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This thesis is submitted in partial fulfillment of the requirements for the award of the degree of Doctor of Security Risk Management of the University of Portsmouth.

Title:

Assessing the effectiveness of government security agencies in oil pipelines security management in Nigeria: A case study of the Nigeria Security and Civil Defence Corps (NSCDC)

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Declaration

Whilst registered as a candidate for the above degree, I have not been registered for any other research award. The results and conclusions embodied in this thesis are the work of the named candidate and have not been submitted for any other academic award.

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Abstract

Nigeria is a mono-economy nation depending on the petroleum sector for her foreign exchange earnings. Its oil industry faces a major challenge of vandalism of oil pipelines, where recorded incidents have varied between 3 and 10 every day during the last 15 years. The aims of this research were to examine the problem of petroleum products pipelines vandalism in Nigeria and make recommendations for improving the national response to the problem, with the specific objectives of examining the nature and extent of the problem, identifying the strategies and tactics being employed to address the problem, and examining the strengths and limitations of the current measures. The extant literature indicates that vandalism of oil pipelines is a global phenomenon, against which most oil and gas producing countries deploy equipment and technologies in conjunction with security forces to protect their oil and gas facilities. The methodology adopted for this study was qualitative in nature, comprising semi-structured interviews with ten NSCDC anti-vandalism personnel from Niger Delta states' commands and headquarters; twelve other critical stakeholders encompassing the security joint-task force (JTF) personnel, multi-national oil companies' senior managers, leaders of oil-producing host communities, NGO managers, senior personnel in private security companies (PSCs) and other physical security experts.

The participant accounts suggest that vandalism of oil pipelines in Nigeria is multifaceted, requiring a combination of methodologies and tactics to combat it. They included details of a massive deployment of security forces to the Niger Delta region to combat oil pipelines vandalism, reporting positive results from NSCDC personnel deployment to Niger Delta region in the form of arrests of the perpetrators and foreign collaborators, and seizures of their vessels. At the same time, however, it was reported that the militarization of the oil

producing communities increases tension, escalates violence and leads to human rights abuses. The research recommendations include evolving alternatives away from the current measures which emphasise security forces deployment to combat vandalism of oil pipelines; investment in the deployment of physical security in combination with the security forces in a more integrated manner, provision of social amenities in the oil producing communities, seeking international collaboration, provision of job opportunities for the youths of the Niger Delta region, identification and apprehending of the sponsors of oil pipelines vandals, and also learning best practices from other oil and gas producing countries.

374 words

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List of figures and tables

List of abbreviations

ASIS	-	American Society for Industrial Security
BPS	-	Baltic Pipeline System
CCTV	-	Close Circuit Television
CDS	-	Chief of Defence Staff
CEI	-	Critical Energy Infrastructure
CG	-	Commandant General
CGC	-	General Command of the Gendarmerie
DPR	-	Department of Petroleum Resources
DSS	-	Directorate of State Security
EFCC	-	Economic and Financial Crimes Commission
IACC	-	Impressed Alternating Cycle Current
IDS	-	Intrusion Detection System
ISAC	-	Information Sharing and Analysis Centre
ISO	-	International Standard Organization
JTF	-	Joint Task Force
LNG	-	Liquefied Natural Gas
MOC	-	Multinational Oil Companies
MOCC	-	Marine Operation Co-ordination Committee
NEC	-	National Economic Council
NGO	-	Non-Governmental Organisation
NLNG	-	Nigeria Liquefied Natural Gas Ltd
NNPC	-	Nigerian National Petroleum Corporation
NNS	-	Nigeria Navy Ship
NPF	-	Nigeria Police Force
NSCDC	-	Nigeria Security and Civil Defence Corps
OMS	-	Ocean Marine Solution
OML	-	Oil Mining License
OPC	-	Oodua Peoples Congress
PEF	-	Petroleum Equalization Fund
PHCN	-	Power Holding Company of Nigeria
PMS	-	Premium Motor Spirit
PENGASSAN	-	Petroleum & Natural Gas Senior Staff Association of Nigeria
PPMC	-	Petroleum Product Marketing Company
PPPRA	-	Petrol Product Pricing Regulation Agency
PPS	-	Physical Protection System

PSC	-	Private Security Company
ROW	-	Right of Way
SPDC	-	Shell Petroleum and Development Company
TFP	-	Trans Forcados Pipeline
TPI	-	Third Party Interference
TSK	-	Turkish Armed Forces
UAV	-	Unmanned Aerial Vehicle
UN	-	United Nations
WSN	-	Wireless Sensor Network

Chapter one: Introduction

Background

The exploration of petroleum resources in Nigeria can be traced back to 1908, the year that surveyors from Germany working for Nigerian Bitumen Corporation were prospecting for tar sand deposits in south-western Nigeria (Ite, Ibok, Ite, & Petters 2013). However the outbreak of First World War in 1914 brought these pioneering efforts to an abrupt end. In 1938, the exploration of petroleum resources began with Shell D' Arcy (a consortium of the Iranian Oil Company which was later called British Petroleum and Royal Dutch Shell). Shell D'Arcy was granted a sole concessionary right over the whole of Nigeria. The Second World War (1939-1945) however terminated the initial exploration activities by Shell D'Arcy.

In 1946, immediately after the Second World War, Shell D'Arcy resumed oil exploration in the Nigeria Niger Delta and a number of oil exploratory wells were drilled in 1951. Shell D'Arcy was given complete monopoly of oil exploration between 1938 and 1955. In 1955 however the monopoly was broken by Mobil Producing (Nigeria) Ltd, a subsidiary of American Socony-Mobil Oil Company which was granted license for oil exploration under the name Mobil Exploration Nigeria Incorporated and later incorporated as Mobil producing Nigeria on June 16 1969 (Ite, ,Ibok, Ite, & Petters, 2013) .

In 1956, Shell British petroleum discovered crude oil in a village called Oloibiri in the present day Bayelsa state of Nigeria (Kadafa, 2012), and this discovery which was in commercial quantity marked the birth of the petroleum industry in Nigeria (Okoli & Orinya, 2013). Onuoha (2008, p.98) posits that the petroleum industry was born "when oil was discovered in

commercial quantity in Oloibiri in 1956, in present- day Bayelsa State". The oil company started with a production rate of 5100 barrels per day and a peak production of 2.44 million barrels per day over the next few years (Kadafa 2012). In 2006, Nigeria has eleven (11) oil companies, one hundred and fifty-nine (159) oil fields and one thousand four hundred and eighty-one (1,481) wells all operating in the Niger Delta region of Nigeria (Anifowoshe, Lawler, Host and Chapman 2012). Onuoha, (2008, p.98) describes Nigeria as a country with a land mass of 923768 square kilometres (356,669) square miles, a large economy which depends heavily on petroleum.

The oil sector in Nigeria over the years has been developed into a massive domestic industrial infrastructure, which consist of more than 300 oil fields, 5284 wells, 7000km of pipelines, ten export terminals, 22 petroleum storage depots, 275 flow stations, ten gas plants, four refineries, and massive liquefied natural gas (LNG) projects (Smith, 2006).Oil companies in Nigeria are the major producers of crude oil in the country and also market the gas products. Jike (2010, p.131) argues that "The production of crude oil and the marketing of gas products remain the overriding function of oil companies in Nigeria. This objective has been sustained by the global attraction for Nigeria's crude". Pinto (1987, pp. 419-420) describes Nigeria as a member of the Organization of Petroleum Exporting Countries which exports "coveted (bonny light) and medium grade crude oil". He posits that the oil price shocks of 1973 – 1974 and 1979 led to a stupendous transfer of wealth to Nigeria, noting that the domination of oil in the economy of Nigeria is demonstrated by sharp rise in the share of oil in gross domestic product (GDP) and oil exports after 1970 – 73, which rendered the Nigerian terms of trade virtually synonymous with the price of oil deflated by the import price index.

The petroleum sector is critical to the Nigerian economy. This is because the sector is the primary source of revenue to the country. Table1.1 shows the percentage of oil revenue in

Nigeria from 1960 to 2018 adapted from Central Bank of Nigeria (CBN) annual statistical bulletins. In 1975, oil revenue contributed to 77.5% of the total revenue in Nigeria. In 1980 the percentage increased to 81.1 % and further increased to 83.5 % in 2000. The percentage increase rose to 85.8% in 2005.The table indicates that there was a drastic decline of oil revenue in 2015 (from 73.9 % in 2010 to 55.4 percent in 2015). The reason for the decline is attributed to the drop in prices of oil in the international market. According to the Nigeria Extractive Industries Transparency Initiative (NEITI) Report (2015), Nigeria suffered 54.6% decline in oil revenues due to drastic reduction in the unit price of crude oil in the global market. The report indicates that the yearly average price of crude oil per barrel tumbled from 101.91 USD in 2014 to 52.16 USD in 2015. The declines in the oil price in the global market continued to impact the oil revenue negatively resulting in 58.1% contribution to the total revenue in 2018.

Table 1.1 Percentage of oil revenue in Nigeria from 1960 to 2018 (Millions of Naira MN)

Year	Total revenue	Oil revenue	Non-oil revenue	% Of Oil Revenue
1960	223.65	0	223.65	0.0
1965	654.34	0	654.34	0.0
1970	634	166	467.4	26.2
1975	5,514.70	4,271.50	1,243.20	77.5
1980	15,223.50	12,353.30	2,880.20	81.1
1985	15,050.40	10,923.70	4,126.70	72.6
1990	98,102.40	71,887.10	26,215.30	73.3
1995	459,987.30	324,547.60	135,439.70	70.6
2000	1,906,159.70	1,591,675.80	314,483.90	83.5
2005	5,547,500.00	4,762,400.00	785,100.00	85.8
2010	7,303,670.00	5,396,090.00	1,907,580.00	73.9
2015	6,912,500.00	3,830,100.00	3,082,400.00	55.4
2016	5,616,400.00	2,693,900.00	2,922,500.00	48.0
2017	7,317,700.00	4,109,800.00	3,207,900.00	56.2
2018	9,551,600.00	5,545,600.00	4,006,000.00	58.1

Adapted from CBN Annual Statistical Bulletins (2008 – 2019)

Presently Nigeria has been ranked the largest oil producing country in Africa, the sixth

largest crude oil producer within the Organisation of the Petroleum Exporting Countries

(OPEC) and the sixteenth largest oil producer in the world (OPEC Monthly Oil Market

Report 2019, Deloitte, 2018). According to Export.gov (2019), Nigeria depends heavily on

oil which accounts for about 90% of export earnings and over 70% of total revenue earned.

The pivotal role of crude oil to the survival of Nigerian economy is demonstrated by its

strategic importance in determining the directions of the annual national budget estimates of

the country. For instance, the 2018 national budget presented to the Federal Parliament is

predicated upon three key assumptions; oil production of 2.3 million barrels, benchmark oil

price of US$45 per barrel and average exchange rate of N305/ US$ (Buhari, 2018). Thus

Boris (2015, p.563), a research scholar and an active commentator on Nigeria oil and gas

resources; describes Nigeria as a "mono-economy nation which largely depends on the oil

sector for its economic survival".

Figure 1.1 OPEC Crude Oil Production
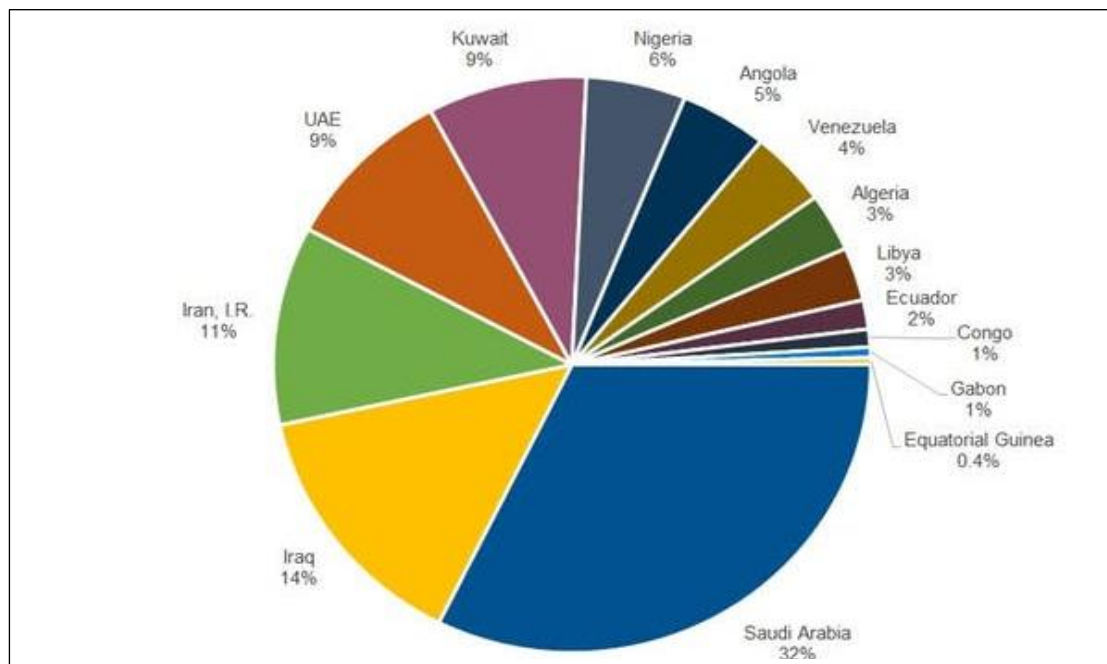
Source: OPEC Monthly Oil Market Report (2019)

Most of the Nigeria oil and gas production takes place in the Niger Delta Region. The region is made up of nine states which include; Abia, Akwa-Ibom, Bayelsa, Cross River, Delta, Edo, Imo, Ondo, and Rivers. These states are also blessed with abundance of natural resources including vast crude deposit. The Niger Delta region is the largest wetland in Africa, and the third largest mangrove forest in the world. It is the third largest wet land in the world, holding an area of about 70 000sq kilometres, and possessing ecological zone that comprises large rivers, coastal areas, mangroves, and fresh and salt water swamp forest (Wetland International, 2016; Boris, 2016).

Figure 1.2 Map of Nigeria showing 9 States of the Niger Delta region**.**
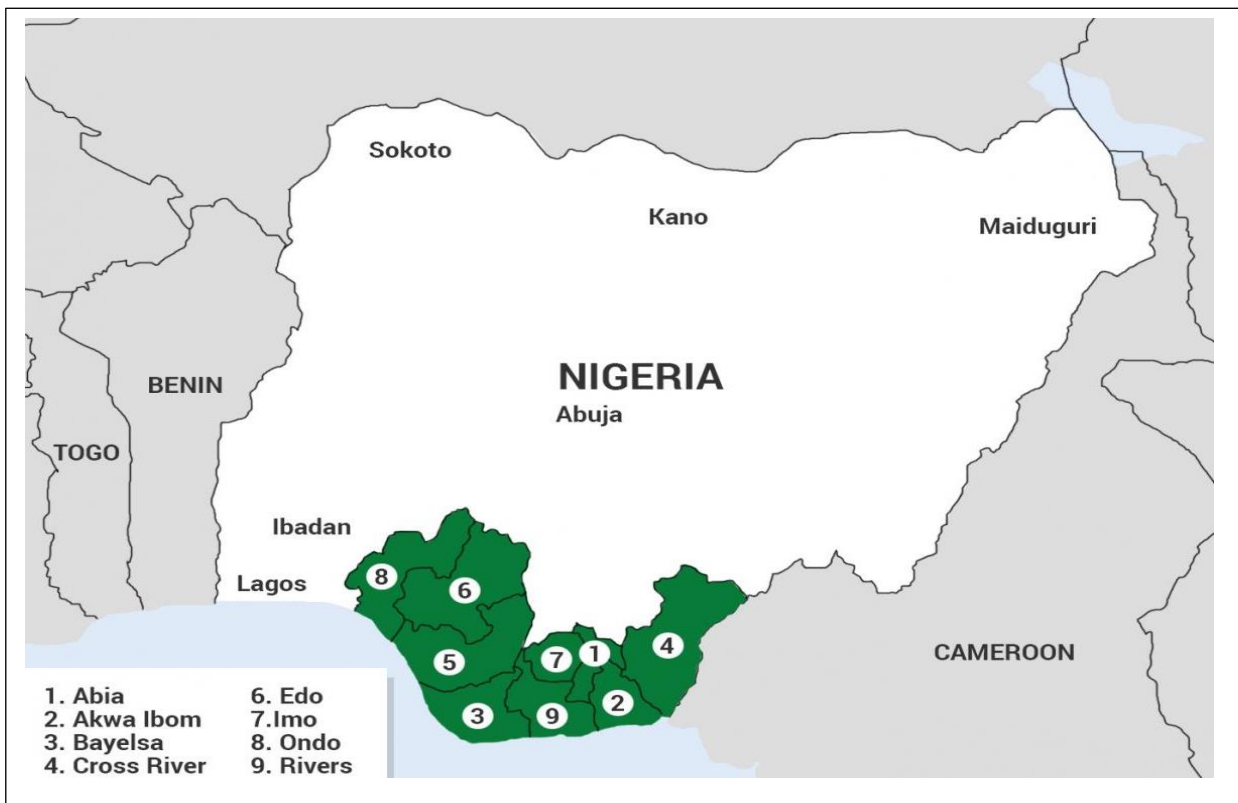
Source: Federal Republic of Nigeria

Figure 1.3 Map of Niger Delta Showing Rivers, States and Vegetation Zones.
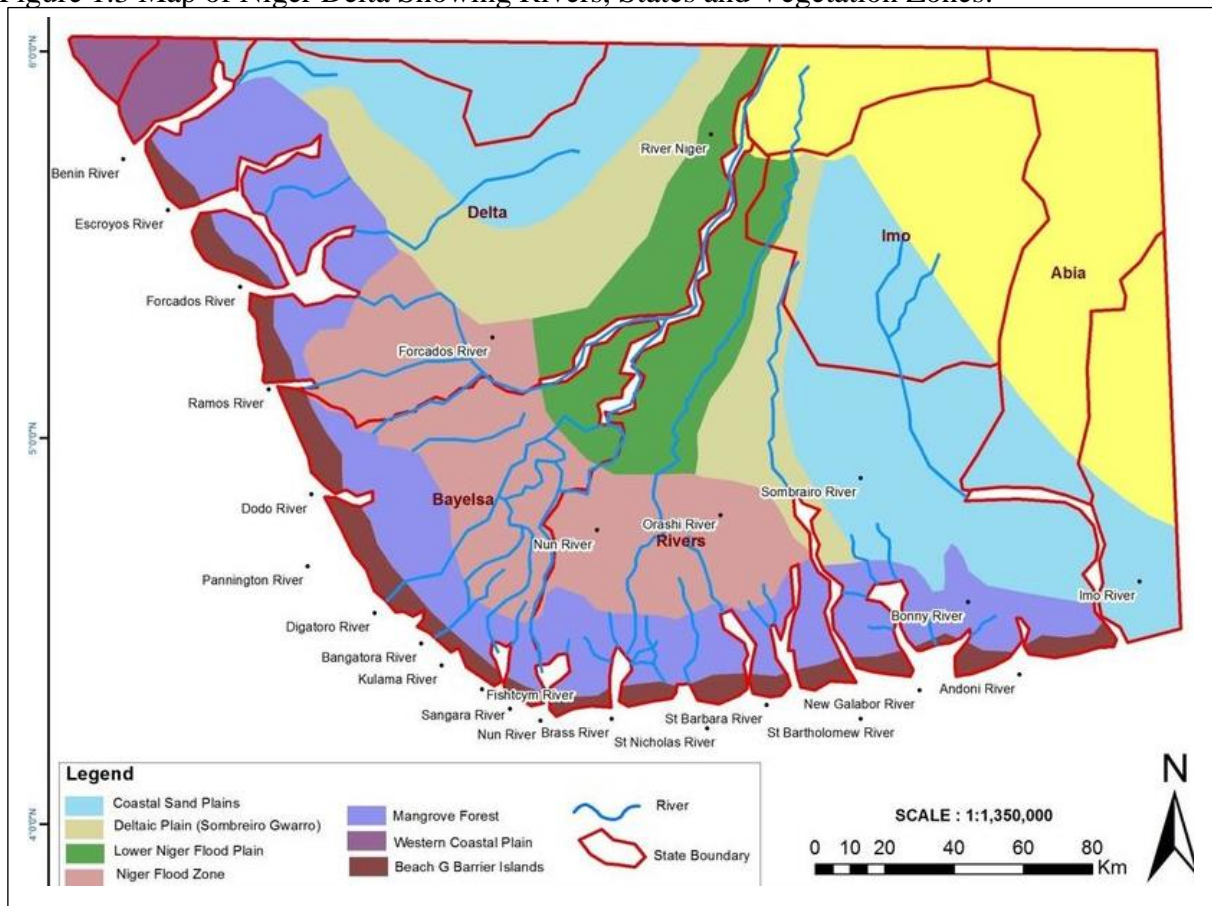
Source: Academicjournals.org

Onuoha (2007, p.96), a social scientist, scholar and an active commentator on the Niger Delta crisis, observes that the Nigerian oil industry has long been confronted with the major challenge of vandalism of petroleum products pipelines defined by him as "illegal or unauthorised activities that involve the destruction of oil pipelines to disrupt supply or the puncturing of oil pipelines to siphon crude oil or its refined products in order to appropriate it for personal use or for sale in the black market or any other outlet". Okoli & Orinya (2013, p.67) describe vandalism of oil pipeline as bunkering which is "the act of drilling into the pipe lines with the intent to steal the products". They observed that it is typically perpetrated by criminal syndicates in Nigeria as a lucrative source of income.

The term bunkering has many different definitions as used by the shipping industry. However, within the context of vandalism of oil pipelines in Nigeria, bunkering refers to the clandestine siphoning off or diverting of oil from pipelines or storage facilities.

Vandalism of oil pipelines in the Nigerian context is a term that covers all the different categories of action that occur in different attacks on oil pipelines and pumping infrastructure in Nigeria. These include:

i.   Genuine acts of vandalism perpetrated by individuals within the local oil producing communities to sabotage and damage oil pipelines to make statements against oil companies and the Nigerian government due to lack of benefits accruing to the oil producing communities of the Niger Delta region.

ii. The criminal syndicates that tap into oil pipelines and steal and smuggle out products and illegal bunkering.

iii. The militants who deliberately sabotage the oil pipelines to demand for equitable distribution of oil revenue and resource control.

According to the NNPC statistics on incidences of vandalism of oil pipelines in Nigeria between 2002 and 2018, summarised in figure 1.4, there were about 500 vandalism of oil pipelines in 2002, and this rose astronomically to about 3,800 in 2006. In 2010, vandalism of pipelines incidences dropped to about 800, partly as a result of the amnesty program of the federal government of Nigeria which was initiated in 2009. Amnesty programme is a peace-building initiative in the Niger Delta region aimed at curbing violence in the region by engaging the militants. A 60-day period was allowed for armed youths to surrender their weapons in

return for training and rehabilitation and many Niger Delta armed youths embraced the programme. However, in 2011, the incidences of vandalism of oil pipelines increased to 2768 and reached its peak at 3700 in 2014. In 2018, the incidences of vandalism of oil pipelines has recorded a decline to 1894 according to the NNPC statistics.

Figure 1.4 Statistics of incidences of vandalism of oil pipelines in Nigeria from 2002 to 2018
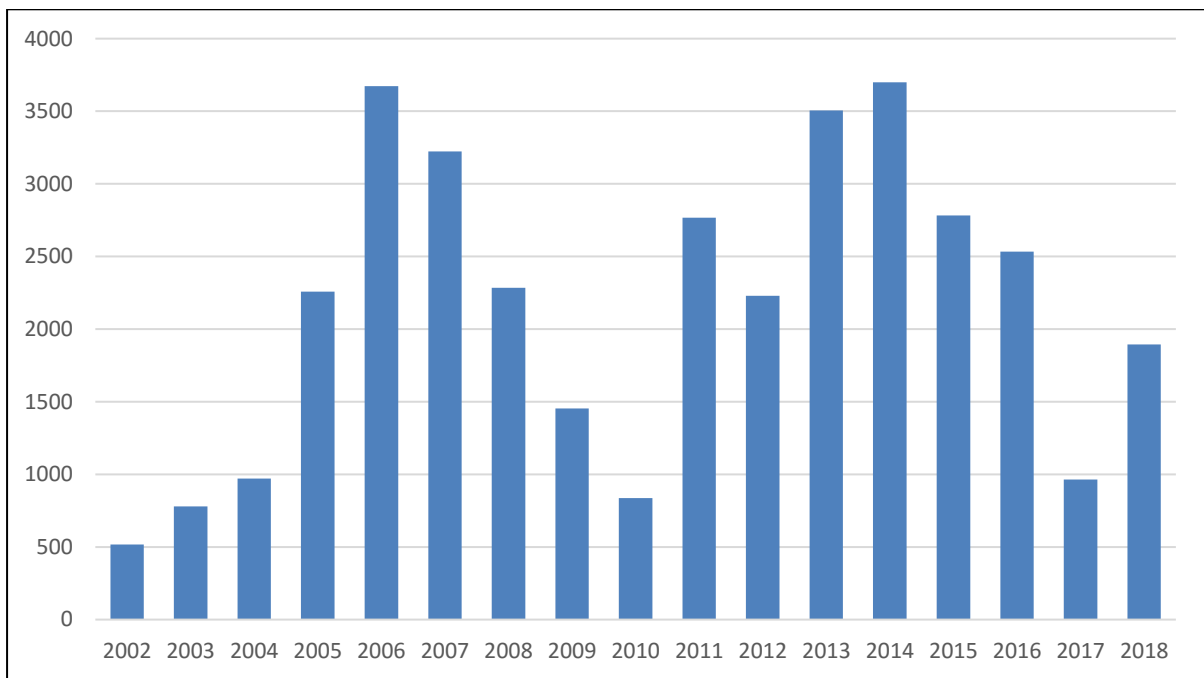
Adapted from Nigerian National Petroleum Corporation (NNPC) (2018)

According to the NNPC's Monthly Financial and Operations Report (2018), in figure 1.5, a total number of 2,224 vandalised points were recorded between December 2017 and December 2018 alone. In December 2017, there were 176 vandalised points comprising 24 points along Mosimi pipeline, 11 points along Kaduna pipeline while Port Harcourt pipeline suffered 129 vandalised points. Similarly, Warri and Gombe pipelines recorded 3 and 9 vandalised points respectively. The statistics also indicated that in December 2018, 257 vandalised points were recorded. These included 216 breaks along Mosimi pipeline, 7 breaks

along Kaduna pipeline. Port Harcourt pipeline recorded 24 breaks, 8 breaks occurred along

Warri pipeline while Gombe pipeline recorded 2 vandalised points.

Figure 1.5 Oil pipeline breaks between December 2017 and December 2018.
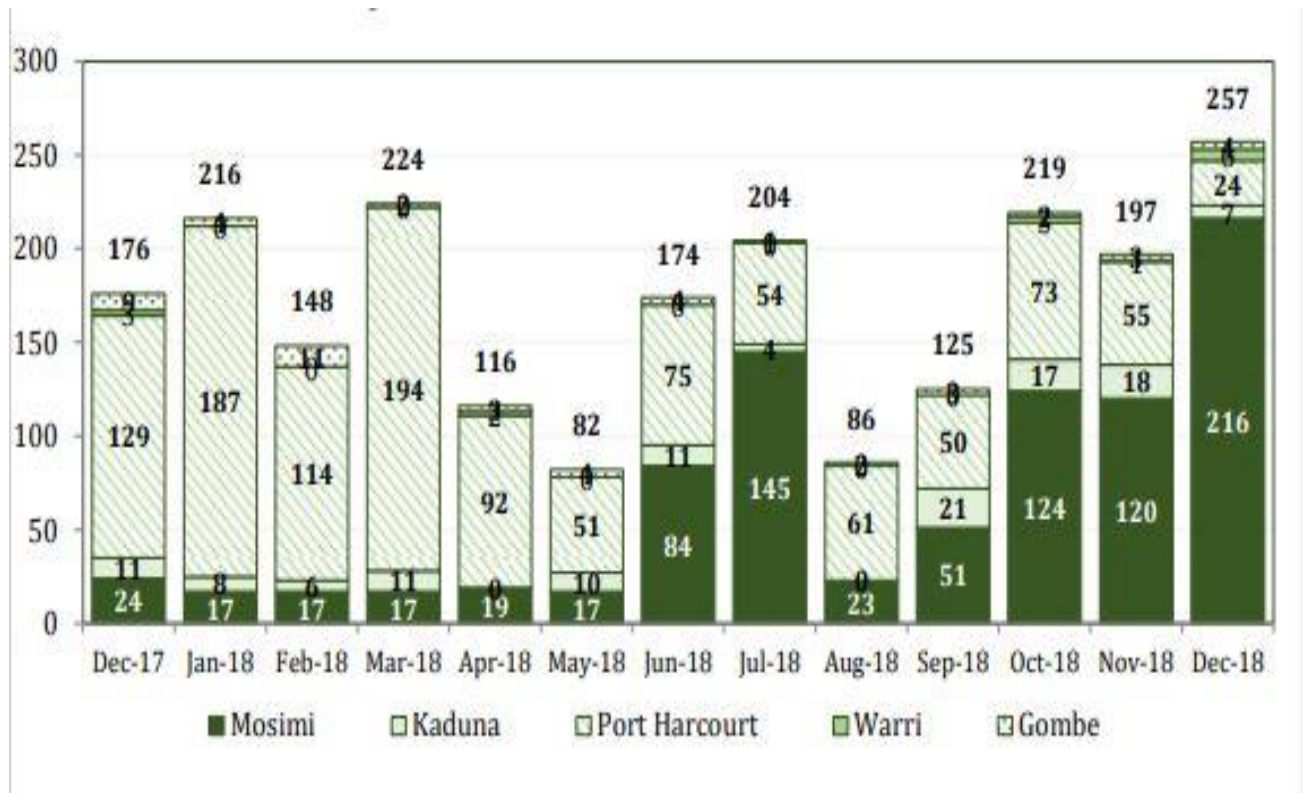
Source: NNPC's Monthly Financial and Operations Report (2018)

A range of stakeholders led by the Nigerian Armed Forces contribute to the protection of

petroleum products pipelines across the country. For instance, in order to reduce militancy in

the Niger Delta region of Nigeria and curtail vandalism of oil pipelines, there have been several

military operations in the region led by the Nigerian military aimed at effectively securing the

hub of oil and gas production in Nigeria, the economic base of the Nigerian nation and also to

protect the coastal areas from where the stolen crude are exported and illegal weapons brought

in (Adisa, 2018). Such operations are described using different code names such as operation

Delta Safe and Operation Crocodile Smile. These operations are directed at the restive Niger

Delta region of Nigeria; the region that currently produces the bulk of the Nigerian crude oil and play host to the militant activities.

Similarly, a core mandate of the Nigerian Navy is "to protect the Nigerian Maritime Environment and rid it of all forms of illegal activities especially as it relates to crude oil theft and oil bunkering" (Nigerian Navy 2013). In carrying out this mandate, the Nigerian Navy has had successful operations against vandalism of pipelines such as foiling some attempts to vandalise oil pipelines including breaking the pipeline belonging to the Nigerian National Petroleum Corporation, NNPC, which pumps petroleum products from Atlas Cove, Lagos to Mosimi depot, Ogun State, and in the process recovered 972 drums and 595 jerrycans, of the products, including four boats (Deolu 2017). To boost the anti- vandalism drive efforts of the military, a Joint Task Force (JTF) comprising the Nigeria Navy, the Nigeria Air Force and the Nigeria Army code named "Operation Jagunlabi" was launched specifically to check the vandalism of petroleum products pipeline around the creeks of Ikorodu area of Lagos state of Nigeria. The main objective of the JTF was to check "the increasing menace of pipeline vandalism and crude oil theft" (News Agency of Nigeria, 2017:np).

Working in support of the Nigerian armed forces is the Nigeria Security and Civil Defence Corps (NSCDC), a para-military agency of the government of the Federal Republic of Nigeria (Ministry of Interior). It was established in 1967 and is currently under the Federal Ministry of Interior (Abolurin 2010). The Agency was established by an Act of Parliament; NSCDC Amendment Act (2007) which expressly conferred to it the authority to investigate the offence of vandalism of oil pipelines and to initiate proceedings thereto on behalf of the Attorney General of the Federation. The agency is empowered to enter and search any premises and

seize any material suspected to have been used in vandalisation or suspected process of vandalisation. It is also mandated to arrest, investigate and hand over to relevant security agencies the suspects for further investigation and prosecution (NSCDC Amendment Act 2007 No 6, 2007).

To carry out this statutory mandate, the agency established a task force on anti-vandalism charged with the duty of protecting the oil pipelines (Mboho & Udousoro 2014). The NSCDC responds to pipeline vandalism in three main ways: deployment of men and officers of the Corps to communities traversed by pipelines and patrolling of the communities on daily basis to prevent vandalism, the use of force to arrest and prosecute pipelines vandals, and assisting victims where inferno occurs as a result of vandalisation of petroleum products pipelines (Abolurin, 2010).

To complement the efforts of other security agencies in the anti-vandalism drive of the federal government, the Nigeria Police Force established a special Police anti-vandalism squad dedicated to the protection and security of oil and gas pipelines (Muhammad, 2012). This squad was deployed to the Niger Delta region of Nigeria to join other security agencies in the fight against the vandals. Other identified stakeholders in the petroleum products pipeline security management include the oil companies, the Nigeria National Petroleum Corporation (NNPC), and the host communities living within the networks of petroleum products pipelines.

Research aims and objectives

The aims of the research are to examine the problem of vandalism of petroleum products pipelines in Nigeria and make recommendations for improving the national response to the problem. These aims will be operationalised according to three main objectives.

1. To examine the nature and extent of the problem of vandalism of petroleum products pipelines in Nigeria.

2. To identify the strategies and tactics being employed to address the problem. This will include examination of best practices adopted by other countries faced by similar problem.

3. To examine the strengths and limitations of the current measures with a view to making recommendations for their improvement.

The proposed research will make original contribution to the body of academic and practice knowledge, examining the problem of vandalism of petroleum products pipeline, and assessing the measures being employed to address it, in order to present recommendations to enhance the mitigation of the problem of vandalism of petroleum products pipelines.

Outlines of Chapters

The remainder of the thesis is laid out as follows. Literature review in chapter 2 commences with an overview of the literature search and selection strategy, providing an appraisement of the extant academic and grey literature in respect of the research objectives. Within the context of this study, grey literature refers to materials and research produced by organisations outside the traditional commercial or academic publishing and distribution channels. The chapter examines the problem of petroleum products pipeline vandalism in Nigeria, the strategy and tactics being employed to address the problem, which include the strategies and tactics employed in some selected oil and gas producing countries, application of physical security in

oil pipeline security management, and the Nigerian government strategies and tactics to combat vandalism of oil pipelines. It was found that vandalism of oil pipelines remains a major threat to the oil and gas sector in Nigeria. The findings brought to the fore the negative consequences of vandalism of oil pipelines on various sectors of Nigeria, which include massive economic loses, environmental degradation and a threat to the national security.

Chapter 3 gives a rundown of the research methodology; setting out the epistemological and ontological bases of the research. The case study methodology adopted in the research is critically examined. The purposive sampling strategy employed in the research is examined and is followed by a discussion on semi structured interview. Twenty two participants were drawn from the critical stakeholders in oil and gas management in Nigeria, which include; Nigeria Security and Civil Defence Corps (NSCDC); the case study organisation, the military joint task force, multinational oil companies, the oil-producing communities' leaders, NGOs, private security companies and physical security experts. The chapter concludes with a discussion on ethical considerations and the research experience.

Chapter 4 commenced the presentation of the thematic analysis of the interview data, and examined the ways which the participants interviewed for the research perceive the nature of vandalism of oil pipelines. The research identified three categories of actors responsible for vandalism of oil pipelines in Nigeria. The first category involves the local actors from the oil producing communities who are mainly jobless youths, the second category encompasses vandals sponsored for a fee, while the third category encompasses the Niger Delta militants. The findings indicate that the illicit business is still flourishing despite the government efforts

to combat it. It was also found that the petroleum products pipelines vandalism is multifaceted, requiring an integrated solution for an effective mitigation.

Chapter 5 continued with the presentation of the thematic analyses of the interview data with respect to the participant perspectives on the strategies and tactics being employed to address the problem. The research found that the federal government of Nigeria depends largely on the security forces in her efforts to combat vandalism of oil pipelines in Nigeria. It was also found that the government engaged the ex-militant leaders and warlords to provide surveillance on oil pipelines, through the PSCs they employed. The findings also indicate that deployment of technologies and equipment such as intrusion detection system and unmanned aerial vehicle (drones) are not given serious consideration by the Nigerian government in the current strategy and tactics adopted to combat the pipeline vandals.

Chapter 6 concludes the presentation of the thematic analyses of the interview data and examined the participant perspectives on the strengths, weaknesses and ways of improvement of the current measures. The research found that in the area of the strengths of the current measures, the increased military presence in the Niger Delta region is a deterrence to oil pipeline vandals. It also found that the massive deployment of NSCDC personnel to the areas traversed by oil pipelines strengthens the current anti vandalism drive. Also, the personnel of the JTF are usually deployed for rescue of oil workers and expatriates kidnapped for ransom by the militants. With regards to the weaknesses or the measures, it was found that the militarization of the oil producing communities increases tensions and escalates violence. It was also found that most JTF personnel are not familiar with the terrain in the creek. In the

areas of improvements, the research found out among others, that there is an urgent need to deploy equipment and technologies alongside the security forces in an integrated form.

Chapter 7 concludes the thesis with a discussion on the findings and their potential implications. It recommends that an integrated solution be adopted in the security management of petroleum products pipelines. In addition to the massive deployment of security forces, the federal government in collaboration with the multinational oil companies should invest massively on protection of oil and gas facilities. The study also proposed three options for further research.

Chapter Two: Literature Review

Introduction

This chapter reviews the extant academic and grey literature on the three main objectives of this study, structured as follows:-

It begins with an outline of the literature search and selection strategy. This is followed by a discussion on the problem of vandalism of petroleum products pipelines in Nigeria. Furthermore, extant academic and grey literature on strategies and tactics being employed to address the problem is investigated; the literature also investigates the strengths, weaknesses, and ways of improvement. The chapter further examines literature on the strengths and limitations of physical security deployment in oil and gas pipelines security management and concludes with the discussion on the major issues identified in the literature.

Literature search and selection strategy

This work attempted to assess what is known already and bring to the fore any gaps and limitations in the literature. In order to identify relevant literature; the study consulted a number of sources which included library held printed material, electronic data bases, and electronic journals. The discovery service delivered by EBSCO was utilized in finding articles, journals, books and other academic resources. Search 'modes and expanders' such as application of related words were used. The researcher also applied SmartText Searching in some searches which resulted in greater access to the University of Portsmouth library held academic resources. As a distant student, off-campus link was utilized, and this was achieved through the setting up of the Virtual Private Network (VPN) which facilitated unrestricted access to sources of relevant digital material held in the library.

The research employed some key words and phrases relevant to the literature. Some of the key words/phrases include; oil pipelines, vandalism, petroleum products, oil and gas, vandals, security management, oil theft, illegal bunkering, multinational oil companies, Nigeria National Petroleum Corporation NNPC), militants, restiveness, oil-producing communities, human rights abuses, Niger Delta region, Nigeria, etc. Combination of some key words were then placed into a number of different search engines such as EBSCO, JSTOR, Science Direct etc., provided by the University, which are designed to scan a large number of bibliographic databases, of which the most important were defined in advance of the start of the search process. The resources used in this research included peer and non-peer reviewed journal articles, books, conference papers, technical reports, and government policy papers. Peer review articles constitute most of the journal articles used for the study.

The search was also conducted in the Nigeria Security and Civil Defence Corps (NSCDC) library located at the headquarters of the organisation. The library provided access to physical relevant material held by the para-military agency. Access to the library was made possible through the 'gate keeper'; the Commandant General of the NSCDC who had earlier granted permission to conduct a study within the NSCDC as the case study host organisation.

Search engines, provided by both Google and Google Scholar, were also used to identify relevant journal articles and other materials not covered by the University Library's subscriptions. In conducting this search, care was taken to sift relevant material from the thousands of related topics that appear in the internet. To narrow the search to relatively smaller number of materials, effort was made to combine some of the key words listed above during the internet search. For instance a search for 'pipeline vandalism' gave 14, 300 results in 0.28

seconds. However, when combining two key words, such as 'oil and gas pipeline vandalism' the results were reduced to 7 680 in 0.06 seconds. Repetition of key words combination tremendously reduced the results and help in identifying relevant material for the literature review.

It is pertinent to note that vandalism of petroleum products pipelines is a Nigeria unique security issue. It seems to have attracted less attention from scholars outside Nigeria especially those from the western part of the world. A search in the University of Portsmouth library website, for instance, was undertaken for academic journals specifically related to oil pipelines vandalism, however this proved fruitless as only a few academic journals were found discussing the issue in specific contexts such as illegal oil tapping, oil pipelines vulnerabilities, oil and gas pipelines and terrorism etc.

Consequently, most authorities cited in this study are Nigerian scholars who may not be familiar to some readers in the UK. However, they have contributed many scholarly articles in reputable journals regarding oil pipeline vandalism in Nigeria and the Niger Delta crisis. For instance, Dr Freedom Onuoha, a lecturer and political scientist; a security analyst and a Fellow of the Nigeria National Defence college, is a prolific writer who has contributed over 100 scholarly articles in reputable international peer reviewed journals with particular interest in the Niger Delta security issues and oil pipelines vandalism. Another notable authority cited in this research is Odalonu Boris, a research scholar and author of many scholarly articles in reputable journals, focusing on the Niger Delta oil resources, oil theft, militancy and general security issues in the Niger Delta region of Nigeria. Dr K. Mboho and P. Udousoro's scholarly work investigates the activities of the Nigeria Security and Civil Defence Corps (NSCDC)

with respect to the agency's mandate to tackle oil pipeline vandalism in Nigeria. Dr Ade Abolurin, also cited in the study is the pioneer and former Commandant-General (CG) of Nigeria Security and Civil Defence Corps (NSCDC), who has contributed many scholarly works regarding the operations of the NSCDC in particular, and Nigeria internal security challenges in general. Other Nigerian authors cited in this research have made numerous scholarly contributions with regards to oil pipelines security management in the Niger Delta region which is the focus of this research. The broader literature includes some scholarly works on oil and gas pipelines infrastructure globally, aimed at bringing to the fore the role of pipelines in oil and gas transportation. Other literature cited incudes extant academic and grey literature on strategies and tactics employed in some selected oil and gas producing countries such as the United States of America, Russia, Kenya and Turkey. The broader literature also includes some scholarly works and publications in the area of application of physical security measures in oil and gas pipelines security management.

The problem of vandalism of oil pipelines in Nigeria

This section examines extant academic and grey literature on oil and gas security. It also examines oil pipelines infrastructure generally, and particularly oil and gas pipelines infrastructure in Nigeria. Furthermore, the problem of vandalism of oil and gas pipelines is examined in global context and with more emphasis in the Nigerian context.

Oil and gas security

According to Nigeria Extractive Industries Transparency Initiative (NEITI) (2004), oil and gas industry is divided into the upstream sector, and the downstream sector. The upstream relates to those activities that take place before processing and refining of hydrocarbon, while

downstream on the other hand refers to those activities involving processing and refining of the crude, petrochemical plants, logistics and retail transaction. The downstream activities typically require industrial plants, pipelines and storage services (Suda, Rani, Rahman & Chen, 2015). The oil and gas industry is classified into various segments which cover exploration and production, transportation and storage, refining and marketing (The World Bank Group 2009). Oil and gas sector face a growing number of security challenges (Risk Watch International 2018), hence, human and environmental safety and health protection remains a priority for the industry (Bigliani, 2013). Alon & Herbert (2009), prominent scholars and prolific commentators on both macro and firm-specific risks, observe that oil and gas industry is one of the most sensitive sectors to invest. Moran (1998), a leading international business and finance scholar, posits that since the resources involved in oil and gas are often viewed as part of the country's national patrimony, investment in this sector are more likely to affect the country more than other investments, because of the wealth and power which accrue from the oil production. Despite being 21 years old, his observations remain relevant today.

Oil and gas sector is faced with many risks, Yanting and Lygun (2011) and Nwaeke (2008) discuss this in their articles on the risk management of petroleum operations. Yanting and Lygun (2011) classify these risks as natural environmental risk, which includes climatic and geologic risk; engineering risk, which includes exploration risk, development risk and construction risk; management risk, which incorporates human resources risk, organization risk, operating equipment risk; dispute risk; environmental protection risk; and economic risk, which encompasses financial risk, market risk and economic policy risk. The oil and gas sector is further confronted with other industry-specific risks such as corruption, terrorism, repatriation restriction, government regulations and environmental activism (Berlin, 2003,

Alon et al., 2009). Alon et al (2009) note however that oil and gas companies are willing to be exposed to a high degree of risk as long as they are able to manage the risk and make profits. According to Miller (1992) risk management is one of the most important objectives of oil and gas companies with investment all over the world. Despite the fact that this publication is old, it is still relevant. For instance, this work has been cited by 1291 scholars, including Bromiley et al., (2015), demonstrating its relevance in today's enterprise risk management, including the oil and gas business. Risk must be assessed in continuous manner in the oil and gas companies' decision-making processes. As (Berline, 2003) observes, the quality of oil and gas companies' risk management decision making is critical to the success of new investment or the growth of existing investments.

In order to counter the threats in the oil and gas industry, the security as well as the security risks requires thorough analysis. Bigliani (2013) notes that risk related to asset damage, business interruption, pollution, injuries to people and damage to properties are intrinsic in normal oil and gas activities. Yasseri (2008), an energy sector researcher, observes the myriad of methods that are used by oil and gas companies for mitigation of hazards. Such methodologies incorporate hazards affecting the environment such as an oil spill, including one technique known as "inherently safer design" which eliminates or greatly minimises the quantities of extremely hazardous chemicals stored in any one plant or site. He argues that this approach can significantly reduce the potential number of vulnerable targets and the risks associated with those targets. Risk Watch International (2018) notes that several prominent security and intelligence agencies all over the world have consistently brought to the fore the asymmetric threats from various extremist groups confronting oil and gas facilities. It recognises that many oil and gas facilities attract attacks because of the potential for the

perpetrators to have a significant impact, not only affecting the targeted facilities, but the stability of the wider oil and gas industry, and undermining the government.

After the 9/11 terrorist incident in the US, attacks against oil and gas facilities gained higher priority for terrorists who believe that such attacks would have a great impact on the oil-dependent economies of the West and hence petroleum facilities became favoured targets. Consequently, al-Qaeda issued a decree legitimising attacks on all oil and gas facilities supplying the West. In March 2004, Abdul Aiz Al-moqrin released a document titled "the targets inside cities" on several Jihadist websites. In the document, Al-Morqrin directed attacks on the oil and gas sector, identifying pipelines, wells, refineries, and other Western investments in the oil and gas sector as acceptable targets. According to the document, this kind of attacks are aimed at dealing economic blow on the enemies of al-Qaeda including their allies (Toft, Duero & Bieliouskas, 2010).

Another document released in 2004, by a known jihadist, Abu Bakir Naji titled "The Management of Savagery: The Most Critical Stage Through Which the Umma Will Pass" (Naji, 2004), presents a doctrine that outlines the strategies that jihadist movements should adopt if they are to rebuild an Islamic state. In the document, he emphasises the criticality of oil and gas installations as targets for the Al-Qaeda network. According to him, the only way to defeat the Western states is by attacking the core of their economies, which are based on oil and gas (Naji, 2004). Also, in June 2004, a cleric named Ab-al-Aziz bin Rashid al-Anzi published a document titled "The laws of Targeting Petroleum-Related Interests and a Review of the Laws Pertaining to Economic Jihad" which clearly supports the stand of al-Qaeda on operation against oil and gas installations (Toft, et al. 2010). In the document, the focus was

also directed on oil and gas industry as legitimate targets for terrorists organisations, specifically those ones not under the control of Muslims.

In the aftermath of the terrorist attack of 9/11, the US government agencies and the public became more concerned about chemical storage and transportation facilities which are close to areas with heavy populations. This resulted in increased security and surveillance of LNG terminals/facilities and ships moving to port to upload LNG cargo (Melhem, Kalukar, Surraf & Ozog, 2006). Luciani (2011) recognises that terrorist and politically violent groups target civilian economic installations such as oil fields, refineries or logistic facilities to inflict economic damage on the government. He notes that bandits have also been identified as major threats to oil and gas facilities, arguing, that the primary motivation of bandits is material gains. The bandits according to him may also tactically or strategically form alliances with forces whose main objectives are to derive material gain from the attacks on oil and gas facilities.

According to RiskWatch International (2018), companies in the oil and gas industry face a growing number of security challenges such as asymmetric threats from various extremist groups. Their private security forces are confronting non-traditional strategy and tactics of opponents, both internal and external. The adversaries include national and international extremists, well-organized criminal syndicates, cyber security threats, ideologically driven actors and disgruntled employees. Anastasakis (2016) takes the view that the physical protection of energy-critical infrastructure is an issue that is highly complicated. Therefore, assessing the risk present in a company's operating environment is indispensable to the security of personnel, local communities and assets of the company, including the success of the

company's operations both in the short term and long term and also the promotion of human rights.

An accurate and effective risk assessment should consider identification of security risks; potential for violence, human right records, rule of law, conflict analysis and equipment transfers (Voluntary Principles on Security and Human Rights). The Voluntary Principles posits that while governments hold the primary role of maintaining law and order, security and respect for human rights; companies are interested in ensuring that governments' actions, particularly the actions of public security providers are consistent with human rights protection and promotion. The Voluntary Principles therefore proposes that companies have the duty of encouraging host governments to make security arrangements transparent and accessible to the public subject to any overriding safety and security concerns.

Oil pipelines infrastructure

The history of oil and gas pipelines dates back to thousands of years. However, the modern-day pipelines are traceable to Pennsylvania, USA in the mid 1800s. With improvement in technology, larger and longer pipelines were constructed. During the Second World War, there was an increased demand for energy, which also led to increase in the demand for pipelines and the extent of the demands in United States of America and also around the world (Hopkins 2007). Prior to the Second World War, most of the crude oil and refined products in the United States has been transported by coastal tankers to the Northeast from where the product was shipped across the Atlantic. The United States remained officially neutral until the Japanese attack on Pearl Harbor in December 1942. The incident led to the declaration of war on the

United States a few days later by Hitler who directed attacks on United States shipping (Wicks, 2016). When the United States formally got involved in the war, the German submarines began to target and sank US tankers along the Gulf and Atlantic coasts and the Caribbean, causing the disruption in the flow of oil.

With constant bombardment and sinking of the US tankers by Germany submarines, the need to develop alternative transportation for the oil led to the technological breakthrough which resulted in the invention of "long distance, large diameter pipelines. This new capability to transport large quantities of oil over long distances subsequently fueled the post-war economic boom and changed the shape of the petroleum industry*" (*Trench 2001, p.1). It has been claimed that "transmission pipelines are the main 'arteries' of the oil and gas business working 24hours per day, seven days a week, continuously supplying our energy needs", and that the pipelines are "critically important to most countries' economies" (Hopkins 2007, p.2).

Pipelines are "the irreplaceable core of the U.S petroleum transportation system and hence the key to meeting petroleum demand" Trench (2001). Trench further argues that about two thirds of the petroleum products shipped in the United States is through oil pipelines transportation which deliver over 14 billion barrels, and without oil pipelines, petroleum products would not reach millions of consumers in all the fifty states. In 2004, oil pipelines transported 66.44% of the total crude oil petroleum products carried in domestic transportation system. During the period, Pipelines transported 75.9% of the 902.5 billion ton-miles of crude petroleum and 59.8% of the total 528.4billion ton-miles of light petroleum products such as gasoline, jet fuel, liquid petroleum gas, kerosene, heating and fuel oils (Trench 2001). These pipelines move

about 66% of domestic petroleum in the United States (Restrepo, Simonoff & Zimmerman, 2008).

Fig.2.1 Pipelines transportation system in the US
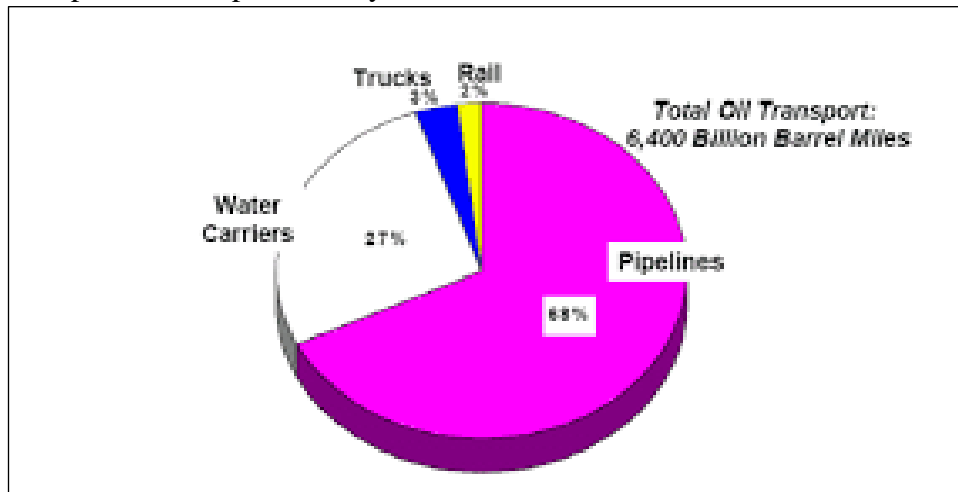
Source: Association of Oil Pipelines, Shift in Petroleum Transportation (2000)

O'Neil, Hopkins, & Gressley (2016) posit that in 2014, there were 61,379 miles of onshore crude oil pipelines in the United States, and about 68.6 percent were defined as interstate lines. It noted that onshore crude oil pipelines are located in 35 states, but almost 95 percent of the total millage is concentrated in the 20 states listed in the table below;

Table 2.1 Pipelines infrastructure in the United States

S/N	STATES	MILES OF PIPELINE
1.	Texas	16,788
2.	Oklahoma	5,844
3.	Wyoming	3,765
4.	California	3,687
5.	Kansas	3,478
6.	Louisiana	3,200
7.	North Dakota	2,818
8.	Minnesota	2,659
9.	Illinois	2,575
10.	Montana	2,380
11.	Missouri	1,847
12.	Michigan	1,437
13.	New Mexico	1,372
14.	Mississippi	1,306
15.	Wisconsin	1,181
16.	Alaska	1,109
17.	Nebraska	758
18.	Colorado	715
19.	Ohio	552
20.	Kentucky	550
	All other States	3,360
	Total US Length	61,379

Source: Distribution, Transmission and Gathering, LNG and Liquid Annual Data (2015).

There is rapid expansion of oil pipelines globally and this is consequent upon the increase in energy demands. Hopkins explains this phenomenon thus:

It has been estimated that world pipeline expansion could be up to 7% per year over the next 15 years. This means over 8000km/annum of pipeline being built in the USA alone, at a cost of $US8 billion/annum. Internationally, 32,000km of new pipelines are constructed each year: this is a $US28billion business, and 50% of these new builds are expected in North and South America. Additionally, 8,000km of offshore pipelines are being built per year: this is a $5billion business with 60% in NW Europe, Asia Pacific,

and the Gulf of Mexico. The total length of high-pressure transmission pipelines around the world has been estimated at 3,500,000km (Hopkins 2007, p.13)

In Canada, most of the crude oil is shipped through pipelines infrastructure. According to Canadian Pipeline Transportation System (2014), in 2012, over 537,000 cubic meters (m3/d) or 3.38million barrels of crude is produced and most of the products is shipped by means of pipeline from western province to market in other provinces or the United states. The Canadian pipeline network is made up of four main groups of systems of which each one plays an integral part in the delivery of energy to Canadians and export markets. These four groups of systems include; Gathering Pipelines which move crude oil and natural gas from wellheads to oil batteries or natural gas processing facilities.

The concentration of these pipelines is within the producing areas of western Canada. Another group of system is the Feeder Pipelines which move crude oil, natural gas, and other products such as natural gas liquids (NGLs) from batteries, processing facilities, and storage tanks to transmission pipelines. These pipelines are also largely amalgamated in the producing areas of western Canada. Transmission Pipelines, another group of systems of the major pipeline network take charge of transportation of crude oil and natural gas within provinces and across provincial or international boundaries. The Distribution Pipelines are operated by local distribution companies or provincial cooperatives, and are saddled with the responsibility of distributing natural gas to homes, businesses, and various industries (The Canadian Pipeline Transportation system 2016).

The United Kingdom (UK) is the largest producer of oil and the second largest producer of natural gas in the European Union (US Energy Information Administration 2016). Like other oil producing countries in the world, the UK also relies on pipelines system as the major means of transportation of crude oil and condensate. There is an extensive network of pipelines in the UK that conveys oil extracted from North Sea platforms to coastal terminals in Scotland and in Northern England. This network consists of six major pipelines and other smaller pipelines that transport the petroleum products from individual fields to the major pipelines which eventually moves the products to the shore. Although the pipelines in the UK are privately owned and operated, any shipper that is qualified can gain access to the pipelines (US Energy Information Administration, 2014).

Russia also prefers pipelines for transportation of her crude oil. In 2014 for instance, Russia exported 223.4 million tons of crude oil and 90% of the exports were handled through the national oil pipelines operator, the Transneft (Vatansever, 2017). Explaining further, Vatansever (2017) notes that five pipelines were used to export oil to four main destinations. According to him, Druzba pipelines were used for direct sales to the refineries in Europe; two pipelines (Baltic pipelines system BPS-1 and BPS-2) were used for oil exports through Russia ports on the Baltic coast. The Novorossiysk pipelines exported oil through the black sea port of Novorossiysk, while the ESPO pipelines exported oil to Asian markets.

Africa is estimated to produce more than 12% of the world petroleum products and also holds nearly 10% of all oil reserves (Kowalczk-Hoyer, 2011). Pipelines International (2011) observes that there is rapid expansion of oil infrastructure and pipeline networks throughout the continent of Africa in recent decades. Odhiambo, Maito & Onkware (2014) explain that when comparing with other modes of energy transportation such as rail and high way, pipelines are the safest and fastest.

Eze, Chukwuemeka, Ojiaku & Ekeanyawu, (2014), scholars and researchers on pipelines vandalisation-detection through SMS alert, at the Federal University of technology Owerri, Imo State Nigeria, posit that as a medium of transportation, pipeline system is usually attributed to products that are sensitive. Such products include crude oil, natural gas and industrial chemicals. Pipelines that transmit crude oil convey the product from production location for example, conventional crude oil deposits and shale formations containing light oil, to processing locations, such as refineries. From there, specialty pipelines carry the refined products to customers, which include manufacturers that use refined products as an intermediate input and final consumers (O'Neil, B., Hopkins, P., & Gressley J. 2016)

The failure rate of pipeline transportation system is lower than other means of transportation such as rail road or high way (Udofia & Joel 2012). Onwuka & Dike, (2015, p.130) argue that "petroleum pipeline system is cost-saving and has high efficiency potential in moving petroleum products from the nation's refineries to depots". Chukwujekwu, Chibuzor & Ekene (2014) explain that as a medium of transportation, pipeline system is used for transportation of sensitive products such as crude oil, natural gas and industrial chemicals. According to Greens and Jackson (2015), pipelines are safer way to transport oil when juxtapose with railways and roadways.

Figure 2.2 Petroleum products pipeline infrastructure.

Source: Flow control staff: Oil and Gas News (2015)

In Nigeria, petroleum products pipelines system is critically indispensable in the operations of oil and gas industry, because they are at the core of production, transportation, storage and distribution of natural gas, crude oil and refined petroleum products (Adejoh, 2014). Onuoha (2008, p.108) describes Petroleum products pipelines and installations as "the arteries and veins that supply the lifeblood of Nigeria economic wealth – crude oil and its refined products to various parts of the country"

In Nigeria, the first pipeline system was constructed in 1955, and as at 1964 Shell- BP had installed about had about 300 kilometres of pipelines. Most oil pipelines infrastructure in Nigeria were constructed and commissioned between 1975 and 1980, a period that covered the third national development plan of the country, and this included the initial 3001 kilometres crude/petroleum products pipelines. Presently Nigeria has 5001 kilometres of pipelines (Arosanya,2005). The pipelines traverse the entire country's geo-political zones, and this encompasses the subsea swamp, the rain forest and the savannah grass land (Ogwu, 2011).

The oil pipelines Network in Nigeria is strategically located to effectively transport gas and petroleum products from Delta to other parts of the country. The 5001km network of petroleum products consists of 666 kilometers of crude oil pipelines and 4,315 multi-product pipelines which forms a web that interconnects the 22 petroleum storage depots, the four refineries and the off-shore terminals located at Bonny and Escravos, and the jetties at Atlas Cove, Calabar, Okirika and Warri (Alawode & Ogunleye 2011; Onuoha 2008, Okoli & Orinya 2013). The pipelines and products marketing company ltd, a subsidiary of the Nigerian National Petroleum Corporation (NNPC) is responsible for the crude oil transportation to the nation's refineries and also has the duty to evacuate the refined petroleum products from the refineries for supply and distribution to the end users throughout the country (Udofia & Joel 2012).

Figure 2.3 Map of Nigeria Showing oil pipelines network and facilities
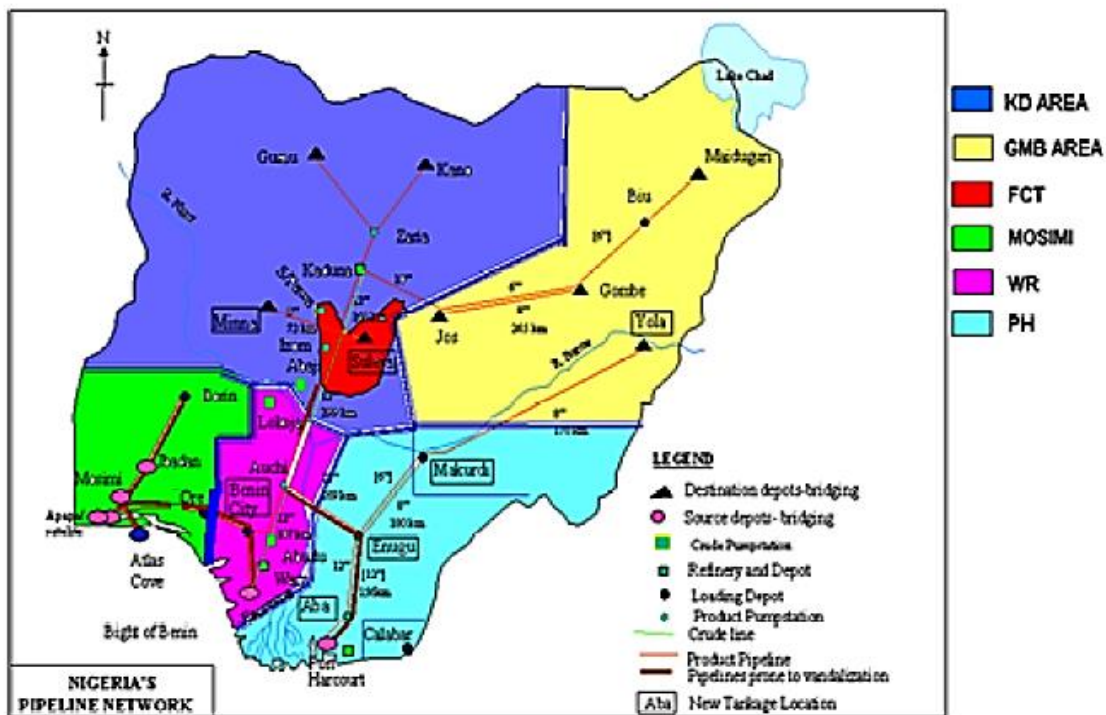
Source: Ambituuni, Amezaga, & Werner (2015, p.2)

Vandalism of oil pipelines

Vandalism is an action which involves deliberate destruction of public and private property (Okafor & Olaniyan, 2017). In the context of oil pipeline vandalism, it is "illegal or unauthorised activities that involve the destruction of oil pipelines to disrupt supply or the puncturing of oil pipelines to siphon crude oil or its refined products in order to appropriate it for personal use or for sale in the black market or any other outlet" (Onuoha, 2007 p.96). vandalism of oil pipelines is viewed by Adishi & Hunga (2015-2016, p.51) as "the intentional acts of destroying pipelines, platforms loading barge and other facilities for selfish reasons or vendetta purposes". They describe it as an illicit trade that entails the theft of crude oil and its derivative products using a variety of contraption. Chukwuchekwa, Ojiaku & Ekeanyawu (2014) view vandalism of oil pipelines as a negative activity which is aimed at acquiring petroleum products for personal use or for sale in the black market especially in developing countries of the world where the illicit activities are rampant.

Pipeline sabotage has been reported in many countries of the world including Indonesia, US, UK, Canada, Iran and Iraq, and typically those engaged in this act are vandals, thieves and pipelines saboteurs (Eze, Nwagboso, Newman & Georgakis 2015). Vandalism of oil pipelines is not a recent occurrence in the world. It had been experienced in oil producing countries of Russia, Saudi Arabia and Venezuela many years ago (Akpan, 2016). Zabyelina & Kustova (2015) argue that large–scale illegal oil tapping and pipeline sabotage have been remarkably noticeably in the last two decades. They posit that the phenomenon is a global menace affecting countries such as Nigeria which loses US$5bn to oil theft yearly. Other countries affected by the menace according to (Zabyelina & Kustova 2015) include; Libya, Syria, Egypt and the Union of Soviet Socialist Republic (USSR). And particularly, Transneft, the Russia's oil

pipeline monopoly for example, has been struggling to combat oil theft in the North Caucasus since the times of the first military campaign in Chechnya. Zabyelina & Kustova (2015) also stress that Mexico, Columbia, Venezuala and Bolivia are among the most important oil producing states in Latin America that have encountered critical levels of oil and gas theft which results in billions of dollars loses.

Oil and gas pipelines are vulnerable to vandalism and terrorist attacks, an example of such an attack is Colombia where rebels have bombed Occidental Petroleum's Cano Limon pipeline about 950 times since 1986. This resulted in shutting down the pipeline for months at a time resulting in revenue loss of about $2.5b to the government of Colombia (Parfomak 2004). It is also been claimed (Sun, Zhang & Sun, 2016, p.1586) that "the pipelines owned by Sinopec has been drilled to steal oil for 90,000 times by the end of July 2014". They also reported that the Lin-Cang crude oil pipeline was drilled more than 860 times within 20 years. Hopkins (2007) asserts that one of the big challenges facing pipelines in recent years has to do with acts of terrorism, sabotage and theft. He stressed that since pipelines pass within and across poor regions that are politically unstable, inhospitable, corrupt and prone to terrorist attack, pipelines and other oil facilities are vulnerable to attack, sabotage and theft. He noted that Cano Limon pipeline in Colombia for instance was attacked 170 times in 2001 by terrorist groups despite the heavy and constant presence of armed guards.

In Nigeria, vandalism of petroleum products pipelines dates back to the late 1970s or early 1980s, when Nigeria was under military rule (Onuoha 2008, Katsouris & Sayne 2013, Boris 2015). According to (Akpan, 2016) it started in the early 1970s, getting to its peak in the 1990s and since then has been on the rise. He noted that the modus operandi of the vandals also

progressed from small scale bunkering to highly sophisticated method of operation involving the use of ship for the transportation of the crude oil. In the 1980s, oil pipelines vandalism was carried out by a few amateurs who utilised crude methods to extract crude oil from the pipelines (Ikelegbe 2005).

According to Alawode & Ogunleye (2011), in the 1990s petroleum products pipeline vandals were mainly unemployed youths who operated in remote areas and communities through which oil pipeline pass. These youths either punctured the pipes or took advantage of ruptured or leaking pipes to siphon the products into drums, plastic containers or storage cans ready for sale on the black market. Within this period the technology deployed was local and rudimentary which included funnels, drilling tools and plastic hoses. This period also witnessed few cases of vandalism. For instance, in 1995, there were only 7 reported cases of vandalism and the next three years recorded 33, 37, and 57 respectively (Special Committee on the Review of Petroleum Product Supply and Distribution, 2000).

 Onuoha (2008) posits that the petroleum products pipelines vandalism has increased unprecedentedly since 1999. He argues that the vandalism of oil pipelines increased from 497 in 1999 to 909 in 2000. In 2005, the phenomenon witnessed a sharp increase and recorded 2, 258 cases. Corroborating the above view, Yunana, Adewale, Alfa & Sanjay (2017) stress that pipeline infrastructure in Nigeria, especially in the Niger Delta region has been confronted with increased number of vandalisation. According to them, between 2005 and 2015, an estimated number of 16,083 pipelines damages were documented, and out of this number, 15, 865 (97.5%) breaks were attributed to vandalisation activities, while the remaining breaks were linked to other factors such as rupture.

Ikelegbe (2005, p.221) contends that the 'illegal business has grown from the amateur stage to "a very sophisticated industry which uses advanced technologies to tap crude and sophisticated communications equipment to navigate through the maze of hundreds of creeks, rivers and rivulets". He maintains that the oil theft syndicate also transformed from the use of boats and barges to the utilisation of ships and large oil tankers in the high seas to ferry the stolen crude. Over the years, the frequency of vandalism of oil pipelines has indeed been very disturbing (Okoli & Orinya 2013).

According to Ikelegbe (2005, p.221) Crude Oil is tapped from pipelines and terminals of the oil producing companies using advanced technological equipment and this is carried out in the "waterways, creeks swamps and high seas". Onuoha (2008) supports this assertion by maintaining that the rise in vandalism of oil pipelines has been accompanied by more technological sophisticated methods resulting in what Boris (2015, p.565) describes as attaining an "industrial scale and involves commodity traders, international criminals and a whole network of people". Nigeria loses over 300,000 barrels of crude oil per day to oil theft, vandalism of oil pipelines and related criminal vices in the country's oil sector. This has been identified as the biggest threat to the Nigeria economy (Boris 2015).

Okolo (2010) identifies three categories of actors responsible for oil pipelines vandalisation in Nigeria. These include those sabotaging the pipelines to siphon the products for economic gains. Under this category are the locals who collaborate with the staff of the multinational oil companies "especially in the Production Department and Liaison Offices in their flow stations to break pipelines, and later recommend the same "criminals" to the company's Management for "clean-up" at exorbitant cost". Another category according him is vandalism due to

corrosion as a result of the aging pipelines, while those in the third category are the militants who "has over-shadowed the other two groups" Okolo (2010, p.10) .

Asuni (2009, p.5) argues that "at the local level, Niger Delta youth and community leaders play the leading role. As one moves up the network to the senior echelons, members of the Nigerian military, oil company and NNPC employees, top politicians, and retired military officers predominate". The activities of oil theft in the Niger Delta is highly developed organisation involving different actors. These actors include the oil company employees, the military officers, the political elites, the local communities, the international oil traders, shippers, bankers, refiners, wealthy individuals, and the militants (Boris, 2016). According to Okoli and Orinya (2013, p.70), "vandals are members of organised crime who are engaged in oil theft, breaking into oil industry equipment, stealing thousands of gallons of the products and loading them into tankers and barges for export through the help of corrupt bureaucrats and police forces"

Akpan (2016) identifies three classes of youths who engage in illegal bunkering in Nigeria. The first class is the jobless youth who try to earn a living through the illicit business, the second class of youths include those sponsored by influential Nigerians such as the military, the police and highly placed politicians for a fee. The third class is the militants who siphon the oil by blowing the pipes using various devices or instrument. Lopez-Lucia (2015) believes that the militants from the Niger Delta and Bakassi Peninsula are involved in oil pipelines vandalism in Nigeria. According to him their actions involve kidnappings, vandalism of oil pipelines and sabotaging of oil companies' installations. He further claims that the goals of these militants has shifted from political towards capturing economic benefits emanating from oil crimes and related trafficking.

Fig 2.4 Niger Delta Militants

Source: Nigerian News Direct

There is international dimension to oil theft and vandalism of oil pipelines in Nigeria. The international players are from Eastern Europe, Russia, Australia, Lebanon, the Netherlands, and France who all play roles in financing, transporting, and laundering the money associated with the illicit business, according to Asuni (2009). In support of this argument, Olateju (2013) emphasise that Oil theft is a big criminal ring with sophisticated organization and international network. Katsouris & Sayne (2013, p.30) note thus:

> In the general public narrative about Nigerian oil theft, tankers carry stolen crude to foreign refineries for instant processing and sales. The full picture is more elaborate. Crude oil can move in complex ways before and after it leaves Nigerian waters. None of these moves are suspect per se, but thieves can use the following complexities in normal everyday logistics to make stolen oil vanish into the legitimate market

The effects of oil theft and vandalism of pipelines in Nigeria cannot be overemphasised. Assi, Amah & Edeke (2016) argue that oil theft and vandalism of pipelines is responsible for the massive crude oil spillages and pollutions in the Niger Delta region, destroying farm lands of

the host communities, vegetation and the means of livelihood of the people. Okoli & Orinya (2013) identify economic loses, environmental degradation, fire disaster/pipeline explosions and corruption as some of the effects of oil pipelines vandalism in Nigeria.

 Abolurin (2010) the pioneer Commandant General of NSCDC, posits that the proceeds from vandalism of oil pipelines and crude oil theft are used for purchase of illegal weapons which are deployed for more bunkering, theft and other crimes including armed robbery and murder. Boris (2015) identifies revenues loss to the Nigerian government and the oil firms that own the assets from which oil is stolen, the river and land pollution, environmental degradation, increased criminality and insecurity in the Niger Delta region as some of the effects of oil theft and illegal bunkering activities.

Fig. 2.5 Vandalised pipeline and people scooping fuel

Source: Financial watch (2017)

The strategies and tactics being employed to address the problem

In this section, literature on the strategies and tactics employed in some selected oil and gas producing countries is examined. Also investigated is extant academic and grey literature on the application of physical security in oil and gas pipelines security management, this is

followed by examining literature on the Nigerian government strategies and tactics to combat oil pipelines vandalism. The section concludes with a review of literature on the strengths and limitations of physical security deployment.

Strategies and tactics employed in some selected oil and gas producing countries

The protection of oil pipelines against vandalism and sabotage remains a high priority in countries that produce oil and gas all over the world (Fielding, 2012). The reason is that in these countries, oil and gas installations constitute the foremost critical National infrastructure. Ezeh, Chukwuchekwa, Ojiaku & Ekeanyawu (2014, p.21) explain that from the time immemorial, the need to implement "adequate security systems for pipelines management has been addressed". Cooper (2006) maintains that pipeline security is something that is attracting increasing levels of investment within the oil industry.

In the US, pipeline operators have always sought to secure their systems. For example, during the Gulf war, security at the Trans-Alaska pipeline included measures such as armed guards, controlled access, intrusion detection and dedicated communication at key facilities as well as aerial and ground surveillance of the pipeline corridor (US General Accounting Office, 1991). The event of September 11, 2001, however led to increase in security by Natural gas pipeline operators by identifying additional ways to deal with terrorist threats (Parfomak, 2004). This resulted in establishment of an information Sharing and Analysis center (ISAC) by pipeline operators in conjunction with other oil and gas companies. Agbakwuru (2011) observes that in 2001, a project was initiated by the US department of Energy, Office of Fossil Energy and the

objective was to develop and demonstrate an optical fiber intrusion detection device that would prevent outside force damage.

In Russia, the security of oil pipeline is given high priority. In 2006, the state Duma passed a Bill allowing energy companies, Gazprom and Transneft "to create corporate armies with expanded powers and privileges, and in July 2007, Gazprom and Transneft were authorized to form specialized paramilitary units, tasked to protect the pipelines (Zabyelina & Kustoria, 2015, pp. 546-547). Apart from the specialized paramilitary units created by the Russian government, Skichel Corporation, a Russian security company developed a modern method of pipeline security for the complex security requirements of oil companies (Udofia & Joel, 2012). They stress that between 2004 – 2005, Russian oil producing companies were losing millions of dollars daily to theft and vandalism. Having taken into consideration the problem of the oil industry, security experts at Skichel developed several solutions for pipeline security/protection using security detectors of 'the Gyurza' series manufactured by the corporation. For the detection of all attempts of undermining a pipeline, a universal anti-tunneling (or digging) security detector 'Gyurza – 038P' is used. This system with vibrations sensors registered all attempts of unauthorized tunneling or digging mechanical or explosive effects on the ground" (Udofia & Joel, 2012, p.12).

Kenya pipeline companies have an elaborate security programme in partnership with private security firms to protect the energy facilities. Although Kenya private security guards are not allowed to carry guns, they nevertheless focus on industrial safety, accident prevention and mitigation, and also ensure that only the authorized personnel have access to critical facilities and they also prevent pilferage or theft of petroleum products. While the private security firms

are responsible for security outside the critical infrastructure, they however work closely with the nation's intelligence professionals to identify and defeat threats before approaching the perimeter (Odhiambo, Maito & Onkware 2014).

Turkey has a robust protection plan for its oil pipeline through a variety of regulations. In Turkey, two institutions are legally empowered to provide security for oil pipelines. These institutions are the 'General Command of the Gendarmerie' (GCG) which operates under the control of the Turkish Armed Forces (TSK) with the responsibility for border patrols and internal security particularly in rural areas, and 'BOTAS', the Petroleum pipelines corporation. These institutions are saddled with the responsibility of protecting the critical energy infrastructures (CEIs) of Turkey. "While the GCG with its 36 teams and 35 stations has been protecting pipeline facilities in rural areas in the Eastern parts of Turkey, BOTAS enhances and covers the expenses of physical security conditions (fortification of buildings, monitoring by infrared cameras and CCTV and so on) of those CEI's" (Is, eri,2015, p.7)

Application of physical security in oil pipeline security management

Physical security is concerned with physical measures designed to safe guard people, and prevent unauthorized access to equipment, facilities, materials and documents and safe guard them against any form of security incident (ASIS International, 2009). It uses "people, procedures and technology (both hardware and software), to protect assets" (ASIS International, 2012, p.1).

Physical security is defined by (Coole & Treagust 2015, p.387) as "that part of a physical control measure designed to safeguard people, prevent unauthorized access to equipment, facilities, materials, documents; and to safe guard them against incident". According to

Fennelly (2013) physical security measures encompasses devices, system or practice of tangible nature designed to protect people and prevent damage to loss of or unauthorized access to assets.

Explaining further the concept of Physical Security, Patterson (2013, p.2) stresses that physical security is concerned primarily "with restricting physical access by unauthorized people (commonly interpreted as intruders) to controlled facilities". He further notes that among the components of physical security are equipment, policies, standards and procedures which support the rings of security.

In petroleum products pipeline security management, equipment, policies, standards and procedures could be used. According to ASIS International (2012) notes that: people, procedures and technology are combined to provide the physical protection system functions. The primary functions being detection, delay and response while the Secondary function is deterrence (Gracia, 2008). The Petroleum Industry Operators are aware of the critical role of physical security in petroleum products pipelines security management. In this regards, Fielding (2012, p.56) notes thus:

> Most petroleum producers recognize the importance of deploying an effective pipeline monitoring and surveillance solution, which includes a round-the-clock vigil on key operational perimeters in the distribution network, as well as monitoring leakages, electronic surveillance and the physical patrolling of the right of way

He points out that pipeline security measures commonly deployed include aerial surveillance, ground patrolling, and installation of pipeline warning boards/ makers, deployment of security personnel and creating awareness for the locals along the pipelines route. Other methods

according to him includes advanced telecommunication system and leak detection system which are widely used for improved monitoring and remote control of pipelines.

Cooper (2006) posits that SCADA (Supervisory Control and Data Acquisition) is routinely deployed in securing gas pipeline infrastructure throughout the world. He emphasized that SCADA enables real-time monitoring of the pipeline at several levels. Hopkins (2007) recommends satellite surveillance as a practical solution for pipelines security. He also maintains that the use of sophisticated leak detection systems and remote sensing devices are generally deployed for detection of tampering on the pipelines.

IFSEC Global (2016) identifies early detection of intruders along pipeline routes as the real key to securing such critical asset, because it provides time for security personnel to respond and intercept adversaries to prevent theft and damage.

Eze, Nwagboso, Newman & Georgakin (2015) identify seismic sensor monitoring methods which are installed closed to the pipelines to collect and transmit seismic signals. Others include; fibre optic sensors which are used for detection of pipeline third party interference (TPI), satellite monitoring techniques which deploys satellite to monitor pipelines rights-of-way for ground motion and encroachment. They also include unmanned aerial vehicles (UAV) methods, wireless sensor network (WSN) which they describe as "presently the technology of choice for monitoring oil pipelines due to their low-cost nature and relative reliability" (Eze, Nwagboso, Newman & Georgakin in 2015, p.6).

Agbakwaru (2011) identifies physical security applications in oil pipelines security management to include, the acoustic impact detection system comprising of multiple acoustic sensors, power supply and remote transmitting devices which are placed along the pipeline at fixed intervals. An example of the acoustic impact detection system is 'pipeguard technology' developed by Magal Security Limited (Israel) and 'threatscan technology' developed by general electric. Both technologies can be deployed for warning on sabotage and illegal tapping detection. Agbakwuru (2011) also recommends patrols and satellite monitoring which involve patrolling the pipelines right-of-way (ROW) by security forces and the use of drones for aerial surveillance. He also mentions optic fibre system, an intrusion detection device which detects and sends alarm when there is attack on the pipeline. Among the technology identified by him is the Impressed Alternating Cycle Current (IACC), which is a method that impresses "electrical signals on the pipe by generating a time varying voltage between the pipe and the soil at periodic locations where pipelines access in available" (Agbakwuru 2011, p. 1058).

Fig 2.6 Unmanned Aerial Vehicle (UAV)

Source: Gomex & Green (2017)

Nigerian government strategies and tactics to combat vandalism of oil pipelines

Given the strategic importance of crude oil to the Nigerian state, and obvious threats posed by the oil pipeline vandals, successive Nigerian governments have implemented various policies and measures aimed at preventing the vandalisation of oil pipelines. Such measures include

increased military presence in Niger Delta in 2003, culminating in the deployment of a JTF in 2008 (Tomas, 2010, cited in Adishi & Hunga, 2017). The JTF comprises the Army, Navy, and paramilitary agencies, and is mandated to check and possibly put an end to illegal bunkering in the oil-rich Niger Delta region (Adishi & Hunga, 2017).

Lupez-Lucia (2015) posits that the Nigerian government created the JTF in 2004 comprising the army, navy, air force and mobile police to combat oil pipeline vandalism. He explains that the JTF was later expanded into a maritime security force, mandated to tackle a whole range of security issues in the maritime environment. Okafor and Olaniyan (2017) argues that the efforts of the Federal government towards improvement of the security of the pipelines include the hiring of private security firms, providing arms and ammunitions to the men and officers of the Nigerian armed forces to protect the facilities.

Onuoha (2007 p.99) noted that before the pipelines were laid, the government acquired 3.5 meters wide rights of way on each side of the pipelines and that the pipelines were buried a meter deep to "avoid accidental contacts since they traverse the length and breadth of the country". As explained by (Boris 2015, Adishi & Hunga 2017) the government established a task force on national infrastructure intended to monitor and respond to oil theft noting that the establishment of this task force and the militarization of the Niger Delta region, increased enforcement measures against the maritime trade in stolen oil. These measures according to them involved tasking the Nigerian Navy with the responsibility for registering vessels in Nigerian waters, closing markets for illegal oil and a hotline for reporting oil theft.

The Nigerian government efforts to improve the security of the pipelines include among others; hiring of private security firms, providing necessary equipment to men and officers of the Nigerian armed forces to protect the government facilities (Okafor & Olaniyan (2017). In support of this assertion, Onwuka & Dike (2015, p.128) note thus:

> "The Nigerian Government enlisted the ex-militant leaders in the war against pipeline vandalism, in addition to other surveillance procedures by the oil industry operators. Multi-billion Naira surveillance contracts were awarded to the companies belonging to the ex-militant leaders and operational areas assigned to them for effective surveillance of the oil and gas pipelines".

These ex-militant leaders include; Dokubo Asari, the founder and leader of the Niger Delta People's Volunteer Force; Tompolo & Boyloaf, former commanders of the movement for the Emancipation of the Niger Delta and Ateke Tom, a former leader of Niger Delta Vigilante.

Other strategies adopted by the Nigerian government include the constitution of committees such as the National Economic Council (NEC) comprising governors, Nigeria National Petroleum Corporation (NNPC) officials, department of petroleum resources (DPR), multinational oil companies, security agencies and other relevant agencies mandated to come up with strategies to contain vandalism of oil pipelines and the concomitant oil theft; an inter-agency Marine Operation Coordination Committee (MOCC), mandated to provide synergy among agencies operating within oil sector to ensure safety, security and air surveillance on Nigeria's pipelines (Anyio 2015)

As part of the strategies adopted by the Nigerian government to check the menace of petroleum products pipeline vandalism, the government established the Nigeria Security and Civil Defence Corps (NSCDC), a para-military agency of the government of the Federal Republic of Nigeria (Mboho & Udousoro, 2014), which is currently controlled by the Federal Ministry of Interior (Abolurin, 2010). The Act of Parliament (Nigeria) expressly conferred to it the authority to investigate the offence of vandalism of oil pipelines and to initiate proceedings thereto on behalf of the Attorney General of the Federation. Generally, the core responsibility of Nigeria Security and Civil Defence Corps is the protection and prevention of vandalism of Nigeria's critical national infrastructure including the petroleum products pipelines (Mboho & Udousoro 2014). According to Phenson, Ojie & Esin (2014), the NSCDC Act 2013 passed by the Nigeria National Assembly gave the agency the responsibility to monitor oil and gas pipelines and arrest vandals. Abolurin (2010) stressed that the NSCDC has a vital role to play in containing the vandalism of oil pipelines, critical national infrastructures such as Telecommunications cables, the Power Holding Company of Nigeria Limited (PHCN) installations, government buildings and other infrastructures throughout the country.

It holds "responsibility to enter and search any premises and seize any material suspected to have been used in vandalisation or suspected process of vandalisation as well as arrest, investigate and hand over to relevant security agencies for further investigation and prosecution" (Abolurin 2010, pp.51-52). To carry out this statutory mandate, the agency established a task force on anti-vandalism, charged with the duty of protecting the oil pipelines (Mboho & Udousoro 2014). The NSCDC responds to vandalism of oil pipelines by the use of three different approaches. These are; "preventive diplomacy" which entails deployment of men and officers of the Corps to the communities through which pipelines traverse and

patrolling the pipelines on daily basis; the "use of force" which implies arrest and prosecution of vandals where vandalism of oil pipelines has occurred; and "human security dimension" which involves intervention of the corps members during cases of infernos resulting from vandalization of oil pipelines (Abolurin 2010 p.52).

Commenting on the successes achieved by the Nigeria Security and Civil Defence Corps (NSCDC), Mboho & Udousoro (2014, p.57) maintain that "there is increased success recorded by the corps when compared with "the incessant menace of vandalism of a decade ago and into present". Substantiating this argument, Mboho & Udousoro (2014) present the following data from four states in Nigeria, highlighting the achievements of NSCDC in the anti-vandalism war.

Table 2.2 September, 2012 and August 2013, Bayelsa State Anti-Vandalism Report

S/N	Discovered Item	Quantity
1	Oil spillage and bunkering zone	1
2	Car	3
3	Shovel	5
4	Kidnap victims	2
5	Jerry can	3
6	Wooden Boat	4
7	Arrested Militant	4
8	Illegal refineries	8
9	Arrested suspects	8
10	Wheel Barrow	10
11	Illegal Oil Distillery Camps	42
12	Cotonou Boat	40
13	Iron Tanks	33
14	Plastic Drums	127

Source: Mboho & Udousoro (2014)

Table 2.3 September, 2012 and September 2013, Delta State Anti-Vandalism-Illegal Bunkering Activities Report

S/N	Discovered Item	Quantity
1	Truck	1
2	Kidnapped Victims	2
3	Illegal refinery	7
4	Trucks	4
5	Pistol	5
6	Shovel	4
7	Cars	6
8	Cotonou Boat	8
9	Wheel barrow	10
10	Metal Drums	15
11	Dug pit	19
12	Hose	24
13	Persons injured	24
14	Gee Pee Tanks	35
15	Arrested Suspects	80
16	Wooden Boat	177
17	Vessels	3,000
18	Jerry Cans	6,205
19	Surface Tanks	105
20	Plastic/Iron drums	9,527
21	Quality of AGO	10,975 litres

Source: Mboho & Udousoro (2014)

Table 2.4 September 2012 and September 2013, River State Anti-Vandalism and Dismantling of Illegal Refinery Report

S/N	Discovered Item	Quantity
1	AGO	29,785 ltrs
2	Plastic drums containing crude oil	1
3	Crude oil	2420ltrs
4	Welding gas cylinder	1
5	Pressure Gauge	1
6	Pumping machine	3
7	Pipeline leakage	1
8	Empty drums	10

Source: Mboho & Udousoro (2014)

Table 2.5 September, 2012 and September 2013, Akwa Ibom State Anti-Vandalism Report

S/N	Discovered Item	Quantity
1	AGO	14,076 ltrs
2	Illegal refinery	2
3	Suspected vandals	9
4	AK 47	5
5	Rifles	2
6	Iron Drums	69
7	Suspected vandals including a politician	3

Source: Mboho & Udousoro (2014)

Table 2.2 to 2.5 present the reports of anti-vandalism task force in four states of Nigeria; Bayelsa, Delta, Rivers and Akwa Ibom States respectively, from September 2012 to September, 2013 as cited by Mboho and Udousoro (2014). The tables show various items and the quantities recovered from the vandals by the task forces from the four states. Efforts to obtain the most recent data on the activities of the anti-vandalism task force in the Niger Delta region by this researcher did not yield result because such data could not be obtained either from the Ministry of Niger Delta or any other sources.

Boris (2016) summarises the achievements of Nigerian armed forces including the JTF in the fight against vandalism of oil pipelines and oil theft for the period 2009 -2014. His findings are presented in appendix A1

Despite the apparent successes recorded by the current government strategies and tactics in reducing or eliminating oil pipelines vandalism in Nigeria, the literature examined brought to the fore an avalanche of notable limitations. One such limitation from the literature is that the vandals seem to be armed to a greater extent with modern and sophisticated weapons than the government security forces, and are highly skilled in weapons use. Alluding to the

sophistication of the vandals, (Akpan, 2016, p.50) argues that "oil thieves often come fully armed and are backed by top military officers who will simply instruct the junior officers on the field to look the other way". This implies that the corrupt senior military officers have been bribed to instruct the junior ones to look the other way from the direction of the vandals. Corroborating this argument, Ikelegbe (2005) maintains that the syndicate are well organised and the field operators are heavily armed. Odalonu (2015) believes that the theft of crude oil in Nigeria may persist for a long time to come due to the level of sophistication the illicit business has assumed in recent times, and the caliber of those involved. The anti-vandalism war in Nigeria appears to be ineffective because of involvement of criminal cartels and trans-national organized criminals (Okafors & olaniyan, 2017). Insiders play remarkable role in slowing down the war against oil pipelines vandalism in Nigeria. Onwuka & Dike (2015) substantiate this claim by arguing that the outsourcing of pipelines surveillance contract to ex-militants in the Niger Delta region created tension because the ex-militant war lords who were contracted to provide surveillance on oil pipelines turned round to become security threats to the facility by sabotaging the government and vandalizing the same pipelines to steal petroleum products.

 Another notable limitation militating against the success of the current government efforts towards eradicating vandalism of oil pipelines is the connivance of some security personnel with the vandals to steal petroleum products (Onuoha, 2008). Furthermore, it is argued that the security agents deployed to protect the oil pipelines do not target or arrest the real masterminds of vandalism of oil pipelines (Lopez-Lucia, 2015). According to him, corruption is so pervasive in the Nigeria oil and gas sector and requires a complete clean-up of the system. Adishi & Hunga (2017, p.58) concurring with the view of Lupez-Lucia notes that the seizure of ships and arrests of oil theft suspects did not result in their successful persecutions due to

the disappearance of both seized ships and those involved in the acts. Odalomu (2016, p. 002) describes the masterminds of vandalism of oil pipelines as "untouchable thieves" who illegally load crude oil onto their own or hired ships and sail to the waters off Nigeria, where the buying foreign merchants from west Africa and Eastern Europe await them. Asuni (2009 p. 6) observes that the efforts to control oil bunkering "were usually not sustained or were executed in a half–hearted manner". This could be due to "inadequate knowledge of the scale of its occurrence in terms of the patterns expressed by its varying intensities or magnitude of its aspects over space, time and structure" (Ingwe 2015, p.77).

Another significant limitation to the current strategies and tactics adopted to end vandalism of oil pipelines is the lack of cooperation by the host communities (Oteh & Ezeh 2012). As set out by them:

> Oil prospecting companies in the area exist in opposing end with the people. While the management of the known companies enjoys good living conditions (which include use of electricity, health care, good water supply etc., their host communities have no access to such basic amenities" (Oteh & Ezeh 2012, p.15).

The continued poor living condition of the oil producing communities according to Oteh and Ezeh, (2012) has led to constant hostilities between the locals and the government. Adejoh (2014) on his part attributes the hindrances to the success of anti-vandalism drive to the terrain and environmental factors in the Niger Delta region of Nigeria. According to him, the Shell Petroleum Development Company's 95km trunk, for instance, "runs from Nembe Creek field to Cawthorne channel field passing through thirty five communities and traversing sixty rivers and Creeks of various sizes along its route" (Adejoh, 2014, p. 94). This difficult terrain according to him inhibits successful monitoring and adequate policing of the oil pipelines by the government security forces.

The deployment of the members of the armed forces of Nigeria to the Niger Delta region commonly referred to as "militarization of the Niger Delta" has been heavily criticized and the security forces have been accused of human rights abuses including bombing the vandals in civilian locations resulting in civilian casualties. The JTF operations in the Niger Delta region of Nigeria have led to human right abuses (Chiluwa 2011; Obi 2009; Okumagba 2012). Usoro, Ekpeyong & Effiong (2014, p.145) argues that the deployment of security forces to the Niger Delta region has led to severe human rights abuses. Table 2.6 is the recorded human right abuses between 1990 and 2006 cited by Usoro, Ekpenyong and Efffiong (2014). These records were the most recent available at the time of conducting this research. Although the records are old, they have however demonstrated the claims of human right abuses by the JTF personnel in the Niger Delta.

Table 2.6 Recorded human right abuses between 1990 and 2006

Year	Place	Security Agency	Action carried out
August 1990	Umuechen	Security Forces	80 unarmed demonstrators killed, 395 houses destroyed.
1993	Choba	Mobile Police	Houses razed down; properties destroyed.
Nov. 1999	Odi	Army	The entire community completely destroyed. 2,483 mostly women and children killed.
Jan. 2004	Uwheru	Joint Task Force	20 persons killed, 11 houses burnt down.
July 2004	Egbema	Joint Task Force	A total of 13 communities destroyed, over 500 houses razed and 200 persons mostly women and children feared dead.
August 2004	Olugbobiri & Ikebiri	State Security Forces	About 16 peaceful and unarmed persons killed.
Oct.2005	Odioma	Joint Military Task Force	Over 50 people mostly women and children killed.
Feb. 2006	Gbaramatu	Joint Military Task Force	15 women and children killed in their houses.
Oct. 2006	Afiesere	Police	Over 80 houses burnt and 20 persons killed.

Source: Usoro, Ekpenyong, & Effiong, (2014, p.145) (Adapted from Emeudo, (2013).

Strengths and Limitations of physical security deployment

In terms of deployment of physical security such as the application of wireless sensor networks, the strengths lie in its ability to monitor pipeline infrastructure at real-time (Yunana, Adewale, Alfa & Sanjay (2017). Bernos (2017) notes that SkyX Drone-based monitoring system can reduce traditional monitoring costs by nearly 90%, as claimed by the manufactures. According to him, the technology can provide more comprehensive information faster by employing artificial intelligence to recognize issues and recommend immediate interventions.

Kadafa (2012) discussing the limitations of physical security application, argues that in terms of monitoring, some critical factors such as the location of the oil companies, the terrain, the accessibility, revenue, manpower availability for monitoring agency, qualified manpower are not available. This according to him restricts the ability and efficiency of pipelines monitoring.

Eze, Nwagboso, Newnan & Georgakis (2015) posits that most pipeline monitoring systems available currently are mainly based in detecting leakages, which only report pipeline leaks after incidents had occurred. In this respect they are reactive monitoring system. Murray (2012, p.30), however maintains that "many perimeter intrusion protection methods that have been successful in other environments have proved impractical for pipelines", since the requirements for pipeline protection include very long protection sites.

Table 2.7 computed by Yunana Adewale, Alfa & Sanja (2017) compares oil pipelines protection techniques through application of technology; identifies the researcher, the technology, their strengths and weaknesses.

Table 2.7 Oil Pipeline Monitoring Techniques Compared

Researcher	Techniques	Strengths	Weakness
Gar and Alfred, 2003	Satelite Monitoring	Ability to monitor entire pipeline Right of Way	Unsuitable for real-time monitoring. It is applicable for over ground pipelines only
Yuanwei and Eydgahi, 2008	Acoustic	Detection of minimum noticeable leaks Non-interference with the pipeline operation. The topology of the pipeline is made too simple with acoustic sensors	Custom-built for the pipeline structure. Localization method is ineffective for complicated topologies of pipeline.
Jasper, 2011	Visual inspection	Support available commercial cameras in monitoring	Unsuitable for underground pipelines different cameras are usually required for individuals line-sight
Bimpas et al., 2011	Ground Penetrating Radar	Ability to precisely locate underground pipelines with no digging required. It can cover quite a number of miles	Unsuitable for real-time monitoring. Involves rigorous human participation.
Jakub, 2014	Unmanned Aerial Vehicle (Drones)	High signal rate and ability to move around along pipeline vicinity	Unsuitable for underground pipeline and continuous monitoring
Rajeev et al., 2013	Fiber Technology	It provides real-time monitoring of pipeline infrastructure. Able to cover long distances	Expensive in nature, fibre damage can render the system in operational. It must be installed across the entire length of the pipeline.
Nader and Imad, 2008	Wired and wireless Sensor Network Architecture	It is suitable and reliable for wired and wireless sensors deployment in monitoring pipeline infrastructure	There was no clear architecture illustrating how the individual sensor nodes will be deployed and what parameters to be measured for a specified fluid

Source: Yunana Adewale, Alfa & Sanja (2017)

Discussion

The academic and grey literature on vandalism of oil pipelines in Nigeria depicts it as a complex problem which involves many actors including the locals within the oil producing communities, the armed bandits operating as militants, some security personnel deployed to the Niger Delta region, some oil companies' staff and international actors. A review of the literature reveals that there is a scarcity of scholarly works in the area of specific challenges

which inhibit the operations of the Nigeria Security and Civil Defence Corps (NSCDC) and thus need to be improved so as to enable the agency operates optimally and successfully carry out its statutory mandate of protecting Nigeria's national critical infrastructure, including the petroleum products pipelines.

Crude oil and refined petroleum products are the main revenue earner for Nigeria and the sustainer of her economy. These products are transported from the point of production to either local refineries or export terminals through pipelines. These pipelines have been subjected to vandalisation by oil thieves and other criminal elements in Nigeria. The literature examined reveals that a gap exists in the area of holistic mitigation strategies for vandalism of oil pipelines. While many scholars seem to emphasise the impacts of vandalism of oil pipelines on the Nigerian economy, environment and human security, few scholars even mention how the menace can be brought under control or how the pipelines can be better protected. This empirical study will attempt to investigate this area with a view to contributing to scholarly works in this area.

The Niger Delta region remains the hub of crude oil production in Nigeria. The area also plays host to the militants who attack these pipelines either to sabotage the Nigerian government or to steal the products which are sold in black market or export illegally to foreign collaborators. Although the literature addresses the government efforts to checkmate the illicit business, there is a clear gap on why oil theft is in the increase, despite the efforts of the government to checkmate it. The issues of corruption and complicity of top military personnel and other security operatives in vandalism of oil pipelines and oil theft have not been thoroughly investigated. There is therefore an identified gap in the literature. We intend to investigate these

apparent gaps with a view to bringing to the fore the suspected corrupt practices alleged to be prevalent in the Nigeria oil industry.

The basic principles of risk management have been examined in the literature, and strategy for corporate risks mitigations which involves planned actions to respond to identified risks at corporate level is also highlighted. These actions are categorised into four groups fundamentally, which includes risk avoidance, risk reduction, risk transfer and risk retention.

Physical security, which is concerned with physical control measures in assets protection, has also been discussed. It emphasises the deployment of devices, systems or practices to protect assets in all forms, whether tangible, intangible, or mixed. These include people, property and information. Physical security has also been described in the literature as defence-in-depth which combines different layers of control, usually moving from the outer perimeter of a facility to the center. The literature on physical security has placed in context the relevance of their applications in the management of the security risks associated with oil and gas sector in general, and petroleum products pipelines in particular.

Oil and gas sector faces many risks, with the risks ranging from natural and environmental, engineering, management and economic. Other industry-specific risks which the sector faces include corruption, terrorism, government regulations and environmental activism. The criticality of security risk management in oil and gas sector has been brought to the fore in the literature and various methods have been suggested to mitigate them. Of particular note are the threats posed by terrorism, extremism and organised criminal syndicates. The adversaries have been identified as national and international extremists, cyber security threats, ideological-

driven actors and disgruntled employees. It has been suggested that to counter the threats posed by the adversaries, the oil and gas sector should adopt multi-prolonged strategies which could isolate extremists through application of a socio-anthropological lens to enable them gain a deeper understanding of the various extremists' groups (Giroux & Gilpin, 2013).

Of particular importance in the oil and gas sector is the Voluntary Principles on Security and Human Rights, which emphasises accurate assessment of risks present in a company's operating environment, an action that is very critical to the security of personnel, local communities and the company's assets. The Voluntary Principles on Security and Human Rights posits that, while governments have the primary roles of maintaining law and order, security and respect for human rights, companies should demonstrate sufficient interest in ensuring that governments' actions, especially actions of public security providers are consistent with human rights protection and promotion.

The literature identifies countries around the world that experience the problem of oil and gas pipeline attacks, vandalism and oil theft. Kustova (2015) mentions some oil producing countries of Mexico, Colombia, Venezuela, Bolivia in Latin America that have lost billions of dollars to oil and gas theft. There is presently scarcity of scholarly works on how these countries address the problem of oil pipelines attacks and oil theft in their domain. It is the researcher's view that the literature in this area could assist other countries especially developing countries like Nigeria in tackling similar menace.

Physical security uses people, procedures and technology to protect assets according to ASIS International (2012). Oil pipelines are critical national assets in countries that produce oil and gas. Although, there are various technologies such as wireless sensors, intrusion detention systems & unmanned aerial vehicles (UAV) to monitor and protect oil pipelines, the study has not fully explored these technologies and how they can be applied in the management of petroleum products pipelines security. There is a need to research into this area so as to avail the oil and gas producers with the benefits of applying these technologies in the protection of critical energy infrastructures.

Okafor & Olaniyan (2017) emphasise the need for structured multi-agency security response approach to tackle the menace of vandalism of oil pipelines. This approach, according to him implies coming together of all relevant security agencies in a formal and organised manner to deal with all issues relating to pipelines security. The approach completely ignores the role of technology in oil pipelines protection. There is therefore an existing gap in the area of integrated security approach, where physical security is fully integrated with the security forces and other stakeholders in an organized manner to provide holistic protection for oil pipelines. This is an area for further research which this study is set to investigate empirically.

Chapter Three: Methodology

Introduction

This chapter presents the methodology employed in the gathering and presentation of the research data. It begins with a discussion on research design which covers research philosophy and case study methodology; followed by the research method which discusses sampling strategy, semi structured interviews and data analysis. Finally, the research experience is discussed, and the chapter concludes with a reflection on the effectiveness of the research methods adopted for the study.

Research design

The research design discusses the research philosophy and the case study methodology adopted for this study. The research philosophy probes into the ontological and epistemological bases of the research, while the case study methodology is discussed highlighting its advantages to this study with relevant literature.

Research philosophy

Before the discussion of the research methods used in this study, it is important to set out the philosophical perspectives, in other words, the epistemological and ontological bases of the research. Assumptions and choices are made in response to research questions which, overtly or covertly, have significant consequences for conducting social enquiry, as well as the research results (Blaikie 1993). All research is based on some underlying philosophical assumptions about what constitute an acceptable research (Antwi & Hamza 2015). Denscombe (2010) and Grix (2010) contend that the philosophical standpoint of the researcher provides the very foundation upon which social research is constructed and should not be overlooked.

Contextually, Dunne, Pryor and Yates (2005) argue that philosophical issues are essential ingredients in determining how a researcher perceives social realities. Research Philosophy addresses "the assumptions that support the research strategy and the methods chosen as part of research paradigm" (Ihuah & Eaton 2013, p.935). The relevance of research philosophy brings to the fore the philosophical foundation debate which according to Mkansi & Acheanpong (2012), generate contradicting arguments as to which philosophy is best for a subject.

Tobey, Rotich & Bengat (2015, p.224) note that ontological question in social science research are related to the nature of reality and that there are "two broad contrasting positions: objectivism that holds that there is an independent reality and constructionism which assumes that reality is the product of social process. Wilson (2001 p.175) postulates that positivism and post-positivism are two paradigms that are based on the similar ontological foundation; that there is only one reality and that researchers have to be "as objective as possible in order to reach that reality", so the researchers use manipulative and experimental types of research in trying to increase objectivity in order to get closer to that reality.

Wilson (2001) further posits that another ontological foundation is constructivism which believes that there is not just one reality but multiple realities that exist and that these realities are socially constructed. Denscombe (2010) describes these positions as realist and constructionist. Reflecting on my position as a researcher, I tend to lean toward the constructionist perspective considering that elements of social world are constantly changing and adapting with human lifestyles. My view is that the problem of petroleum products pipelines vandalism in Nigeria is understood differently by different people. My aim is to ask

the research participants their own view on the problem and to obtain their perspectives of the phenomenon. This view will be constructed with reference to their personal experiences and each generating their own version of reality.

Epistemology could be described as the foundation of true knowledge and is necessary in the creation of new knowledge because it makes it possible to understand how researchers generate and acquire scientific knowledge (Ashatu 2009 cited by Everest 2014). The idea of epistemology infers several questions: "what is the relationship between the knower and the known?", "how do we know what we know?" and "what counts as knowledge?" (Antwi & Hamza 2015, p.219). Grix (2010) identifies two principal epistemological starting bases: foundationist and anti-foundationist, stating that the foundationist sees reality as independent of human understanding while anti–foundationist holds that reality is reliant on people constructing meaning from it.

As a researcher, my sympathy is for both epistemological perspectives and therefore consider that each may have something to offer in the advancement of social science. Tying myself to one paradigm is restrictive and therefore I have chosen to adopt a pragmatic approach. Pragmatism is described as the rejection of the competing primary philosophies (O'Leary 2007, Dencombe 2010). Johnson & Onwuegbuzie (2004 p.16) posits that "taking a pragmatic and balanced or pluralist position will help improve communication among researchers from different paradigms as they attempt to advance knowledge". This study employed a descriptive, explanatory and analytic qualitative case study approach.

Case study methodology

The case study research accommodates a variety of research techniques such as participant observation, interviews, questionnaires, and documentary studies (triangulation). A case study entails a detailed, in-depth and intensive exploration and analysis of a specific case which could be a person, a family, community, social group, institution, organisation, a country, an event, a programme, in its natural setting and from the perspective of the insiders (social actors). Hence, it is also known as the naturalistic inquiry, the field research or the interpretive paradigm. It focuses on the process, complexity and nature of the case in question (Bogdan and Biklen 1992, Cresswell 1994, Stake 1995, 2000, 2002, Taylor and Bogdan 1998, Merrian 1998, Bryman 2001, Babbie and Mouton 2006, Naoum 2006, Stake 2008).

There are three types of case study approaches: the descriptive, the analytical and explanatory case studies (Naoum 2006). The case study approach explains theory and causality and "tries to show linkages among the objects of the study. It asks why things happen the way they do. The researcher collects facts and studies the relationship of one set of facts to another, with the hope of finding some causal relationship between them" (Naoum 2006, p.46).

A case study is also crucial for an in-depth analysis which provides a framework for understanding issues in other similar settings or units. Hence, Cohen and Manion (1994, p. 102) define it as an "investigation of an individual unit to probe deeply and analyse all characteristics of the unit to establish generalisations about the wider community to which it belongs." However, the crucial factor is not whether the findings can be generalised to a wider universe, but how well the researcher interprets and analyses data and generates theory out of the findings. The case study organisation for this research is the Nigeria Security and Civil Defence Corps (NSCDC).

Research methods

This section briefly discusses the sampling strategy used in the study. It also explores semi-structured interviews and examines data analysis process adopted for the study. Ethical considerations are also discussed.

Sampling strategy

A purposive sampling technique was employed in this qualitative research study. This technique also called judgment sampling, is the deliberate choice of a participant due to the qualities the participant possesses (Etikan, Musa & Alkasim 2016). The argument or justification for the selection method is that the researcher identifies those who are in a position to provide informative data and answers to the research questions and problem due to their professional training or occupational advantage and experience (Patton 1990).

According to Merriam (1998), the purposive non-probability sampling procedure is logical as long as the researcher needs the data to solve qualitative problems such as discovering what occurs, the implications and relationships of the occurrences rather than to answer questions such as how much or how many. This is because qualitative research aims at maximizing the range of specific information that can be obtained from and about that context, by deliberately selecting locations and informants that differ from one another. Therefore, sampling in the interpretive paradigm is often purposeful and directed at certain inclusive criteria rather than random" (Babbie and Mouton, 2006, pp.177-288). The merits of purposive sampling are that it provides expert answers to what one wants to discover, understand and gain insights into. It also accords the researcher the opportunity to select the respondents based on his/her knowledge of the population, its elements, the aims and rationale of the study and the researcher's judgment of the purpose of the study (Babbie and Mouton, 2006).

While the research was primarily developed as a case study of the Nigeria Security and Civil Defence Corps, an agency established to provide security for critical infrastructure in Nigeria with special mandate to protect oil and gas facilities, efforts were made to gain views and insights from a number of additional stakeholders for an informed interpretation of the data. As Babbie and Mouton, (2007, p.27) advised "the best way to elicit the various and divergent constructions of reality that exist within the context of a study is to collect information about …events and relationships from different points of view. This means asking different questions, seeking different sources and using different methods".

A total of 22 participants were interviewed, as summarized in Table 3.1. The largest group of participants was drawn from the NSCDC, with nine personnel of the rank of commandant from all the oil producing states in Nigeria being interviewed. Their perspectives were supplemented by interviews with the following further stakeholders:

- Three members of military JTF deployed to the oil producing states;

- Representatives of the major oil companies operating in the Niger Delta, (Shell Petroleum Development Company and ExxonMobil);

- Two Community representatives from the oil producing communities of Egbema in Rivers state and Ibeno in Akwa-Ibom state;

- Representatives of two NGOs in the Niger Delta region;

- Representatives of two PSCs contracted to secure oil and gas pipelines in the Niger Delta region; and

- Two representatives of physical security professionals selected from known physical security experts.

The interview questions were structured to facilitate asking multiple participants the same questions. After the 22 interviews, the responses reached "data saturation", the point when " no new information or themes are observed in the data" (Guest, Bunce, & Johnson, 2016, p.59), and the interviews elicited all forms and types of occurrences that ensured the research questions within the scope of the case study were answered.

The participants were selected through a purposive sampling strategy from the nine states of the Niger Delta region, including Lagos and Ogun states where vandalism of oil pipelines mostly occurs. In order to ensure sufficient anonymisation of the interviewees, zones were used to represent all the nine states of the Niger Delta region of Nigeria, identified as zones A to H, from where the personnel of Nigeria Security and Civil Defence Corps selected. Two other states with high incidences of vandalism of oil pipelines that do not fall within the Niger Delta region classification were identified as Western region 1 and Western region 2 and from these regions two members of security JTF were interviewed.

The interviews with the 22 participants commenced on September 15, 2018 and concluded February 20th 2019. Twenty interviews were conducted through Skype using internet while the remaining two interviews were undertaken face-to-face. The face-to-face interviews were conducted with participants representing oil producing communities and were drawn each from Rivers state and Akwa Ibom state oil communities respectively. The face-to-face interviews became necessary because there were no internet facilities in the oil producing communities, hence neutral locations were decided in their respective local government council headquarters where the interviews were conducted.

Table 3.1 Profiles of Interviewees

	Current Role (NSCDC)	Previous Role
1.	**Zone A Command** Deputy Commandant (Anti-Vandalism)	Assistant Commandant Intelligence (Headquarters)
2.	**Zone B Command** Deputy Commandant (Joint Task Force) Field Operations	Assistant Commandant Training
3.	**Zone C Command** Ass. Commandant (Anti-Vandalism Unit) Field Operations	Assistant Commandant Armed Squad
4.	**Zone D Command** Dept. Commandant (Anti-Vandalism Units) Field Operations	Assistant Commandant Armed Squad
5.	**Zone E Command** Deputy Commandant, (Anti-Vandalism Unit) Field Operations	Assistant Commandant Logistics
6.	**Zone F Command** Asst. Commandant (Anti-Vandalism Unit) Field Operations	Assistant Commandant (Joint Task Force)
7.	**Zone G Command** Deputy Commandant (Anti-Vandalism Unit) Field Operations	Assistant Commandant (Anti-Vandalism Unit)
8.	**Zone H Command** Commandant (Anti-Vandalism Unit) Field Operations	Deputy Commandant (Anti-Vandalism Unit)
9.	**NSCDC Headquarters** Corps Commandant	Deputy Corps Commandant
10.	Deputy Commandant (HQTRs)	Assistav5nt Commandant (Headquarters)
11.	**JTF Western region 1** Joint task Force Commander	Air Force Wing Commander NAF
12.	**JTF Western region 2** Joint Task Force Commander	Navy Captain Nigeria Navy (NN)
13.	**Multinational Oil Companies (MOC)** Senior Manager (Shell Petroleum)	Manager (Shell Petroleum)
14.	Senior Manager (ExxonMobil)	Manager (ExxonMobil)
15.	**Oil Producing Communities' Leaders** Youth Leader (Rivers)	Youth Activist
16.	Youth Leader (Akwa Ibom)	Youth Activist
17.	**NGOs** Deputy Manager (NGO Bayelsa)	Assistant Manager (NGO Bayelsa)
18.	Senior Manager (NGO Akure)	Manager (NGO Akure)
19.	**Private Security Companies (PSCs)** Guard Supervisor (Oil Facility Surveillance - Delta)	Security Guard (Oil Facility Surveillance - Delta)
20	Supervisor (Izon-Ibe Securtiy Company Nigeria Limited)	Security Guard (Izon-Ibe Security Company Nigeria Limited)
21.	**Physical Security Experts** Physical Security Consultant (Lagos)	Physical Security manager (Lagos)
22	Physical Security Consultant (Port-Harcourt)	Oil & Gas Security Expert (Port-Harcourt)

To gain access to the research participants and attain successful fieldwork, the researcher had to obtain the approval of the 'gate keepers' (relevant authorities) and maintain a productive relationship with the respondents (Marshall & Rossman 1989, Cresswell 1994). The relevant 'gate keepers' included senior personnel in the office of the CG of the NSCDC who facilitated access to the NSCDC and the JTF personnel, while access to participants from the MOCs was facilitated by the Petroleum and Natural Gas Staff Association of Nigeria (PENGASSAN). Also, a senior official in the Office of the Special Adviser to the President on Niger Delta facilitated the link with both oil producing communities' leaders and the private security companies belonging to the former militant commanders. To access the participants from relevant NGOs in the Niger Delta, contact was facilitated by the Nigeria Network of NGOs, while ASIS chapters 236 and 206 facilitated the access to physical security experts from Port Harcourt and Lagos respectively. As Schotstak and Schostak (2008) put it "the negotiating process involves inscribing the reasons for being with people and at places relevant to the research into the agendas that prevail in the given social circumstances" Schotstak and Schostak (2008, p.237). Letters requesting permission to conduct studies through interviews were posted and/or submitted by the researcher to the selected institutions and individual respondents.

The letters explained how the studies was to be conducted, that is, the data collection instruments, the proposed participants, the time frame and how the data will be reported/used and shared with the respective institutions. This is in line with Miles & Huberman's (1994) parameters for conducting qualitative research studies. That is, the researcher has to establish the setting (where the research will take place), the actors (who will be observed or interviewed), the events (what the actors will be observed doing or interviewed about) and the process (the evolving nature of events undertaken by actors within the setting) (in Cresswell

1994). This provided the framework for the conduct of this study. The details of the access negotiation and the research instruments are provided in the ethics section of this study. However, the researcher did not get responses from some of the intended respondents' institutions such as the Multinational Oil Companies and the NGOs. However, through mutual contacts in the oil companies and the NGOs respectively, the potential participants were introduced to the researcher.

Semi-structured interviews

This study employed semi-structured interviews. An interview (face to face interviews or interpersonal/interactive interview) as a research technique is defined as "a conversation between the interviewer and the respondent with the purpose of eliciting certain information from the respondents" (Moser & Kalton 1971, p.271). It is an interpersonal role situation in which the interviewer asks respondents questions designed to elicit answers pertinent to the research problem (Kvale 1996, Naoum 2006). It is focused on the respondents' experiences, views and opinions regarding the institution or situation under study. It thus constitutes an "ideal speech situation characterised by a process free from domination where the parties involved in construction of meaning exchange arguments without coercion" (Stringer 1999, p.36). A semi-structured interview was employed because of its adaptability and flexibility. The flexibility in the semi-structured interview guide allows the researcher to formulate other questions on the basis of information emerging from the responses of the interviewees and flexibly adjust them as interactions with the respondent progresses to capture the dynamics of the participants' response (Denscombe, 2007; Robson 2011).

Bryman (2012, p.469) observes that interviews are the most popular instruments employed in qualitative research due to its relative flexibility. Interviews are time consuming and costly in terms of data management (collection, transcription and analysis) especially where the data generated is complex and large. This is likely to affect its findings and outcomes (Hagan 1982). Scholars with scientific positivist views like Robson (2011) and Kvale (1994) raised objections on the value of the interview method due to the lack of standardised and reliable matrix for measuring the responses of respondents. However, the open and flexible nature of semi-structured interviews can be a useful instrument for investigating complex issues that require detailed data analysis in order to enhance the reliability coefficient of the data generated (Denscombe, 2007; Hagan, 1982).

Among other things, qualitative interviews give the interviewer the opportunity to sift data from the respondents' attitudes, feelings, interests, concerns, gestures, facial expressions and tone (Cresswell 1994, Rubin and Rubin 1995, Kvale 1996, Bogdan and Bikini 1998, Krathwohl 1998, Gay and Airasian 2003, Bryman 2001, Babbie and Mouton 2006, Naoum 2006). Such invaluable data cannot be obtained through other research tools such as the quantitative questionnaire surveys. The other advantage as indicated in the definition is that it can be administered in person, therefore the researcher is an active participant, has control over the line of questioning, the response rate is relatively high and the researcher is fully assured that the respondents are the ones for which the interviews were intended.

However, the interview research instrument has its challenges and shortcomings such as the presence of the interviewer and the manner in which he/she asks the questions influencing the interviewee. Babbie & Mouton (2006, p.289) note that "all too often, the way we ask questions

subtly biases the answers we get." Put differently, "the researcher's assumptions and values shape the inquiry and become part of the argument…there can be no disinterested research…the researcher is both a participant in the action and inquirer into that same action" (Stringer 1999, p.15). Among other things, the interview instrument can be obtrusive and disruptive to the respondents' daily schedule, performance and production targets. Some respondents may be too busy for interview sessions, thereby affecting the progress of the research process. In some instances, the respondents may be biased and selective in what information to shed to the researcher in accordance with the rules and regulations of the organisation. In this case, the researcher can be denied access to vital information which could ensure fertile research findings.

A detailed interview schedule comprising open-ended semi-structured questions (see Appendix 1) on issues relating to the vandalism of petroleum products pipelines and mitigation strategies was drawn. Using the semi-structured interview format across all interviews was to help ensure that discussion could cover all the relevant areas. The interviews commenced with a comprehensive invitation for the interviewees to describe their professional background in relation to petroleum products pipelines security management. This covered their current deployment, level of management and their current role in the petroleum products pipelines security management. The open question allowed the researcher to collect valuable demographic data that would support the analysis of the interview data, and at the same time help to place in context the information from other interviews.   The open question was followed by questions aimed at stimulating discussions on the nature and extent of oil pipelines vandalism in the Niger Delta. Other questions were aimed at eliciting discussions on the strategies and tactics employed by the government to address the problem of petroleum

products pipelines vandalism. The participants were also asked questions to trigger discussions on the strengths and weaknesses of the current measures and the possible ways the measures could be improved.

Open-ended questions are regarded as highly relevant in this qualitative study as an instrument to extract more information from the respondents. Each interview session of this research was expected to last for approximately 30 minutes or more depending on circumstances emerging from each session and setting. However, as the interviews progressed, sessions extended to more than 45 minutes, because the researcher recorded the interview by hand, slowing down discussions to capture all necessary information from the interview. The notes were latter transcribed by the researcher for appropriate data coding, categorisation and analysis (Patton 1990, Schurick 1998, Taylor and Bogdan 1998, Bryman 2001).

Data Analysis

Data analysis entails the critical and reflective descriptions, explanations, interpretations, synthesis, evaluation, inferences and verifications of data collected for a comprehensive and coherent presentation of the research findings. According to Tesch (1990), the process of data analysis is multifaceted as such there is no single 'right way'. Data analysis also involves segmenting the data, generating and developing categories, themes and patterns and matching them for a coherent and comprehensive presentation. Lofland and Lofland (1995, p.164) warn researchers against what they referred to respectively as "analytic interruptus" (in Bryman 2001, p.388) and 'descriptive excess' all of which would stifle the analytic interpretations and arguments in the presentation of the findings as a result of the excessive data collected.

The process of data coding, categorisation, interpretation, pattern matching, explanation building and generalisations are based on the evidence provided by the data, literature reviews and theoretical frameworks (Merriam 1988, Tesch 1990, Bogdan and Biklen 1992, Yin 1994, Bryman 2001, Babbie and Mouton 2006). According to Bryman (2001, p.398) "coding is the starting point for most forms of qualitative data analysis." It entails the process of breaking data into component parts and labelling it according to themes, concepts, theoretical positions and research questions to be addressed in the study. On-going data analysis and processing is also in line with the qualitative studies reliance on inductive grounded theory from data. That is "theory that was derived from data is systematically gathered and analysed through the research process" (Strauss and Corbin 1998, p12). Thus, the approach is "iterative or recursive…in that data collection and analysis proceed in tandem repeatedly referring back to each other" (Bryman 2001, p.390).

The goal of the interpretation and analysis of data is for a detailed and thick description of the findings. As Tesch (1990, p.97) notes "while much work in the analysis process consists of 'taking apart' (for instance, into smaller pieces), the final goal is the emergence of a larger consolidated picture". The qualitative research paradigm is an interpretive approach as such its results have often been in the form of 'thick' descriptive narratives rather than quantified scientific reports common in quantitative studies (Cresswell 1994, Cohen and Manion 1994, Bryman 2001, Babbie and Mouton 2006). It describes the data holistically, considering the complexity of the social systems rather than concentrating on discrete variables as in quantitative research. In the process of data analysis, and presentation the researcher should strive to balance subjective and objective interpretations, engagement and disengagement for credible and objective research findings. That is, the researcher has to be conscious of the

effects of his/her beliefs, feelings and world view on the research process, data interpretation and presentation (Rossman and Rallis 1998, Babbie and Mouton 2006).

The researcher made concerted efforts to code, categorise, interpret and analyse the research data based on identified and emerging themes from the findings. Some relevant features fitting within the context of the study were adopted and adapted while some features which were deemed unfitting were left out. In analysing data, the researcher coded the core themes such as the nature and extent of the problem of petroleum products pipelines vandalism, the strategies and tactics been employed to address the problem, the strengths of these measures, weaknesses of the measures adopted, ways of improvement and the main barriers militating against the achievement of the desired goals. To enhance the authenticity and credibility of the research findings, the researcher quoted the participants interviews verbatim.

Ethical considerations

Ethical measures are very important in ensuring that the researcher complies with the ethical standards, codes and procedures for conducting credible research and obtaining accurate, objective, trustworthy, valid and reliable research findings. It was therefore imperative for me to set out ethical considerations, not just for the start of the thesis but also those "that would continue through the entire research" (Kvale 1996. p. 110). It was the desire of the researcher to obtain the best possible data on the reality of truth from the participants, but correspondingly wanted to ensure that his actions would not harm or disadvantage anyone involved in the research.

The norms for conducting research include adhering to the principles of voluntary participation and informed consent by the respondents, protection of the privacy, rights and safety of the research subjects, guaranteeing anonymity and confidentiality on respondents and the information they provide, accountability and professionalism in the presentation of the findings (Cresswell 1994, Bryman 2001, Babbie and Mouton 2006).

In undertaking the research, I was careful to employ the ethical approach. The criticality of research ethics is brought to the fore by Benatar (2002, p.1134) when he argues that while conducting research involving humans, "the scientific merit of a project must be matched by the ethical merit of the work". According to him, ethical merit encompasses respect for the dignity of the research subjects which includes their integrity, privacy, safety and human rights. Macfarlane (2009) traces research ethics and ethical code development to the Nuremberg code and the trial of Nazi war criminals but further notes that subsequently devised code of research ethic focuses on the fundamental principle of respect for participants.

Haggarty (2004, p.393) notes that from a historical perspective, the ethical status of research was governed through a combination of "discipline-specific codes of conduct and the professional standing of research scientists". He notes that at present, the system has been supplanted and replaced by a "formal process of bureaucratic oversight". Many scholars and ethical codes place a strong emphasis on the principle of informed consent (British Society of Criminology 2006; Davies 2011; Davies & Francis, 2011), which ensures that participants are aware of the nature of the study and any implications so as to enable them to take informed decisions about their participation. This consent "must be voluntary, and participants must be aware that they are free to withdraw from the research at any time without facing any

repercussions" (Haggarty, 2004, p.404), and the participants should normally not be deceived according to Descombe (2010). Benatar (2002, p.1135) maintains that "informed consent has become established as of the cornerstone of research ethics".

To provide a framework for assessing potential ethical issues, I have completed application for ethics (Ethics Review - Staff and Postgraduate Students), and have been given favourable ethical opinion. The letter from the chair of the Ethics Committee agreeing this research is attached. Since the method involves direct contact with participants, measures have been taken to protect them. Such measures involve making the interviews entirely anonymous and providing the participants with a Research Information Sheet. Sufficient information about the research was given to participants to allow them to give informed consent.

Research experience

> The process of inquiry began with a problematic or indeterminate situation. In the initial stages, understanding of the problem may have been little more than an intuitive sense or gut feeling that something was wrong or could be better. Through these integrally linked processes of observation and analysis, we come to see clearly the discrepancies, incongruities, and failure to reach intentions (Osterman and Kotlkamp, 1993, p.6).

The process of this investigation began with my perception of indeterminate situation surrounding the problem of petroleum products pipelines vandalism in Nigeria. Prior to this study, I was wondering why the strategies and tactics employed by the Nigerian government to combat oil pipelines vandalism were unable to check the menace. I questioned the rationale behind massive deployment of security forces to the oil producing areas of Nigeria, when

studies indicate that there were indeed no commensurate positive effects on the activities of oil vandals. I admit that what motivated me to initiate this research in the first place, was my belief that the Nigerian government has not 'got it right' in the strategies and tactics deployed to curtail oil pipelines vandalism. At this stage, my understanding of the problem was limited; a little more than 'an intuitive sense' or a 'gut feeling' that something was wrong or could be better. Through the process of literature exploration and interview analysis, I came to see clearly the discrepancies and incongruities. My main motivation was finding what went wrong and there was indeed a genuine need for new information, and as a practitioner, I assumed the role of a researcher and began to gather information. In this research, I considered myself an 'external researcher' examining the measures adopted by the Nigeria Security and Civil Defence Corps and other relevant stakeholders to protect petroleum products pipelines in Nigeria, consequently the risk of the researcher's bias and pre-conceived ideas was greatly minimized. On the other hand, the fact that the researcher had no prior dealings with the potential participants became an impediment to the research since the researcher was not familiar with the internal workings of these organisations.

All the interviews were conducted in English, which is the official language of Nigeria. I however experienced some challenges while conducting interview with the selected leaders of the oil producing communities, who were not fluent in English language. The interviewees in this category were encouraged to use *pidgin/broken English* which is a diluted form of English widely spoken in the Niger Delta due to multiplicity of languages in that region of Nigeria.

In the process of carrying out this study, the researcher experienced both up and down moments, as well as positive and negative sides. The negatives that occurred resulted in some

frustrations that were however overcome by utilizing new and developed abilities as a result of the study. One of the major frustrations that the researcher faced was how to gain access to the respondents. My 'gate keeper' in the case study organisation, the NSCDC, is the Commandant General (CG) of the Corps. As the number one man of the Corps, it was not easy to track him down for an appointment. His apparent very busy schedule was not unconnected with the precarious security situation in Nigeria. When we eventually met, there were distractions from numerous visitors who were cleared to see him by his security details. I was forced to caution one of his details to allow me to conclude my discussion with the CG. My successful meeting with the CG and subsequent approval granted me to use his organisation as case study for my research eventually paved way for me to reach my study population.

The second major challenge was how to solicit the attention of the interviewees considering the sensitive nature of the research problem. Most respondents were hesitant to express their perspectives. This challenge was eventually resolved through the intervention of my "gatekeeper" the Commandant General (CG) of NSCDC who had earlier given me his consent and unrestricted access to conduct the research in his organisation.

Another major hurdle was lack of internet facilities in the rural oil producing communities, which hindered the use of Skype for the interview. This hurdle was overcome by the researcher travelling to two oil producing communities (Egbema in River State and Ibeno in Akwa Ibom State), where interviews were conducted with the communities' leaders.

The researcher also experienced challenges in the area of funding. The study was funded exclusively by the researcher from his monthly salary, because the research was not employer-

supported. This challenge was overcome through the prudent management of the available financial resources. The researcher had to suspend frequent trips to the University Campus in UK, resorting to graduate school online training. Another drawback suffered during this research was tuition fee withdrawal of services followed by subsequent exclusion suffered by the researcher as a result of failure to meet the tuition fees obligations as scheduled. As a result of this, the researcher could neither access the school library nor relevant individuals for assistance. This setback was resolved when the tuition fee was paid in full. In order to make up for the lost time, and to complete this study as quickly as practicable, the researcher applied and obtained one-year study leave from his employers which took effect from 1st November, 2017 ending on the 31st October 2018. During the study leave period, the researcher devoted full time to the research activities resulting in completing this study earlier than envisaged.

There were no negative ethical issues. Ethical documentation was sent to all participants in advance of the study, their consents were received and consent forms returned prior to the interview. The research participants were fully aware of what their involvement meant and how they could withdraw if they decided to do so. They were also given the option of being anonymous.

Conclusion

The qualitative research design adopted for this study worked adequately for the research project. It allowed direct data to be obtained from the Nigerian Security and Civil Defence Corps (NSCDC) and other critical stakeholders with regards to the management of petroleum products pipelines security in Nigeria. The qualitative questions generated were meant to

discover what the interviewees are experiencing and how they interpreted their experience with regards to their roles in containing the menace of the petroleum products pipelines vandalism.

The main goal was to obtain data which was interpreted and understood within the world and perspectives of the insiders. Although there were challenges with completing the semi-structured interview programme, these were successfully overcome. For instance, the interviews were hand recorded, making it difficult to effectively capture all the views of participants who were fast in their responses. This challenge was overcome through appealing to such interviewees to slow down in their responses. Another challenge was non-availability of internet facilities in some oil producing local communities. To overcome this challenge, the researcher had to travel to two oil producing communities to conduct the interviews

The case study method allowed a detailed, in-depth and intensive exploration and analysis of the NSCDC in its natural setting to obtain the perspectives of the participants on the fight against oil pipelines vandals in Nigeria. The two primary research mechanisms met the objectives set for them. The conduct of the semi-structured interview was simple as the interview was administered through Skype using internet. Where the respondents had no access to the internet facilities, arrangements were made for the interviewees to move to the nearby location with internet facilities. This allowed for 100% response rate which provides reasonable approximation of current strategies and tactics adopted to protect oil pipelines in Nigeria and the major challenges facing NSCDC and other critical stakeholders in the discharge of their responsibilities with regards to petroleum products pipelines security management in Nigeria.

The purposive non-probability sampling adopted for the study allowed the researcher to obtain expert answers with regards to the problem of petroleum products pipelines vandalism in Nigeria and the strategies and tactics put in place to check the menace. Serious care was taken during the interview process to avoid interviewer bias and allow the participants freedom to express their views in full.

Chapter four:
Participant perspectives on the nature and extent of the problem of vandalism of petroleum products pipelines.

Introduction

This chapter presents the first of the three stages of the empirical research to assess the effectiveness of government security agencies in petroleum products pipeline security management in Nigeria. It draws on empirical research data to examine the nature and extent of the problem of vandalism of petroleum products pipelines. The chapter begins with the examination of how the interviewees perceive oil pipeline vandalism in terms of the nature of the phenomenon and its impacts on the socio-economic lives of Nigerians.

Subsequently, the chapter examines the perception of the interviewees on the skills possessed by the vandals in carrying out vandalism of oil pipelines. This chapter also presents the views of the respondents on the impact of the operational terrain on the activities of the oil pipelines vandals and the security forces. Finally, the chapter presents the respondents' views on the involvement of foreign nationals in oil pipelines vandalism in Nigeria and concludes with a discussion of the themes.

The nature of vandalism

This section of the report examines the perceptions of the research participants with regards to the definition and key features of oil pipeline vandalism. While three-quarters of the interviewees believed that there is no difference between pipelines vandalism, bunkering and oil theft, the remaining participants perceived vandalism of pipelines differently.   The

perception of those who believed that vandalism, bunkering and oil theft are the same are illustrated in the following comments;

Pipeline vandalism means the same thing as oil bunkering because both of them result in oil theft. Vandals destroy the oil pipelines to siphon petroleum products illegally while the illegal bunkers load the stolen crude to the barges or ship and sell same illegally. **NGO manager (17)**

As far as I am concerned, oil pipelines vandalism is a deliberate act of destroying oil pipelines with the aim of stealing the crude oil, while oil bunkering means filling a barge or ship with the stolen crude from vandalised pipelines and selling the crude oil either within Nigeria or outside the country. To me it is one and the same thing**. MOC manager (13)**

In the Niger Delta region, we know that oil pipelines are vandlised to enable the vandals steal crude oil from the pipes and illegal bunkering is the act of stealing the crude oil from the pipes to the barge. So what is the difference? That is why Niger Delta people use the terms to mean the same thing. **Community leader (15)**

It is a question of semantics. As far as we are concerned here, oil pipeline vandalism is the same thing as oil bunkering. Both refer to [the act of] illegally puncturing of oil pipelines to siphon the products for personal use or sales**. NSCDC Commander (5)**

The Niger Delta militants vandalise oil pipelines to sabotage the federal government. They are freedom fighters who want to draw the attention of the government to the plight of the oil producing communities. **(Community leader 15)**

Some participants held the views that oil pipeline vandalism is carried out to sabotage the government. Their views are presented below;

These agitators willfully and meticulously damage oil pipelines in order to disrupt oil supply. They carry out this activity to sabotage federal government which depends on oil petroleum products for government revenue. They believe that since the government cannot develop the oil producing communities with the revenue from the crude oil drilled from their communities, then the oil exploration and exploitation must be disrupted. **(Community leader 14)**

I can assure you that some of these vandals are neither oil thieves nor oil bunkers. They are angry with these oil companies that drill crude oil from their communities and refuse to develop these communities. They vandalise the pipelines that convey the crude from their communities to sabotage the oil companies. They believe that since the oil companies have refused to bring social infrastructures to the communities, their activities must be disrupted. **(NGO Manager 18)**

These militants continue to vent their anger by blowing up oil facilities.   They use explosive devices to destroy the pipelines for vendetta purposes, to sabotage the

government and at the same time to steal the crude and raise money to sustain their agitation. **NSCDC Commander (8)**

A few participants however perceived vandalism of oil pipelines as an act of terrorism. These perceptions are illustrated through the following comments:

These vandals are terrorists. Their operations are meant to intimidate the government and create fear in the oil producing communities. They have continuously made the people of the Niger Delta region to live in perpetual fear. They attack oil pipelines, attack the security forces with sophisticated weapons. To this extent they are terrorists and should be classified as such by the government. **JTF Commander (11)**

To me, vandalism is an act terrorism. The militants operate like any other terrorists; intimidating innocent citizens, kidnaping oil workers and creating fear during their operations, the same vandals who blow up pipelines facilities also engage in the kidnapping of oil companies' expatriates to collect huge ransoms from them. The Niger Delta militants are not different significantly from Boko Haram terrorists of the North Eastern part of Nigeria who also involve in kidnapping of women and children to extort ransom from their families or the Nigerian government. **NSCDC Commander (12)**

The majority of the participants viewed the three activities: - petroleum products pipeline vandalism, oil bunkering, and oil theft – as illegal activities perpetrated by the criminal elements in the Niger-Delta region of Nigeria. Their views suggest three stages within the

trafficking process. They believed that the three terms are used interchangeably despite there being differences between them.

The remaining interviewees however perceived the problem differently. Some participants within this group perceived that vandalism of oil pipelines is carried out to sabotage the government while others view oil pipeline vandalism as terrorism. Those who held the view that pipeline vandalism is an act of sabotage believed that it is perpetrated to sabotage the government so as to draw the attention to the plights of the oil producing communities that have been neglected by successive governments in Nigeria, despite the fact that oil and gas that sustains the Nigerian economy are derived from the communities. Those that viewed vandalism of oil pipelines as terrorism, argued that the militants' operation is not different from that of terrorists' modus operandi. They believed that the way militants instill fear on their targets, kidnap and extort money from their victims are typically terrorists' tactics and strategies.

With regards to the perception of the participants on the impacts of vandalism of oil pipelines on the socio-economic lives of Nigerians, all the interviewees emphasised the profound negative effects of vandalism of oil pipelines on the socio-economic lives of Nigerians. The participants believed that vandalism of oil pipelines leads to reduction in government revenue which impact heavily on government financial planning and revenue. About two-thirds of the participants emphasised on the economic effects while the remaining participants emphasised the negative effects of oil pipelines vandalism on human security, national security and the environment. Their perceptions are illustrated by the following comments:

Over the years, the Nigerian government constantly fails to fully implement annual budgets due to dwindling government revenue as a result of vandalism of oil pipelines and oil theft. It is a very unfortunate development. **NGO Manager (18)**

Most uncompleted projects that litter all nooks and crannies of this country are due to lack of funds to complete them. They [projects] were budgeted for in the annual Federal government budgets, but because of short fall in the revenue side of the budget, they were abandoned. These projects include roads, dilapidated school classrooms and hospitals projects. **Community leader (16)**

Vandalism tampers with infrastructure elements along the chain of natural gas production. The inability to evacuate liquids affects associated gas and non-associated supplies. **MOC Staff (14)**

A senior manager with an NGO in Akure Ondo state, believed that oil pipelines vandalism has resulted in the dead of many Nigerians who died through fire explosions during vandilisation of oil pipelines and scooping of the petroleum products from vanadlised pipelines. His perception is illustrated thus:

Many Nigerians have lost their lives in the process of scooping fuel from vandalised pipelines. Recently and to be specific, on October 13, 2018, about 50 Nigerians lost their lives in pipeline explosion that occurred in Aba, Abia state. They were scooping premium motor spirit (PMS) from a vandalized pipeline conveying petrol

form Port Harcourt to Aba. These vandals punctured the pipeline to intercept the flow of petrol and in the course of scooping the spilled product, there was an explosion and they [vandals] were burnt by the fire that engulfed the place. **NGO manager (18)**

According to the perspective of an NGO manager from Bayelsa state:

In all facets of the socio-economic lives of Nigerians, oil pipelines vandalism has impacted negatively. These include the loss of crude oil and revenue, loss of gas and the associated revenue and it impacts on the electricity tariff. The multiple costs of infrastructure repairs impacts negatively on the economy and above all, land and water pollution affect farming activities of the area negatively. **NGO Manager (17)**

A physical security consultant from Port Harcourt believed that vandalism of pipelines and oil bunkering has a serious negative impact on Nigerian national security. His perception is illustrated through this comment:

The oil pipelines vandals constitute a serious threat to the Nigerian national security. These vandals sell the stolen crude and use the proceeds to purchase illegal weapons. The weapons are brought into this country and are circulated illegally within the network of criminal elements leading to proliferation of illegal arms and ammunition. These arms are used to attack government security forces. **Physical security expert (22)**

Operational terrain

This part of the primary research programme examined the perception of the interviewees on the impact of the Niger Delta terrain on the activities of oil pipeline vandals in the region. The Niger Delta region covers about 70,000km and makes up of 7.5% of Nigeria land mass.

The interviewees were asked to give their perceptions on the impacts of the Niger Delta terrain in enhancing or inhibiting the success of the efforts to eliminate oil pipeline vandalism in the region. All the interviewees from the security forces asserted that the terrain of the Niger Delta region inhibits the efforts of the security forces to reduce or eliminate the activities of oil pipeline vandals. They believed that the large rivers, swamps, estuaries and the coaster areas generally restrict their tactical operations, while enhancing easy escape of the vandals after vandalisation of oil pipelines.

A commander of the anti-vandalism unit in Ondo state believed that most of the vandals are locals from the oil producing communities who are familiar with the local terrain and illustrated his view thus:

> Most of those involved in vandalisation of the pipelines in the creeks of the Niger Delta are the locals of the place, who were born and bred in the region, and are familiar with all the river channels, estuaries and distributaries. **NSCDC Commander (7)**

> The physical attributes of the region actually constitute a serious limitation in our efforts to checkmate these vandals. This region is dissected by a dense network of rivers and creeks creating a condition of delta-wide hydrological continuity. The river network conveys water through some estuaries into the Atlantic Ocean. This region is unique in Nigeria with over 180km of coast lines and continental shelf region and the

vandals are familiar with the terrain while we only struggle to adapt to the environment. **NSCDC Commander (12)**

An interviewee from NSCDC headquarters perceived that the terrain of the region is particularly very difficult for the people who are not from the southern part of the country. He gave as an example the security operatives from the northern part of Nigeria who were born and bred in the environment of Sahel Savannah with desert vegetation arguing that the riverine environment is an unfamiliar terrain.

> The Niger Delta has a difficult and complicated terrain for people like us who are not from here. For instance, I am from the Northern Part of Nigeria deployed here to serve in the Join Task Force (JTF), to fight pipelines vandals. Most settlements here [the Niger Delta region] are located at the head of the navigable limits of the coastal rivers or estuaries. The inhabitants are very familiar with the terrain. The vandals who are mostly from here can always escape through the network of these rivers and creeks when confronted by members of the Joint Task Force. **NSCDC Commander (7)**

> The Niger Delta is made up of 9 political states of Rivers, Bayelsa, Delta, Imo, Abia, Akwa Ibom, Ondo, Edo, and Cross River and are characterised by multiplicity of ethnicity. The inhabitants [of the region] include the ijaws, ogonis, ikweres, etches, ekpeyes, ogbas, obolos, isoko, nembes, okrikans, kalabaris, urhobos, itsekiris, ndomis, oron, bono etc. The unique characteristic of these ethnic groups is their ability to use water transportation system. Most of them live in small hamlets mostly in riverine areas

while only a minority lives in main towns such as Porthacourt, Warri, Asaba, Benin, Akure, Calabar, Uyo, Umuahia, Aba, Owerri and Yenagoa. **Community leader (16)**

An interviewee from an NGO opined that the concentration of oil and gas facilities, including oil and gas pipelines within the oil producing communities of the Niger Delta is one of the major factors that facilitate the illicit business of vandalism of pipelines and oil theft, because members of the communities have easy access to the facilities and continuously engage in the oil facilities vandalisation.

> The vandals have easy access to the pipelines and other oil facilities because these facilities are located within their communities. The vandals simply blow them up, siphon the crude and escape through the network of rivers, creeks and estuaries to the Atlantic Ocean where the products are discharged into waiting tankers and ship which sail off Nigerian territorial waters. **NGO Manager (9)**

An interviewee, a member of Security Joint Task Force opined that oil pipelines vandalism in the Niger Delta region may persist as long as most security personnel deployed to check the activities of the vandals are not drawn from Niger Delta region.

> It is practically difficult to eliminate this illicit business [oil pipelines vandalism], when most of us deployed to fight the militants engaged in this vandalism are not from here or familiar with the operational terrain. The vandals know all the rivers, creeks and estuaries and are very good in speed boats and swimming. They can navigate themselves to safety after their evil acts. Those of us who are not familiar with the terrain are very careful because they [the pipeline vandals] can always ambush us and overpower us. **NSCDC Commander (9)**

Some interviewees identified the settlement pattern in the Niger Delta region especially in the riverine areas as a critical factor that aid and abet the perpetuation of pipelines vandalism in the oil producing communities.

An interviewee from an NGO noted:

> The vast majority of settlement is largely rural communities and dispersed villages. These communities habitually shield the vandals in their villages. Some community leaders protect them by hiding them and resisting their arrests claiming that their youths are not thieves but freedom fighters who are agitating for resource control. **NGO Manager (17)**

Another interviewee from an NGO believed that the community leaders have not given the security forces the needed cooperation in their fight against vandalism of oil pipelines.

> As long as members of the local communities and particularly the community leaders do not cooperate and assist the security forces to flush out the vandals in their communities, oil pipelines vandalism may continue to persist. **NGO Manager (18)**

Skills/types of vandals

This section of the report examines the perception of the interviewees on the types and operational modality of the oil pipelines vandals. All the respondents believed that vandalism of oil pipelines is carried out at various levels by different categories of vandals. A participant who is a senior manager with an NGO from Akure in Ondo state of Nigeria believed that each type of vandals possesses unique skills and equipment that facilitate oil pipelines vandalism. He gives his perspective thus:

Each level of oil pipelines vandalism applies specific skills and tools in carrying out the illicit business. At the lowest level of pipeline vandalism in Nigeria, the vandals are mainly the unemployed youths from the local communities where the pipelines traverse. At this level of operation, the basic skill required is the ability to puncture the pipeline with local instruments such as chisels or hand drilling machines to access the petroleum products which spill to the ground from where it is scooped into drums, plastic containers and cans. The products are then sold in the black market to the ready buyers. **NGO Manager (17)**

Another participant, an NGO senior manager from Bayelsa state gave his perspective on the skills of the vandals as follows:

The unemployed youths and the poor locals in the communities traversed by oil pipelines have always been involved in pipelines vandalism and many have been victims of oil pipeline explosion. At this level, they don't require special skills to puncture the pipelines that pass through their communities. Let me give you a brief statistic between 2009 and 2013. Between December 2009 and January 2013, there have been at least six pipeline explosions caused by the activities of the unemployed youths and the poor within the communities. In December 2009, a pipeline explosion occurred in Arepo, Ogun state, in May 2010 a pipeline explosion also occurred in Amukpe, Delta State. This was followed by Idu pipeline explosion, Lagos state in December 2010. In May 2011, another explosion occurred in Amukpe, Delta state and this was followed by another explosion in Nembe, Bayelsa State. In October 1, 2012 an explosion occurred in Abia state and in 2013, Arepo in Ogun State witnessed another pipeline explosion. In all these the victims drill a hole on the pipelines and scoop the

products that spill from the vandalised pipes and these victims are the vandals involved at the lowest level of Oil pipelines vandalism. **NGO manager (18)**

The next category of oil pipeline vandals involves the educated youths sponsored by influential Nigerians.

> Some of these vandals are sponsored by very influential people in our society. Their sponsors include top military officers, senior police officers and top politicians who provide cover for them to engage in the illegal act. These vandals are skillful in breaking into oil industry equipment and steal petroleum products in large quantities and load them into tankers and barges for exports. **MOC Staff (14)**

A JTF commander from Ogun state operations believed that the second category of vandals employ more advanced skills, as detailed in the following quote:

> The second category of oil pipelines vandals are more sophisticated than the local vandals. They require special skills of tapping the crude oil from the well head or vandalised pipelines from which the crude oil is transferred into barges or tankers for sale. **JTF Commander (12)**

Their higher sophistication extended to the use of firearms and explosives, as noted by a JTF commander from Akwa Ibom State:

> Other skills required by the vandals in this category, are weapon handling skills. They are armed with weapons and explosives, and require the skills of weapon handling and the use of these explosive devices. **JTF commander (2)**

A community leader from Rivers state believed that a major critical attribute required of the vandals sponsored by top security officers and political leaders is loyalty. This perception is expressed thus:

The main attribute required of this category of vandals is absolute loyalty to their sponsors. They must be loyal to their sponsors and their godfathers. The vandals go extra miles to take dangerous oaths to conceal the identities of the sponsors when the foot soldiers are apprehended. These oath-taking rituals are conducted to ensure loyalty and confidentiality. **Community leader (15)**

The third category of the vandals is the Niger Delta militants whose primary aim was to sabotage the Federal Government of Nigeria and force them to negotiate for the purpose of developing the Niger Delta region.

A community leader from Rivers state believed that this category of vandals is the most dangerous and has dwarfed other categories in terms of frequency of their operations and the negative impacts they have created over the years. He gave his perspectives thus:

Within this category are over 20 militant youth organisations some of which are the Ijaw youth council, Niger Delta People Volunteer Force (NDPVF), Meinbutu Group, Movement for Emancipation of the Niger Delta (MEND), Front for Izon Survival and Hope, Niger Delta Vigilante, Martyr Brigade, Iduwini Volunteer Forces, and the Niger Delta peoples Salvation Front. This category of vandals possesses high level of technical skills in blowing up oil pipelines and siphoning the products. They are sophisticatedly armed and skillful in blowing up oil pipelines and terminals of oil producing companies. Their activities are concentrated within the creeks, swamps, waterways and high seas and their initial aim was primarily to press for socio-economic development, gainful employment, and improvement in social infrastructure, resources control and management in the Niger Delta region of Nigeria. **Community leader (15)**

A participant from an NGO in Bayelsa state perceived that:

> The militants' political struggle later changed to big time and unprecedented oil
> pipeline vandalism for the purpose of stealing the Nigerian crude oil. They blow the
> pipes using various devices and siphon the oil into barges and tankers ready
>
> for export through the high seas. **NGO manager (17)**

A commander of the anti-vandalism unit at the headquarters of NSCDC perceived that the vandals in this category demonstrate special and technical skills during their operations. He illustrated his perception thus:

> This class of vandals is very skillful in welding taps to pipelines for easy access to crude
> and condensates. They are also experts in connecting detonation devices and cables to
> riser platform for the purpose of blowing up the risers to enable them siphon crude oil
> in their barges and tankers. **NSCDC Commander (9)**

The views of the interviewees on the types of vandals suggest that there are three categories of oil pipeline vandals, each employing unique expertise in carrying out their illegal activities. The first category, according to the participants include the unemployed youths of the local communities where the pipelines traverse. The second category of the vandals are described as those sponsored for a fee by top military and police officers, including top political leaders, while the third category involves the Niger Delta militants who are the most sophisticated and presently have overshadowed other categories of the vandals.

Foreign nationals' involvement

This theme in this chapter is concerned with examining the interviewees' perception on foreign nationals' involvement in sustaining oil pipelines vandalism in Nigeria participants were asked

to give their perspectives on the role of foreigners and international community in aiding and abetting petroleum products pipeline vandalism in Nigeria. All the interviewees held the view that foreigners of different nationalities were actively involved in illegal bunkering and theft of Nigeria crude in active collaboration with local actors in oil pipeline vandalism.

The following comments illustrate the perceptions of the participants:

> Let me say that in Nigeria as at today, there are no private refineries in operation. The four refineries owned by Nigeria National Petroleum Corporation (NNPC) in Port Harcourt, Kaduna and Warri cannot engage in illegal refining of stolen crude and few illegal local refineries found in the creeks of oil producing communities have no capacity to refine more than 10% of the stolen crude. It means foreigners collaborate with criminal elements in Nigeria to refine the stolen crude outside the country. **Community leader (16)**

It is a known fact for us in the Niger Delta, that foreigners from many countries are involved in buying the stolen crude oil. Even some of our neighbouring countries are buying [crude oil] from the vandals. We know that buyers come from Ivory Coast and Benin. Even countries like Switzerland and United States have criminal cartels that buy stolen crude from Nigeria. **NGO manager (17)**

Aparticipant from the oil producing communities reported that some foreigners have been arrested and some are already convicted in Nigerian courts in connection with pipelines vandalism and oil theft.

> On April 25, 2017, the Nigerian Navy Ship (NNS) DELTA arrested 10 suspected oil thieves on board MT TECNE Vessel in Delta State. One of those arrested was a Nigerian while 9 were foreigners made up of one Indonesian, three Ghanians, one

Beninese and two Ukrainians. They were arrested while siphoning crude oil into vessels from a platform, a loading jacket belonging to Shell Petroleum and Development Company (SPDC), in Forcados Rivers State. **Community leader (16)**

Another community leader reported that some foreigners have been arraigned in Nigerian courts and some have been convicted in connection with pipelines vandalism and oil theft.

In July 2017, the court of Appeal sitting in Lagos [Nigeria] affirmed the judgment of Federal High Court in Lagos which sentenced nine foreigners to five years imprisonment each for stealing Nigerian crude oil. Among them were five Filipinos and four Bangladeshi. These people were earlier convicted on December 15, 2015 for stealing 3,423.097 metric tons of crude oil. **Community leader (15)**

An NGO interviewee from Bayelsa state reported that on December 19, 2017, fourteen (14) foreigners lost an appeal in Nigerian Court of Appeal, Lagos Division. These suspects were arrested by officers of the Nigerian Navy on March 27, 2015 along with their vessel MT Anuket Emeral loaded with stolen crude oil estimated at 1,738.087 metric tons. The convicts who are citizens of Russia, Ukraine, the Philippines and Japan were convicted by a Federal High Court sitting in Lagos after their arrest, investigation and trials.

Narrating further, he noted that 16 Ukrainians are currently undergoing investigation by the Nigerian Economic and Financial Crime Commission (EFCC) for theft of Nigeria crude oil.

Ukrainians were arrested on January 23, 2018 by the Nigerian Navy Ship NN6 SAGBAMA's Patrol team deployed for anti-crude oil theft and illegal bunkering operations around Odudu terminal, Port Harcourt. Both the foreigners and the vessels are investigated for their involvement in the illegal act. **NGO manager (17)**

A commander of the anti-vandalism squad of NSCDC from Rivers state reported that some arrested foreigners and their vessels have been released illegally after successful arrests, without being charged to the court or presented to the public.

> Let me inform you that those charged to the court are far less than those released illegally **NSCDC Commander (8)**

Another interviewee believed that the arrested foreign nationalities charged to the court are those who cannot pay the demanded bribe or who do not have the right connection in the military or with powerful politicians.

> Most of the foreigners charged to court are those who cannot "play ball" [give bribe] or those who are not connected in the military or protected by the corrupt politicians.
> **NGO Manager (18)**

Discussion

This theme commenced with the research findings on how the participants understood vandalism of pipelines. The findings demonstrated that all the participants knew what vandalism of oil pipeline meant especially among the Nigerians living in the Niger Delta region. The term petroleum vandalism of products pipelines is generally understood as illegal or unauthorized activities that involve the destruction of oil pipelines in order to siphon crude oil or its refined products for personal use or sales whether locally or intentionally. This understanding corroborates the views of Okafor & Okaniyan (2017); Onuoha, (2007); Adishi and Hunda, (2015-2016).

From the perspectives of the interviewees, vandalism of oil pipelines is also known as oil bunkering in the Niger Delta region and both terms relate to oil theft. This perception agrees

with the views of Okoli & Oringa (2013) who describe vandalism of oil pipelines as bunkering involving drilling into the pipeline to steal the products.

The findings also brought to the fore the negative impacts of vandalism of oil pipelines in different areas of socio-economic lives of Nigerians. Vandalism of oil pipelines has led to economic losses, leading to shortfall on revenue side of Nigerian annual budgets. The deficit in the expected revenue to the government result in the government's inability to fully implement her annual budgets leading to many uncompleted projects littered all over Nigeria. Other Negative effects of oil pipeline vandalism include, environmental degradation, pipelines explosions that has caused the dead of thousands of Nigerians who scramble to scoop spilled petroleum products from the vandalised pipelines.

Other socio-economic effects of vandalism of oil pipelines in Nigeria highlighted by this research include proliferation of illegal weapons resulting in increased criminality, confirming what is found in the extant academic literature; (Okoli & Sunday 2013; Amah & Edeke 2016; Boris 2015). Recently a report by Brookings Institutions, a nonprofit public policy organization in the USA has ranked Nigeria as a country with highest number of extremely poor people in the world in 2018, and similarly an economist from John Hopkins University in Baltimore, USA has also ranked Nigeria as the most miserable country of the world in march 2019. These rankings may not be fully attributable to oil pipelines vandalism; however, the negative effects of vandalism oil pipelines have contributed to the increased poverty level since the government has not been able to fully implement the annual budgets which are typically meant to tackle poverty and under-development in the country.

Oil pipelines vandalism has also been identified as threat to Nigerian National security through the proliferation of illegal arms and ammunitions which are usually received in exchange for stolen crude oil and smuggled into the country. This empirical finding corroborates the findings

in literature. Abolurin (2010) for instance argued that the proceeds from vandalism of oil pipelines and crude oil theft are used for purchase of illegal weapons which are deployed for more bunkering, theft and other crimes including armed robbery, kidnapping and murder.

The empirical findings highlight the difficult and complicated terrain in the Niger Delta region of Nigeria. The terrain of the region is made up of large rivers, swamps, estuaries and coastal areas. The region has 9 political states of Rivers, Bayelsa, Imo, Abia, Akwa Ibom, Ondo, Edo and Cross River states and is characterized by multiplicity of ethnicity. The empirical research confirmed the findings in the body of literature, that within the region are 800 oil producing communities, with over 90 oil wells and several oil and gas facilities. Within the region also are 600 oil fields of which 240 are off-shore and 360 are on-shore. This region also hosts about 6000 kilometers of pipelines which link some 275 flow stations and 13 oil export terminals. The Niger Delta region specifically covers an area of about 70,000 square kilometers and it is an ecological zone of large rivers, coastal areas, mangroves and fresh and swamp forest (Adishi & Hunga, 2017; Chukwujekwu, Chibuzor & Ekene 2014; Wilson 2014; Odalonu; 2016; Katsouris & Sayne, 2013).

The implication of this finding suggest that the Niger Delta regions a very difficult and complicated terrain which can only be easily understood by the locals and those brought up in the environment .It means the region has the terrain that is bound to inhibit the operations of the security forces who are not from the Niger Delta region and at the same time enhances the activities of the vandals who are mostly the locals or those brought up in the Niger Delta region.

At the early stage, vandalism of oil pipelines in Nigeria were mainly carried out by the unemployed youths operating mainly from the remote areas where the pipelines traverse (Alawode & Ogunleye, 2011), but overtime, illicit business transformed from the amateur stage

to a highly sophisticated venture which deploys advanced technology and equipment to blow up the pipelines and siphon the crude oil into ships and large oil tankers which ferry the products outside the country (Ikelegbe, 2005; Onuoha, 2008; Boris 2015). The findings of the research brought to the fore the three categories of actors responsible for vandalism of oil pipelines in Nigeria currently.

The first category includes the jobless youths and community leaders who try to earn a living through the illegal business, while the second category are the vandals sponsored by influential Nigerians such as top military officers, some corrupt senior police officers and highly placed politicians. The third category of vandals includes the dreaded Niger Delta militants who siphon the crude oil by blowing up the pipes using various explosive devices or instruments. The militants are also involved in kidnap-for-ransom crimes, and acts of sabotage. The militants are highly skilled in guerilla warfare and the use of state-of-the-art weapons.

Initially, the militants claimed that they were agitators whose primary goal was to struggle for resource control and the development of the Niger Delta. Overtime, the goals of the militants shifted from political agitation to pursuing economic benefits emanating from oil crimes, (Ikelegbe 2005; Onuoha 2008; Boris 2015; Okolo, 2010; Asumi, 2009; Okoli and Sunday 2013; Odalomu, 2016; Akpan 2016; Lopz-Lucia, 2015). The implication of the findings, and the categorisation of the major actors in vandalism of oil pipelines in Nigeria suggest that a single mitigation strategy may not be adequate in addressing the motivations, the threats and the operations of all the actors in the three identified stratifications.

It has also been revealed that the problem of vandalism of oil pipelines in Nigeria is compounded by the involvement of some foreign nationals in the illicit business. It was found out that while the Niger Delta youths are involved in local tapping and loading of stolen crude oil, foreigners from Eastern Europe, Russia, Australia, Lebanon, the Netherlands and France

play vital roles of financing, transporting and laundering stolen crude oil from Nigeria. The study also revealed that only 10 percent of the stolen products are locally refined in Nigeria illegally, suggesting that 90 percent of the stolen crude go to the criminal network outside the country, this is also confirmed in the body of literature; (Asuni, 2009; Sawyerr, 2013, Katsouris & Sayne 2013).

The empirical research also confirmed the findings in the body of literature that some foreign nationals were arrested and convicted in the Nigerian courts for their involvement in vandalism of oil pipelines and crude oil theft in Nigeria. These foreign nationals included; Russians, Philippines, Ghanaians, Georgians, Greeks, Ukrainians and Cameroonians. Their involvement according to the findings include shipping the crude oil to other countries, organizing documentations and payment and banking the oil money (Katsouris & Sayne 2013). The implication of these findings suggests that the government of Nigeria needs to urgently collaborate with foreign governments especially those countries whose citizens have been implicated in this illicit business, to effectively tackle this organised crime.

Chapter Five:
Participant perspectives on the strategies and tactics being employed to address the problem

Introduction

This Chapter outlines the findings from stage two of the empirical research; the strategies and tactics employed to address the problem of vandalism of oil pipelines in Nigeria. The chapter begins by examining the perception of the interviewees on deployment of security forces as a measure to combat vandalism of oil pipelines. Next, the deployment of physical protection measures is investigated. This is followed by examining the role of PSCs in the fight against vandalism of oil pipelines. The chapter also appraises the involvement of other stake holders in the anti-oil pipelines vandalism drive and concludes with a discussion of the findings.

Security Forces deployment

The perception of the participants on the impacts of deployment of security forces to contain the pipeline vandals provided a suitable starting point towards achieving the second objective of the study; the strategies and tactics employed to combat vandalism of oil pipelines in Nigeria.

All the interviewees reported that the massive security forces comprising the army, the navy, the Nigerian Security and Civil Defence Corps (NSCDC), and the Nigeria Police Force (NPF) have been deployed to fight oil pipelines vandals in the Niger Delta region of Nigeria. They believed that this strategy has significantly reduced the activities of the vandals.

The Federal Government has flooded the Niger Delta region with security forces to counter the activities of oil pipeline vandals. We support the government's action. If not for the presence of the military in our communities, the pipelines and other oil facilities would have been completely destroyed. **Community Leader (15)**

A community leader perceived that the presence of the Joint Task Force operations in the Niger Delta region helps immensely, not only in protecting the oil facilities but also in protecting the residents of the oil producing communities from the ravages of the pipeline vandals.

You can notice the presence of the security forces [Joint Task Force] in all oil producing communities. The Army, Air force, Navy, Civil Defence (NSCDC) and the police are working together to resist the militants [vandals] who are well armed. The vandals' primary targets are the pipelines, but also they do not spare any member of the community who dare to challenge them. Indeed members of the Joint Task Force always come to our rescue whenever there is a distress call. **Community Leader (16)**

All respondents noted that the oil companies operating in the Niger Delta region rely heavily on the military to carry out their protection activities. A multinational oil company senior manager in ExxonMobil in Akwa Ibom state believed that the oil companies could not have operated successfully without the presence of the military in the region. His perception is illustrated through this comment:

The military not only protect the oil facilities, but also provide security for the staff and contractors especially the expatriates who are targets of the militants for kidnap and ransom purposes. **MOC senior manager (14)**

Another multinational oil company senior manager from Shell Petroleum Port Harcourt opined that it would be practically impossible for any oil company to operate in Nigeria without the military and the police as his view illustrates:

The oil companies cannot operate without the security forces [protection]. Our offices are protected by the police. All our onshore facilities are secured by the military. The Joint task force provides escorts for the movement of the staff and logistics for onshore and offshore operations. There is no vehicle carrying our staff without military escorts attached. **MOC Staff (13)**

An NGO interviewee however described the "Militarization" of the Niger delta region as both a blessing and a curse.

The heavy presence of the security forces indeed deter the pipeline vandals and offer protection for the oil pipelines and other oil and gas facilities, however, they constitute nuisance, create fear and anxiety in the oil producing communities. Women and children living in the local communities are constantly harassed and sometimes abused by the operatives of the Joint Task Force who mostly are from other parts of the country**. NGO Manage (17)**

A participant from an oil producing community reported that the security forces in the Niger Delta region help to protect the oil pipelines, but also destroy the local community cultural affinities.

> In the Niger Delta region, the military are deployed everywhere especially within the oil producing communities. Indeed they help in checkmating the oil pipelines vandals. The other side of the coin is that our women and children are witnessing invasion of people with different culture who are members of Joint Task Force. Our children are copying their lifestyles and their religion. This is not good for us. **Community Leader (16)**

An interviewee from a multinational oil company reported that there are two categories of security personnel involved in the protection of shell Nigeria facilities. The First category comprises of officers of the Nigeria Police Force who are specially trained to guard shell Nigeria assets, facilities and staff. The other category is the Joint Task Force comprising the Army, Navy and Police who are deployed by the government to provide security in the Niger Delta and the Waterways.

> The Police that protects our facilities and staff do not carry arms, because they are specifically trained using Shell Nigeria's security management system and guidelines on the use of external security forces, developed in line with the United Nations (UN) norms and codes as well as the UN's Code of Conduct for law enforcement officials. However, the men of the Joint Task Force are armed because they are under the command and control of the Nigerian government. **MOC Staff (14)**

Reporting further on the Army deployment in the Niger Delta, a commander of the Joint Task Force in Ogun state has this to say:

> I can confirm to you that the Army authorities have deployed at least 3,000 soldiers so far to the Niger Delta region. This number excludes the massive deployment by the Nigerian Navy, the Nigerian Air force, the Nigeria Police Force and even our personnel; the Nigerian security and Civil Defence Corps (NSCDC). **NSCDC (12)**

Physical Security

This section of the primary research program examines the perception of the interviewees on the physical protection measures adopted in the management of petroleum product pipelines security in the Niger Delta. Although the literature has clearly indicated that most oil and gas producing countries around the world combine security forces and physical security measures in integrated form to protect oil and gas pipelines from terrorists and vandals, most interviewees express ignorance of presence of physical security measures that is currently deployed in the security management of vandalism of oil pipelines in Nigeria.

> What do you mean by physical security measures? Here in the Niger Delta, the government and oil companies utilise security forces and private security companies to protect pipelines and other oil and gas facilities. I am not aware of any technology deployment to protect oil facilities. **NSCDC (8)**

An interviewee, who is a physical security consultant expressed disappointment over what he called "lack of integration of elements of physical security with the security forces" by relevant authorities.

> There are many modern technologies available in the market to monitor and protect oil pipelines. These monitoring and surveillance solutions are simply ignored by our policy makers in the oil and gas sector. SCADA and Seismic sensor monitoring methods are utilised globally for detection of pipelines third party interference. There is nowhere in the Niger Delta or any other part of Nigeria where these technologies are utilised. **Physical Security Consultant (21)**

Another interviewee pointed out that the use of drones (UAV) to monitor oil and gas facilities in Nigeria has been in the pipeline over the years. According to him, the oil companies and the Nigerian Air Force have been planning to deploy drones to secure oil and gas installations. Till date such plans have not been implemented.

> There has been so much noise in the press by the Nigerian Air Force to deploy drones to monitor oil pipelines and provide surveillance along oil pipelines right-of-way. The same apply to some oil companies, especially Shell Nigeria. As I am talking to you, these plans are still in the pipelines, they are not yet implemented. **Physical Security Consultant (22)**

An interviewee from NGO observed that Nigerian has not attained the technical capability to deploy physical security elements to protect oil pipelines. He noted that to deploy drones for example, to monitor oil installations in Nigeria, it requires involvement of Nigeria Air Force, other partners outside the country and the office of the Chief of Defence Staff (CDS).

Presently, drones cannot be deployed to monitor oil installations in Nigeria. This is because of the technicalities involved. Nigeria Air Force must be involved, some other partners outside Nigeria have to be involved, clearance must be obtained from office of Chief of Defence Staff (CDS), and it is indeed, high security issues. **NGO Manager (18)**

A staff of a multinational oil company hinted that even when some oil companies express willingness to bring in some technologies such as drones and other surveillance equipment, the federal government security agencies continue to frustrate their efforts, citing security concerns.

When Shell Petroleum Development Company attempted to introduce oil pipelines surveillance technology to secure their pipelines, the security agencies frustrated them, arguing that such deployment could compromise National Security. **MNOC staff (13)**

A physical security expert from Lagos however opined that the inability of relevant authorities in Nigeria to use physical security elements such as drones to monitor oil installations including

oil pipelines in Nigeria is due to disagreement between the multi-national oil companies and the security agencies.

> Simply put, the multinational oil companies (MNCs) indeed favour the use of drones and other high technology devices to monitor oil and gas facilities in Nigeria, but security agencies such as the military and Department of State Security Service (DSS) are opposed to such measures citing national security concerns. **Physical Security Consultant (21)**

A physical security expert from Port Harcourt believed that both the Nigerian government and the multinational oil companies lack political wills to deploy technologies to protect oil pipelines. He believed that, there are many physical security service providers in oil and gas industry globally who could be invited to deploy technologies to complement security forces in the protection of oil and gas facilities. Neither the NNPC nor its subsidiaries and the multinational oil companies are willing to introduce modern technologies in oil pipeline security management.

> The oil and gas pipelines surveillance technologies are available everywhere globally. The vendors and service providers are there in the market, but both the NNPC and oil companies are not ready and willing to engage them. They seem to be satisfied with security forces deployment to protect oil and gas facilities including the oil pipelines. That is why we cannot win this war against the pipelines vandals. **Physical security consultant (22)**

Private security companies

This part of the primary research programme examines the role PSCs in mitigating oil pipelines vandalism in Nigeria. The participants were asked to give their views on the roles of PSCs in preventing vandalism of oil pipelines in Nigeria. Most interviewees reported that both the Federal government owned NNPC and the Multinational oil companies contract PSCs belonging to ex-militant commanders to protect their facilities including oil pipelines. Most of these security companies were formed by ex-militant leaders in the Niger Delta region and some states from the South-West after they have accepted the Federal government amnesty programme and denounced militancy. Some of the private security firms owned by the ex-militant leaders were identified as; New Age Nigeria Ltd belonging to factional leader of Oodua People's Congress (OPC) (Fasehun). Another factional leader of OPC Gani Adams owns Donyx Global concept, ATEF Nigeria Limited belongs to Asari dokubo, a former Niger Delta warlord. Others include gallery security services Ltd owned by Bibo Ajube, Bajeros Nigeria Limited, Close Body Protection Limited and Izon ibe security Limited, all belonging to the former militant leaders of the Niger Delta region of Nigeria.

> These private security companies [PSCs] actually belong to the former militant commanders and leaders who were actively involved in oil pipelines vandalism. When they embraced the amnesty programme of the federal government, they incorporate and operated these companies to enable them provide surveillance for the oil and gas facilities which are within their domain. **NGO Manager (17)**

A participant from oil producing community noted that the strategy of engaging former ex-militant leaders as private security providers and consultants in the Niger Delta is a positive step in the right direction. He pointed out that since the ex-militant leaders were the same people that coordinated attacks on oil pipelines and stole the crude oil, they are in a better

position to coordinate the protection of the facilities from those still engaging in oil pipelines vandalism.

> The idea of contracting former militant leaders and commanders as private security providers is a welcome development. Most of the vandals were operating under the command of the former militant leaders and commanders. The foot soldiers of the former warlords still engage in oil pipelines vandalism. Even the local oil pipelines vandals who are indigenes [locals] of oil producing communities are well known to the ex-warlords. It is therefore reasonable that the ex-militant leaders were brought in to check the illicit activities. Community leader **(16)**

About two-thirds of the interviewees however reported that the involvement of the PSCs belonging to the Niger Delta former warlords has not achieved the desired result. They argued that it is a question of "appeasing evil and evil men". These views are illustrated by these comments:

> What is the morality in awarding multi-billion dollars security contracts to the likes of Dokubo-Asari, leader of the Niger Delta people's volunteer Force with a contract sum of $9million annually? The same applies to Tompolo, a former warlord who earns $22.9 million annually from NNPC oil pipelines surveillance contract. Other ex-militant leaders; Boyloaf and Ateke-Tom were also awarded pipeline security contracts worth $3.8 million annually by Nigerian government through the NNPC. I believe that it is morally wrong to award these contracts with such huge amount of money to the repented criminals who were destroying our national assets and engage in bunkering. **Physical security consultant (22)**

These security contracts were awarded to the ex-militants leaders with the intention that the warlords would engage the militant youths in their communities to protect oil pipelines within their domains. This unfortunately was not the case because the ex-militant leaders failed to engage the militant youths in the pipeline security projects, thereby triggering further pipelines vandalism by the youth who felt cheated and exploited. **Community leader (15)**

An NGO manager from Akure believed that the security contracts awarded to the ex-militant leaders were meant to enhance community participation and human capacity development for the oil producing communities.

The original intention of the government was to engage the youths of the local communities where the pipelines are situated with the jobs of securing the pipelines, thereby reducing unemployment and at the same time proving security for the oil pipelines. The intention of the government has not been achieved. **NGO manager (18)**

A participant from Bayelsa believed that the poor implementation of this programme could be the reason for escalation in oil pipelines vandalism in the Niger Delta region. He pointed out that apart from the exploitation of the youths of the communities by the ex-warlords; the contracts are highly politicised leading to corruption and inefficiency which militate against the positive result expected. He pointed out as an example, the surveillance of the 87-kilometer Trans-Forcados pipelines (TFP) which was awarded to Ocean Marine Solution Limited.

The surveillance contract was initially awarded to certain operators; Heritage Energy Operational Services Ltd and Shore Line natural Resources. These companies adjudged to be performing satisfactorily surveillance for the 87-Kilometer Trans-Forcados pipelines. Through political interference, the contract was revoked and re-awarded to another company, Ocean Marine solution limited, at the sum of $18.8 million, about 5

times higher than the initial contract, contrary to extant rules. This action had triggered series of protests by thousands of youths and ex-militants from the host communities to Oil Mining License (OML) assets.The question being asked is "why award an already running contract to another company and the contract now inflated to about five times?" **NGO Manager (17)**

A physical security expert identified the lack of legal framework for proper integration of the operations of the PSCs with those of the government security forces as a factor which slows down the achievement expected of this strategy.

> Let me inform you that the main problem in the whole arrangement is that the private security companies are not formally integrated with the government security forces. They operate independently without any form of cooperation. The ex-militants still consider members of the Nigerian Armed Forces and other government security agents as enemies and hence there is no intelligence sharing between them. **Physical security consultant (22)**

A community leader illustrated the rivalry between the government security agencies and PSCs in the management of oil pipelines security in Nigerian using a case of the Topline security.

> There is no cooperation between the government security agencies and the private security companies in this task of protecting oil and gas facilities in Nigeria. For instance, when Topline security was suspended from providing surveillance for Atlas Cove pipelines, the NNPC directed the Nigerian Navy as well as the personnel of the Nigerian Security and Civil Defence Corps (NSCDC) to take over the patrol of the pipeline. This action further deepened the suspicion between the government security forces and the private security companies. **Community leader (15)**

A Supervisor with PSC claimed that companies belonging to the former militant leaders could be a good source of intelligence to the security Joint Task Force if there is cooperation among them because the ex-militants working in the private companies have access to information in the local communities.

> We can provide reliable intelligence to members of JTF. We are from the local communities; we hear their language and we can effectively interact with the indigenes [locals] of the local communities. Before the militants carry out attacks on oil pipelines, we usually have information and we can pass same to the military commanders. The problem here is that we don't have a good working relationship with the government security forces because of mutual distrust among ourselves. **PSC Supervisor (19)**

Another interviewee explained that apart from the government security forces and PSCs, local vigilantes are recruited by some community leaders from the oil producing communities to complement the Joint Task Force and the PSCs. He stressed that members of the vigilantes are also ex-militants who accepted amnesty programme of the Federal Government.

> Apart from the members of the Joint Task Force and the private surveillance companies belonging to the ex-militants, members of the vigilantes are very critical in the fight against the vandals. Don't forget that these vigilantes were also involved in militancy and oil pipelines vandalism before they accepted the amnesty programme of the government. They are drawn from the oil producing communities. They are familiar with the terrain and even know those involved in oil pipelines vandalism. **NSCDC (11)**

A participant from an oil producing community noted that some oil-producing communities effectively assist in the fight against vandalism of oil pipelines by recruiting and engaging vigilantes from their local communities.

> Some communities recruit vigilantes who provide surveillance over the oil facilities in their neighbourhood. The vigilantes provide timely information to the Security Joint Task Force regarding the activities of the vandals. These communities in my opinion are very useful in this campaign, they should be encouraged by the government.
>
> **Community Leader (16)**

Other stakeholders' involvement

This theme in this chapter is concerned with the extent to which other stakeholders in oil and gas sector in Nigeria are involved in petroleum products pipelines security management.

Most participants identify these stakeholders as; the Niger Delta states' governors, Nigeria National Petroleum Corporation (NNPC) and its subsidiaries which include Department of Petroleum Resources (DPR), Petroleum Products Pricing Regulatory Agency (PPPRA), Petroleum Products Marketing Company (PPMC), Petroleum Equalization Fund (PEF) and Nigeria Liquefied Natural Gas Ltd (NLNG); the major oil companies include Shell Petroleum Development Company (SPDC), AGIP oil Co, Texas Overseas Petroleum Company Nigeria ltd, ExxonMobil, ConocoPhilips, TransAtlantic, Esso & Nexen Inc. The oil producing host communities are also identified as major stakeholders in this anti-vandalism fight. However, about two-thirds of the interviewees reported that most stakeholders in the oil and gas sector have not shown sufficient commitment towards the protection of oil and gas facilities. The view of a senior manager with an NGO in Bayelsa state illustrates this perception:

Presently the main player in this fight [anti-Vandalism drive] is the Federal government of Nigeria who deploys security forces to the Niger Delta region to curtail the oil pipelines vandalism. Other stakeholders are paying lip services. **NGO Manager (17)**

A physical security expert from Lagos expressed disappointment over what he perceived as apparent lack of seriousness by the Multinational Oil Companies in Nigeria to actively get involved in oil pipelines security management.

I am really disappointed by the Multinational oil companies. Even though most of them have the capacities to bring in technologies to protect oil pipelines, they bluntly refused to do so. Most of them depend on the government security forces to protect the pipelines, their facilities and even their staff. Few of them engage services of ex-militants to protect their facilities. **Security consultant (21)**

A leader from an oil producing community perceived that the state governors from the oil producing states who are strategic stakeholders in the fight against oil pipelines vandalism cannot do much to protect oil facilities in their domains because they do not have control over military and other government security forces who are under the direct command and control of the federal government.

I cannot blame the state governors of the 9 oil producing states. These governors do not control the security forces. Even those who establish local vigilantes cannot provide arms for them because they are not permitted by the law. **Community leader (15)**

A participant from an NGO in Akure Ondo state, however gave a contrary view. He opined that oil producing states in Nigeria usually receive extra 13% revenue as derivation fund from

the Federation account. This extra revenue or part of it could be utilised to provide logistics and welfare for the security forces deployed to their states, thereby boosting their moral in the anti-vandalism war. Only very few of these states assist in this direction. In his view:

The state governors of the oil producing states have the capacity to contribute effectively towards eliminating oil pipelines vandalism in their respective states. These governors receive huge sums of moneys as 13% derivation funds from the Federation accounts every month. They appropriate huge sums of money annually as security votes. They could deploy part of this fund to equip members of joint task forces deployed to their respective states to boost the anti-vandalism war. As I speak to you, I am not aware of any substantial contributions made by most of these governors. **NGO Manager (18)**

A community leader from Akwa Ibom state perceived that apart from a few multinational oil companies such as Shell Petroleum Development Company and ExonnMobil which have shown some levels of commitments in protecting oil and gas pipelines, through their investments in oil and gas pipelines security, most multinational oil companies have not made sufficient efforts to protect oil and gas facilities.

Let me inform you that apart from Shell [SPDC] and Mobil [ExonnMobil], I am not aware of any other multinational oil companies that have shown adequate interest in introducing any measures to protect oil pipelines. Most of these oil companies depend

heavily on the government security forces to protect their oil facilities and staff. **Community leader (16)**

About one-third of the interviewees commended some oil-producing communities in their contributions towards combating vandalism oil pipeline. These participants believed that a few oil-producing communities are cooperating with security agencies to flush out pipeline vandals from their communities. The comments below illustrate these views

> Some community leaders are cooperating with the government to eliminate oil pipeline vandalism. They help in sensitising their youths on the need to stop vandalising oil and gas facilities in their communities. **NGO Manager (18)**

> In recent times some chiefs in oil producing communities are exposing the oil pipeline vandals who are hiding in their communities. This action is aimed at deterring others engaged in the illicit acts. **NGO Manager (18)**

A participant from an NGO however reported that some communities in the riverine areas of the Niger Delta are actually shielding their youths who engage in pipelines vandalism from arrest. Some of these youths are even encouraged to set up illegal refineries to refine the stolen crude oil.

> Some communities in the riverine areas are shielding the pipeline vandals from arrest by the security forces. They even encourage their militant youths to set up illegal

refineries to refine the stolen crude, claiming that the oil [crude oil deposit] is their God-given natural resources.   **NGO Manager (18)**

This comment seems to suggest that some oil producing communities actually aid and abet the illegal activities of vandalism of oil pipelines, by protecting oil pipelines vandals from arrests and encouraging their youths to set up illegal refineries for the purpose of refining stolen crude oil in their communities.

Discussion

The theme examined in this section demonstrates the perception among the participants about the strategies and tactics that have been employed to address the problem of vandalism of oil pipelines in Nigeria, the phenomenon that is consistent with the findings in the wider body of literature.

The empirical research findings suggest that there is a massive security security forces deployment in the Niger Delta region. These findings corroborate the findings in the extant academic and grey literature that successive Nigerian governments have increased security forces deployment to the Niger Delta region of Nigeria over the years to contain vandalism of petroleum products pipelines. Such deployments include the military which culminated in the deployment of a JTF in 2008 comprising the Nigerian Army, the Nigerian Navy, Nigeria Air Force the Nigeria police force, and paramilitary agencies (Adishi & Hunga, 2017; Chatham House, 2013; Lupoez-Lucia, 2015)

The massive deployment of security forces to the Niger Delta region of Nigeria was generally perceived by the participants as a positive strategy that could checkmate the phenomenon of vandalism of petroleum products pipeline in Nigeria. This is because members of the armed forces of Nigeria are well equipped to confront the militants who are sophisticatedly armed.

These deployments are codenamed differently such as Operation Delta Safe, Operation Crocodile Smile 1, 11, &111; and Operation Tsare Teku, each operating in deferent axis of the Niger Delta region. For instance, Operation Crocodile Smille 11 was carried out by troops of the 6th Division, Nigeria Army, Port Harcourt, Rivers State, and the operation covered the four states of Akwa Ibom, Bayelsa, Delta and Rivers. Operation Awase was also launched in the South-West region of Ogun-Lagos axis, particularly Arepo where illegal oil bunkering and pipeline vandalism are regular occurrences. Most of these operations typically operate as Joint Task Forces comprising the Army, the Navy, the Air Force the Nigerian Police, the Nigeria Security and Civil Defence Corps (NSCDC) and other paramilitary agencies.

Physical security deployment as a strategy for combating vandalism of oil pipelines in Nigeria seems to be absent in the overall strategy adopted to counter the illicit business in Nigeria. Although the wider body of literature has identified technologies such as acoustic impact detection system, optic fibre system, unmanned aerial vehicle (drones), SCADA, and seismic sensor monitoring devices as some of the technologies deployed for protection of oil and gas pipelines globally, (US General Accounting Office 1991, Agbakwuru 2011; Udofia & Joel 2012, Keri 2015; Cooper 2006;Eze, Nwagboso, Newman & Georgakin 2015), the Nigerian government and the multinational oil companies (MNOC) seem not to have considered these

technologies as viable option in the oil pipeline security architecture in Nigeria citing National security concerns as the reason.

The research findings brought to the fore the critical roles of PSCs commonly referred to as "oil pipelines surveillance companies", owned and operated by the former militant leaders in the Niger Delta region. These findings corroborate the findings in the literature. According to Afred and Adeshi (2014, p.52);

> The violence in the Niger Delta has generated to a level that former war Lords and militants are now discretely and officially given crude oil facilities and sometimes personnel to protect. The Federal Government of Nigeria, the major multinational oil firms and even the local industry players like the servicing companies are neck-deep in the business of ensuring that they are protected by warlords and former combatants. The $383 million security fund and the $200 million community development expenditure that SPDC is spending per annum are actually protection and security fees

The participants viewed the engagement of PSCs in the oil pipelines security management programme as an effective strategy in mitigating petroleum products pipeline vandalism, because the service providers (contractors) who are typically the ex-militants leaders and former warlords, have the capacity to confront their former colleagues who are still engaging in the illegal activities. The participants however believed that the politicisation of the security contract and the exploitative tendencies of the ex-warlords render the strategy ineffective.

The research participants generally identified many potential stakeholders that should be involved in the fight against vandalism of oil pipelines in Nigeria. The Nigeria National Petroleum Corporation (NNPC), the governors of oil producing states of the Niger Delta region, the multinational oil companies and the oil producing communities are all major stakeholders that should come together in a coordinated manner to confront the evil of vandalism oil pipelines. Presently these institutions have not demonstrated sufficient interest in contributing towards eradication of vandalism of oil pipelines.

Chapter six: Participant perspectives on the strengths, weaknesses and ways of improvement of the current measures

Introduction

In the previous chapter, the research identified some measures deployed to contain the problem of vandalism of petroleum products pipelines in Nigeria. This chapter examines the perspectives of the participants with regards to the strengths, weaknesses and ways of improvement of these measures with particular emphasis on security forces deployment and PSCs.

Strengths of the current measures deployed in oil and gas pipelines security management

About 40 percent of the interviewees believed that the security forces deployment to the Niger Delta region of Nigeria to curb vandalism oil pipelines are effective in protecting oil and gas facilities.

> The deployment of security forces in the Niger Delta region has deterring effects on the oil pipeline vandals, especially those involved at the local level. I mean the youths and the women from the communities where the oil pipelines pass through. A mere sight of the security forces deters them from carrying out the illegal activities. **Community Leader (16)**

Pipeline vandalism carried out at the local level by the women and youths cannot operate where we are. They dare not come out for fear of arrest and prosecution. **NSCDC Commander (8)**

In terms of combat capabilities, two joint task force commanders from Lagos and Akwa Ibom states respectively believed that members of the security forces are far more superior to the militants whenever there are confrontations.

Whenever there are direct confrontations between the vandals and the JTF personnel, the vandals are usually overpowered with high casualties on their side, forcing them to escape through the river channels in the creeks. **JTF Commander (11)**

Nigeria has highly trained armed forces personnel comprising the Nigerian Army, Nigerian Navy and the Nigerian Air Force. Members of the Joint Task Force are drawn from these personnel including Nigeria Police, NSCDC and the DSS. These personnel receive periodic trainings that give them advantage over the militants. That puts the JTF members in advantaged position whenever there is direct confrontation. **JTF Commander (2)**

A commander with NSCDC anti-vandalism squad in Delta state believed that JTF comprising the Nigeria Army, Nigerian Navy and the Nigerian Air Force possess superior arms and ammunition in sufficient number that can successfully neutralise the oil pipeline vandals at any point in time.

The Nigeria armed forces are well equipped with modern arms and ammunition. We also have adequate number to repel the militants. Here lies our strength as a response force against these criminal elements called militants who vandalise and steal Nigeria crude oil. **NSCDC Commander (5)**

A joint task force commander from Akwa Ibom State believed that the militants can easily be defeated by the Nigerian armed forces because they (the militants) do not possess adequate arms and ammunitions to match those of the joint task force.

The militants can easily be defeated by our military force. Although the vandals typically brandish sophisticated weapons for media publicity, they do not possess these weapons in sufficient quantity to match the Nigeria military. Besides, the militants lack adequate military training and discipline. **JTF commander (2)**

Another interviewee from an NGO believed that the personnel of NSCDC whose main responsibility is to protect Nigeria critical National infrastructure are deployed everywhere that oil and gas pipelines pass through in the country.

The presence of NSCDC personnel everywhere is a positive development. Men and officers of the corps are deployed in large numbers to communities through which pipelines traverse and this number puts the vandals in these communities in serious check. With this arrangement, the response time is always short anytime there are security incidents involving vandalism oil pipelines**. NGO Manager (17)**

A multinational oil company senior manager believed that the greatest strength of the JTF lies in their usual quick response to kidnapped victims of the militants as the following comment illustrates:

As far as I am concerned, the security forces response to kidnap for ransom victims remains the greatest strength of the government response force. Whenever any of our expatriates or any of our staff for that matter is kidnapped by the militants, the response of the JTF is always swift and result oriented. If not for the JTF, I doubt if we would still have expatriates with us**. MOC Manager (14)**

Another senior manager with a multinational oil company in Akwa Ibom State perceived that military escorts are indispensable in the movement of oil companies' staff and logistics in the Niger Delta.

Let me inform you that without the military escort, oil companies would close their operation in the Niger Delta. All our expatriates are escorted by heavily armed members of the joint task force. Even the logistics for both on-shore and off-shore operations are escorted by heavily armed men of the Nigeria armed forces. **MOC Manager (14)**

A community leader believed that the response force of the government has been able to get rid of some illegal refineries in the creeks of the Niger Delta.

Without doubt, the JTF [security force] has succeeded in destroying many illegal refineries built by the vandals to refine stolen crude in the creeks and the riverine areas. The JTF has succeeded in taking the war to the hide out of the vandals. **Community leader (15)**

A commandant of the anti-vandalism squad at the headquarters of NSCDC believed that the NSCDC has fulfilled its mandates of protecting critical national infrastructures especially oil pipelines in Nigeria.

Without doubts, I can tell you that the NSCDC has created positive impacts in the current war against oil pipeline vandals. Many arrests are made on a daily basis; many vandals including foreign nationals and their vessels have been impounded and prosecuted. Drums of stolen PMS from the vandalized pipelines have been seized and destroyed. **NSCDC Commander (10)**

All the participants believed that technologies and equipment have many advantages over human security, especially in areas of detection and delay of the intruders. They however believed that the government of Nigeria has not fully utilised these technologies in the security management of petroleum products pipelines. The comments below illustrate this view:

Some detection technologies commonly deployed globally to provide surveillance on oil and gas facilities are very effective. An example is the deployment of unattended ground sensors which provide covert, reliable way to detect unusual movement along

pipelines. This technology has not been deployed in this country. **Physical security consultant (21)**

The commonest surveillance technology in use is Unmanned Aerial Vehicle usually referred to as drones. The strength of this technology in monitoring pipelines right-of-way is generally acknowledged globally to be very effective. **Physical security consultant (22)**

The respondents believed that detection capabilities of security measures are usually achieved better through technology than security forces. The comments below illustrate this perception:

Security forces patrol along the right-of-way of the oil pipelines has its limitations when it comes to the issue of detection. It means they have to keep vigil around the clock on the entire lengths of the pipelines. This is practically difficult to achieve through human elements hence, the critical need for technology and equipment. **MOC manager (13)**

Electronic Surveillance is more effective than ground patrol when it comes to detection of pipeline vandals. **NSCDC commander (8)**

Early detection of intruders such as these vandals can only be achieved effectively through electronic surveillance and intrusion detection system. There are many effective detection technologies which include sabotage warning and detection of pipeline illegal hot tapping; Unmanned Aerial Vehicle and wireless sensors network are generally deployed for early detection of intruders along the pipelines right of way.

As I speak to you, these technologies are not considered in our pipelines protection strategy. **Physical Security Consultant (22)**

Globally oil and gas pipelines are being monitored and secured with the RadioBarrier System. RadioBarrier can be used as a standalone or self-contain solution for large perimeters' protection as well as integrated with part of multi-layered systems. The deployment of this system as an early warning detection provides security with time needed for safety reaction to potential threats. **Physical Security Consultants (22)**

Interviewees were asked to give their perceptions on what they considered as strengths of PSCs contracted to provide surveillance for oil pipelines. Their views are presented below:

The major strength of the pipelines surveillance companies is that their owners and operators who are ex-militants leaders have good local knowledge of the riverine areas and water channels. With this knowledge, they can better secure pipelines, repel pirates and apprehend oil thieves than government security force. They also create jobs for thousands of youth not covered by the amnesty programme of the government. **Community leader (15)**

A commander of NSCDC at the headquarters believed that pipelines surveillance contracts awarded the ex-war lords in the Niger Delta is a strategy meant to appease them. The statement below illustrates his view:

The idea of awarding oil pipelines surveillance contracts to ex-militant leaders is basically giving spoilers what they want so that peace can reign. **NSCDC Commander (8)**

The view of an NGO manager seems to suggest that the programme has positive effects on socialization of the ex-militants.

To me, it is a socialization programme which is directed at socializing the ex-militants to adhere to established norms. **NGO Manager (18)**

A community leader believed that the programme is effective in engaging idle youths who were involved in pipelines vandalism

The oil surveillance contracts have positive effects on the restiveness of the Niger Delta region. The idle youths who were formally recruited as militants to vandalise oil pipelines are now recruited to productively protect the pipelines with monthly salary. **Community leader (15)**

Some contract agreements make provisions for the contractors to protect the pipelines and bear the cost of repairs if and when there is any breach to the pipeline. A typical example is the NNPC contract with Ocean Marine Limited (OMS) which compels the contractor to bear the cost of repairs if and when there is any breach to the pipeline. **PSC supervisor (20)**

My perception on the issue of contracting former warlords and oil pipeline vandals to protect the same facilities they were targeting is that the ex-militants have the ability to persuade the vandals from tampering with the pipelines under their coverage. **Physical security consultant (21)**

A community leader believed that the PSCs contracted to provide surveillance on oil pipelines enjoy more cooperation of the local communities than the government security forces usually regarded as strangers by the oil producing communities. His comment demonstrates this view:

The surveillance companies are owned and operated by our sons. They enjoy local cooperation and legitimacy. They obtain intelligence from the local community about the movement of the vandals. That is why the vandals hardly tamper with pipelines under their protection. **Community leader (16)**

Weaknesses of the current measures deployed in oil pipelines security management

About 60 percent of the interviewees believed that the massive deployment of the security forces in the Niger Delta region to combat oil pipelines vandals has not achieved the desired result in the region. This perception is illustrated by the following view.

> The response capability of the JTF is ineffective because timely response requires better detection and delay of the adversary. The entire response operations of the security forces are typically reactive and therefore most times the security force personnel arrive after the crime has been committed. **Physical security consultant (12)**

A community leader believed that the operational terrain of the Niger Delta constitutes a limiting factor to the effectiveness of the security force operations.

> Members of JTF are drawn from different parts of the country. They are not familiar with the Niger Delta terrain. They are strangers in the oil producing communities. They are not familiar with the estuaries and the river channels that the militants use in accessing oil and gas facilities and escaping after their operation. Their response capability is therefore limited. **Community leader (16)**

An interviewee from an NGO perceived that constant bombing of the oil pipeline vandals in civilian areas result in civilian casualties and human right abuse. His perception is illustrated by the following comments;

> Whatever successes the military seems to have achieved are eroded by human rights abuses. The military constantly bomb the vandals in civilian areas thereby causing

civilian casualties and also engage in human rights abuses. This is another weakness of the Federal government response force. **NGO Manager (17)**

Note that the excessive force used by the Nigeria Military in fighting the pipeline vandals increases the level of violence by triggering attacks and counter attacks resulting in human rights casualties. **Community leader (15)**

The more the military attacks the more effective, aggressive and resilient the militants become. The militants believe that the oil is drilled from their own soil and therefore they must resist the "oppressors" with everything within them. **NGO Manager (18)**

A community leader believed that the military force has not established local legitimacy with the oil producing communities. His perception is illustrated by this view:

The JTF members are total strangers from other regions of Nigeria. Members of the oil producing communities do not trust them. The JTF members do not enjoy any form of co-operation because they have not established local legitimacy. This slows down their success in the war against the vandals. **Community leader (15)**

An NGO manager opined that part of the problem in the current military campaign against oil pipeline vandalism is the inability of the military to respect the rule of engagement.

The Military does not comply with the rules of engagement in their operations against pipeline vandals. They apply maximum force even in the communities dominated by armless civilians resulting in civilian casualties and human rights abuse. **NGO Manager (18)**

A JTF commander from Akwa Ibom state perceived that a major weakness of government security agencies in the war against vandalism of oil pipelines is that the operations typically are not intelligence driven.

Intelligence is very critical in detection capability of any security operation. When you don't have actionable intelligence, you will not know where the next target is and therefore effective response is hindered. Intelligence is not considered a priority in this operation. **JTF Commander (2)**

An NGO manager believed that corruption is another major weakness of the government security forces in the Niger Delta. This view is demonstrated by the following comment:

Many officers and men of the security forces are corrupt. Some of them are informants to the militant leaders. They turn their attention to the right when the vandals are operating on the left. At the end of the day, the corrupt officers and men receive their share of the proceeds of the crime. **NGO Manager (18)**

A commandant of NSCDC believed that the involvement of some top military officers and political leaders in vandalism of oil pipelines and oil theft weakens the operations of the security forces because the same political leaders and top military officers would always direct their subordinates on actions to take. This view is demonstrated by this statement:

The major hindrance to the success of military operations against oil pipeline vandalism is the involvement of top military hierarchy and political leaders in the illicit business. They sponsor some of the vandals who enjoy their protection and cover during the illegal operations. **NSCDC Commander (5)**

A JTF commander operating from Ogun state perceived that distrust among men and officers of the JTF is another weakness of the security forces deployed to curb vandalism of oil pipelines.

As Members of the JTF we do not even trust ourselves. Everyone is a suspect. Members do not share intelligence for fear of leakage to the vandals. How do you expect such operations to achieve desired success? **JTF Commander (12)**

With regards to the PSCs' weaknesses, about one third of the participants believed that oil pipelines surveillance contract companies have some inherent weaknesses that slow down the anti-vandalism war. Their views are expressed through the following comments:

A major weakness of private security companies is that they are not armed. The law does not permit them to carry arms. How do you expect unarmed security officers to confront dangerously armed vandals? **NSCDC commander (5)**

Some private security company's operatives are involved in vandalism of oil pipelines and oil theft. This is a perception of a manager with multinational oil company as illustrated by this comment:

I can confirm to you without any fear of contradiction, that some employees of oil pipelines surveillance companies are involved in pipeline vandalism and oil theft. The contract awarded to Topline security is a good example. The NNPC accused the surveillance company of vandalizing the pipelines they were meant to protect. The contract was subsequently suspended. **MOC Manager (13)**

An NGO manager perceived that private surveillance companies' involvement in oil pipelines security amounts to appeasing evil men.

The whole arrangement is meant to appease evil men. No matter how much you try to appease them, this cannot change their criminal disposition. They will definitely strike at the least opportunity. **NGO Manager (17)**

A perception expressed by about two third of the participants is that the selection process of surveillance companies for contract awards is marred by corruption and political considerations and not guided by efficiency and professionalism consideration. This perception was illustrated by a comment from a physical security consultant based in Port Harcourt:

The process of selecting these PSCs is highly politicized and corrupt. Most times, it does not follow due process. Take for instance the Trans Forcados pipelines surveillance contract awarded to Ocean Marine Solutions (OMS). This company belongs to a Nigerian businessman who is a friend to the National Chairman of All Progressive Congress, the governing Political Party in Nigeria. This contract award has already attracted several criticisms from members of the public especially the youths from the local community. **Physical Security Consultant (21)**

A Joint Task Force commander believed that a major weakness of PSCs in oil pipelines security in Nigeria is their refusal to share intelligence with the government security forces. The view below illustrates this perception:

The private security companies' operatives protecting oil pipelines facilities in Nigeria are not willing to share intelligence with the government security forces. These operatives are recruited from the local communities; they are in possession of actionable intelligence that could help in this war against pipelines vandals. It is very regrettable that they do not normally pass such intelligence to the JTF. **JTF Commander (12)**

A supervisor with a PSC perceived that a major weakness of their organization is the concentration of surveillance activities along the pipelines under the contract awarded to them and nothing else.

Our area of concentration is restricted to the pipelines covered by the contract award. We are not concerned about what happens outside our area of concentration. **PSC Supervisor (20)**

A physical security consultant from Lagos believed that oil pipelines surveillance companies do not have trained professionals within their employment and do not also deploy technologies in their operations.

> Most pipeline surveillance companies recruit their staff from the oil producing communities where they operate. These youths are not trained. Moreover the companies do not deploy technologies in their surveillance operations. **Physical Security Consultant (21)**

Ways of improvement

After discussing the strengths and weaknesses of the current anti-vandalism measures familiar with the participants, the research sought to obtain their perspective in areas of improvement needed. The responses were varied but mostly reflected what were believed to be the weaknesses of the current measures.

A physical security consultant from Lagos believed that a major area needed for improvement is to detect and possibly delay the oil pipelines vandals before they carry out the illegal activities.

> To improve on the current measures aimed at curbing oil pipeline vandalism, strategies must be developed to detect and delay the vandals until the security forces arrive and disrupt their operations. I believe this can be achieved either though the deployment of physical security elements or robust and actionable intelligence. **Physical Security Consultant (21)**

It is therefore imperative that a legal framework that would facilitate the deployment of technology such as drones for monitoring the pipelines right-of-way in Nigeria be put in place. Moreover, the intelligence agency of the government of Nigeria should be deployed to the Niger Delta region to boost the JTF with actionable intelligence.

A community leader from Rivers State believed that another way of improvement necessary to enhance effective operations of the anti-vandalism measures is to deploy locals from oil

producing communities, who are familiar with the riverine terrain as members of JTF. His comment illustrates this view:

> Most members of JTF posted to the Niger Delta currently do not understand the terrain of the riverine areas. They cannot achieve much when they don't know the river channels used by the vandals to access the oil facilities, and escape through after vandalism. The complicated terrain is well known to those brought up in the area. To improve on the current measures therefore, I suggest that most members of JTF deployed to the Niger Delta should come from the area especially the riverine areas. **Community Leaders (15)**

An NGO manager from Bayelsa State believed that the current measures can be improved if the military in the Niger Delta stops human rights abuses on the Niger Delta people. The participant illustrates his view thus:

> Let me inform you that if the members of JTF in the Niger Delta operate within the rules of engagement in the conduct of their operations in the Niger Delta, there will be peace. Presently, the use of excessive force and human right abuses trigger move violence and vandalism. Measures must be put in place to check the excesses of the security forces in the Niger Delta region. **NGO Manager (17)**

The Federal government of Nigeria seems to emphasise on security forces as a sole- response to oil pipeline vandalism in Nigeria. This is a perception by a physical security consultant from Rivers State. To improve on the current strategy, the participant believed that:

> There must be combination of methods and methodology. It is practically difficult to police for instance 500 kilometers of pipelines using security forces.

Physical security elements have to be integrated with the human security. For example, if drones or other intrusion detection systems detect vandalized pipelines, response force must intervene immediately to repel the vandals. **Physical Security Consultant (22)**

There must be massive deployment of technology if we must contain this illicit business of oil pipelines vandalism. **Physical Security Consultant (22)**

A participant who is an NGO manager from Ondo state of Nigeria believed that corruption has always been a major factor hindering effective growth of the oil and gas industry in Nigeria. He perceived that inorder to improve on the current strategies and tactics, corruption must be reduced to the lowest minimum if not completely eliminated. His perception is illustrated thus:

We must find ways of dealing with corrupt military officers and politicians who are sponsoring oil pipelines vandals to sabotage the Nigerian people. A strong institutional framework must be put in place to deal with corrupt military officers or government officials who sponsor oil pipeline vandals. **NGO Manager (18)**

A private security company supervisor who is a participant from Delta State believed that another way of improvement on the current measures is for the Nigerian government to permit PSCs involved in pipelines protection to carry fire arms and ammunition. He believed that:

The private security companies contracted to provide surveillance for oil pipelines have the capacity to contain pipelines vandalism if they are permitted to carry arms. Some of us were vandals before we decided to embrace amnesty

programme of the government. If the Nigerian constitution is amended to permit those of us engaged to protect oil and gas facilities to carry arms, I can assure you that pipelines vandalism will end. This is because we know the terrain and the strategies of the vandals and we know how to trail them if the escape. **PSC Supervisor (19)**

A Joint Task Force commander from Ogun State perceived that the bad elements within the JTF that aid and abet the vandals must be identified and dismissed to pave way for improved performance of the JTF.

One of the ways of improving the performance of JTF is by removing the bad eggs among us. This can be achieved through thorough screening of officers and men deployed to serve in the JTF. **JTF Commander (12)**

A participant from Lagos believed that proper training and orientation of the youths from the local communities on how to protect the oil pipelines can improve their performance.

All the youths from the local communities engaged by the surveillance companies should be properly trained on basic security operations. **NSCDC Commander (10)**

An NGO manager from Bayelsa State believed that co-operation between PSCs and members of JTF could improve the current performance of the JTF in the fight against vandalism of oil pipelines.

If there is cooperation between PSCs and JTF, the performance of the security forces will improve greatly. PSCs have good actionable intelligence on the vandals, because both the vandals and the communities' youths are members of the same communities. If there is cooperation between the security forces and operatives of the PSCs, their joint efforts would put an end to the activities of the vandals in the oil producing

communities especially the riverine areas where most of the oil and gas facilities are sited. **NGO Manager (17)**

A physical security consultant from Lagos believed deployment of technology and equipment by the PSCs could enhance their performance greatly.

PSCs should deploy technologies and equipment to monitor and protect the pipelines assigned to them. Surveillance, detection and delay equipment and technologies will greatly improve their performance in the current fight against pipeline vandalism. **Physical security consultant (21).**

Discussion

The theme examined in this section brought to the fore what are considered to be areas of strengths and weaknesses of the current measures deployed to curb the menace of vandalism of petroleum products pipelines in Nigeria. The empirical research results are found to be in consistent with the findings in the wider body of literature. Foremost in the current measures considered to have contributed positively towards eradication of vandalism of petroleum products pipelines in Nigeria is the deployment of security forces in the Niger Delta region. Although the actual number of the security personnel deployed to the Niger Delta region is not available in public domain for strategic reasons, there is however, noticeable presence of the security forces in every oil producing community in the Niger Delta, giving rise to what is commonly referred to "the militarisation of the Niger Delta region". The deployment which commenced in the early 2004 resulted in the presence of members of armed forces of Nigeria and other security personnel in all the oil producing communities of the Niger Delta region. This deployment was triggered by the increasing threats of militants' attacks on the oil pipelines in the region. The presence of the JTF provides deterrence against oil pipeline vandals as many vandals at the local communities' level could not operate freely for fear of attacks and

arrests by the members of the security forces. As cited in the literature, one of the measures put in place by the Federal Government of Nigeria to curb the menace of vandalism of oil pipeline is the increased military presence in the Niger Delta, which culminated in the deployment of the JTF in 2004 (Adishi & Hunga, 2017; Chatham House, 2013; Lopez – Lucia, 2015). The participants emphasized that the presence of JTF deter the oil pipeline vandals especially the women and youths who are involved in oil pipeline vandalism at the local level.

Another positive effect of the JTF is that they are well trained and are provided with sufficient arms and ammunitions compared with the militant vandals who also possess sophisticated weapons but in limited quantity. With the personnel of JTF been well trained and been fully equipped with sufficient arms and ammunition, the security outfit has the capacity to defeat the militant in open confrontation.

The deployment of NSCDC personnel in 2007 to all areas covered by 5001kilometres of oil pipelines also strengthens the anti-vandalism war in Nigeria. Although the exact number of the personnel deployed is not made available by the authorities concerned, it is common to find personnel in most area covered by oil pipelines in Nigeria. As cited in the literature, one of the ways NSCDC responds to vandalism of oil pipelines is "preventive diplomacy", which entails the deployment of men and officers of the Corps to the Communities through which pipelines traverse and also patrolling the pipelines on daily basis (Abolurin, 2010, p.52)

Another important area of strength of the government security forces in the Niger Delta region is their involvement in the rescue of kidnapped oil workers and expatriates usually abducted

and held for ransom by the militants in the region. The military is also involved in the escort of most staff and logistics of the multinational oil companies, thereby creating conducive environment for the oil companies to operate in the Niger Delta. Boris (2016 pp.004-008) and Mboho & Udousoro (2014) have enumerated in the body literature the achievements of the JTF in the current anti-vandalism drive.

The research participants also identified the contributions of PSCs towards curbing vandalism of oil pipelines in the Niger Delta. Most of the owners and operators of the PSCs are former warlords in the Niger Delta. These ex-militants have a good knowledge of the creeks of the Niger Delta where most oil and gas facilities are sited; hence they have the capacity to resist the pipeline vandals who operate within the creeks.

Moreover, the engagement of the ex-militants as private security providers creates employment opportunities for thousands of Niger Delta youths who were hitherto engaged in oil pipelines vandalism and oil theft. The participants were quick to note that the private surveillance companies owned and operated by the ex-militants enjoy co-operation from the oil producing communities since they are typically engaged from the respective communities.

Militarisation of the Niger Delta region has its weaknesses. One of the weaknesses is that the presence of military personnel in large numbers in the Niger Delta increases tension among the locals from the oil producing communities for fear of confrontation between the militants and the security forces which usually trigger further violence which could result in further vandalisation of oil pipelines. The situation is worsened because most of the operatives of JTF

are drawn from other parts of the country. The oil producing communities consider this deployment as an attempt by the Federal Government to oppress them and continue to deprive them of their God-given natural resources.

Another area of weakness in the current measures is that the JTF personnel who are mostly from other parts of Nigeria do not have good knowledge of the terrain of the local oil producing communities, especially the creeks where most oil facilities are sited. The vandals on the other hand operate from the creeks and are familiar with all the river channels which they use as escape routes after successful operations.

The empirical research also brought to the fore a major weakness of the current measure, which reveals that the JTF operations are not driven by actionable intelligence. The absence of credible intelligence makes it difficult for the military operations to be proactive. This results in reactive security operations resulting mostly in recovery of stolen crude instead of prevention of attacks on the pipelines and other oil and gas facilities.

Another weakness of the current measures indicates that the JTF personnel are usually accused of human right abuses such as intimidation of the locals, extortions and indiscriminate arrests and illegal detention of youths of the region who criticise their illegal activities (refer to table 2.6 which presents the recorded human right abuses between 1990 and 2006). This stems from the fact that the military does not seem to comply with the rules of engagement. Moreover, it is widely believed that some corrupt military officers are involved in sponsoring some of the oil pipelines vandals. This corroborates the views of Odalomu (2016) and Lopez – Lucia

(2015). The same corrupt top military officers provide cover for the vandals who escape with the stolen crude oil to the high seas where the products are exported to international market.

Another theme that featured in the empirical research is the role of PSCs in oil pipeline security management in Nigeria. A fundamental weakness of this measure is that the security guards deployed to provide surveillance on oil pipelines are not usually armed. This renders their protection of the oil pipelines not effective, because they cannot confront the heavily armed militants. This situation is worsened by the political considerations which often determine those to be awarded the security contracts at the expense of professionalism and competence.

Having identified the strengths and weaknesses of the current measures from the participants perspectives, the research also brought to the fore ways of improvement of these measures.

The foremost identified way to improve on the current measures based on the participants perceptions is an urgent need to deploy technologies and equipment alongside the security forces in an integrate manner. There is also a need to identify the locals of Niger Delta region of Nigeria within the Nigerian Armed Forces and deploy them to serve in the JTF in the region.

In order to stop human rights abuses by the military personnel in the Niger Delta, the oversight authorities which include the military high command in Nigeria, the army committees in the Nigerian Senate and the House of Representatives, should ensure that the military operations are guided strictly by rules of engagement and that the military must be directed to conduct their operations within the specified rules.

There should be a legal framework that authorises the private security guards contracted to protect oil pipelines to carry arms, given the sensitive nature of their assignment. The major private security providers contracted to provide surveillance on the oil pipelines should be required to deploy detection and surveillance technologies and equipment along the pipelines right-of-way. These measures would assist in detecting intrusions along the right-of-way and swift intervention accordingly. In practical terms, Wireless Sensors Network (WSN) is a technology that could report third party intervention in real time. Moreover, specially trained armed guards patrolling the pipelines right-of-way could also assist in detecting such intrusions.

Chapter seven: Conclusion

Summary of findings

Petroleum resources are the primary source of revenue and particularly foreign exchange earnings in Nigeria, also the petroleum products majorly come from the Niger-Delta region of Nigeria where all the oil explorations and exploitations currently take place, hence most oil and gas facilities are located within the region. Oil pipelines are the safest and most cost-effective means of transportation of petroleum products and hence they are deployed globally to move oil and gas products both within the countries and across the national borders. As a major oil producing country in the world, Nigeria also make use of oil pipelines to transport her petroleum products to refineries within the country and to all the off-shore terminals (Alawode & Ogunleye, 2011; Adejor, 2014; Onuoha, 2008; Okoli & Orinya 2013).

This research project sought to assess the effectiveness of government security forces involved in the petroleum products pipeline security in Nigeria. The project is a case study research focusing primarily on the Nigeria Security and Civil Defence Corps (NSCDC), a paramilitary agency of the federal government of Nigeria established specifically to protect Nigeria critical national infrastructure, including petroleum products pipeline. In order to contain the rising incidence of oil pipelines vandalism in the Niger Delta region of Nigeria, the federal government further deployed members of the armed forces of Nigeria, comprising the Nigerian army, the Nigerian Navy and Nigerian Air force to the region which

commenced in 2004. Also deployed are personnel of the Nigeria Police Force and also contracted PSCs also referred to as oil pipelines surveillance companies.

This research extended its scope beyond the NSCDC in order to obtain more comprehensive perspectives. The study embarked on extensive review of extant academic and grey literature, spanning over four years period. The literature explored three major themes including the nature and extent of vandalism of oil pipelines the strategies employed to address the problem, the weaknesses and strengths of the measures, including ways of improving the current measures.

Recocognising that vandalism of oil pipelines remains a major threat to petroleum products pipelines in Nigeria, the research identified three categories of actors responsible for vandalism oil pipelines in Nigeria. The first category involves the local actors from the oil producing communities who are mainly jobless youths, who try to earn a living through the illegal business. The second category encompasses those vandals sponsored by top military officers, senior police officers and highly placed politicians for a fee, while the third category are the Niger Delta Militants who siphon the crude oil by blowing the pipes using various devices.

The interviews indicated that some foreign nationals from Eastern Europe, Russia, Australia, Lebanon, the Netherlands and France are involved in vandalism of oil pipelines and oil theft in collaboration with the local vandals. The foreign nationals help in facilitation of exportation of the stolen crude oil off the Nigerian territorial waters and also sourcing

illegal buyers outside Nigeria. The research confirmed that vandalism of oil pipelines has serious negative consequences on various sectors in Nigeria. These negative effects include massive economic losses, environmental degradation and a threat to national security. The research findings suggest that despite some positive impacts made by the security forces in reducing the scourge of vandalism of oil pipelines, the illicit business is still flourishing and is on the rise. It found that vandalism of oil pipelines is a multifaceted phenomenon requiring a holistic approach rather than the current tactics and strategy which emphasies solely on security response.

The participants' accounts recognised that the massive deployment of security forces to the Niger-Delta creates tension amongst the people of the region which leads to further escalation of violence in the region, culminating in more attacks on oil and gas facilities. The response of the military to the escalated violence often results in more attacks on the militants who typically operate from civilian-dominated areas thus resulting sometimes in civilian casualties and human rights abuses. The interviews indicated that the deployment of technology and equipment such as intrusion detection system, surveillance technologies such as unmanned aerial vehicle (drones) has not been given serious consideration in the current strategy adopted by the Federal government to combat the pipelines vandals. It has been found in body of literature, that most oil and gas producing countries globally deploy equipment and technologies in conjunction with security forces to protect oil and gas facilities. Such technologies and equipment include access control technologies, intrusion detection system, aerial and ground surveillance of oil pipelines corridor (US General Accounting Office, 1991; Partomak, 2004; Ngbokwuru 2011; Zabyelina & Kustoria, 2015).

Having recognised that there exists a wide gap between the Niger Delta oil producing communities and the security forces deployed to the communities, the interviews indicated that this gap exists because of suspicion and lack of trust between the Niger Delta region and the federal government of Nigeria that deploys these security forces. The oil producing communities still view the members of the joint task forces (JTF) as agents of the federal government sent to their region to continue to suppress them and deny them of their God-given natural resources.

The participants' accounts brought to the fore the role of PSCs in the oil pipelines security management. The interviews indicated that these PSCs which are owned and operated by the Niger-Delta ex-militant leaders and commanders have the potentials of significantly reducing the threats of pipeline vandals, but are weakened by corruption and deliberate compromise by the owners and operators of the companies. According to the research participants, the operations of the security forces in the Niger Delta region against pipelines vandals are not intelligence driven because the government's main intelligence agency, the Directorate of State Services (DSS), has not been formally deployed along with other security agencies for the purposes of combating vandalism of oil pipelines. Besides, the apparent lack of cooperation between the security forces and the oil producing communities significantly deprives the security personnel access to local information on the vandals who live and operate from the oil producing communities.

Implications of the findings

There is no doubt that the Nigerian government is determined to reduce drastically, if not totally eliminate vandalism of petroleum products pipelines in Nigeria. This determination is expressed through several measures embarked upon by the government, including the massive deployment of government security forces to the Niger Delta region, where oil pipelines vandalism is prevalence and seems to have attained endemic dimension. The efforts of the security forces have resulted in several arrests of the vandals, the oil vessels that carry the stolen crude, and destruction of several illegal refineries in the creeks of the Niger Delta.

However, this research has cast doubt about the capability of the government to substantially curb vandalism of oil pipelines through the measures currently adopted to tackle the menace. Although it is not possible to generalise the findings of this research beyond the context of the experience of the participants within the case study organization and other research participants, which indeed is an acknowledged limitation of a qualitative research, there are however many points under discussion that have reflected the findings in the body of extant academic and grey literature. Used together therefore, the findings may be viewed using "moderatum generalization" (Bryman, 2013, p.406), in that they be seen as instances of a broader set of recognizable features that are transferable to other contexts if not directly generalisable.

As earlier noted, the findings of this research suggest that vandalism of oil pipelines in Nigeria is a multifaceted and multidimensional phenomenon which requires a holistic approach. The research identified three categories of actors responsible for oil pipelines vandalism in Nigeria. To effectively combat holistically the three categories of oil pipelines vandals, there must be a combination of methods and methodologies and critical appraisal of the motivations of each category so as to apply specific solution to each of the adversaries.

The first category has been identified as jobless youths who vandalise the pipelines that pass through their communities, by puncturing the pipes and siphoning the contents into drums, jerry-cans and other containers which is sold in the local black market to earn a living. The second category is made-up of the vandals sponsored by top members of the Nigerian armed forces, the upper echelons of the Nigeria Police Force and senior members of the political class. This category enjoys full cover of the government security forces when carrying out the illicit activities. The third class comprise of several Niger Delta militant groups who vandalise oil pipelines to sabotage the Nigerian government primarily and also engage in crude oil theft which they sell to international buyers illegally, and sometimes exchange the crude for sophisticated weapons. The militants describe themselves as freedom fighters demanding for resource control and regional autonomy.

The implications of these findings suggest that an approach which depends solely on security response strategy may not be able to address holistically the motivations of these categories of actors involved in vandalism of petroleum products pipelines. Each of these adversaries requires unique strategy to deal with the threats. While it is possible to engage the jobless youths through job creation and provision of social amenities such as schools

and hospitals, such solution may not be applicable to the sponsored vandals or the agitators. Arising from this argument, the security response may successfully check the militants but may not be effective in tackling the vandals who are sponsored by some senior military and police officers including some top political leaders.

It is worthy to note that the feeling of anger and demand for attention motivates the militants to interrupt oil pipelines. Militarization of Niger Delta region therefore creates more tension and increases the feeling of anger by the militants. The response of the militants to military invasion trigger further attacks on oil and gas facilities compelling the security forces to apply excessive forces resulting in human rights abuses and civilian casualties. The dead of civilians in the course of military operations further trigger more attacks on oil and gas facilities and the cycle continues.

The involvement of foreign nationals in vandalism of oil pipelines and oil theft suggests that the Nigeria government may not unilaterally succeed in the efforts to eradicate or reduce pipeline vandalism to the bare-minimum without active collaboration with foreign governments, to help determine who the buyers of Nigerian crude oil are, and through what fiscal institutions the proceeds of the sales of the stolen crude are being laundered. One of the findings of the research suggests that the "war" against pipelines vandals in the Niger Delta may not be intelligence driven due to non-deployment of relevant intelligence agencies to compliment the military and other security forces. Moreover, there is lack of cooperation between the security forces and the oil producing communities. It means therefore that the security forces may not be able to synergize with the local communities

for intelligence sharing that could help in detection and possible prevention of vandalism of oil pipelines

The research findings also suggest that the deployment of physical security elements such as technology and equipment has not been given serious consideration in the current anti-vandalism strategy. This implies that the critical roles of physical security in the protection of assets, which include deterrence, detection and delay of adversaries are not factored into the petroleum products pipelines security management strategy. It is worthy to note that these technologies and equipment are combined with security forces in integrated form to protect oil and gas pipelines in most oil and gas producing countries globally.

The research also identified PSCs as major players in the protection of oil pipelines in Nigeria. The private security providers are mostly ex-militant leaders and warlords in the Niger-Delta region who have embraced the amnesty programme of the Federal Government. The strategy of awarding the pipeline security contracts to the ex-militants who are also locals of the oil producing areas of the Niger Delta is intended to appease the ex- warlords who still muster great influence over those currently engaged in the illicit activities; and also provide jobs to the youths of the oil producing communities. The strategy failed to achieve the desired purpose due to corrupt practices prevalence in the contract award processes and lack of sincerity on the part of the ex-militants, who turnaround to get involved in vandalizing and stealing crude oil from the same pipelines they were meant to protect.

Key recommendations

There is a substantial programme of work needed to achieve complete eradication of vandalism of petroleum products pipelines in Nigeria. This research recommends 11 key actions that the federal government of Nigeria could implement to eradicate the illicit business or at least reduce it to the bare minimum. These recommendations are categorised into short- and long-term recommendations:

Short-term recommendations

1. Personnel in the Nigerian Armed Forces who are from the oil producing communities of the Niger Delta in Nigeria should be identified and deployed as members of JTF to the region, especially the creeks and the riverine areas. This measure should aim at populating the JTF with security operatives who are familiar with the local terrain of the riverine areas where oil and gas facilities are sited predominantly, and are frequently vandalised.

2. The participant's accounts and the findings in the literature indicated that vandalism of oil pipelines and concomitant oil thefts are believed to be sponsored by very powerful and well-connected cabals including some senior military personnel, senior echelons of the Nigeria Police Force, and some top political leaders. It is recommended that thorough investigations should be carried out into the allegations. If confirmed, the perpetrators should be identified and apprehended by the government, charged to court and ensure speedy trials and possible convictions.

3. It is also proposed that the intelligence agents of the Nigerian Government be deployed to the Niger Delta region to provide adequate intelligence to the JTF operatives for proactive security operations. The official intelligence agency in charge of internal security in Nigeria is the Department of State Services (DSS). The personnel of this agency are specifically trained to provide intelligence through the office of the National Security Adviser, to tackle all internal security issues that affect the Nigerian state. The agency operatives are skilled in all forms of intelligence gathering and production. It is therefore the recommendation of the research that personnel from this agency be deployed to serve as members of JTF for the purpose of providing intelligence for the operations against vandalism of oil pipelines in Nigeria.

4. The Military officers deployed to the Niger Delta region should comply with the rules of engagement, and any military officers involved in human rights abuses should be sanctioned to serve as deterrence to others. Section 217(2) (c) of the 1999 constitution of Nigeria and Section (8) (1) and (3) of the Armed Forces Acts, Laws of the Federation of Nigeria (LFN) 2004, provide code on conduct and rules of engagement for the armed forces in internal security. Among the provisions of the rule of engagement is the principle of minimum force and proportionality which must be applied at all times; whenever operational situation permits; every reasonable effort shall be made to control the situation through measures short of using force.

5. It is recommended that the major players in oil and gas sector in Nigeria should learn best practices from other oil and gas producing countries. The best practices within the context of this recommendation connote the pipelines protection solutions deployed by developed oil producing countries. Such countries include the United States of America (USA), where

pipelines operators in conjunction with oil and gas companies established Information Sharing and Analysis Center (ISAC) where Intelligence is generated to help secure oil and gas facilities against terrorism. Also, in Russia, in addition to the specialized paramilitary units tasked to protect oil and gas pipelines, security experts at Skichel Corporation; a Russian security company, developed several solutions for pipelines security using security detectors manufactured by the corporation. The detectors are deployed in conjunction with the specialized paramilitary forces to provide security for Russian oil and gas pipelines. The Kenya pipelines companies deploy private security firms which work closely with the nation's intelligence professionals to identify and defeat threats before approaching oil pipelines perimeters (Parfomak, 2004; Vatansever, 2017; Odhiambo, Maito & Onkware 2014). Other countries include the UK and Turkey. Major players in the Nigerian oil sector should sponsor their employees and consultants to such countries for training on how best to protect oil pipelines in Nigeria.

6. For proper oversight of PSCs, the regulatory agencies must have the capability to monitor constantly the activities of the private surveillance companies operated by the former militant leaders. The Nigeria National Petroleum Corporation (NNPC) who awarded the security contracts to the ex-militant's leaders on behalf of the Nigerian government, should set up a committee to oversee the day-to-day operations of the security companies to ensure that they comply with the terms of the contract.

Long-term recommendations

7. It is proposed that an integrated solution be adopted in the security management of petroleum products pipelines. Consequently, in addition to the massive deployment of

security forces, the federal government in collaboration with the multinational oil companies should invest massively in technology, for surveillance of oil facilities, including unmanned aerial vehicle (drones) surveillance equipment, which have the capacity to detect and report third party tampering with the pipelines for quick response. This solution requires long term planning and putting some measures in place. These measures include an alternative power supply with the capacity to provide constant power for the operations of the equipment and technologies. Efforts must be made to identify the technologies that can easily be deployed and the experts that would be involved in installations and operations. Such experts could be sourced from either foreign security service providers or locally.

8. It has been established that military operations can neither eradicate vandalism of oil pipelines nor win peace and security in the Niger Delta without establishing local legitimacy through hearts and minds campaigns that address the core issues at the heart of the Niger Delta crisis. These core issues include: - youth unemployment in the region, environmental degradation due to oil exploration activities, lack of social amenities and poverty. It is proposed that the government of Nigeria should evolve alternatives away from a sole-security response to vandalism of oil pipelines. The government should actively be involved in developing local institutions and economies such as provision of social amenities, increase employment of the youths from the oil producing communities and pursue other programmes aimed at empowering the youths and taking them away from criminal activities.

9. It is recommended that the Nigeria National Petroleum Corporation (NNPC) in collaboration with the oil companies should recruit and train youths around the oil pipelines areas and deploy them as first and primary line of defence to protect the pipelines since it is difficult to police a long-distance pipeline using security forces. Research should be conducted to determine the training needs of the youths and the modality of recruitment of the youths.

10. Stolen crude oil from vandalised pipelines passes through the creeks of the Niger Delta usually at night with the aid of small vessels that transfer the crude into cargo ships anchored at international waters. This research recommends international collaborative efforts that may involve the use of helicopters and gun boats on international waters. In addition, foreign governments should assist in determining the buyers of the Nigerian stolen crude oil and through what fiscal institutions the proceeds are being laundered. This recommendation requires long term planning and consultation with relevant foreign governments for effective implementation

11. Finally, it is recommended that the Federal Government should issue licences to the indigenous companies from oil producing communities to establish modular refineries in the creeks of the Niger Delta. A modular refinery is a prefabricated processing plant that has been constructed on skid-mounted surface, with each structure containing a portion of the entire refining process plant connected together by interstitial piping to form an easily manageable process. It is relatively easier to fabricate and erect. This measure should aim at refining crude oil legally by the oil producing communities and discouraging the vandals from building illegal refineries which is the current practice in the creeks of the Niger Delta

region. This recommendation requires enabling legislation from the Nigerian Parliament for legal backing and also modality on establishment and ownership structure.

Options for further research

The research outcome showed that pipelines are vandalized at the local level by the youths and the unemployed living within the communities where the pipelines traversed. Further research could investigate the modalities of recruiting and training the youths of these communities to form the first line of defence against vandalism of oil pipelines.

According to the research participants, illegal refineries are built in the Niger Delta creeks by the vandals who refined stolen crude oil illegally, and sold the refined products to local consumers. This study recommends that further studies be conducted on how to 'legalise' the illegal refineries by establishing modular refineries in the oil producing communities and giving the ownership structure to the communities to discourage oil pipeline vandalism.

The role of physical security has been brought to the fore by this study. The interviews indicated that the Nigerian authorities have not considered physical security deployment as an acceptable strategy for oil pipeline security management, despite its usefulness in some oil and gas producing countries. Further research should be carried out on the role of equipment and technology in the oil and gas pipelines security management using the United States as a case study; and recommending the findings for application in Nigeria.

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Appendix 1 - Semi structured interview
INTERVIEW SCHEDULE

Research Topic:

Assessing the effectiveness of government security agencies in Petroleum Products Pipelines Security Management in Nigeria: A case study of Nigeria Security and Civil Defence Corps (NSCDC)

Background

1. Can you tell me a bit about your current role and your Professional background?
   - Current department
   - Level of management
   - Roles in the host community
   - Previous roles

Nature and extent of the problem of petroleum pipeline vandalism in Nigeria

2. What do you see as being the distinctive features of petroleum product pipelines vandalism in Nigeria?
   - Nature of vandalism
   - Sophistication of the vandals
   - Motivation of vandals
   - Equipment deployed by vandals
   - Network of vandals
   - Skills of vandals
   - Operational terrain
   - Foreign government dimension

Strategies and tactics being employed to address the problem

3. What are the main measures adopted by your organisation to combat pipeline vandals?
   - Surveillance of the petroleum products pipelines
   - Patrol of the pipelines routes
   - Welfare of security personnel
   - Deployment of high-tech equipment
   - Access control
   - Host communities sensitisation
   - Engagement of private security companies (PSC)
   - Engagement of vigilantes

Strengths and weaknesses of the measures

4. What do you see as being the main strengths of these measures in combating the vandals?
   - Detering vandals
   - Detecting vandals
   - Delay vandalism
   - Respond to the vandals
   - Neutralise their attacks
   - Intelligence sharing
   - Interagency cooperationm
   - Community involvement
   - Ease of use

5. What do you see as being the main ways which these measures could be improved?
   - Coverage
   - Robustness
   - Resilience to evolving offender techniques
   - Intelligence sharing capabilities of security agencies
   - Skills of security agents
   - External factors being addressed
   - Involvement of foreign government
   - Involvement of international security institutions
   - Host communities engagement

6. How effective do you believe your organization/community to be in oil pipelines security management in Nigeria?
   - Lessons that can be learned from elsewhere?

7. What do you see as being the main barriers to be overcome to enable improvements to be made in the effective protection of petroleum products pipelines?

Additional comments
8. Is there anything you would like to add that we haven't already covered?

Appendix 2: Letter of ethical approval

UNIVERSITY OF PORTSMOUTH

Professor Matthew Weait,
BA (Hons) MA MPhil DPhil FAcSS
Professor of Law and Society
Dean of the Faculty of Humanities and
Social Sciences

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Faculty of Humanities and Social
Sciences
Park Building
King Henry I Street
Portsmouth PO1 2DZ

T: +44 (0)23 9284 8484
port.ac.uk/fhss

FAVOURABLE ETHICAL OPINION (with conditions)

Name: Christopher Udoaka

Study Title: Assessing the effectiveness of government security agencies in Petroleum Products Pipelines Security Management in Nigeria: A case study of Nigeria Security and Civil Defence Corps (NSCDC)

Reference Number: FHSS 2018-058

Date: 17/07/2018

Thank you for submitting your application to the FHSS Ethics Committee.

I am pleased to inform you that FHSS Ethics Committee was content to grant a favourable ethical opinion of the above research on the basis described in the submitted documents listed at Annex A, and subject to standard general conditions (*See Annex B*).
With this there are a number of ethical conditions to comply with, and some additional advisory notes you may wish to consider, all shown below.
Condition(s)[1]

1. Role Conflict: the applicant mentions role conflict. The strategies to mitigate this need to be fully developed to address potential bias.
2. Storage of data: there is mention of memory sticks, portable hard drives and DVD's to store data. These must all be encrypted and stored as per the requirements of the University of Portsmouth Guidelines.

Please note that the favourable opinion of FHSS Ethics Committee does not grant permission or approval to undertake the research/ work. Management permission or approval must be obtained from any host organisation, including the University of Portsmouth or supervisor, prior to the start of the study.

Wishing you every success in your research

Chair

Dr Jane Winstone

Email: ethics-fhss@port.ac.uk

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[1] A favourable opinion will be dependent upon the study adhering to the conditions stated, which are based on the application document(s) submitted. It is appreciated that Principal Investigators may wish to challenge conditions or propose amendments to these in the resubmission to this ethical review.

<u>Annexes</u>

A - Documents reviewed

B - After ethical review

<u>ANNEX A - Documents reviewed</u>

The documents ethically reviewed for this application

Document	Version	Date
Application Form	2.5	April 2018
Invitation Letter	2.0	April 2018
Participant Information Sheet	2.3	April 2018
Consent Form	2.4	April 2018
Evidence from external organisation showing support	N/A	10th May 2018
Interview questions/topic list	N/A	April 2018
Other – Draft letter to the host organisation	N/A	April 2018

<u>ANNEX B - After ethical review</u>

1. This Annex sets out important guidance for those with a favourable opinion from a University of Portsmouth Ethics Committee. Please read the guidance carefully. A failure to follow the guidance could lead to the committee reviewing and possibly revoking its opinion on the research.

2. It is assumed that the work will commence within 1 year of the date of the favourable ethical opinion or the start date stated in the application, whichever is the latest.

3. The work must not commence until the researcher has obtained any necessary management permissions or approvals – this is particularly pertinent in cases of research hosted by external organisations. The appropriate head of department should be aware of a member of staff's plans.

4. If it is proposed to extend the duration of the study beyond that stated in the application, the Ethics Committee must be informed.

5. Any proposed substantial amendments must be submitted to the Ethics Committee for review. A substantial amendment is any amendment to the terms of the application for ethical review, or to the protocol or other supporting documentation approved by the Committee that is likely to affect to a significant degree:

        (a) the safety or physical or mental integrity of participants
        (b) the scientific value of the study
        (c) the conduct or management of the study.

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5.1 A substantial amendment should not be implemented until a favourable ethical opinion has been given by the Committee.

6. At the end of the work a final report should be submitted to the ethics committee. A template for this can be found on the University Ethics webpage.

7. Researchers are reminded of the University's commitments as stated in the Concordat to Support Research Integrity viz:

- maintaining the highest standards of rigour and integrity in all aspects of research
- ensuring that research is conducted according to appropriate ethical, legal and professional frameworks, obligations and standards
- supporting a research environment that is underpinned by a culture of integrity and based on good governance, best practice and support for the development of researchers
- using transparent, robust and fair processes to deal with allegations of research misconduct should they arise
- working together to strengthen the integrity of research and to reviewing progress regularly and openly.

8. In ensuring that it meets these commitments the University has adopted the UKRIO Code of Practice for Research. Any breach of this code may be considered as misconduct and may be investigated following the University Procedure for the Investigation of Allegations of Misconduct in Research. Researchers are advised to use the UKRIO checklist as a simple guide to integrity.

Appendix 3: Ethics Review checklist Form UPR16

FORM UPR16
Research Ethics Review Checklist

Please include this completed form as an appendix to your thesis (see the
Research Degrees Operational Handbook for more information

UNIVERSITYof
PORTSMOUTH

Postgraduate Research Student (PGRS) Information		Student ID:	up792029
PGRS Name:	Christopher Patrick Udoaka		
Department:	IC JS	First Supervisor:	Dr Alison Wakefield
Start Date: (or progression date for Prof Doc students)	02/10/2017		

Study Mode and Route:	Part-time	☒	MPhil	☐	MD	☐
	Full-time	☐	PhD	☐	Professional Doctorate	☒

Title of Thesis:	Assessing the effectiveness of government security agencies in petroleum products pipelines security management in Nigeria: A case study of Nigeria Security and Civil Defence Corps (NSCDC)
Thesis Word Count: (excluding ancillary data)	40,727

If you are unsure about any of the following, please contact the local representative on your Faculty Ethics Committee for advice. Please note that it is your responsibility to follow the University's Ethics Policy and any relevant University, academic or professional guidelines in the conduct of your study

Although the Ethics Committee may have given your study a favourable opinion, the final responsibility for the ethical conduct of this work lies with the researcher(s).

UKRIO Finished Research Checklist:
(If you would like to know more about the checklist, please see your Faculty or Departmental Ethics Committee rep or see the online version of the full checklist at: http://www.ukrio.org/what-we-do/code-of-practice-for-research/)

a)	Have all of your research and findings been reported accurately, honestly and within a reasonable time frame?	YES NO	☒ ☐
b)	Have all contributions to knowledge been acknowledged?	YES NO	☒ ☐
c)	Have you complied with all agreements relating to intellectual property, publication and authorship?	YES NO	☒ ☐
d)	Has your research data been retained in a secure and accessible form and will it remain so for the required duration?	YES NO	☒ ☐
e)	Does your research comply with all legal, ethical, and contractual requirements?	YES NO	☒ ☐

Candidate Statement:

I have considered the ethical dimensions of the above named research project, and have successfully obtained the necessary ethical approval(s)

Ethical review number(s) from Faculty Ethics Committee (or from NRES/SCREC):	FHSS 2018 - 058

If you have *not* submitted your work for ethical review, and/or you have answered 'No' to one or more of questions a) to e), please explain below why this is so:

Signed (PGRS):		Date: 17/09/2019

Appendix 4: Participant Invitation Letter

Institute of Criminal Justice studies

St George's Building

141 High Street

Portsmouth

PO1 2HY

Tel: 023 9284 50689

Researcher: Christopher Udoaka

UP792029@myport.ac.uk

Supervisor: Dr Alison Wakefield

Alison.Wakefield@port.ac.uk

Head of Department: Dr Paul Norman

Paul.norman@port.ac.uk

15th April 2018

Invitation Letter

Dear Potential Participant

RE: Assessing the effectiveness of government security agencies in petroleum products pipelines security management in Nigeria: A case study of Nigeria Security and Civil Defence Corps (NSCDC)

I am writing to invite you to participate in a research study on the above topic, which I am undertaking as part of my Professional Doctorate in Security Risk Management (DSyRM) at the University of Portsmouth, UK.

This research will examine by means of case study the problem of petroleum products pipelines vandalism in Nigeria and consider the reasons why this illicit business continues to thrive despite government efforts to combat it. It will identify the measures being employed by

NSCDC and assess their perspectives on it effectiveness with a view to making best practice recommendations in oil pipeline security management.

I have been granted permission for this case study research to be undertaken in your organisation. Specifically, the research will be based on the following three objectives:

The first is to examine the nature and extent of the problem of petroleum products pipelines vandalism in Nigeria.

The second is to identify the strategies and tactics being employed to address the problem. This will include examination of best practices adopted by other countries faced by similar problem.

The third is to examine the strengths and limitations of the current measures with a view to making recommendations for their improvement.

The research is intended to gather the perspectives of a number of interviewees and then present a description of these issues through their eyes: there are therefore no "right" or "wrong" answers.

I am seeking 10 interviewees who would be willing to participate in a telephone or Skype interview of no more than 20 to 30 minutes from NSCDC. I am also seeking 12 interviewees ifrom other critical stakeholders including members of the military joint task force (JTF), multinational oil companies (MOC) in Nigeria, leaders of oil producing communities of the Niger-Delta Region, non-governmental organisations (NGO), private security companies and physical security consultants. I will bear all the calling costs of the interview. Interviews will be completely anonymous and confidential. The notes from the interview will be hand recorded and no audio recording will be used. Participants will be permitted to withdraw from the research at any time prior to the analysis of the data. Included with this letter is an information sheet that explains more about the research and the processes employed, and a consent form which you will be asked to return if you are willing to take part.

It is my hope that you will be interested in taking part in this research. By way of appreciation, I would be pleased to share a copy of the final research report with you. If you have any specific queries or concerns please feel free to get back to me or my research supervisor, Dr Alison Wakefield (alison.wakefield@port.ac.uk). I would highly appreciate if you could confirm with me via my email address above if you are willing to take part in the research.

Yours sincerely

Christopher Udoaka

Appendix 5: Participant consent form

Institute of Criminal Justice studies

St George's Building

141 High Street

Portsmouth

PO1 2HY

Tel: 023 9284 50689

Researcher: Christopher Udoaka

UP792029@myport.ac.uk

Supervisor: Dr Alison Wakefield

Alison.Wakefield@port.ac.uk

Head of Department: Dr Paul Norman

Paul.norman@port.ac.uk

15th April 2018

CONSENT FORM

Title of Project: Assessing the effectiveness of government security agencies in petroleum products pipelines security management in Nigeria: A case study of Nigeria Security and Civil Defence Corps (NSCDC)

Name and Contact Details of Researcher: Christopher Udoaka, Email: UP792029@myport.ac.uk

Name and Contact Details of Supervisor: Dr Alison Wakefield, Email: Alison.Wakefield@port.ac.uk

University Data Protection Officer: Samantha Hill, 023 9284 3642 or data-protection@port.ac.uk

Please initial

Ethics Committee Reference Number:

1. I confirm that I have read and understood the information sheet dated April 2018

(version 2.3) for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.

2. I understand that my participation is voluntary and that I am free to withdraw at any time before August 15th 2018, without giving a reason. ☐

3. I understand that data collected during this study will be retained in accordance with the University's data retention policy and *could* also be requested by UK regulatory authorities. ☐

4. I agree to take part in the above study. ☐

5. I agree to the data I contribute being retained for any future research that has been given a favourable opinion by a Research Ethics Committee. ☐

6. I understand that the results of this study may be published and / or presented at meetings or academic conferences, and may be provided to research commissioners. I give my permission for my anonymous data, which does not identify me, to be disseminated in this way. ☐

7. I would like to receive further information about the results of the study ☐

Name of Participant: **Date:**   **Signature:**

Name of Person taking Consent: **Date:**   **Signature:**

Appendix 6: Participant Information Sheet

UNIVERSITY OF PORTSMOUTH

Institute of Criminal Justice Studies

St George's Building

141 High Street

Portsmouth

PO1 2HY

Tel: 023 9284 50689

Researcher: Christopher Udoaka

UP792029@myport.ac.uk

Supervisor: Dr Alison Wakefield

Alison.Wakefield@port.ac.uk

Head of Department: Dr Paul Norman
Paul.norman@port.ac.uk

15th April 2018

PARTICIPANT INFORMATION SHEET

Study Title: Assessing the effectiveness of government security agencies in petroleum Products pipelines security management in Nigeria: A case study of Nigeria

Security and Civil Defence Corps (NSCDC)

Researcher: Christopher Udoaka, Email: UP792029@myport.ac.uk

Supervisor: Dr Alison Wakefield, Email: Alison.Wakefield@port.ac.uk

1. Invitation

I would like to invite you to take part in my research study. Joining the study is entirely up to you, before you decide I would like you to understand why the research is being done and what it would involve for you. I will go through this information sheet with you, to help you decide whether or

not you would like to take part and answer any questions you may have. I would suggest this should take about 20 minutes. Please feel free to talk to others about the study if you wish.Do ask if anything is unclear.

I am a doctoral student of Security Risk Management, Institute of Criminology and Security Studies of the University of Portsmouth, UK.

2. Study Summary

This research will examine by means of case study the problem of petroleum products pipelines vandalism in Nigeria and consider the reasons why this illicit business continues to thrive despite government efforts to combat it. It will identify the measures being employed by NSCDC and assess their perspectives on it effectiveness with a view to making best practice recommendations in oil pipeline security management.

3. What is the purpose of the study?

This research will assess stakeholder perceptions of the effectiveness of government security agencies in managing the security risk of petroleum products pipelines in Nigeria with a particular focus on the Nigeria Security & Civil Defence Corps (NSCDC). *I am carrying out this research as part of the requirements for obtaining the Doctor of Security Risk Management (DSyRM) of the University of Portsmouth.*

4. Why have I been invited?

The research is based on semi-structured interviews with 10 NSCDC officers from the rank of deputy commandants spread over the oil producing states in Nigeria and the headquarters in Abuja, 5 staff of major oil companies operating in Nigeria including the Nigeria National Petroleum Corporation (NNPC) and 5 community leaders from the oil producing communities of the Niger-Delta. The recruitment of the participants from the NSDCD is managed by the Commander of the anti-vandalism unit of the organization, who is my personal contact while the recruitment of participants from the major oil companies is based on availability and willingness of the participants to be interviewed. You are invited because of your direct involvement/interest in the protection of petroleum products pipelines in Nigeria.

5. Do I have to take part?

No, taking part in this research is entirely voluntary. It is up to you to decide if you want to volunteer for the study. We will describe the study in this information sheet. If you agree to take part, we will then ask you to sign the attached consent form, dated April 2018 version number, 2.4

6. What will happen to me if I take part?

The interview will be conducted using skype and are expected to be approximately 20 to 30 minutes in duration. It will be conducted at your preferred time. Notes will be taken by hand by the researcher. The format is intended to be a relaxed discussion to gather your perception on

the effectiveness of government security agencies in petroleum Products pipelines security management in Nigeria.

7. **Expenses and payments**

There will be no cash payment for participants. However where a participant incurs an expense during interview either through phone calls or transportation, such an expense will be defrayed by the researcher.

8. **Anything else I will have to do?**

You are expected to put off your cell phones to avoid distraction.

9. **What data will be collected and / or measurements taken?**

Research questions are descriptive, qualitative and flexible in nature and seek to solicit for information that is contextual to solving the research problem. Approximately 20 interviews will be conducted and qualitative data generated from the interviews. Four stages of thematic coding analysis such as data familiarisation, coding, identifying themes and constructing thematic networks will be adopted for the data analysis. The coded data will be segregated into broad themes and analysed accordingly in relation to each research questions.

10. **What are the possible disadvantages, burdens and risks of taking part?**

The only risk inherent in your taking part in this research is the inconveniences of your time during the interview.

11. **What are the possible advantages or benefits of taking part?**

There is no direct benefit for you in taking part in this research. However, the outcome of the research project is expected to add to the body of knowledge regarding petroleum products pipelines security management in Nigeria

12. **Will my taking part in the study be kept confidential?**

If you join the study, it is possible that some of the data collected will be looked at by authorised persons from the University of Portsmouth. Data may also be looked at by authorised people to check that the study is being carried out correctly. All will have a duty of confidentiality to you as a research participant and will do their best to meet this duty.

While the project is on-going I will need to store my data securely and protect them from loss, unlawful or unethical access. To achieve this, encrypted laptop, memory stick, portable hard drive and DVD will be used in storing data. All paper records which contain personal data will be stored in lockable filing cabinet. The raw data will be retained for a minimum of 10 years. When it is no longer required, the data will be disposed of securely and paper destroyed.

13. **What will happen if I don't want to carry on with the study?**

Prior to the analysis or publishing of the collected data, you have the right to withdraw the permission at any time before August 15th 2018, without giving a reason if you do not wish to. This can be done by contacting me through my email address up792029@myport.ac.uk. If you do withdraw from the study after some data have been collected you will be asked if you are content for the data collected thus far to be retained and included in the study. If you prefer, the data collected can be destroyed and not included in the study. Once the research has been completed, and the data analysed, it will not be possible for you to withdraw your data from the study.

14. **What if there is a problem?**

If you have a concern about any aspect of this study, you should ask to speak to the researcher Mr Christopher Udoaka (Tel: +234(0) 8036554533, Email UP792029@myport.ac.uk) or the supervisor, Dr Alison Wakefield (Tel: +44(0)2392843942, Email Alison.wakefield@port.ac.uk) who will do their best to answer your questions. If you remain unhappy and wish to complain formally, you can do this to Dr Phil Clements, Head of Department, Institute of Criminal Justice Studies (Tel:+44(0)2392845069, Email: phil.clements@port.ac.uk). If the complaint remains unresolved, please contact: The University Complaints Officer +442392843642, Email:complaintsadvice@port.ac.uk.

15. **Who is funding the research?**

This research is sponsored by the University of Portsmouth and is part of requirements for the award of Professional Doctorate in Security Risk Management (DSyRM) of the University. The researcher or the sponsors are not likely to benefit from any significant financial gains.

16. **Who has reviewed the study?**

Research involving human participants is reviewed by an ethics committee to ensure that the dignity and well-being of participants is respected. This study has been reviewed by the Institute of Criminal Justice Studies (ICJS) Research Ethics Committeeand been given favourable ethical opinion.

Thank you

Thank you for taking time to read this information sheet and for considering volunteering for this research. If you do agree to participate your consent will be sought; please see the accompanying consent form. You will then be given a copy of this information sheet and your signed consent form, to keep.

Appendix 7: Draft letter to host organization

Institute of Criminal Justice Studies

St George's Building

41 High Street

Portsmouth PO1 2HY

Tel: 023 9284 50689

Researcher: Christopher Udoaka

UP792029@myport.ac.uk

Supervisor: Dr Alison Wakefield

Alison.Wakefield@port.ac.uk

Head of Department: Dr Paul Norman
Paul.norman@port.ac.uk

15th April 2018

The Commandant General (CG),

Nigeria Security and Civil Defence Corps (NSCDC)

Wuse Zone 5,

Abuja

Dear Sir,

RE: Assessing the effectiveness of government security agencies in petroleum products pipelines security management in Nigeria: A case study of Nigeria Security and Civil Defence Corps (NSCDC)

I am writing to seek your assistance as the Commandant General of Nigeria Security and Civil Defence Corps (NSCDC) with a research study as titled above.

This research will examine by means of case study the problem of petroleum products pipelines vandalism in Nigeria and consider the reasons why this illicit business continues to thrive despite

government efforts. It will identify the measures being employed by NSCDC and assess their perspectives on it effectiveness with a view to making best practice recommendations in oil pipeline security management.

I am writing specifically to request permission for this research to be undertaken in your organisation. The research will be based on the following three objectives:

- To examine the nature and extent of the problem of petroleum pipeline vandalism in Nigeria;

- To identify the strategies and tactics being employed to address the problem; and

- To assess the strengths and limitations of these measures from the perspectives of the participants and make recommendations.

I am seeking 10 interviewees who would be willing to participate in a telephone or skype interview of no more than 20 to 30 minutes. I will bear all the calling costs of the interview. I would be grateful if you could circulate copies of the participant invitation letter to individuals who would be eligible for the study. Interviews will be completely anonymous and confidential. The notes from the interview will be hand recorded and no audio recording will be used. Participants will be permitted to withdraw from the research at any time prior to the analysis of the data. Included with this letter are the participant invitation letter, an information sheet that explains more about the research and the processes employed, and a consent form that each research participant will be asked to return.

While thanking you for your support during the pilot study, it is my hope that you will be interested again in supporting this major research. By way of appreciation, I would be pleased to share a copy of the final research report with you. If you have any specific queries or concerns please feel free to get back to me or my research supervisor, Dr Alison Wakefield (alison.wakefield@port.ac.uk). I would highly appreciate if you could confirm with me via my email address above if you are able formally to give permission for the research.

Yours sincerely

Christopher Udoaka

Appendix 8 : Evidence from external organisation showing support

RESTRICTED

Nigeria Security & Civil Defence Corps

OFFICE OF THE COMMANDANT GENERAL

NATIONAL HEADQUARTERS

Plot V921 Cadestral Zone A2, Wuse Zone 5, Abuja.

NSCDC/NHQ/CG/808/XVIII/215   10 MAY 2018

Christopher Udoaka,
University Of Portsmouth
Institute of Criminal Justice Studies,
St George's Building,
Portsmouth.

RE: ASSESSING THE EFFECTIVENESS OF GOVERNMENT SECURITY AGENCIES IN PETROLEUM PRODUCTS PIPELINES SECURITY MANAGEMENT IN NIGERIA: A CASE STUDY OF NIGERIA SECURITY AND CIVIL DEFENCE CORPS (NSCDC)

I am directed to acknowledge receipt of your letter dated 15th April, 2018 on the above subject matter and to convey the approval of the Commandant General of your request to conduct a research study on the above stated topic.

2. Kindly visit the Corps Library located at the Civil Defence Academy Sauka, Abuja for documents you may find useful for the purpose of your Research Study.

3. Please, accept the best wishes of the Commandant Generals.

Aminu Ali
Commandant/PSO to CG
For: Commandant General.

RESTRICTED

Appendix A1: Some incidences of oil theft arrests in Nigeria 2009-2014

Dated of Arrest	Vessel	People Involved	Place of Arrest	Reason for arrest	Arrested by & Action taken
August 25, 2014	MV Mercy	Seven Crew Members	The Furopa Waterways in Southern Ijaw Local Government Area of Bayelsa	Vessel loaded with 180,000 litres of illegally refined Automated Gas oil (diesel) worth N28.8 million	The suspects and vessel and were arrested by Nigerian Navy and handed over to the Nigerian Security and Civil Defence Corps for further investigation and prosecution
August 7, 2014	MV Elmina	18 Nigerians, one Camerounion and one Ghanian	Sangana River in Brass Local Government of Bayelsa State	Allegedly stealing 500,000 litres of crude oil	The suspects were arrested by Nigerian Navy and handed over to EFCC
April 19, 2014	MT Rheinfeld En	One crew Member	Akassa Community in Brass L.G.A of Bayelsa State	The vessels was laden with 849,612 tonnes of illegally refined automotive gas oil	The suspects were arrested by Nigerian Navy and handed over to Effcc
April 18, 2014	MV FLORA	Eight Crew Member	Lagosgbene Obi Creek in Southern Ijaw Local Government Area of Bayelsa State	Vessels laden with 1,000 litres of suspected stolen crude oil	The crew members were arrested Joint Task Force (JTF)
March 28, 2014	MT CRETE	Two Britons and 12 Nigerian technician	Chanomi Creek near warri in Delta State	Involvement in illegal bunkering and offering of $66,500 bribe to the JTF to facilitate oil theft	The suspects were arrested by Joint Task Force (JTF) and handed over to the Department of State Security (DSS) for prosecution
March 26, 2016	MV GARE	Three crew members	The coast of Angola	Vessel arrested for hijacking and stealing petroleum products from a bigger vessel-MV Karela	Crew and vessel were arrested by Nigerian Navy and handed over to the Interpol for further investigation
March 20, 2014	MT Cergen (whose original name	Six Nigerian crew members	Around Fish town river in Southern Ijaw Local	The vessel was loaded with	The suspects were arrested by Nigerian Navy

	was MARISA)		Government Area of Bayelsa State	2,332,000 litres of stolen crude oil	
February 18, 2014	Locally made tug Boat	Six Crew member and two others		The boat was loaded and conveying 30 drums of stolen petroleum	The six suspects were arrested by Joint Task Force (JTF) and moved to the Tactical Headquarters of the Battalions for preliminary investigation
February 10, 2014	MT DIVINE FAVOUR	11 Crew Members	Fairway Buoy, Bonny Island, Rivers State	The vessel had no valid documents to operate on Nigerian water and was carrying about 500 metric tonnes of products suspected to be automated Gasoline Oil (AGO)	The suspects and the vessel were arrested by Nigerian Navy and handed over to operatives of the Economic and Financial Crimes Commission (EFCC)
January 14, 2014	MT ELI TANK	21 Nigerian crew members	Along the waterways of Agbami Oilfield in Southern Ijaw Local Government Area od Bayelsa State	Vessel allegedly loaded with 2.111 million litres of stolen crude oil valued at N2.4bn	The suspects were arrested by Nigerian Navy
December 31, 2013	A Boat	Four Cameroonians and three Nigerian	The suspects were arrested at the Agbani Area, near Bakassi Local Government Area, the board between Nigeria and Cameroon	The suspects were caught with 134 drums containing 250 litres of petrol each, and concealed under consumer goods	The suspects were arrested by Nigerian Navy handed over the seven suspects to the Akwa Ibom Commandant of the Nigeria Security and Civil Defence Corps, for proper investigation and prosecution
December 26, 2013	MV ECLIPS	Nine Nigerian Crew Members	Obi Creek, Bayelsa State	The vessel was laden with about 870,000 litres of suspected stolen crude oil	The suspect were arrested Nigerian Navy and handed over to the Nigerian Security and Civil Defence Corps,

					Bayelsa State command for prosecution
October 23, 2013	MT FRANKESEN	Three Ghanians and nine Nigerians	Akassa Community in Brass L.G.A of Bayelsa State	Vessel was loaded with over 1,092, 000 litres of crude oil suspected to be stolen	The suspects were arrested by Nigerian Navy and handed over to the Police Command in Bayelsa
October 07, 2013	Two Vessels: MILANDROS and EBBA, Belonging to PWS Integrated Services Limited	A Ghanaian and 25 Nigerians	Bonny Anchorage in Rivers State	The vessel, MILANDROS, was intercepted where a six-inch diameter hose over a distance of 1,000 metres from the vessel had been connected to pipeline, while EBBA was laden with 282 tons of suspected illegally distilled diesel	Crew members and vessels were arrested the Joint Task Foce (JTF)
September 25, 2013	MV JEHOVAH MIRACLE 3" and a wooden boat	15 Nigerians on saperate raids	Brass River in Bayelsa State	The small tug boat and wooden boat with 15 Nigerians were arrested due to the lack of proper permit	The suspects were arrested Nigerian Navy and handed over to the police.
September 16, 2013	MB LILLY	Eight crew members	Akassa creek in Bayelsa State	Allegedly indulging in illegal oil bunkering	The crew members were arrested by Joint Task Force (JTF). The barge was towed to Brass anchorage for safe custody
September 6, 2013	MT PAULINE	A Cameroonian and nine Nigerians	Atlantic fringe of Brass in Brass L.G.A of Bayelsa State	Vessel loaded with 360,000 litres of illegally refined diesel suspected to have been stolen	Crew members and vessel were arrested by Nigerian Navy and handed over to EFCC
September 3, 2013	Two barges christened CWTC16 and TIKORO2	11 crew members	Kasabobo Creek, Southern Ijaw LGA Bayelsa State	Loaded with illegally sourced crude oil	Crew members and barges were arrested by Joint Task Force (JTF)

August 26, 2013	MV SEA GIANT	A Cameronian and 11 Nigerian crew members	Waterway of the Egweama Community in Brass LGA of Bayelsa State	Theft of 10,000 litres of locally refined diesel	Crew members and vessel were arrested by Nigerian Navy and handed over to EFCC
August 24, 2013	MV TOBILOBA	Seven Nigerian crew members	Akassa Creek in Bayelsa State	Vessel laden with 100,000 litres of illegally refined AGO	Crew members and vessel were arrested by Nigerian Navy and handed over to EFCC
August 15, 2013	MV LILA and tugboat christened, MV St. VICTORIA	Six suspects were arrested on the togboat	Odioma waterways, Brass Local Governmetn Area, Bayelsa State	The barge was carrying an unknown quantity of products suspected to be stolen crude oil	Crew members and vessels were arrested by Nigerian Navy and handed over to EFCC
August 11, 2012	TUGS & T VICTORIA	Six crew members	Akassa creek in Bayelsa State	Salvage operation of MT LINA	Crew members and vessel were arrested by Nigerian Navy and handed over to EFCC
July 25, 2013	MV Henty	A Ghanaian and five Nigerians	Egweama, Brass in Bayelsa State	Illegal conversion from fishing trawler to a bunkering vessel with 132,000 litres of illegally refined AGO	Crew members and vessel were arrested by Nigerian Navy and handed over to EFCC
July 23,2013	MT RICA and MT FAVOUR 1	14 suspects were arrested from MT RICA; nine were nabbed on MT FAVOUR 1	MT RICA was apprehended along the Nun Rive while MT FAVOUR 1 was arrested off akassa Riverm Bayelsa State	The two vessels, MT RICA and MT FAVOUR 1 were loaded with 150,000 and 100,000 litres respectively of illegally refined AGO	The suspects were arrested by Nigerian Navy and handed over to the police in Yenagoa for further investigation and prosecution
July 14, 2013	CAPE HOPE	14 crew members	Benneth Island in Warri South Local Government Area of Delta State	Allegedly illegal bunkering and offering JTF commander bribe or N14 million to facilitate the illegal deal	The crew members and vessel were arrested by Joint Task Foce (JTF)

July 9, 2013	Unregistered vessel	A traditional ruler and three other persons	Along the waterways of Akassa in Brass Local Government Area of Bayelsa State	Stealing 2,000 metric tonnes of crude oil	The suspects were arrested by the Joint Task Force (JTF)
July 6, 2013	MT WHARF DALE	Six Nigerian crew members	Egweama, Brass in Bayelsa State	Dubious intent to load stolen crude and engaged in oil transport without flag, registration, call-sign and international maritime organisation (IMO) number	Crew members and vessel were arrested by Nigerian Navy and handed over to police
June 3, 2013	MV DALAL	10 crew members	Akassa creeks of Southern Ijaw Local Government Area of Bayelsa State	The vessel was loaded with 120,000 litres of illegally refined AGO (Automated Gas Oil)	Crew members and vessel were arrested by Nigerian Navy and handed over to the EFCC
May 27, 2013	ERISHNA DOLPHIN and two barges	11 crew members	Obi Creek in Southern Ijaw Local Government Area of Bayelsa State, Bakana creek and Abonema waterfront in Rivers State	The two barges were laden with 7,500 and 500,000 litres of adulterated Automated Gas Oil illegally distilled from stolen crude oil	The suspects and barges were arrested by the Joint Task force (JTF)
May 22, 2013	MT SWORDFISH	Three crew members, two staff of the Liberty Jetty and 20 other suspects in connection with the oil theft	Liberty Jetty Elegbata, Marina, Lagos	The vessel was used for theft. The vessel was loaded with unspecified amount of crude oil suspected to have been stolen	Suspects and vessel were arrested by the Nigerian Army and handed over to the Economic and Financial Crimes Commission, EFFC, for prosecution
May 3, 2013	EMPTY V-LAND	10 crew members	The high sea of Bonny in Rivers State	The vessel was carrying stolen crude oil of about 1,300 metric tones	Vessels and crew members were arrested by Nigerian Navy handed over to FOB Bonny

January 26, 2013	MT ASHKAY	10 indians and two Ghanaians	Sangana River, near Port Harcouty in Rivers State	The vessels was laden with 157,822 litres of stolen crude	The suspected were arrested by Nigerian Navy and handed over to EFCCD for investigation and prosecution
December 29, 2012	MT ATLANTIC STAR	Nine crew members	The coast of Bonny Island in Rivers State	The vessel loaded with 1,000 tonnes of stolen crude oil was arrested while illegally siphoninh crude oil from a pipeline	The suspects were arrested by (JTF) and handed over to Nigerian Security and Civil Defence Corps for prosecution
October 17 & 18, 2012	MT LADY THERESA AND PECOS PETERS	10 Nigerian crew members	LightHouse, Bonny River, Bonny Local Government Area of Rivers State	The two illegal bunkering vessels containing 300,000 litres of diesel were caught siphoning illegally-refined petroleum product from a barge	The crew members were arrested by Joint Task Force (JTF) and handed over to the police
October 5, 2012	Seven Barges	20 Ghanaians and six Nigerians	Barges were impounded in Abonnema, Akuku-Toru Local Government Area of Rivers State	Alleged illegal bunkering. The seven barges were loaded with crude oil	The seven barges were destroyed while the suspects were arrested by Joint Task Force (JTF) and handed over to the Nigerian Security and Civil Defence Corps (NSCDC(for prosecution
June 19, 2012	MT ST VANESSA	Nine Filipinos and Six Romanians	45 nautical miles off akassa in Bayelsa State	Suspicious activities and loitering around Akassa-Brass for about two weeks, without clear and specific mission	The 15 expatriates and the vessel were arrested by the Nigerian Navy and handed over to the police in Port Harcourt and Bonny Island
May 09, 2012	MT ANI and MT OSO	21 Ghanaians and five Nigerians	Sombeiro River in the South-Eastern part of Degema Local Government	The vessels were arrested with 650,000 metric tonnes of stolen crude oil	The vessels were destroyed by the security outfit, Joint Task Force (JTF)

			Area of Rivers State		
November 01, 2011	MV OMIESAM and Several Cotonu boats	Vessels has a crew of eight and the other 38 suspects were found with 13 Cotonou boats that had assembled beside the vessel	Akassa enclave on the Atlantic fringe of Brass, Bayelsa State	The vessel was arrested while receiving illegally refined petroleum products from the Cotonu boats	The vessel MV Omiesam and its eight man crew were arrested and escorted to Government Jetty Yenagoa by Joint Task Force (JTF)
January 6, 2009	SANDRA VALLETA LAGOS	Six Ghanaians and a Nigerian	Chanomi Creeks of Warri South West Local Government Area of Delta State	The vessel was loaded with 4,000 metric tonnes of illegally bunkered crude oil worth about $1.17 million	The suspected were paraded by the Joint Task Force (JTF) in Warri Delta State

Source: Boris (2016, pp.004-008)