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Oil Facility Vandalization and Sustainability of Oil and Gas Firms in South-South Nigeria

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Abstract

Vandalism of oil facilities and its impact on the sustainability of oil companies is a great concern that necessarily provokes a research interest. To achieve the purpose of this work, descriptive research design was adopted. The study also relied on secondary data sources. The data was analyzed using the content analysis approach. Two theories guided the study as theoretical framework. Contrary to the dominant poverty explanation of vandalism, the study found out that psychosocial requirements could as well explain the phenomenon of vandalism. It was also found out that the oil facility vandalism hampers sustainable operations of oil and gas companies in the South-South Nigeria. Another finding was the multi-actor engagement in the act of vandalism of facilities, notable of these actors are government officials. Finally, the study made the following recommendations: government at all levels should ensure adequate protection the oil and gas firms for sustainable development; a conscious research should be undertaken on the psycosocial explanation of vandalism in the south-south region of Nigeria.

Keywords: *Vandalization, Oil firms, Sustainability, South-South, Nigeria, Psychosocial*

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Background to the Study

With proven reserves of crude oil and natural gas lasting for another 200 years, Nigeria has the ninth largest proven reserves in the world and the largest in Africa (British Statistical Review of World Energy, 2018). This comes "hot on the heels" of the oil and gas sector accounting for over 97% of the country's foreign exchange earnings and 85% of the country's gross domestic product.[2] The importance of the oil and gas sector cannot be over-emphasized. At the centre of this industry is the need to explore for, develop, produce and transport all discovered oil and gas minerals from remote parts of Nigeria's Niger Delta region, which "harbours" the country's oil and gas deposits through pipelines constructed in creeks and across rivers. The pipelines are linked to over 275 flow stations, transporting crude oil and natural gas from 600 oil and gas fields. Over 300 of the pipelines are located onshore, while approximately 240 are offshore, through a stretch of over 3,000km crisscrossing the length and breadth of Nigeria.[3] Currently, the Nigerian National Petroleum Corp (NNPC) has a pipeline network of over 8,000km for the efficient transportation of crude oil and natural gas products to various depots (Sunday, 2020). The use of pipelines has the added advantage of reducing transportation risks when compared to transportation via rail, barges or trucks given that the pipelines are buried deep into the soil and, where on the surface, are sited in remote areas away from local communities[5] to allay environmental concerns.

Prior to the late 1990s, concerns over the protection of crude oil and natural gas pipelines were effectively non-existent in Nigeria, with the exception of ruptured pipelines and equipment failures. With the advent of environmental awareness, coupled with what has been described as "militancy" and struggles for better living conditions/resource governance in Nigeria, pipelines for the transportation of crude oil and natural gas became targets for various groups, particularly in the Niger Delta, to make their case to the government of Nigeria (Igbonavia, 2015). It has been claimed that the government has not invested sufficiently in the region, in spite of its significance to the country's economy, resulting in this being a cause of the actions of some of the groups. The effects have left untold hardship on the immediate area through the attendant consequences of spilling crude oil into the environment and economic losses in terms of revenue generation for Nigeria.

Reports indicate that there have been over 16,083 cases of "pipeline tampering" and vandalism within the last 10 years, amounting to a loss of 174.57 billion (or approximately $484 million) in 2006–2016. Further reports indicate that, between 2016 and 2017, a total of 992 cases of pipeline vandalism were recorded across pipelines and depot lines, amounting to a loss of 167 billion (approximately $464 million). What is left behind after acts of vandalism has also created environmental concern, with both water bodies and farmlands of the ambient environment becoming victims of the activities. Nevertheless, effectively "criminalising" the tampering with (and acts of vandalism of) crude oil and natural gas pipelines with the death penalty and life imprisonment via the Petroleum Production (Anti-Sabotage) Act and other legislation does not appear to have deterred the commission of relevant offences.

Nigeria is a significant oil producer in the globe. The South-South Nigerian region is traversed by more than 5001 km of pipelines that connect 275 flow stations to various export facilities in

the nation (Rume, undated, as cited in Igbivonia, 2014). The network links 22 strategically placed petroleum storage depots strategically located throughout the nation, as well as the four shuttered refineries at Port Harcourt (I and II), Kaduna and Warri, the offshore terminals at Bonny and Escravos, the jetties at Atlas Cove, Calabar, Okirika and Warri, 5,284 oil wells, 7000km of pipelines, 10 gas pipelines, and 10 gas storage facilities. The multi-product pipelines' main function is to move crude oil from refineries and jetties that receive imports to various petroleum storage depots around the nation. Pipelines are between 6 and 8 inches in diameter linked to the depots. The entire network, according to Onuoha (2007), is composed of many systems. Of great relief is that the functional status and expansion of the network of facilities have the potential to create a multiplier effect on Nigeria's revenue generation and boost confidence of oil and gas companies operating in the country. Despite the awareness of the linear correlation of healthy facilities and sustainable production, vandalism has become a national norm. Vandalism of oil facilities has long existed in Nigeria, with severe repercussions on not just the federal government, but also state governments, local populations, and oil and gas companies. Major oil multinational firms including Royal Dutch Shell, Exxon-Mobil, and Chevron-Texaco activities have also experienced ongoing assaults in addition to the Nigerian National Petroleum Corporation (NNPC).

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). In light of the aforementioned, that the objectives of this study are to describe the effects of oil facility vandalism on firms' sustainable production. The psychosocial motivation for vandalism is looked at as a danger to the long-term viability of oil and gas enterprises. Generally, the study examines the nexus between facility vandalism and sustainability of oil firms.

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, there 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.

Although oil facility vandalism continues to be Nigeria's biggest problem, it is undeniable that it is a severe danger to the nation's oil and gas companies. The majority of literature focuses on the harm that vandalism does to local communities and their inhabitants while ignoring the effect it has on the viability of firms operating in Nigeria. Igbinovia (2014) asserts that all branches of the government are just as impacted as the multinational corporations. Sadly, Shell announced a large force-cure on its Bonny light crude oil leadings for June 2011 as a result of production reductions brought on by leaks and fires on its Trans-Nigerian pipeline (TNP).

Shell lamented that, in addition to their facilities abroad, the leaks and fires demonstrated a concerning pattern for the TNP itself. The subsequent impact of deliberate vandalism of petroleum product pipelines and related facilities hinders the firm's ability to operate effectively. Second, the existing work only considers the immediate economic forces when explaining oil facility vandalism; it ignores the psychosocical drive. For instance, Etekpe and Okolo (2010) contend that individuals who commit vandalism are motivated by resentment at the treatment and destitution of the populace.

In a similar vein, Eteh and Eze (2012) contend that it is connected to poverty. According to the researchers, the growing crime of vandalism in Nigeria is caused by a lack of employment prospects. In the quest for answers, the viewpoint of the aforementioned literature cannot be disregarded, but the psychological component demands special consideration. Evidence from Anyio (2015) that "…one woild have thought that with Amnesty and the Federal Government's efforts to integrate Nigeria Delta youths into the main stream of economic activities through training and other activities, the incidences of oil theft and bunkering in the area should have reduced". So, purely economic theories are strongly challenged by the above concern. Hence, there are other explanations not yet explored. The psychosocial variable!

People who are directly or indirectly involved in the conduct are well-off; they are too affluent to be involved in the vandalism of oil installations. Stealing has developed into a significant interest and pleasure among Nigerians in high positions, claims Igbinovia (2014). In the same vein, Odiegwu (2012) asserts that corporate oil thieves, politicians, and security personnel who profit from the scheme enable the locals.

The Nigerian political elite conspires with terrorists and communities to engage in illegal bunkering, according to a statement made by the American ambassador to Nigeria (Fundamentals, 2011). The issue stems from the fact that the existing study only considers economic factors when explaining oil facility vandalism, leaving out the psychological component. The sustainability of the oil and gas companies in South-South Nigeria was not examined in the existing research concerning the effects of oil facility vandalism. Thus, the study's starting point is these gaps in the literature.

Objectives of the Study

The general objective of the study is to examine the impact of oil facility vandalization on sustainability of oil and gas firms in South-South Nigeria. Specific objectives of the study include

i. To find out whether vandalism of oil and gas facility sustainability of oil and gas companies in South South Nigeria.
ii. To ascertain whether the psychosocial need increases vandalism of oil and gas facility in the region.
iii. To identify the causes of oil facility vandalization in South-South Nigeria
iv. To identify ways of reducing oil facility vandalization in South-South Nigeria

Review of Related Literature

Facility Vandalism and Firms' Sustainability

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.

The impact of vandalism actions goes beyond the contamination of the land, water, and air; it also restricts operational companies' access to infrastructure. The sustainability and viability of the oil and gas companies in South-South Nigeria are threatened by this and several other repercussions. As a result, vandalism has forced businesses to close their operational facilities. Since 2009, 2010, 2012, and 2013, Shell Petroleum Development Corporation (SPDC) has continuously declared force majeure for all of its activities. In June 2012, Shell reportedly decided to publish "a strategic review of its operations in the Eastern Niger Delta, which could

result in the divestment of its interests there," according to Financial Times as quoted in Salau (2014). Shell was further reported "to have been moving away from Nigerian onshore oil, which is plagued by industrial scale oil theft, security problems and oil spills". This resulted from the actions of industrial thieves who interfere with manufacturing. Similarly, due to oil lifting at the Brass Termina, Nigeria Agip Oil Company (NAOC) declared a force majeure in September 2013 and halted operations in Bayelsa State. According to Alohan (2013), Shell stopped operating the 150,000 barrels per day Nembe Creek oil pipeline in April 2013.

The Trans Nigeria Pipeline (TNP) was shut down by the business in June 2013 as a result of explosion and fire at the Crude Theft Point on Shell's plant at Bobo West in Ogoniland. On September 16, 2013, Shell again shut down the Trans Niger Pipeline's 1500,000 barrels per day. On September 18, 2013, a second lock-in took place as a result of claims of crude theft at Bobo West in Ogonniland. On October 10, 2013, Shell announced a force majeure on Bonny light exports owing to an uptick in crude oil theft that resulted in the closure of 300,000 barrels from two crucial pipelines, the Trans Niger Pipeline (TBP) at B-Dere, Nonwa-Tai, and Bobo West (Olusola, 2013; Bello, 2013). Between January and September 2013, 189 crude theft locations on the Trans Niger Pipeline (TNP) and Nembe Creek Trunkline (NCTL) were fixed as a result of oil theft (Bello, 2013). From the foregoing, the negative impact of facility vansdalism on oil and gas companies cannot be overemphasized.

Psychosocial need and Vandalism

Individuals or groups' engagement in the criminal activity of vandalizing oil and gas facilities derives from the influence of social factors. The relationship between their behavior and social influence provides the insight into understanding characteristics of vandalism in Souith South Nigeria. The distinctive aspect of the African experience is that the individual behavior driven by self-conveited urge for social relevance and self-recognition through extrvant spending, especially during rites like weddings and burials for title granting.

According to Newman and Newman (2020), psychosocial refers to a person's sense of self, how they develop their identities, how they interact with others, and the mental processes that help them make connections with their social environment. They connected it with ego growth. It is necessary to concentrate on the attempt to define oneself, develop some personality, and project one's ego to comprehend why wealthy individuals, government officials, and other players work together to steal crude products and vandalise facilities. According to Igbivonia (2012), those who like stealing and vandalising oil facilities are high-profile persons who are driven by a combination of kleptomaniacal tendencies and societal pressure. These people desire to maintain their social, economic, and political influence in the community.

Oil Facility Vandalism and Sustainability of Oil Firms

Omodanisi, Eludoyin, and Salami (2014) observed that there were about 5120km of pipelines managed by the government through the NNPC, and supplying crude oil contents to facilities all over the country. Although there were laws that stipulated a 47.5m buffer around the oil pipelines, this did not stop vandalism, showing that the measures were

inadequate, management of the pipelines was poor, and information tracking of the facilities was inefficient (Omodanisi, Eludoyin, & Salami, 2014). Okolo and Etekpe (2010) defined pipeline vandalism as the illegal or unauthorized act of damaging pipelines to disrupt the supply or to siphon off crude oil for personal use or sale. The large quantity of exposed pipelines and oil facilities increased criminal activities and made them easily accessible to vandals and oil thieves, and the proximity to communities made them more vulnerable to vandalism (Okolo & Etekpe, 2010). According to Okolo and Etekpe, the government had created laws to address the issue of pipeline vandalism, creating security agencies to handle them, unfortunately, despite the government actions; groups that were more militant formed resulting in an increase of the occurrences. Omotoso and Omotoba (2013) further posited that over 6000 lives had been lost because of the pipeline vandalism in addition to other damages, adding that this problem had also led to the exit of several oil companies resulting in serious adverse effects on the economy. Omotoso and Omotoba stated that vandals continued to develop means to get to the buried pipelines mostly located in the swamps, and results from this issue showed that crude oil worth millions were lost annually to oil theft. Akpomera (2015) noted that Nigeria had the unfortunate record of having large volumes of crude oil stolen from over 6000km pipelines in the country, pointing out that in the first quarter of 2013, the NNPC lost US$1.23 billion in revenue. (See Table 1).

Table 1: Historical Statistics of Pipeline Vandalism

S/No	Date of vandalization	Name of mnoc & location of facility	Duration of damage (days)	Quantity of crude oil	Average price	Amount (n 000)
1	May 3, 2017	Mobil Producing Nigeria Unlimited, Eket, Akwa Ibom	60	Massive spill through rivers to Bayelsa, Rivers & Akwa Ibom States	-	1,163,21 0
2	May 18, 2017	Shell Petroleum Development Company of Nigeria Ltd (SPDC), Warri, Delta State	38	120,000 barrels	29.20	133,150
3	Aug20 – 30, 2017	SPDC, Egwa I & II flow stations at Azuzuama, Batan, Beniseed, OpuKrushi, Ogbotobo & Odidi I & II, Delta and Bayelsa States.	10	500,000	29.20	146,000
4	Nov 20, 2017	SPDC, Forcado Terminal, Delta State	14	604,500	29.20	247,120
5	Jan 10, 20018	Chevron Nigeria Ltd, Macaraba & Aotonana, OGBE-Ijoh, Delta State	20	100,000	38.73	77,460
6	March 9, 2018	Nigerian Agip Oil Company (NAOC) Sagbama, Foropa & Nembe Creeks, Bayelsa State	28	105,000	38.73	113,870
7	Sept 20, 2018	SPDC, 15 Flowstatins in Bonny and Burutu in Rivers & Delta States	60	98,450	38.73	228,880
8	Jan 3, 2019	NAOC, Nembe Creek 1,2 & 3, Bayelsa State	10	120,000	55.43	66,250
9	Feb 10, 2019	Chevron, Escravos, Delta State	8	400,000	55.43	177,380
10	Feb 10, 2020	SPDC, Chenomi Creeks in Warri, Delta State	5	180,000	65.71	59,140
11	June 8, 2020	SPDC, Oporoma, Bayelsa State	15	145,100	65.71	143,020
12	March 20, 2020	SPDC, Abiteye & Olero, Delta State	20	200,000	76.13	304,520
	Total	2,572,600			2,860,170	

Note: Pipeline vandalism in Niger Delta 2017-2020 (Etekpe & Okolo, 2021)

From 2005-2009, there was an increase in the rates of piracy and other criminal activities like vandalism of oil facilities and kidnapping, and all this caused severe oil and gas MNCs to leave Nigeria while others stopped their activities, declaring "*force majeure*" (Orji, 2013). According to Orji (2013), piracy activities were a significant threat to the economic stability of the MNCs, the Nigeria government and its security and due to the insecurity and high risk involved in the transportation of oil products, the shipping costs had increased for stakeholders. Osumah (2013) noted that by 2006, the communal activities including the forceful occupation of flow stations, pipeline vandalism, and bunkering had increased, causing the government to initiate amnesty programs for the militants (see Table 3). According to Osumah, losses increased from $6.8M from1999 to 2005 to $91billion daily in 2006, explaining that although the amnesty program gave some economic relief to the Nigerian government and oil MNCs, there were still a lot of contentious issues.

Table 2: Historical Statistics of Daily Production

Year	Av Bonny light crude (USD billion)	Volume of stolen barrels per day (bpd)	Value of oil stolen (USD billion)	Assumed production shut-in (bpd)	Value of production (USD billion)	Daily av. Stolen and shutin	Total value (USD billion)
2000	28,49	N/A	N/A	250000	2,6	N/A	N/A
2001	24,50	N/A	N/A	200000	1,8	N/A	N/A
2002	25,15	N/A	N/A	370000	3,4	N/A	N/A
2003	28,76	300000	3,2	350000	3,7	650000	6,9
2004	38,27	300000	4,2	230000	3,2	530000	6,4
2005	55,67	250000	5,1	180000	3,7	430000	8,8
2006	66,84	100000	2,4	600000	14,6	700000	17,0
2007	75,14	100000	2,7	600000	16,5	700000	19,2
2008	115,81	150000	6,3	650000	27,5	800000	33,8

Note: N/A = not available. Value of Nigeria's average daily production stolen and shut, 2000-2008 (Osumah, 2013)

Causes of Oil Pipeline Vandalism in Nigeria

Oil pipeline vandalism in not peculiar to Nigeria alone. According to Anifowoshe et al (2011), oil pipeline vandalism which is also called oil pipeline interdiction has at one time or another been reported in countries like Indonesia, USA, UK, Canada, Iran, Iraq, Russia, Columbia and Saudi Arabia. Several reasons have been deduced for this act of sabotage. Okoli and Orinya (2013) listed the following as causative and predisposing factors of oil pipeline vandalism: Inordinate ambition to amass wealth; Culture of criminal impunity and corruption in Nigeria; Poor policing/protection of oil pipelines; Political sabotages as in the case of Niger Delta militancy; Widespread poverty of the rural and urban-slum diverters, Scarcity of petroleum products; and flourishing petroleum product black market in Nigeria. Also, Onuoha (2008) in Etekpe and Okoli (2010) posited five factors responsible for the growing incidence of pipeline vandalization in the country as follows: the prevalence of poverty and unemployment in the region and country; the emergence of baron or godfathers

who induce the vandalization; the defective security apparatus; the official negligence of MNOC's and Federal Government; and the weak legal framework.

But Itekpe and Okoli (2010) argues that the history of oil pipeline vandalization is traced to the general perception from being frustrated as the people are deprived from benefiting from the huge revenue source of the Niger Delta since 1956. Anifowoshe et al (2011) suggested that the high incidence of oil pipeline interdiction in the Niger Delta could be attributed to (a) long history of oil exploration dating back to 1903; (b) the chronology of some major oil spills; (c) indigenous claim of environmental degradation which gives rise to loss of means of community livelihood; (d) river pollution and death of aquatic lives due to oil spill; (e) Loss of farm crop yield due to groundwater pollution; (f) unfulfilled promises of social responsibility by oil companies and the government; (g) Loss of income.

The suggested reasons by Anifowoshe et al (2011) are in congruence with the arguments of Etekpe and Okoli (2010). In this land mark research, Amifowoshe et al (2011) concludes as follows. To help reduce anger and frustration from indigenous peoples of oil-bearing areas, their fair participation in the exploration, production, and transportation of oil and gas might be necessary. Such an approach in Nigeria may help to directly reduce levels of attacks on oil and gas infrastructure, and in addition to the current amnesty programme of the federal government. The underlying reason why oil pipeline vandalization incidence in the Niger Delta has refused to be abated is the claim and conviction by the oil producing communities of deprivation of a collective resource (oil and gas) by the multinational oil companies and the federal government of Nigeria. This position is in tandem with the submission of Ceccato and Haining (2005) as cited in Anifowoshe et al (2011) who submitted that the presence of "collective resources" as with oil and gas led to higher rates vandalization in Sweden adding that this factor is responsible for the high in incidence of pipeline vandalization in the Niger Delta. This deprivation is also the root cause of the conflict and militancy in the Niger Delta. This opinion is corroborated by Oyefusi (2007) Ibeanu (2000) Nwokolo (2009) and Oluwatuyi and Ileri (2013). Fred Brume (2006) defended this same thesis of deprivation of a collection resources as follows:

The cause of oil pipeline vandalization which started in the Niger Delta can be traced to the long history of neglect, marginalization, and repression of the people of Niger Delta by successive governments since the First Republic.The cumulative effect of all this has been the lack of development and widespread poverty, and discontent among the people of Niger Delta. The immediate cause of the growing vandalization is general discontent of the Niger Delta peoples, which has given rise to this unlawful method of recovering or scooping what is seen by many as their oil wealth that is being unfairly carted away to Abuja and other places, while they wallow in abject poverty and unemployment. 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.

Implications of Oil Facility Vandalization

The implications of oil pipeline vandalization in the Niger Delta are numerous and a great threat to the national economy. Yakubu (2014) former Group Managing Director (GMD) of NNPC noted that Nigeria lost 109.5m barrels of oil in 2013 to pipeline vandalism. Yakubu (2014) further noted that incessant vandalisation of crude oil export pipelines and domestics crude, oil petroleum in product pipelines impacted negatively on the economy. According to him, what Nigeria lost in 2013 was equivalent to the total output of Equatorial Guinea and larger than the entire production of Ghana, Congo Brazzarile, Cameroon and Gabon. 109.5m barrels of oil could translate to N 1.4b as total loss to pipeline vandalisation in 2013. Barkindo (2010) also quoted the NNPC as loosing N174billion to pipeline vandalism between 1999 and 2009 (10 years period). The amount translates to a average of N17.4 billion per annum. Komolafe (2013) also notes that "Nigeria lost a total of about N163 billion from crude oil and petroleum products pipeline losses from 2009 – 2012 alone not adding the associated costs. Komolafe (2013) argues that this loss would have been able to take care of the budget of two states in the country. Allison-Madueke (2013) notes that about N960 billion was being lost to oil pipeline vandalism annually. The former Petroleum minister described the problem of oil pipeline vandalism as a complex one that could not be addressed superficially. The Nigeria's Executive Industries Transparency Initiate- a government funded body have quoted that Nigeria is estimated to have lost $10.9 billion (N1.689 trillion) in revenues through oil theft from 2009 – 2011 (EIA 2013).

All the losses noted above are income that the federal government could have used to further develop the Niger delta and the nation at large. Thus, an income loss to the nation due to oil pipeline vandaliisation could have a negative effect on the investment capital available for the oil host communities of the Niger delta. Komolafe (2013) further submits that the losses due to oil pipeline vandalisation include (a)economic sabotage (b) environmental degradation, and destruction of a national asset (pipeline).

Theoretical Framework

A theoretical perspective is imperative in giving dimension to the explanation of vandalism of oil and gas facilities, as well as oil theft. This study adopted 2 theories reviewed above as aptly fitted to the study. These theories are:

i) The Role Theory
ii) The Social Network Theory

The Role Theory

In addition to the Frustration-Aggression group, affluent people, wealthy politicians, and members of the Executive and Legislative branches of government who are driven by societal pressure and expectations also vandalise oil infrastructure. According to Ayanrouh (2013), oil theft now takes place in Nigeria inside a convoluted network of connections. The researcher claims that these connections include well-connected individuals both inside and outside of government, including insurgents, business people from oil firms like the Nigerian National Petroleum Corporation (NNPC), and officials of the executive and legislative branches of government.

Therefore, the claims that oil theft and facility destruction are not crimes committed only by the poor but rather are the result of a complex conspiracy involving the military, the security apparatchiks, politicians, questionable industrial moguls, and oil firms. The traits of oil theft and the ensuing vandalism of oil facilities are strongly ingrained in our society, which is characterized by high expectations and demands of public officials, impunity, and inevitable role conflicts. Official positions have historically been used as a platform for ostentation and the swindling of public funds, not always to address immediate needs but rather to draw attention to oneself through extravagant spending at ceremonies like weddings and funerals, the acquisition of skyscrapers both inside and outside of the nation, the acquisition of chieftaincy titles, and other recognitions. In the South-South of Nigeria, it is no gainsaying that the culture of impunity, the growing expectations placed on public office holders by friends, relatives, and acquaintances, the need to impress others, encourage oil theft and facility destruction. In collusion with nonpublic office holders and nonstate actors like militants, terrorists, and oil thieves, the public office offers cover. This partnership explains why oil theft, vandalism, and facility closures by oil firms are so pervasive throughout the nation. This theory represents a little departure from the Frustration-Aggression theory's explanation of vandalism at oil and gas infrastructure, which emphasizes marginalisation, poverty, unemployment, etc. The criminal aim of vandals who break into pipelines to drill oil for financial gain is the main driving force for vandalism (Asu, 2016).

The Social Network Theory

Perhaps the strange benefit associated with oil sabotage is the social collaborators. Individuals engaging in vandalism communicate and perform certain tasks for successful vandalism of oil pipelines through the links in nodes. The network of individuals involved is likely to include members of the security apparatus intended to protect the lines, oil workers who are aware of pressure flows, resentful (politically motivated) individuals who fund vandals with ammunition, on-the-ground (criminally motivated) individuals who carry weapons to pierce pipelines, and others. Also, for a safe and successful operation, the security guard offers defence and back up to the in-field creek vandals. The oil workers provide technical assistance, counsel, and information about the availability of pressures to the oil thieves as and when needed. According to Asu (2016), some NNPC employees would cooperate with the vandals whom they inform of anytime crude were being poured into pipes. Rich people who feel vindicated supply the funding for a successful operation, and when oil pipelines have been successfully vandalised, it sometimes feels more like an investment with the expectation of a

return. The risk-takers, or the group of people actively involved in the vandalism of pipelines, come last in the network. These nodes (actors) take on certain roles in tandem with a shared interest and are willing to do whatever it takes to fulfil the shared aims. who share one or more pieces of information. These individuals are bonded together by financial benefits, a shared interest, or an immoral attachment to commit the crime.

Theory Application

In the South-South of Nigeria, it is no gainsaying that the culture of impunity, the growing expectations placed on public office holders by friends, relatives, and acquaintances, the need to impress others, encourage oil theft and facility destruction. In collusion with nonpublic office holders and nonstate actors like militants, terrorists, and oil thieves, the public office offers cover. This partnership explains why oil theft, vandalism, and facility closures by oil firms are so pervasive throughout the nation. This theory represents a little departure from the Frustration-Aggression theory's explanation of vandalism at oil and gas infrastructure, which emphasizes marginalisation, poverty, unemployment, etc. The criminal aim of vandals who break into pipelines to drill oil for financial gain is the main driving force for vandalism (Asu, 2016). On the other hand, for a safe and successful operation, the security guard offers defence and back up to the in-field creek vandals. The oil workers provide technical assistance, counsel, and information about the availability of pressures to the oil thieves as and when needed. According to Asu (2016), some NNPC employees would cooperate with the vandals whom they inform of anytime crude were being poured into pipes.

Rich people who feel vindicated supply the funding for a successful operation, and when oil pipelines have been successfully vandalised, it sometimes feels more like an investment with the expectation of a return. The risk-takers, or the group of people actively involved in the vandalism of pipelines, come last in the network. These nodes (actors) take on certain roles in tandem with a shared interest and are willing to do whatever it takes to fulfil the shared aims. who share one or more pieces of information. These individuals are bonded together by financial benefits, a shared interest, or an immoral attachment to commit the crime.

Empirical Review

Mmeje, Ayuba and Mohammed (2017), in a study titled Investigation of Pipeline Vandalism and Its Implications on Business Activities in Nigeria argued that 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 effect 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.

Eric & Hunga (2017) examined the rising cases of oil thefts, illegal bunkering, pipeline vandalism in Nigeria from 2015-2016. The aim of this work is to critically examine the causes, actors, methods, impacts of oil thefts, illegal bunkering, pipeline vandalism and the measures adopted by the Nigerian government to combat it. The location of the study is the Niger Delta region and the study was timed within the period of 2015-2016. Secondary data were generated for the study, while content analysis was used for data interpretation and analysis. The study revealed that different individuals and groups were involved in these oil thefts, vandals and illegal activities. The study further proved that persistence vandals in the Niger Delta region is due to the enthroned corruption by Nigerian elites, governments inappropriate policies, high level of youth unemployment, ineffective and corrupt law enforcement agencies and international crime collaborations. The study also revealed that Nigerian government have made attempts to curb the problem by the establishment of a special security outfit, militarization of the Niger Delta region and reviewing of amnesty programs, but the oil thefts, vandals in recent times clearly indicates that success has not been achieved, hence some recommendations were proffered to put an end to oil thefts, pipeline vandals in order to make Nigeria economic robust and business destination by international bodies.

Okamgba (2019), in another study titled Oil and Gas Pipeline "Vandalism" in Nigeria: Analysing Alternative Options beyond the Traditional Legal Approach argued that what has widely been described the “vandalism” of oil and gas pipelines in Nigeria has left an indelible mark on the petroleum sector, causing environmental pollution and revenue losses to both the government and international oil companies. A series of legislative measures carrying punishments of both the death penalty and life imprisonment have, regrettably, not deterred the commission of relevant offences; instead, acts of pipeline vandalism have been on the rise and currently appear to be something of a “career choice” for some of the younger generation in the Niger Delta region and beyond. While this research has analysed the causes and effects of acts of pipeline vandalism, it has also focused on alternative solutions beyond the traditional legal approach to reduce the incidence of acts of pipeline vandalism. In course of this research, the doctrinal research method has been adopted, utilizing both primary and secondary source materials that include reviewing legislation relating to the research topic and existing literature in textbooks and journal articles, cases and other online materials. In this regard, it was discovered that the root causes are still prevalent and that acts of pipeline

vandalism have arguably become something of a lucrative career choice. The research also reveals the inherent limitations of both legal and institutional frameworks when seeking to address acts of pipeline vandalism. By way of an alternative approach, the research therefore recommends, among other suggestions, the resource ownership of crude oil and natural gas by individuals and host communities as envisaged by international law. It is only on this basis that the research concludes that the incidence of acts of pipeline vandalism can be abated in Nigeria's oil and gas industry.

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Umar et al. (2021) examined assesses the economic and environmental impacts of pipeline interdiction in the Niger Delta region. Data from National oil spills detection and response agency, Nigeria is used to map spatial distribution of oil spills using Kernel Density Estimation with Geographic Information System. Literature was assessed to synthesize the historical, socioeconomic, and environmental impacts of oil spills and pipeline interdiction. Soil samples were collected from study area to determine the types of hydrocarbon pollutants and their concentrations in comparison with uncontaminated sites in the area. Results show that the range of concentrations of total petroleum hydrocarbon (TPH) for the impacted soil (IMP) was 17.27–58.36 mg/kg; remediated soil (RS) was 11.73–50.78 mg/kg which were higher than the concentrations of 0.68 mg/kg in the control samples (CS). Polycyclic aromatic hydrocarbons (PAH) concentrations were in the range of 0.43–77.54 mg/kg for IMP, 0.42–10.65 mg/kg for RS, against CS value of 0.49 mg/kg while BTEX ranged between 0.02 – 0.38 mg/kg for IMP, 0.01–2.7 for RS against CS value of 0.01. The values of the PAH were higher than the limits of the Department of Petroleum Resources, Nigeria. This study also revealed that pipeline interdiction has affected the livelihood of the inhabitants of the study area and the revenue of the Nigerian government. The major hotspots for oil spills in the Niger Delta region are Bayelsa, Rivers and Delta states.

Gap in Literature

Oil facility vandalization is a serious problem that affects the sustainability of oil and gas firms in South-South Nigeria. It causes environmental degradation, economic losses, social conflicts, and security challenges for the industry and the host communities. The literature review examines the causes, effects, and solutions of oil facility vandalization from various perspectives, such as stakeholder management, sustainability reporting, corporate social responsibility, and community engagement. The literature review reveals that oil facility vandalization is mainly driven by factors such as poverty, unemployment, marginalization, corruption, militancy, and lack of trust between the oil companies and the host communities. The effects of oil facility vandalization include oil spills, gas flaring, pipeline explosions, revenue losses, health hazards, human rights violations, and social unrest. In addition, the literature review attempted to explain oil facility vandalism from a strictly economic perspective but did not consider the psychosocial reason. Additionally, no comprehensive study of the effects of oil facility vandalism on the viability of the oil and gas companies in South-South Nigeria has been done in the literature. The study, therefore, aims to close the aforementioned gaps.

Methodology

This study adopted a cross-sectional survey design. Cross-sectional survey design is a type of research design used to collect data from many different individuals at a single point in time. In addition to the fact that cross-sectional survey can be used in both exploratory and descriptive research, the design has the advantage of allowing the researcher to collect data which can be used in drawing conclusion about a much larger population. This study was conducted in the South-South region of Nigeria. The South South (often hyphenated to the South-South) is one of the six geopolitical zones of Nigeria representing both a geographic and political region of the country's eastern coast. It comprises six states – Akwa Ibom, Bayelsa, Cross River, Delta, Edo, and Rivers. The zone stretches along the Atlantic seaboard from the Bight of Benin coast in the west to the Bight of Bonny coast in the east. It encloses much of the Niger Delta, which is instrumental in the environment and economic development of the region. Geographically, the zone is divided with the Central African mangroves in the coastal far south while the major inland ecoregions are–from east to west–the Cross–Sanaga–Bioko coastal forests, Cross–Niger transition forests, Niger Delta swamp forests, and Nigerian lowland forests. The study population comprised of 1200 employees in South -South, States in Nigeria who wprk in the oil sectors.

As a result of the inability of the researcher to effectively study the whole State under the study, a representative number was chosen as the sample size population. Three hundred (300) employees were selected from the government workplaces in Delta State using purposive sampling technique and were used as the sample size. The sample size was calculated using the Taro Yamani scientific formula.

$$n = \frac{N}{1 + N(e)^2}$$

Where:
N is the Population
1 is the constant
e is the degree of error expected
n is the sample size

$$n = \frac{1200}{1 + 1200\,(0.05)^2}$$

$$\frac{1200}{1 + 1200\,(0.0025)}$$

$$\frac{1200}{1 + 3}$$

$$\frac{1200}{4}$$

$$n = 300$$

The purposive sampling method has been chosen for this research study. This was to allow the researcher to obtain basic data and trends regarding his study without the complications of using a randomized sample. The structured questions will consist of close-ended questions to be used as the instrument of data collection. In analysing the data, descriptive and inferential statistics will be adopted. To demonstrate ethical awareness in the context of the study, information on ethical considerations such as the right to withdraw at any stage of the survey, the anonymity of participant information, the need to secure participants' informed consent, and others will be clearly communicated to the participants. The study was making use of quantitative data. Quantitative data are easy to analyse, are precise, consistent, objective in nature, and reliable (Lawrence & Tar, 2013). Quantitative research is also useful for a large population of interest, thereby promoting generalisation of findings. It helps research objectivity and accuracy, can be replicated in another study by a different researcher, and respondents participating in it can remain anonymous. The primary data were collected through a physical questionnaire to be shared on-site in the study area based on purposive sampling technique. The data consisted of sociodemographic information of respondents and the research questions which would be used for testing the research hypotheses.

A structured questionnaire was used as the data collection instrument. The structured questionnaire has two sections. Section A was on demographic data of the respondents. Section B is a close ended question form of questionnaire based on a five (5) point Likert scale, ranging from Strongly Agree (SA) = 5 points, Agree (A) = 4 points, Undecided (UD) = 3 points, Disagree (D) = 2 points and Strongly Disagree (SD) = 1 point derived from the research questions from this study. After trial testing, the instrument was subjected to a test of internal consistency to ensure its reliability. Research question 1 was analyzed using

frequency and percentage. Research questions 2-3 cronbach alpha (x) was used. This was in a bid to authenticate the validity and reliability of questionnaire before proper administration to the sampled respondents. The piloting process was repeated twice, and the end, if any errors were observed, the Guttmann Scale of Coefficient of Reproducibility was adopted to correct and subsequently measure the reliability of the instruments to produce a valid reliability coefficient of at least 90%. The scores were used to calculate the variations. The coefficient of reliability was found to be 0.93.

The data gathered were analyzed through the statistical package for Social Sciences (SPSS). In presenting the characterization of the respondents and their responses based on the questions derived from the research questions, simple percentages were adopted as descriptive statistics while the hypotheses were tested using the Chi-square and Pearson Product Moment Correlation. Furthermore, the study also adopts content analysis. It is used to organize and elicit meaning from data collected and draw realistic conclusions (Polit&Beck,2006). Content analysis is a unique method, in that it is not only used in quantitative (Neuendorf,2002; Krippendorff,2004) but also in a qualitative methodology (Catanzaro,1988; Burnard,1991; Downe-Wambolt, 1992; Berg, 2001), as well as an inductive and a deductive way (Bengtsson, 2016). Also known as document analysis, content analysis is a form of qualitative research in which documents are interpreted by the researcher to give voice and meaning to an assessment topic (Bowen,2009).

Analysis of Research Hypotheses

Hypothesis One

H_0: There is no significant impact of oil facility vandalization on sustainability of oil and gas firms in South-South Nigeria

H_1: There is no significant impact of oil facility vandalization on sustainability of oil and gas firms in South-South Nigeria

Level of significance: 0.05

Decision rule: reject the null hypothesis if the p-value is less than the level of significance, accept the null hypothesis if otherwise.

Table 3: Test Statistics

	There is no significant impact of oil facility vandalization on sustainability of oil and gas firms in South-South Nigeria.
Chi-Square	106.640[a]
Df	3
Asymp. Sig.	**.001**

a. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 25.0.

Conclusions Based on Decision Rule:
Since the p-value= 0.000 is less than the level of significance (0.05), we reject the null hypothesis and conclude that There is no significant impact of oil facility vandalization on sustainability of oil and gas firms in South-South Nigeria.

Hypothesis 2

H_0: There is no significant relationship between oil facility vandalization and sustainability of oil and gas firms in South-South Nigeria

H_1: There is a significant relationship between oil facility vandalization and sustainability of oil and gas firms in South-South Nigeria

Level of Significance: 0.05
Decision rule: reject the null hypothesis if the p-value is less than the level of significance, accept the null hypothesis if otherwise.

Table 4: Correlations

		There is a significant relationship between oil facility vandalization and sustainability of oil and gas firms in South-South Nigeria	There is a significant relationship between oil facility vandalization and sustainability of oil and gas firms in South-South Nigeria
There is a significant relationship between oil facility vandalization and sustainability of oil and gas firms in South-South Nigeria	Pearson Correlation Sig. (2-tailed) N	1 300	.753** .000 300
There is a significant relationship between oil facility vandalization and sustainability of oil and gas firms in South-South Nigeria	Pearson Correlation Sig. (2-tailed) N	.753** .000 300	1 300

**. Correlation is significant at the 0.05 level (2-tailed).

Conclusion Based on the Correlation Table Above
The correlation coefficient R= 0.753 indicates a strong positive relationship. We therefore conclude that there is a significant relationship between oil facility vandalization and sustainability of oil and gas firms in South-South Nigeria. To investigate the research question and all the hypotheses, I used the multiple linear regression methods to explore the relationship between the independent variables and the dependent variable and their

significance. The alpha value of significance was set as 0.05. The regression equation of all three independent variables were significantly related to the dependent variable, where R^2 = 1.000, adjusted R^2 = 1.000, $F(3, 88) = 947279.44$, $p = 0.000$ (see Tables 9 & 10).

Using SPSS, I calculated the multiple correlations (R), a squared multiple correlation (R^2), and an adjusted squared multiple correlation (R^2 adj; Green & Salkind, 2014). According to Green and Salkind (2014), these three indices determine how well the linear combination of independent variables in the regression analysis correctly predicts the dependent variable. The value of R ranges from 0 to 1, where $R = 0$ means there is no linear relationship between the independent variable and the dependent variable (Green & Salkind, 2014). Similarly, where $R = 1$ means that the linear combination of the independent variables precisely predicts the dependent variable. In Table 9, $R = 1$, implying that all independent variables (oil theft, pipeline vandalism, and security costs) precisely predict the dependent variable (revenue losses). All the null hypotheses $H_0$1, $H_0$2, and $H_0$3 were rejected and all the alternative hypotheses H_a1, H_a2, and H_a3 were accepted.

Table 5: Regression Analysis Summary for Predictor Variables

Model	*R*	*R* Square (R^2)	Adjusted *R* square	Std. error of the estimate
1	1.000[a]	1.000	1.000	.04933

Note: a. Predictors: (Constant), security costs, pipeline vandalism, oil theft

When interpreting the values of R, which are between 0 and 1, R may be squared or multiplied by 100 and the resulting outcome may be interpreted as the percentage of criterion variance from the linear combination of the independent variables (Green & Salkind, 2014). In Table 9, $R^2 = 1$ indicated that the three independent variables effect on the dependent variable was 100%.

I observed that F ratio for the ANOVA (see Table 10). F ratio is the ratio of two mean square values, the mean square of the model and the residual mean square (Field, 2013). The F ratio represents the improvement in the prediction of the outcome as compared with the inaccuracies in the model (Field, 2013). A good model would have an F ratio > 1 and it would be expected to be greater than the residual mean square.

According to Field (2013), a large F ratio implies that the regression is formative and the model is acceptable. In the ANOVA table (see Table 10), the F ratio is 947279.445 signifying that the model is regression formative and all the null hypotheses are highly unlikely.

Table 6: Regression Analysis ANOVA Results

Model		Sum of squares	*df*	Mean square	*F*	Sig.
Regression		6916.437 .204	3	2305.479	947279.445	.000[b]
1	Residual		84	.002		
Total		6916.641	87			

Note: a. Dependent variable: revenue losses
b. Predictors: (Constant), security costs, pipeline vandalism, oil theft

The unstandardized coefficients (β) are the weights associated with the regression equation, and they signify the relative importance of the independent variables (Green & Salkind, 2014). To further understand the relative importance of the weights, Beta values were used, where the weights are better understood if all the variables (independent and dependent) are standardized to have a mean of 0 and standard deviation of 1 (Green & Salkind, 2014). The order of relative importance of the independent variables are as follow: (a) oil theft = .451, (b) pipeline vandalism = .553, and (c) security costs = .387

Table 7: Regression Analysis Coefficients Results

Model	Unstandardized coefficients		Standardized coefficients	*t*	Sig.	95.0% CI	
	B	Std. Error	Beta			Lower bound	Upper bound
(Constant)	.002	.048		.046	.963	-.093	.097
Oil theft	11.091	.016	.451	699.928	.000	11.060	11.123
1 Pipeline vandalism	12.495	.014	.553	871.906	.000	12.466	12.523
Security costs	10.008	.016	.387	626.024	.000	9.976	10.040

Note: N = 88

Confidence interval (CI) and *p*-values project statistical certainty, and a *p*-value of 0.05 and 95% CI indicate high certainty (Ellingson, 2013). The lower and higher boundaries of the CI imply that the population mean is within these values. Based on the application of regression analysis, the study findings were as follows:

1. The independent variable, oil theft was statistically significant. $B = 11.091, 95\%$ CI $(11.060, 11.1231), p < 0.01$
2. The independent variable, pipeline vandalism was statistically significant. $B = 12.495, 95\%$ CI $(12.466, 12.523), p < 0.01$
3. The independent variable, security costs was statistically significant. $B = 10.008$, 95% CI $(9.976, 10.040), p < 0.01$

The outcome of this study analysis indicates that there is a statistically significant relationship between the three predictors and revenue losses. The RDT stated that organization's survival depended on their ability to get their resources from the external environment and operate in the region successfully. The outcome of this study supports this claim.

Discussion of Findings

According to earlier research, individuals intentionally damage oil installations because they are angry, poor, pollute the environment, and lack prospects for empowerment. Vandalism in the South-South, however, is more strongly impacted by an unmentioned psychosocial imperative. It is about time that the focus of analysis changed to the psychosocial need to give relevance to what Igbivonia (2012) used "in high places" a term to describe the position of those who take pleasure in vandalism and theft of oil products. The personality types should divert our focus from the widely held belief that "poverty induces" some sort of societal pressure and kleptomaniac impulse. Almost on the contrary, these criminals desire to maintain their social, economic, and political influence in the community. At rituals like funerals, weddings, and gatherings, the greatest donor would be honoured with a chieftaincy title and recognised for their contributions. Why would a high-ranking military official and a prominent politician be connected to intentional economic sabotage, if not out of pride but out of poverty? It is because illicit oil bunkering and pipeline vandalism are lucrative businesses throughout Nigeria, not just in the South-South. Not necessarily deprivation, starvation, or neglect drive vandals to carry out the atrocity.

The second result is that the influence of oil facility vandalism on the longevity of oil and gas companies has been overlooked by earlier studies. This carelessness left a gap in the literature. Evidence suggests that if the willful destruction of their infrastructure continues unchecked, oil and gas businesses are quite vulnerable. Shell has voiced dissatisfaction with the output drop brought on by vandals' actions. Without paying careful attention to the oil and gas businesses, any risk analysis addressing oil pipeline vandalism may be deemed inadequate. Evoh (2009) reiterates that multinational companies are in charge of managing the six terrestrials that Nigeria owns. For instance, Exxo-Mobil administers the Qua Iboe facility, while Chevron-Texaco is in charge of the Escxravos and Pennington terminals, and Shell is in charge of the Forcados and Bonny terminals. Additionally, a governmental body is in charge of the Island Liquified Natural Gas (LNG) terminal, whilst Agip manages Brass. It must be acknowledged that a challenge to the operations of these companies poses an equivalent threat to the economy and development of Nigeria, which is nearly entirely dependent on oil.

Conclusion

Oil facility vandalization is a threat to the sustainable Oil and Gas Firms' operations in South-South Nigeria. psychosocial need of the people significantly influences oil facility vandalism in the region. Individuals who plunder and pillage crude oil and refined products and vandalize the facilities are not necessarily driven by poverty but by social pressure and kleptomaniac instinct. While these happen, the operations of oil firms become vulnerable. The loss of enormous revenue to vandals is a wake-up call to all stakeholders for action to ensure the sustainability of the companies.

Recommendations

i) Government at all levels should ensure adequate protection of the oil and gas firms for sustainable development.
ii) The oil and gas firms should invest in human capital development, adopt modern technology and innovation, and enhance their environmental and social performance.
iii) Conscious research should be undertaken on the psychosocial explanation of vandalism in the region.
iv) The government should implement the Petroleum Industry Act (PIA) 2021, which aims to reform the oil and gas sector, address the grievances of the host communities, and create a conducive business environment.
v) The stakeholders, such as the government, the oil and gas companies, the civil society, and the traditional leaders, should engage in constructive dialogue and collaboration to resolve the conflicts and grievances in the region, and foster a culture of peace and mutual respect.

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