electricity generation which all affects business activities in Nigeria. The study will investigate these problems and come up with some policy recommendations. Even though, there have been several studies (such as those of Vidal, 2011, Ogbeni, 2012 & Ugwuanyi, 2013) conducted at different times on the impact of pipeline vandalism on the growth of Nigeria's economy, these studies focus mainly on its impact on Nigerian economy without specifically studying the implications on business activities in Nigeria which this study is designed to accomplish.

1.3 Research Questions

The study will provide answers to the following research questions:

- i. To what extent pipeline vandalism result to decline in crude Oil revenue accruing to the federation account?
- ii. How the scarcity of PMS arising from pipeline vandalism affects business activities in Nigeria?
- iii. How the decline in electricity generation arising from pipeline vandalism affects business activities in Nigeria?

1.4 Objectives of the Study

The main objective of the study is to investigate the implications of pipelines vandalism on business activities in Nigeria. The specific objectives are:

- i. To assess how pipeline vandalism result to decline in crude Oil revenue
- ii. To investigate how scarcity of PMS arising from pipeline vandalism impact on business activities in Nigeria.
- iii. To determine how decline in electricity generation arising from pipeline vandalism affects business activities in Nigeria.

1.5 Research Hypotheses

In the course of this study, the following hypotheses were formulated:

Ho₁: Pipeline vandalism does not result to decline in crude oil revenue accruing to the federation account.

Ho₂: Scarcity of PMS arising from pipeline vandalism does not have significant on impact business activities in Nigeria.

Ho₃: Decline in electricity generation arising from pipeline vandalism do not have significant effects on business activities in Nigeria.

2. LITERATURE REVIEW

2.1 Concept of Pipeline Vandalism

Vandalism is an action involving deliberate destruction of public or private property. Within the civic domain, vandalism denotes willful destruction of public or government property in keeping with criminal or political intent. Oil pipeline vandalism therefore implies deliberate breaking of oil pipelines with the intent to steal petroleum products or to sabotage the government (Vidal, 2011). In Nigeria, oil pipeline vandalism has been perpetrated principally by criminal syndicates who are motivated by the desire to loot oil products for material aggrandizement. This organized crime is often aided and abated by the state agents, which gives it a semblance of a franchise. Oil pipeline vandalism is also known in Nigeria as oil bunkering, which is the act of drilling into the pipelines with the intent to steal products.

2.2 The Structure of Nigeria's Oil Pipeline System

The discovery of crude oil in commercial quantity in Oloibiri in 1956 marked the birth of the petroleum industry in Nigeria. Since then, the Nigeria economy has been more or less dependent on petroleum. To facilitate the distribution of crude oil product from the oil rich Niger-Delta to other parts of the country, a network of oil pipelines was constructed to inter-link some states at strategic locations (Onuorah, 2007). Nigeria has a total pipeline grid of 5001 kilometers. This consists of 4315 kilometers of multi-product pipelines and 666 kilometers

of crude oil pipelines. These pipelines transverse the country, forming a network that inter-connects the 22 petroleum storage depots. The four refineries include Port-Harcourt (I & II), Kaduna and Warri, the off-shore terminals at Bonny and, Escravos, and the Jelties at Alas Cove, Calabar, Okirika and Warri (Onuoha, 2007).

2.3 Incidence and Prevalence of Oil Pipeline Vandalism in Nigeria

The Nigerian oil Pipeline infrastructure has been subjected to incessant attacks by vandals over the years. The frequency of such attacks has been rather disturbing in the recent times. For instance, in 1999 alone, there were a total of 477 recorded cases of pipeline vandalism in Nigeria (Ogbeni, 2012). The incessant occurrence of oil pipeline vandalism in Nigeria has raised the question as to whether the pipeline networks were laid in such a manner that forecloses easy vandalism.

Due to the increasing incidence of oil pipeline vandalism, some safety measures were adopted by government to secure the facility; some safety valves were considered while laying the pipelines. For instance, the government acquired 3.5 meters wide Right of Way (ROW) on each side of the pipelines; also the pipes were buried a meter deep to avoid accidental contacts, or vandalism. Despite these safety valves, recent experience in Nigeria has shown that the integrity and safety of these pipelines have been incessantly compromised because of the activities of vandals and saboteurs. The vandals fracture the oil pipelines with the criminal intent of obtaining and appropriating petroleum products for commercial purposes or personal use. The vandals appear to have acquired more criminal discipline, sophistication and efficiency in perpetrating oil pipeline vandalism with apparent ease and impunity. So, the incidence has been escalating (Ogbeni, 2012).

Between 2010 and 2012, total of 2,787 lines breaks were reported on pipelines belonging to the Nigerian National Petroleum Corporation (NNPC), resulting in a loss of 157.81 mt of petroleum products worth about N12.53billion. Pipeline along the Gombe axis recorded 850 cases and Kaduna system recorded 571 cases of pipeline vandalism. The pipeline along Warri axis recorded 548 cases vandalism while Mosimi system pipelines in Lagos recorded 463 cases and Port Harcourt recorded lesser cases of vandalism while mosimi system pipelines in Lagos recorded 463 cases and port-harcourt recorded lesser cases with 336 point vandalized (NNPC, 2016).

It is evident from the above statistics that oil pipeline vandalism is a burgeoning organized crime in Nigeria. This illegality has been so systematized in such a manner that it goes with a semblance of a franchise, wherein, even public officials have been implicated of the crime as some public officials have been accused of paying groups to break into oil industry equipment and steal many thousands of gallons at a time, tankers or barges are then filled and oil is exported -often with the help of corrupt bureaucrats and security personnel (Vidal, 2011).

The prevalence of oil pipeline vandalism in Nigeria has been principally driven by the culture of inordinate ambition to amass wealth for accelerated socio-economic mobility and empowerment. This is a pattern of 'primitive accumulation' that is prevalent in Nigeria's public and private domains. It is to be noted, however, that pipeline vandalism has also been occasioned by political sabotage. This was the case in the hey-days of the Niger Delta crisis when militants used to indulge in sporadic assaults of the pipeline systems deployed in the region in an attempt to sabotage the activities of the oil companies as well as elicit government and international attention (Ilagaha, 2007). The point to be underscored in the foregoing is that the prevalence of oil pipeline vandalism in Nigeria has left the oil pipeline systems vulnerable to incessant breaks with untoward consequences for the political economy of Nigeria.

2.4 Causes of Oil Pipeline Vandalism in Nigeria

It has been indicated in the preceding sections that oil pipeline vandalism is principally motivated by the criminal intent of the vandals who break into pipelines to drill products for pecuniary gains. The criminal intent notwithstanding, there are other factors which tend to predispose people to indulge in oil pipeline vandalism. Prominent among these factors are scarcity of petroleum products, widespread poverty and ignorance (illiteracy) among Nigerians, poor protection of the pipelines as well as shallow lying of the pipelines.

The vandalism mostly take place in poor courtiers because international Oil and Gas companies often fail to buy or protect their pipelines as they would have to do by law in rich countries. The easily accessible pipes, which often run through slums and informal settlements in burgeoning cities, are tempting to desperately poor communities, who often have no electricity and must rely on oil lamps for lightening and power (Vidal, 2011). In tandem with the above, Vidal (2011) identified the following as causative and predisposing factors of oil pipeline vandalism in Nigeria which include (i) Inordinate ambition to amass wealth, (ii) Culture of criminal impunity and corruption in Nigeria, (iii) Poor policing /protection of oil pipelines, (iv) Political sabotage as in

the case of the Niger Delta militancy and (v) Widespread poverty of the rural and urban-slum dwellers as well as (vi) Scarcity of petroleum products and (vii) Flourishing of the oil black market in Nigeria and the likes.

2.5 Business Activities

The term business describes the social institutions by which economic efforts are organized. These social institutions are the arrangements devised to carry on production, marketing, financing and other activities that provide goods and services to people. Simply put, a business is an organization that attempts to earn a profit by providing goods or services that the society needs and wants. The term business has no universal definition. Many scholars have advanced various definitions. According to Hooper (1970) the term business refers to the “whole complex field of Commerce and Industry, the basic industries, processing and manufacturing industries and the network of ancillary services, distribution, banking, insurance, transport and so on which serve and interpenetrate the world of business as a whole” while Welmer (1962) sees Business as an institution organized and operated to provide goods and services under the incentive of private gain.” Koontz Heinz (2003) defined business as “all profit-directed at economic and commercial activities that provide goods and services necessary to a nation’s standard of living”. Business can also be defined as a “systematic production and or exchange of goods and services undertaken regularly with a view of satisfying human wants at a profit and that has an element of risk or uncertainty”.

However according to Drucker (1977), Business cannot be defined or explained in terms of profit. Drucker observes that when most businessmen are being asked, “What is business?” they always answer that it is an organization that makes profit. Drucker argues that: to know what a business is, we have to start with its purpose. He points out that the purpose of any business must lie outside the business itself. That is, in the society since business is an organ of the society. Then he concludes that there is only one valid definition of business: to create customer.

Business came into existence as a result of massive production and the need to get rid of surpluses which gave rise to the need for exchange relationships as business makes demand on the society and the society makes demand on business (Kotler, 2001). People strive hard to meet up with some of their wants through exchange relationships, this dependency on other people to satisfy one’s need and wants is the basis for which business activities takes place. Business organizations have grown up to meet these demands, either because they feel a sense of duty (usually public sector organization) or because they feel that they can earn a profit by doing it (usually private organization). A business organization performs so many activities among the major activities include production of goods or services, marketing, recruitment, training, accounting and managerial activities (Drucker, 1954). Thus, when we said business activities in this study, we mean those activities as it relates to exploration (production) and distribution/sales (marketing) of petroleum products and safety/security issues in the Nigeria Oil and Gas sector considering the fact that they are the most hit by the pipeline vandals in Nigeria (Okonkwo, Ndubuisi & Threasa, 2015).

2.6 Theoretical Framework and Bases for the Study

A number of theories have been developed by scholars in an attempt to come to terms with the phenomenon of organized crime. These theories include the ethnic succession theory, social control theory, alien conspiracy theory, and queer ladder theory (Lyman, 2007; Mallory, 2007). For the purpose of this paper, the Queer Ladder Theory (QLT) has been adopted. The principal assumptions of QLT can be summarized thus: (i) Organized crime is an instrumental behavior/practice; it is a means to an end, (ii) It is an instrument of social climbing and socioeconomic advancement, (iii) It is a means to accumulate wealth and build power (Mallory, 2007). Often alluded to this theory is the assumption that organized crime thrives in contexts where the government’s capacity to dictate and sanction crime is poor; where public corruption is endemic; and where legitimate livelihood opportunities are slim (Nwoye, 2000; Lyman, 2007). Under these circumstances, the incentive to indulge in life of crime is high, while deterrence from criminal living is low. This creates room for criminal impunity which result to insecurity and grossly affects businesses.

2.7 Empirical Studies on the Implications of Oil Pipeline Vandalism on Business Activities in Nigeria

The implication of pipeline vandalism on business activities in Nigeria can be viewed from two broad Perspectives according to Achumba, Ighomereho and Akpan (2013), the perspective of potential business investment and the perspective of existing business enterprise. According to them, pipeline vandalism discourages business investment as it makes investment unattractive to business investors. This is because it accelerates the cost of doing business either through direct loss of goods and properties or the cost of taking precautions against business risks and uncertainty. These costs could have a negative impact on business

development and progress. The thick arrow connecting the insecurity of an environment and business investment means that pipeline vandalism can be a huge blockade to business activities.

Ezeoba (2011) reported a study by World Bank on investment climate in nine African countries in which it was found that 29% of business operators in Africa and 36% in Nigeria perceived insecurity (particularly, insurgency & militancy) as major constraint on investments. This situation has damaging consequence of giving signal to the international community that Nigeria is not a safe and secure place and as such not suitable for investment and business activities to take place. In that case, foreign firms and entrepreneurs would decline to invest and this is particularly important in view of the efforts being made to create the desired atmosphere to attract foreign direct investment. So, it is a strong disincentive to business investment as it scares away potential investors. This is because such environments or economies are considered high risk zones due to the high level of uncertainty about the safety of investment and lives of the managers and their staff.

The Nigeria insecurity situation arising from many cases of pipeline vandalism, actually halted many Oil and other business operations in the country which results in the outright closure of many enterprises especially in the areas or zones where incidences of insecurity is rife and are on daily occurrence, in a bid to protect lives of operators and business property. Generally, it is extremely difficult for businesses activities to thrive under a situation of continued pipeline attacks. Ordinary citizens having small and medium scale businesses cannot open shops for business transactions due to the risk factor which business owners and managers dread and wish to avoid by relocating their businesses elsewhere. In the case of Nigeria, there is also evidence of some Oil companies winding up their operations due to the persistent attacks by Oil pipeline vandals. Some even relocate to other peaceful parts of the country, some firms shifts their operations to other countries like Ghana and South Africa where the investment climate is more conducive (Nwagbosa, 2012).

On general economic implications, pipeline vandalism has resulted in untoward consequences which results to economic losses, environmental degradation, fire disaster and death of innocent citizens and public officials (Ugwuanyi, 2013). The economic losses associated with oil pipeline vandalism are arrived at by quantifying the monetary value of lost products and the cost of pipeline repairs. This has amounted to billions of Naira over the years. For instance, the NNPC had from 2009 to 2012 lost about 165 Billion Naira to Oil products thefts and repairs of vandalized pipeline equipment (Ugwuanyi, 2013). Furthermore, Annual Statistical Bulletin of the NNPC shows that oil spills are significantly on the rise in Nigeria. The incidence of oil spills and its attendant consequence on environmental degradation had jeopardizes the land, vegetation and habitation of the affected areas. This has been exemplified in desolation of farmlands, loss of aquatic and wild lives, as well as water and air pollution. These conditions have implications for public health and safety of the people. On the fire disasters arising from pipeline explosions, it was reported that over 2,500 lives have been lost to explosion from vandalized pipelines in the last 15 years and also, death of innocent citizens and public officers, particularly security personnel have been on the increase due to massive acquisition of superior weapons and sophistication in armed-banditry (Ugwuanyi, 2013).

3. METHODOLOGY

This study adopted a survey approach to gather information from the targeted respondents. The population of the study was 979 respondents cutting across Business Owners (major and independent petroleum marketers, their Managers and Customers, as well as stakeholder employees from the 3 government agencies namely; Central Bank of Nigeria (CBN), Nigerian Electricity Regulatory Commission (NERC) and Nigeria National Petroleum Corporation (NNPC). Taro Yamane formula was used to determine the Sample Size (284) for the study. Simple proportion was applied to determine the number of business owners, managers, customers and employees that made up the sample size. Data were collected from both primary and secondary sources. The primary data include the use of face-to-face interviews and questionnaires to gather responses in line with objectives two and three. The questionnaire consists of two sections; section A which deals with responses on demographic characteristics of respondents while section B deals with responses in line with the hypotheses and research questions of the study structured using five-points Likert-Scale with multiple choice options. The secondary data were sourced from Annual Reports, Bulletin, Internet and some important documents on the performance of Oil and Gas sector to help in achieving objective one. As part of the methods of data analysis, both descriptive statistics and simple linear regression analysis were used to describe the demographic data of respondents and determine the extent of the implications of pipeline vandalism on business activities in Nigeria, respectively. As part of the validity and reliability checks, Cronbach's Alpha test was conducted. The result show that all the items measured are of good fit with an average of 0.7 for all the variables measured indicating some level of reliability; as all the measured variables are above the approved cut-off thumb mark of more than 0.6 as recommended by most scholars.

4. RESULTS AND DISCUSSION

4.1 Response Rate

Table 4.1: Response Rate

Designation of the respondents where applicable

	Respondents	Number of Questionnaires Administered	Number of Questionnaires Retrieved	No. Not Retrieved	Valid Percent	Cumulative Percent
Valid	Business Managers/Owners	81	77	4	28.84	28.84
	Customers	97	91	6	34.08	34.08
	Regulators (NERC, CBN, NNPC).	78	72	6	26.97	26.97
	Members of the Community.	28	27	1	10.11	10.11
	Total	284	267	17	100.0	100.0

Source: Survey Data, 2017

Table 4.1 shows that out of the two hundred and eighty four (284) total numbers of questionnaires that were administered for the study, two hundred and sixty seven (267) constituting 94% response rates were collected. Out of these, 77 of them representing 28.84% were Business Managers and owners of different businesses cutting across the Nigeria's manufacturing sector and Small Scale Business Enterprises (SME's), while the largest number of respondents (91) representing 34.08% were Customers of some of the surveyed business organizations. The analysis further shows that 72 of the respondents or 26.97% were respondents from regulatory business bodies such as the National Electricity Regulatory Commission (NERC), Central Bank of Nigeria (CBN) and Nigeria National Petroleum Corporation (NNPC). The least number of responses were from the members of the business host communities with 27 respondents or 10.11%. The significance of the result above is that the quality of the expected responses is to a considerable extent dependable, since majority of the respondents are very familiar with the area of the study

4.2 Demographic Characteristics of Respondents

Since the characteristics of the respondents influence results, we therefore present the demographic data of the respondents in Table 4.2. As can be seen on the table, information on four (4) different characteristics of respondents that are relevant to the study were collected and interpreted. Information on respondents' age, gender, educational qualification and nature of business activities were collected for use in the analysis. All the study variable scales are measured using a Likert scale rated varying from 1 to 5 (strongly disagree to strongly agree).

Table 4.2: Demographic Data of Respondents

S/N	Characteristics	Respondents' Category	Frequency	Percent
1.	Age	18-30	88	32.96
		31-45	128	47.94
		46-60	51	19.10
		Total	267	100.0
2.	Gender	Male	171	64.04
		Female	96	35.96
		Total	267	100.0
3.	Educational Qualification	Post-graduate	71	26.59
		Degree	102	38.20
		Diploma	19	7.12
		Others	75	28.09
		Total	267	100.0
4.	Nature of Business Activities	Oil and Gas Business (Petroleum Marketing, Crude Oil Exploration & Marketing)	89	33.33
		Manufacturing Activities	75	28.09
		Small Scale Business Enterprises (SME's)	73	27.34
		PHCN Services (Electricity Generation, Transmission & Distribution Services).	30	11.24
		Total	267	100.0

Source: Survey Data, 2016

Table 4.2 shows that a greater percentage of the respondents fell within the economically active group between the age brackets of 18-30 and 31- 45 constituting 32.96% and 47.94% respectively. While the remaining 51 or 19.10% are made up of respondents between 46 and 60 years. This, no doubt, would further justify our results since most of the responses were presumed to be emanating from those with the necessary knowledge of Oil and Gas Industry complexity and the business orientation to comment on the subject matter.

The respondents' gender as displayed in Table 4.2 indicates that the males (64.04%) were more than the females (35.96%) which shows that males were more involved in pipeline vandalism issues and related business activities than the females.

The table also, show that the education levels were fairly distributed. Virtually most of the respondents were educated, with 38.20% having Bachelor's degree certificate, 26.59% have their Postgraduate Degrees while the remaining 7.12% possesses ordinary diploma and others with certificate's and secondary school leavers or drop-out represent 75 respondents or 28.09%. These statistics further indicate that most of the respondents had higher education while a relatively small percentage had at least high school education necessary for the respondents to have an informed knowledge on the subject of the study.

4.3 Descriptive Statistics on Strategic Marketing Activities

As part of the analysis, a descriptive statistics on key pipeline vandalism issues were conducted to assess the level of agreement on its implications on business activities in Nigeria. This is presented in Table 4.3.

Table 4.3: To What Extent Pipeline Vandalism Result to Decline in Crude Oil Revenue Accruing to the Federation Account?

Variable Under Study	N	Minimum	Maximum	Mean	Std. Deviation	Decision
1. It cripples the activities of Oil and Gas Companies resulting to low production capacity and subsequently, decline in revenue generation which results in budget deficit.	267	4.00	5.00	4.6772	0.4702	Agreed

Source: Generated using SPSS Output

Table 4.3 shows a descriptive statistics for the study construct. The variable under study has Likert-scale of 1 to 5 ranging from strongly agreed to strongly disagree. From the Table, the minimum and maximum value on the extent of how pipeline vandalism result to decline in Crude Oil revenue is 4 to 5, respectively and the Mean and Standard Deviation is 4.7 and 0.47, respectively. The result shows that there was no variety of opinion on that variable and the low standard deviation (0.47) signify that most respondents express close opinion agreeing that pipeline vandalism cripples the activities of Oil and Gas Companies in Nigeria which result in low production capacity and subsequently, decline in revenue generation which results in budget deficit that negatively affects the country's economy.

Table 4.4 shows Descriptive Statistics on how scarcity of PMS arising from Pipeline Vandalism affects Business Activities in Nigeria. The minimum and maximum as shown in the table, range from 1 to 5 with Mean of 4.1 and the Standard Deviation of 0.98, respectively. The result shows that there was a variety of opinion on that variable and the high standard deviation (0.98) signifies that the opinions are widespread implying that scarcity of PMS result to drop in electricity generation and increase in the price of fuel at black market rates which is associated with hikes in the prices of commodities and consumers always pay the price for such increases.

Table 4.4: How Does Scarcity of PMS arising from Pipeline Vandalism affects Business Activities in Nigeria?

Variable Under Study	N	Minimum	Maximum	Mean	Std. Deviation	Decision
2. Scarcity of PMS result to drop in electricity generation and increase in the price of fuel at a black market rates which is associated with hikes in the prices of commodities and consumers always pay the price for such increases.	267	1.00	5.00	4.0936	0.9848	Agreed

Source: Generated using SPSS Output

Table 4.5 shows descriptive Statistics on how the decline in electricity generation arising from Pipeline Vandalism affects Business Activities in Nigeria. From the table, the minimum and maximum ranges from 3 to 5 and the mean and standard deviation is 4.3 and 0.56, respectively. The result shows that there was variety of opinion on that variable and the moderate standard deviation (0.56) signifies that there was close opinion agreeing that decline in electricity generation result to power failure which affects business activities as the provision of alternative power source increase the cost of doing business in Nigeria which make the business unprofitable and the environment unconducive for any serious business to thrive forcing manufacturers to be moving their production plants to neighboring African Countries where the investment climate is believed to be more favorable. Pipeline Vandalism has significant effects on business activities in Nigeria as it resulted to destruction of critical pipeline installations and constant power failure which affects the smooth operations of business organizations in Nigeria and subsequently, retard economic development.

Table 4.5: How Does Decline in Electricity Generation Arising from Pipeline Vandalism affects Business Activities in Nigeria?

Variable Under Study	N	Minimum	Maximum	Mean	Std. Deviation	Decision
3. It result to Power Failure which affects business activities as the provision of alternative power source increase the cost of doing business in Nigeria which make the business unprofitable and the environment unconducive for any serious business to thrive forcing manufacturers to be moving their production plants to neighboring African Countries where the investment climate is believed to be more favorable.	267	3.00	5.00	4.3021	0.5642	Agreed

Source: Generated using SPSS Output

4.4 Test of Hypotheses

H₀₁: Pipeline Vandalism Does not Result to Decline in Crude Oil Revenue Accruing to the Federation Account.

Table 4.6: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.768 ^a	.590	-.110	34.818

a. Predictors: (Constant), Pipeline Vandalism (PV)

Source: Computed by the Authors

Table 4.7: Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	309.994	112.503		2.755	.070
	PV	-.543	.592	-.768	-.918	.026

- a. *Dependent Variable: Crude Oil Revenue (COR)*
 b. *Predictors: (Constant), Pipeline Vandalism (PV)*
Source: *Computed by the Authors*

Drawing from Tables 4.6 and 4.7, the test of hypothesis one show that the significance value of 0.026 is less than the critical value of 0.05, hence we reject the null hypothesis and accept the alternative hypothesis which state that that pipeline vandalism result to decline in crude oil revenue accruing to the federation account. Also looking at Table 4.6 (Model Summary), the correlation between number of pipeline vandalism and monthly oil revenue is somehow high (0.768) and to further buttress this point the coefficient of determination R^2 is 0.590 meaning that the number of pipeline vandalism account for 59% of the variation in the monthly oil revenue accruing to the federation account. The above is consistent with the findings of Ugwuanyi (2013) and Nwagbosa (2012) who conducted studies at different times and found that pipeline vandalism have significant effects on Nigeria's economic development particularly in the area of decline in crude oil revenue. Their findings shows that it resulted in untoward consequences with heavy economic losses, environmental degradation, fire disaster and death of innocent citizens and public officials.

Ho₂: Scarcity of PMS arising from Pipeline Vandalism Does not Have Significant Impact on Business Activities in Nigeria.

Table 4.8: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.950 ^a	.902	.870	4757.281

- a. *Predictors: (Constant), Petroleum Motor Spirit (PMS)*
Source: *Computed by the Authors*

Table 4.9: Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	164361.401	15371.486		10.693	.002
	PMS	-426.210	80.890	-.950	-5.269	.013

- a. *Dependent Variable: Business Activities (BA)*
 b. *Predictors: (Constant), Petroleum Motor Spirit (PMS)*
Source: *Computed by the Authors*

From the test of hypothesis in Tables 4.8 and 4.9, the significance value of 0.013 is less than the critical value of 0.05, hence we reject the null hypothesis and accept the alternative which state that scarcity of PMS arising from pipeline vandalism have significant impact on business activities in Nigeria. Also looking at the model summary in Table 4.8, the correlation between the effects of scarcity of PMS arising from pipeline vandalism on business activities is very strong (0.950) and to further buttress this point the coefficient of determination R^2 is 0.902 meaning that scarcity of PMS accounts for 90.2% of the variation in the level of business activities for the period. This study is also in line with the finding of Achumba, Ighomereho and Akpan (2013) who found that scarcity of PMS arising from pipeline vandalism have significant impact on business activities as according to their finding its discourages business investment as it makes investment unattractive to investors. This is because it accelerates the cost of doing business either through direct loss of goods and properties or the cost of taking precautions against business risks and uncertainty. These costs in their opinion, could have a negative impact on business development and progress.

H₀₃: Decline in electricity generation arising from pipeline vandalism do not have significant effects on business activities in Nigeria.

Table 4.10: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.855 ^a	0.812	0.783	4281.5529

a. Predictors: (Constant), Electricity Generation (EG)

Source: Computed by the Authors

Table 4.11: Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	147925.261	13834.3374	0	9.6237	0.0018
	EG	-383.589	72.801	-0.855	-4.7421	0.012

a. Dependent Variable: Business Activities (BA)

b. Predictors: (Constant), Electricity Generation (EG)

Source: Computed by the Authors

From the test of hypothesis in Tables 4.10 and 4.11, the significance value of 0.012 is less than the critical value of 0.05, hence we reject the null hypothesis and accept the alternative one which states that decline in electricity generation arising from pipeline vandalism have significant effects on business activities in Nigeria. Also, looking at the model summary in Table 4.10, the correlation between decline in electricity generation arising from pipeline vandalism and the effects on business activities is very strong (0.855) and to further buttress this point the coefficient of determination R^2 is 0.783 meaning that decline in electricity generation accounts for 0.783% of the effects on business activities for the period. This study is in line with the findings of Nwagbosa (2012) and Ezeoba (2011) who found out that decline in electricity generation arising from pipeline vandalism have significant effects on business activities as manufacturers have to continuously be making arrangements on the provision of alternative power source which according to their findings add up to the cost of doing business thereby making it unprofitable and thus, forcing some manufacturers to relocate to other African countries where the investment climate is more favourable.

4.4 Major Findings

From the above analysis, the study found that pipeline vandalism cripples the activities of Oil and Gas Companies in Nigeria which result in low production capacity and subsequently, decline in revenue generation which results in budget deficit that negatively affects the country's economy. The study also, found that scarcity of PMS result to drop in electricity generation and increase in the price of fuel at a black market rates which is associated with hikes in the prices of commodities and consumers always pay the price for such increases. Finally, the study found that decline in electricity generation result to power failure which affects business activities as the provision of alternative power source increase the cost of doing business in Nigeria which make the business unprofitable and the environment unconducive for any serious business to thrive forcing manufacturers to be moving their production plants to neighboring African Countries where the investment climate is believed to be more favorable.

5. CONCLUSION AND RECOMMENDATIONS

5.1 Conclusion

The study concludes that the actions of the militant groups is a serious economic sabotage which if allowed to go unchecked will continue to be having a devastating effect on the country's economy. The activities of the vandals no doubt, result to insecurity, colossal Oil revenue losses, drop in electricity generation and general damage to pipeline infrastructure and environmental pollution which negatively affects investment opportunities and business prosperity. The implication to business activities is that, vandalism results to scarcity of PMS and subsequent increase in the price of fuel at a black market rates, insecure business environment, incessant power failure which grounded many businesses activities and subsequently, retard country's economic growth and development that affects the general standard of living of the Nigerian citizens.

5.2 Recommendations

Based on the above conclusion, we make the following recommendations:

- i. Federal Government of Nigeria should through the NNPC collaborate with the nation's military and other security agencies to ensure adequate policing and protection of critical pipeline infrastructure throughout the country so as to checkmate the activities of pipeline vandals which is having a devastating effects on the country's economy.
- ii. The National Assembly should review its legislation on pipeline vandals in the country to ensure stiffer penalties for the perpetrators so as to guard against future occurrence and put a stop to the economic sabotage which paralyzes business activities.
- iii. Multi-national Oil Companies into the exploration activities in the Niger- Delta region, should be encouraged by government to be more involved in some socially responsible actions through the provision of some basic amenities, scholarships and sponsorship of some major events to help assist the immediate communities in which they operate, as this will go long way in reducing the tension and clamour for all forms of political and militant agitations which has become the order of the day in the region.
- iv. Federal Government should be sincere in it implementation of insurgency developmental programmes as pledged by ensuring that all areas of understanding as agreed with leaders of the Niger-Delta are met so as to restore confidence in the leadership which will bring about the much needed lasting peace that will result to increase in Oil production and subsequently, increase in Oil revenue and economic growth and development.
- v. The endemic corruption associated with Niger Delta Development Company (NDDC), Ministry of Niger-Delta and all amnesty programmes in the Niger Delta should be dealt with head-on by the anti-corruption agencies (EFCC & ICPC) in Nigeria as doing so will ensure that all proposed schemes/projects were executed in line with contractual specifications for the betterment of all members of the community.
- vi. Federal Government should device new measures of lying standard pipeline infrastructure in line with global best practices so that the incidence of pipeline vandalism will be eradicated or reduced to it bear rest minimum.

5.3 Contributions to Knowledge

The study makes three unique contributions to existing knowledge. Firstly, the study contributed in the understanding of the implications of Oil pipeline vandalism on business activities in Nigeria. Secondly, the study identify some variables that are unique to the Nigerian environment such as militancy, insurgency and vandalism as the major problem affecting the country's economy. Finally, the study contributes to the need for peaceful co-existence under which a successful business activity could thrive which will subsequently result to economic growth and development.

5.4 Limitations and Future Research

Even though, the study was intended to investigate the implications of Oil pipeline vandalism on business activities in Nigeria, it has focused only on the South-South and South-West Regions without investigating what is happening in other regions of the country. We caution users of the research not to generalize to mean Nigeria and we suggest that similar study should be carried out to investigate what is happening in the other regions and the likely implications in other sectors of the Nigerian economy. A comparative study can also be conducted to investigate what is happening in some African countries.

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Mmeje, David Uchekukwu is M.Sc. Business Administration Student in the Department of Business Administration, Faculty of Management Sciences, University of Abuja, Gwagwalada, Abuja, FCT-Nigeria.

Dr. Bello Ayuba is an Associate Professor of Management; Director, University of Abuja Ventures Limited and Deputy Dean, Postgraduate School of the same institution.

Dr. U.D. Mohammed is a Senior Lecturer and Head of Department, Business Administration, University of Abuja, Gwagwalada, Abuja, FCT-Nigeria.

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