Analysis of Trend and Emergent Factors of Artisanal Refining In the Niger Delta Region of Nigeria

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ABSTRACT
This study examined the trend and emergent factors of artisanal refining in Niger Delta region of Nigeria. It relied on data collected from primary and secondary sources using reported cases of sabotage and pipeline vandalism from three oil companies including SPDC, NAOC and SEPLAT to ascertain the trend of artisanal refining in recent years. Findings from the study identified the emergent factors of artisanal refining in the region to include poverty, political manipulation, youthful exuberance, state repression, youth solidarity and attitude of multinational corporations. This notwithstanding, the study revealed a decreasing trend of artisanal refining across the Niger Delta. The study recommended establishment of modular refineries as alternative approach to massive youth employment generation in oil producing communities.

Keywords: Artisanal Refining, Oil theft, Sabotage, Trend, Niger Delta

INTRODUCTION
Since 1957, the oil and gas sector has emerged as the mainstay of Nigeria’s economy. The oil resource which is found in the Niger Delta has yielded several billions of dollars. However, despite the huge economic contribution, the region has remained poor, neglected and its environment severely polluted. Describing this phenomenon, Naanen (2014) argued that crude oil has contributed 98.6 percent of foreign exchange earnings, 60.5 percent of national income and 37 percent of GDP at current basic prices in the year 2012 alone. The oil and gas industry occupies a strategic position in the Nigeria economy and it is the life wire of the national economy. Several studies have shown that oil and gas exploration, production and refining of consumer fuels has given rise to massive ecological destruction, impacting negatively on marine/aquatic ecosystem and agricultural land, destroying traditional occupations and livelihood system, and macroeconomic activities in the Niger Delta. These in turn has exacerbated poverty, food insecurity, hunger, unemployment, criminality and communal conflicts across the Niger Delta region. The United Nations Development Programme (2012) addressing this concern, reported thus:

“The greatest problem we have identified in the Niger Delta is poverty. In spite of the vast earning from the region’s oil and gas deposits, the Niger Delta remain the second poorest region in the country, 70% of the people in the area are on poverty line, and poverty level in the region is well above African standard. The federal government and oil companies operating in the area failed to take appropriate action to check the rampant environmental abuse prevalent in the Niger Delta. Over two million youths are unemployed, and they seem to have lost hope, faith and dignity in life. An urgent need exists to implement mechanisms to protect the life and health of the region’s inhabitants and its ecological systems from further deterioration”
It is feasible to opine that it is against the backdrop of severe environmental pollution, unemployment and excruciating extreme poverty that the phenomenon of artisanal refineries has emerged. The UK Niger Delta Group (2012) reports that participants at a recent conference on artisanal refining and oil theft in London agreed that oil theft and artisanal refining had expanded over the last decade. The Niger Delta region is the home to this trade, which over the past few years has metamorphosed into a mini-economic sector. Artisanal refining has not solved the problem of poverty and environmental degradation, but it has engendered an ongoing ecological disaster; livelihood and revenue loss; and insecurity associated with oil sabotage. As at 2017, the daily oil production figure for Nigeria is estimated at 2.1 million barrels, out of which an estimated 400,000 barrels were stolen (Daily Trust, February 2017). The artisanal refineries were developed to satisfy local demand for energy due to the failure of the national grid, high cost and sporadic scarcity of consumer fuels. It involves traditional knowledge skills with little reliance on science and technology. Stolen crude is the primary source of raw materials and it has become widespread in the Niger Delta with severe environmental pollution consequence.

Artisanal refining otherwise known as ‘bush burning’, ‘cooking’ or ‘kpor’ fire has steadily become a phenomenon that the petroleum sector and the environment must contend with. Artisanal refining is a concept used to refer to the use of primitive and illegal process in which crude oil is boiled and the resultant fumes are collected, cooled and condensed in tanks to be used locally for lighting, energy or transport. This local refining skill is believed to have been drawn from the indigenous technology. Its emergence can also be traced to the height of militancy in the Niger Delta. In a bid to get fuel for boats used for militant operation as well as get funding for their activities, artisanal refining or bush refining was used to produce fuel for their consumption and the surpluses supplied to the local market. This local method was used commonly among riverine communities in Rivers and Bayelsa States and was then called “Asari fuel”. The fuel became known as “Asari fuel” because Alhaji Dokubo Asari was the first person reported to have been given license by the government to involve in local refining of crude oil and also it was reported that earlier fuel products supplied were believed to come from Asari refinery which may have informed the name “Asari fuel”.

Many rural or riverine traders buy and supply “Asari fuel” to urban or sub-urban dwellers as a cheaper alternative to what is obtainable in cities. Within a short period of time, it became a viable business. Accordingly, a publication by the Social Development Integrated Centre, (2014) indicated that:

“On the average, a typical artisanal refinery produces about forty to sixty drums of diesel and seven hundred and forty litres of PMS per day. The bush refinery varies in sizes. Small scale sites tend to attract women and people with low levels of capital to invest, while large scale sites are usually owned by entrepreneurs because they are usually capital intensive”.

In recent times, the Nigerian economy has experienced a recession. It has been argued that the recession is occasioned by the increasing loss of crude oil owing to the increasing number of artisanal refineries and oil theft. Statistics show that Nigeria is losing as much as 400,000 barrels of oil per day, which equals to loss of $ 1.7 billion US dollars a month (Dalby, 2014). A larger percentage of Nigerian crude oil output is coming from upstream exploration presently, while oil theft and artisanal refining activities are carried out on downstream production lines mainly concentrated in the States of Delta, Bayelsa and Rivers. There is a mixed report on increasing trend of oil theft and artisanal refining. Obenade and Gordon (2014) opined that oil theft and artisanal refining in the Niger Delta are massive and growing problems with a daily loss of estimated 200,000 – 300,000 barrels of crude oil. Social Action (2016) monitoring of illegal refining highlighted reduction in oil theft, artisanal refining activities in Bodo West, Gokana Local Government Area near Bonny, and Okrika. The reduction was occasioned by the bombardment of artisanal refining sites by the Nigeria Joint Task Force (JTF). The Social Action (2016) also indicates that Oteghele, Otegbene - Agbara, Bennet Island and Jones Creek all in Warri South-West Local Government Area of Delta State have a thriving business of oil theft and artisanal refining. The expansion of the business in these areas was blamed on the scarcity of PMS and the concomitant increase of the pump price of PMS from N86.50 to N145 per litre as a measure to ensure the availability of imported products at a time when the value of the Naira was falling against the dollar.
There is presently high proliferation of artisanal refineries spread across every nook and cranny of the Niger Delta. The present economic situation does not help, as many unemployed graduates and unskilled youths have found artisanal refining as a way of meeting their financial needs. Artisanal refining business is fast becoming everyone’s business as key actors range from government officials, politicians, members of Joint Task Force (JTF), and community leaders. The youths who are in most cases caught in crossfire with security agents are mere figureheads. They are the foot soldiers, taking instructions from the key actors. The fund or capital and technical know-how required to set up such ventures are not accessible to poor, illiterate youths whose main occupation were fishing and timbering. According to the Social Action (2016), the Nigeria Security and Civil Defence Corp (NSCDC) have reported several raids on artisanal refining sites. It destroyed over 250 illegal refineries and secured the conviction of 40 perpetrators out of the 118 arrests made in the last one year in the Niger Delta. Researches such as Social Action (2016), Obenade and Gordon (2014), Asu (2013) and Odalonu (2015) never beamed their research attention on the trend of artisanal refining and factors contributing to its emergence thereby leaving a major empirical gap that has been identified which this study intends to bridge by examining the trend of artisanal refining and factors contributing to its emergence. It is in view of this that the study seeks to address the following research objectives:

i. Identification of the factors responsible for the emergence of artisanal refining of crude oil in the Niger Delta region;

ii. Examination of the trend of artisanal refining across the facilities of selected oil companies in the Niger Delta

METHODOLOGY
The sources of data for this study comprised of primary and secondary data sources. The primary data were collected through Focus Group Discussions and In-depth Interviews with artisanal refiners who were purposively selected. Secondary data were sourced from selected oil companies’ reports, journals, newspapers, textbooks and other online materials. The study adopted the statistical and non-statistical methods of data analysis. The statistical methods included percentages, use of pie chart, bar charts, histograms, graphs for diagrammatic presentation and explanation. The non-statistical methods included discussing the responses of respondents during personal interviews and FDG.

RESULTS
The Trend of Artisanal Refining in the Niger Delta
The Social Development Integrated Centre (2014) defined artisanal refining as a small-scale or a subsistent distillation of crude petroleum over a specific range of boiling point to produce usable products such as fuel, kerosene and diesel. As earlier highlighted artisanal refining require the use of indigenous skills with a little blend of modern technology. All artisanal refineries rely on oil theft to thrive. This implies that there is a constant chain relationship between oil theft and artisanal refining as it is believed that part of the stolen crude is channeled to the artisanal refineries. Oil theft and artisanal refining has now become a lucrative business in several locations in the Niger Delta with major actors including the unemployed and employed rural dwellers, staff of oil companies and corrupt government officials and security agents.

In August, 2016, the Shell Petroleum Development Company (SPDC) experienced 25 cases of sabotage of pipeline across their operations in the Niger Delta and these activities could only be for oil theft. Some of the incidents took place in Nkpoku-Bomu trunkline, Imo river flowline, Ubie flowline, and Afiesere-Eriemu delivery line. In May 2013, 18 cases were recorded especially in areas like Biseni flowline, Nembe creek pipeline and Otumara-Saghara pipeline. In September 2017, only 5 incidents were reported - Soku well head, Bomu-Bonny Trans-Niger pipeline at Ogbonga forest and Agbaye well head, signaling a drop in recorded sabotage incidence. Similarly, the Nigerian Agip Oil Company (NAOC) reported an increase in number of oil theft points between 2007 and 2014. The report by NOAC indicated that the upsurge of the activities of Artisanal refiners led to production loss and suspension of all onshore production activities in the swamp area in March 21, 2013.
As earlier highlighted, the concept of artisanal refining used in this context includes the process of vandalizing, stealing the crude (oil theft) and distributing for consumption. Artisanal refining cannot be possible without oil theft. Oil theft is the act of hacking into pipelines to steal crude oil, which is later refined or sold abroad (Ugwuanyi, 2013). Asuni (2009) refers to oil theft as oil taken from pipelines or flow station, as well as extra crude oil added to legitimate cargo that is not accounted for. Ikelembge (2005) reported that there is a large scale illegal and international trading on crude oil. This has grown from a few amateurs in the 1980s who utilized crude methods to extract crude from pipelines to very sophisticated industry, which uses advanced technologies to tap crude and sophisticated communication equipment to navigate through the maze of hundreds of creeks, rivers and rivulets. The oil theft syndicates have also graduated from boats and barges to ships and large oil tankers on the high seas. The stealing and smuggling of crude has become every extensive and large scale since the late 1990s. The phenomenon of oil theft, which is the first process to artisanal refining have several actors ranging from local, to international players. Asuni (2009) identified players of the trade to include Niger Delta youths and community leaders at the local level, members of the Nigerian military, oil company and the Nigerian National Petroleum Company (NNPC) employees, top politicians and retired military officers all of whom help extend the network. At the international level, nationals of countries in Eastern Europe, Russia, Australia, Lebanon, Netherlands, France, Senegal, etc. were involved. There is a rise in incidents of oil theft, which is a key precursor to artisanal refining. Menas Associates recently reported on the 17th of June 2018 that, there was an average of 60 pipelines breaks in January 2017, 176 incidents of pipeline damage in 2017 which rose to 216 by January 2018. Between January 2017 and January 2018, the NNPC recorded a total of 1,336 vandalized points on its pipelines in the Niger Delta. The report expected the trend to increase unless the Federal Government engages in meaningful dialogue with key stakeholders in the Niger Delta.

Despite the impact of the phenomenon on other oil and gas companies, Chevron Nigeria Ltd (CNL), highlighted how it has been successfully combating the menace of oil theft and pipeline vandalism in its oil and gas operation. The General Manager, Policy, Government and Public Affairs, Mr. Esimaje Brikinn stated that Chevron adopted a proactive approach by involving relevant stakeholders including government and security agents. The Regional Development Committees (RDCS) under the Global Memorandum of Understanding (GMOU), which is a community driven multi-stakeholder participatory partnership model for community engagement and sustainable development in the company’s areas of operations. Adopting the community pipeline and facilities surveillance programme (CPFSP), a platform used in combating oil theft and pipeline sabotage. The CPFSP has become a model (ND LINK, July 11, 2018).

These reports have been used to show the trend of oil Artisanal refining. The reports highlights in some cases, the upsurge of Artisanal refining activities. In some cases, the oil and gas companies have engaged key stakeholders in order to mitigate it.

Emergent Factors for Artisanal Refining in the Niger Delta

Several schools of thoughts have been put forward to explain the emergence of the independent variable of this study. In a study by Social Development Integrated Centre (2014) four analytical perspectives can be distilled from the narrative which was put forward to explain the emergence of artisanal refineries in the Niger Delta.

i. The first school of thought traced its emergence to the Biafran army of the Nigerian Civil War that lasted from 1967 to 1970. It asserts that “the Biafran army innovated a small-scale refining when its refined petroleum needs could not be met because of the blockade placed on the rebellious region by the Federal Forces”. This technology did not die with the unsuccessful Biafra secession bid. Instead, it has been re-introduced and imbibed by the present generation of artisanal refiners across the oil producing areas in the Niger Delta region.

ii. A second school of thought claims a link between the illicit relationship between oil workers and idle young men in the Niger Delta, who are out to make a quick living or illicit profit. Proponents of this perspective argued that unknown petroleum engineers offered the technology to locals out of sympathy in order to provide them with a means of livelihood following the collapse of
farming and fishing in the wake of oil-induced environmental devastation. Others insist, however, that rather than an act of benevolence, it is really a mutually beneficial collaboration between greedy oil workers and self-seeking local youth.

iii. The third school of thought claims that the practice was started by makers of local alcoholic beverage (local gin), which is made from distilling palm wine. This local distillation technology was successfully used to refine petroleum products at a time of dire scarcity of petrol, diesel and kerosene in Nigeria. The ingenuity of the palm-wine tapper was apparently sparked by the imperative of demand and supply where needed refined petroleum products were in high demand but with limited supply from legitimate sources.

iv. The fourth account suggests that Niger Delta militants started artisanal refining during the period of their militancy because, they were in dire need of constant refined petroleum products for their speed boats after their supplies were cut off by the government in the heat of the Niger Delta militancy. Subsequently, it was embraced by well-heeled and poor folks alike, even as petroleum products routinely became scarce in the official market place. This situation is then compounded by poverty and lack of access to petroleum products in the challenging and difficult terrain of the Niger Delta. The taskforce was baffled how militants in the mangrove forest were getting fuel to run their speedboats and generators. The illegal refineries were mostly responsible for supplying militants their fuel needs, even though the petrol and diesel wreak havoc on the engines.

These schools of thought for the origins of artisanal refining notwithstanding, more salience is often placed on the notion of existential exigency and the pressure that this puts on artisanal refiners to make a living. History has it that years back, before the era of oil boom in the region, yields from farming, and catches from fishing expedition, were so bountiful and markedly high making exportation imperative, but today reverse is the case, very poor harvest, and scanty or no catch characterized agricultural activities in the creeks and hard patches of the region (Howard, 2004). This trend, most researchers in environmental studies strongly attribute to high level of contamination of the aquatic and terrestrial ecosystems owing to oil exploration/exploitation in the region (Osuji & Ezeburio, 2006; Ibigoni et al., 2009; UNEP, 2011).

As a response to the depletion of livelihood-dependable resources, some youths in the Niger Delta have been involved in oil theft and refining of crude oil, using local technology - artisanal refining. In the words of Uwagbale (2018), “When marginalized communities are faced with problems, they adapt to find solutions of their own. Niger Delta communities in Nigeria have been economically marginalized for decades leading to poverty and massive unemployment; as a result, many young people in these communities are solving their employment problem with materials and knowledge available to them. These young artisans and entrepreneurs have developed indigenous refineries from mere drums to generate income and provide cheaper kerosene and diesel to their communities”.

Artisanal refining involves stealing crude oil through artificial holes bored on pipelines, and refining the oil by heating in locally crafted drums, having been added with some chemical additives. In most cases, those involved in this illicit business, use diesel as primary product. Naanen and Tolani (2012), argued that oil theft and artisanal refining are rooted in socio-economic factors that have been at play in the Niger Delta and the nation since the discovery and exploitation of oil from the 1950s. This, they pointed out, has made the people to develop an anti-establishment, anti-state and anti-corporate psychology. Available literature on the subject seems to differ in regards to the economic benefits of artisanal refining activities in the Niger Delta. While some scholars are of the opinion that it creates even more unemployment by its effect on the environment, many are of the view that artisanal refining has significantly helped to reduce youth unemployment and restiveness in the region.

At a roundtable discussion in London on Oil theft and illegal ‘artisanal’ refining in the Niger Delta, the UK Niger Delta Working Group (2012) reports that participants at the Conference agreed that oil theft and artisanal refining had expanded over the last decade - particularly over the last three years with an estimated 150,000 barrels of crude oil stolen every day in Nigeria causing unimaginable environmental and economic devastation. Also, the United Nations Environmental Program (UNEP) Environment Assessment of Ogoniland highlighted that in addition to poor pipeline maintenance by international oil companies, illegal oil refining in the Niger Delta is a major cause of environmental degradation. Whole
communities have lost their traditional livelihoods as fishers and farmers; as the effects of illegal bunkering and artisanal refining, compounded by equipment failure, pollutes their water and land and the refining process posing serious health risks. All this has reduced the amount of oil produced, created environmental problems from oil spills and reduced government revenue that could be used to develop infrastructure and services (SPDC, 2010).

Presenting a different perspective, Braide (2016) argued that illegal artisanal refining fills an economic vacuum for the young men (and women) in the creeks and remote rural communities which suffer the adverse ecological impacts of oil extraction, but derive little or no tangible economic benefits. The artisanal refineries operating in the creeks of the Niger Delta, though illegal, provide both badly needed employment, and also bridge gaps in the availability and supply of premium motor spirit (petrol), and automotive gas oil (diesel) in the oil-bearing communities of the region.

Incidentally, the oil bearing communities consider artisanal refining as expedient and justifiable, given the absence of gainful employment in the cities, towns, and rural communities of the Niger Delta. Those involved in artisanal refining boast that the security operatives cannot stop them and that their products are competitive with those imported or produced in the main refineries. Some of those interviewed on this said that the illegally refined petroleum products like fuel, kerosene and diesel support local demand and contribute to the sustenance of the Nigerian economy such that if they stop operation over a period of time, there would be energy crisis in Nigeria as some of their products are also bought and distributed nationwide by tanker drivers and registered marketers (Resource Justice, 2017). Similarly, Obenade and Amangabara, (2012) reported that illegal oil bunkers and refiners are of the opinion that their activities have generated a burgeoning economy for the Niger Delta as it creates a well-developed supply chain which includes trained engineers (who weld valves to high pressure pipelines, returning each night to siphon oil), boat yards help construct and supply barges to the thieves to transport crude oil around the creeks, women and young adult supply labour (refiners/marketers/security guards etc.) and materials (firewood, food stuffs etc) to workers in the camps (Atta, 2012).

More so, the Stakeholder Democracy Network (SDN) has revealed that the artisanal refining business is worth about US$1 million (approximately NGN200 million) daily, or US$336 million (NGN67.2 billion) yearly: more than the revenues that reach the communities from their local governments, thus making "illegal refining" the most lucrative business in the creeks of the Niger Delta. Although the theft of crude oil and artisan refining are illegal, the SDN study views such activities as entrepreneurial responses to local economic dysfunctions, given the region’s chronic energy shortages, and the failure of federal, states, and local governments to deliver basic physical and social infrastructure for the oil producing communities of the Niger Delta.

Perception on Emergent Factors to Artisanal Refining In the Niger Delta

The outcome of the interviews and Focus Group discussion with artisanal refiners is presented in figure 1. Results show that 20% of the respondents identified ethnic marginalization and neglect as one of the major factors responsible for the spread and expansion of artisanal refining in Niger Delta Regio. Political exclusion/inequity was identified as a contributory factor by 11% of the respondents. Unemployment is the most often identified contributory factor by the respondents, with over 20% of the respondents identifying it as a major contributory factor. Other factors identified include poverty, political manipulation, youthful exuberance, state repression, youth solidarity and attitude of multinational corporations respectively.
Figure 1: perception of contributory factors to artisanal refining in the Niger Delta
Source: Fieldwork, 2018

Trends in Incidences of Sabotage and Artisanal Refining in the Niger Delta
In order to analyse the trend of artisanal refining in the Niger Delta, Shell Petroleum Development Company (SPDC), SEPLAT Petroleum Development Company and Nigerian Agip Oil Company (NAOC) were used as representative sample to determine the trend of the phenomenon understudy. Artisanal refining constitutes the process of sabotaging, stealing and conveying to the point of refining. Some of the obvious signs that artisanal refining process is taking place are the sight of spills and damage of pipeline.
To understand the trend of the phenomenon, reported cases of pipeline sabotage resulting in spills by SPDC (2013 and 2017), SEPLAT (2015 and 2016) and NAOC (2016 and 2017) were examined. Corroborating reports by NNPC and other news items were also used to get a clearer picture of the trend of these activities across the region.

Trend across SPDC Facilities
SPDC is the pioneer and leader in the petroleum industry in Nigeria. The company has the largest area (square km) of oil producing fields in the country. It produces about 39% of the nation’s oil. SPDC operations are concentrated in the Niger Delta. In the upstream, SPDC has an oil mining lease area of about 31,000km² while in the downstream it has more than 6,000km of pipelines and flowlines, 87 flow stations, 8 gas plants and more than 1,000 producing wells. The company operates over 80 oil fields some of which are in the areas covered by this study. These include: Kolo creek, Obigho North, Egbema, Cawthorne Channel, Forcados, Otimara and Escravos. Some of the prominent oil miming leases (OML) operated by SPDC includes OML 29 and OML 17. The OML 29 is a large block located in Bayelsa State with 11 oil and gas fields and stretches 983km square. It includes Nenbe oil field, Okoroba oil fields and facilities like the Nenbe creek trunk line NCTL (a 100km long pipeline with capacity of 600 bpd). OML 17 is a large onshore license within the NNPC/Shell Joint Venture. Its area includes the Northern half of Port-Harcourt and extends from the low-lying swamp. Crude in OML 17 is exported through Trans Niger pipeline to SPDC operated Bonny oil and gas terminal.
Table 1: Reported cases of spill caused mainly by pipeline sabotage

<table>
<thead>
<tr>
<th>Year</th>
<th>Operational</th>
<th>Sabotage</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>23</td>
<td>157</td>
<td>180</td>
</tr>
<tr>
<td>2014</td>
<td>29</td>
<td>147</td>
<td>176</td>
</tr>
<tr>
<td>2015</td>
<td>17</td>
<td>110</td>
<td>127</td>
</tr>
<tr>
<td>2016</td>
<td>10</td>
<td>61</td>
<td>71</td>
</tr>
<tr>
<td>2017</td>
<td>10</td>
<td>69</td>
<td>79</td>
</tr>
</tbody>
</table>

Source: www.shell.com.ng

From the table, a total of 633 cases of spill were reported between 2013 and 2017. Across SPDC operations facilities, about 86% of these incidents are attributed to sabotage showing clearly the extent to which effort to secure supplies to feed the illegal market is impacting the legal operations of the company. The highest incidents of sabotage took place in 2013 accounting for about 29% of the total incident of sabotage over the period under consideration. In 2017, 69 cases of sabotage were recorded while the second and third highest cases of sabotage were recorded in 2014 and 2015 respectively.

![Figure 2: Trend of Pipeline Sabotage for the Purpose of Artisanal Refining in the Niger Delta](source)

Source: Fieldwork, 2018

From the dataset, there is clear evidence that there is downward trend in the number of reported incidences of sabotage of facilities. However, there is a slight uptick in the number of sabotage attributed incidents in 2017 compared to 2016. The figure shows that generally the phenomenon is on a downward trend. Beside sabotage incidents (vandalization of pipelines by persons suspected to be artisanal refiners with the intention of stealing oil for local refineries) declining, cases of spills as a result of operational causes were also declining.

This result could support the report that there is a downward progression of the artisanal refining in the Niger Delta. A report by Pulse News 28th, February, 2018, indicates a sharp downward drop of cases of vandalism or sabotage of oil pipelines in the Niger Delta. The NNPC group managing Director, Maikanti Baru also claimed a drop in cases of sabotage from 58% recorded in December, 2016 and indicated that there is a constant daily reduction of incidents. This downward trend could be attributed to sustained engagement with stakeholders and indegenes of the Niger Delta.
Trend across NAOC Facilities
Nigeria NAOC Oil Company (NAOC) operates across many areas of the Niger Delta under a Joint Venture arrangement with NNPC (50%), NAOC (30%), Oando (20%). Its operations cut across States such as Bayelsa, Delta, Imo and Rivers. The company’s Joint Venture Operations covers about 5,313km² comprising of OML such as OML 60, 61, 62, and 63. The company is also the operator of the two exploration leases (OPL 282 and OPL 135).

Similarly, data compiled from NAOC indicated a downward trend in the phenomenon. A statement on the website of the company (www.eni.com/en_NG) indicated the commitment of various stakeholders have resulted in the significant decrease of activities of oil theft point used for artisanal refining.
The highest cases were recorded between the 7th month (July) and 11th month (November) in 2016. In 2017, the highest cases were recorded between the 6th month (June) and 8th month (August). Generally, the trend is not very clear across NAOC operations; however, comparing incidents rate and to for the two years is an overall decline in the number of sabotage related incidents. From the data, there was a reduction of about 35% in the total number of sabotage related incidents between 2016 and 2017. This is a significant reduction and is in line with similar observation recorded from the data from SPDC. This is an indication that the situation may be changing not just for one company but most probably across the region.

Trend across SEPLAT Facilities
SEPLAT operates exclusively the OML 4, OML 38, and OML 41. The Oben field which is the largest field operated by SEPLAT is within the OML 4 which comprises of 60,000 bpd flow station, a gas processing plant and a gas compressor. Oil to be exported are transported from Oben flow station through the Oben-Amukpe pipeline system to Amukpe facilities and onwards to Forcados terminal or Warri refinery. Bordering Oben field is OML 38 and OML 41. OML 38 covers an area of about 2,094km² located 48km of Warri North. It currently has three producing fields which include Amukpe, Okpohuru and Ovhor (Ovhor is jointly on OML 38 and OML 41). There are new discoveries on OML 38, namely the Mesogar, Orogho and Jesse discoveries which have not started operation. OML 38 has a 45,000-bpd
capacity flow station, a liquid treatment facility (LTF) and two 50,000 bbls storage tanks. OML 41 is about 50km from the city of Warri and covers an area of about 291km². Its producing fields include Sapele, Sapele Shallow and Ovhor. It boasts of newly discovered fields such as Ubaleme and Okopor. Its facilities include 60,000 bpd flow station, a gas processing plant and a gas compressor station. SEPLAT operates other fields such as OPL 283, OML 53, and OML 55. SEPLAT has a 40% non-operated working interest in OPL 283. The field is located at Umuseti and Igbulu. OML 55 is jointly operated by SEPLAT, NPDC and Belema Oil. It is located at Robertkiri, Jokka and Inda, Rivers State. OML 53 is in Imo State about 60km North of Port-Harcourt City.

Data collected from SEPLAT between the period of January 2015 and December 2016 segregated across the States of their operations shows that incidents are declining with consequent indication for reduction in artisanal refining as pipeline sabotage is usually for the purpose of artisanal refining or illegal sales.

The cases reviewed span the operations of the firm in Delta and River States.

Table 2: Cases of sabotage of pipeline in 2015

<table>
<thead>
<tr>
<th>Quarters</th>
<th>Delta</th>
<th>Rivers</th>
<th>Loss Vol. Bbls</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q1 2015</td>
<td>14</td>
<td>7</td>
<td>2,030.4</td>
</tr>
<tr>
<td>Q2 2015</td>
<td>11</td>
<td>4</td>
<td>924.2</td>
</tr>
<tr>
<td>Q3 2015</td>
<td>13</td>
<td>5</td>
<td>140.2</td>
</tr>
<tr>
<td>Q4 2015</td>
<td>8</td>
<td>2</td>
<td>87.8</td>
</tr>
<tr>
<td>TOTAL</td>
<td>46</td>
<td>18</td>
<td>3,186.6</td>
</tr>
</tbody>
</table>

Source: SEPLAT Petroleum

The table shows that 14 cases of sabotage were recorded in Delta State in Q1 and with 50% less recorded in Rivers State within same period. 11 cases were recorded in Delta State in Q2 with just about 36% of such occurring in Rivers State. Generally, for this year (2015) there are more incidents in 2015 in Delta State compared to Rivers State. A look at the amount of total amount of crude lost to sabotage also shows a decline commensurate with the decreasing number of incidents across this period over the areas of operation of SEPLAT.

Table 3: Cases of sabotage of pipeline in 2016

<table>
<thead>
<tr>
<th>Quarters</th>
<th>Delta</th>
<th>Rivers</th>
<th>Loss Vol. Bbls</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q1 2016</td>
<td>8</td>
<td>2</td>
<td>223.30</td>
</tr>
<tr>
<td>Q2 2016</td>
<td>6</td>
<td>1</td>
<td>47.13</td>
</tr>
<tr>
<td>Q3 2016</td>
<td>3</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Q4 2016</td>
<td>4</td>
<td>3</td>
<td>128.4</td>
</tr>
<tr>
<td>TOTAL</td>
<td>21</td>
<td>6</td>
<td>398.83</td>
</tr>
</tbody>
</table>

Source: SEPLAT Petroleum

Furthermore, fewer cases of sabotage of pipeline for the purpose of artisanal refining were reported by the firm in 2016. From the table 4.5, 8 cases were recorded in Delta and 2 in Rivers in Q1. In Q2 the firm recorded 6 cases in Delta and only 1 case in Rivers State. Q3 record shows 3 cases in Delta and none in Rivers. The firm reported 4 and 3 cases of sabotage in Delta and Rivers respectively in Q4. Thus, across this period 29% of the incidents were recorded in Rivers State and the trend show that over the year 2016, there is decline from Q1 to Q4. Comparing incidences for the two years, the total number of incidents declined by about 54% in Delta State by about 67% in Rivers State. This also becomes very evident from Figure below which shows a clear downward trend across the 8 quarters with data collated for the study.
Analysis of data compiled from SPDC, NOAC and SEPLAT shows that the trend of oil spill as a result of sabotage has been decline across their areas of operations, this could be an indication that artisanal refining in the Niger Delta is on the decline. But this could also be an indication that the companies are finding better ways of preventing sabotage. A better indication therefore is that companies examined have been recording success in minimizing losses due to sabotage.

**DISCUSSIONS**

The contributing factors to artisanal refining of crude oil were rated on the order of importance. Nine factors were itemized for rating including: Ethnic marginalization/neglect, political exclusion, unemployment, poverty, political manipulation, youth exuberance, state repression, youth solidarity and attitude of MNOCs. From the rating, the alleged neglect and marginalization of Niger Delta Region (despite the huge financial contribution) was indicated as the major factor that has generated the phenomenon of artisanal refining. This suggests that there is a keen awareness of this situation by the Niger Delta people. It further suggests deep and broad grievance relating to the issues of intense dissatisfaction with power and resource distribution in the Nigerian State. This is in line with the assertion of Ikelegbe (2006) when he noted that “resource exploitation without adequate benefits”, “we contribute so much and get so little”, “neglect by the federal government and oil companies”, and “people (state officials) usurp authority and allocate resources irrationally to favour their groups” are indication of the general feelings of the people in the region. Quite related to marginalization is political exclusion and inequality in the Nigerian State. The study reveals this as a major factor in the struggle and its militarization. Unemployment and poverty are major problems that facilitate the phenomenon. Particularly unemployment among educated youths has a radicalizing effect. Succinctly put, unemployment among youths does not only deprive the nation of the requisite manpower required for economic growth but increases in them the sense of frustration and predisposes them to crime (Olukayode, 2016). This tends to empower the illicit refiners at the detriment of the organizational staff of MNOCs. The attitude of the State and MNOCs are instructive here. When those in authority choose the path of confrontation and ultimatum in preference to dialogue and negotiation, the other party is left with little or no other option but to resort to violent occupation and activities with semblance of violence. It is in the light of this that most of those interviewed opted for violence as the only language the multinational
companies understand. While there is considerable similarities in the responses of the research sample relating to ethnic marginalization and political exclusion there are some differences. For instance, political exclusion and inequity and State repression are more important reasons for the spread of artisanal refining, while for the SOM they see unemployment and poverty as being more important. Addressing the second objective, three graphs were instrumental to explaining the trend. Results indicated a downward trend in the incident of sabotage of oil facilities which is indicative of declining incidence of artisanal refining. This is corroborated by the reports from the NNPC which also indicates a decline in the phenomenon.

CONCLUSION
First, this work set out to identify the contributing factors to the phenomenon of artisanal refining in the Niger Delta. As earlier stated, some schools of thought were advanced to explain the emergence of this phenomenon. From the analysis of data collected for the study, nine contributory factors that could have influenced the phenomenon (artisanal refining) were identified. Some of these factors include ethnic marginalization or neglect, political exclusion, poverty, state repression and unemployment. Second, the trend of the phenomenon of artisanal refining in the NDR, data on incidents of sabotage and vandalization across selected companies were complied. From this it is possible to conclude that there is a downward trend of the phenomenon in recent times.

RECOMMENDATIONS
Based on the findings, the following recommendations were made to facilitate reduction in artisanal refining.

i. The establishment of modular refineries will increase employment for youths and further reduce the trend of the phenomenon.

ii. The oil and gas companies should give preference to graduates from impacted communities during employment as this will help to reduce the feeling of neglect.

iii. Security agents should stop the burning and bombing of artisanal refining sites as it causes further damage to the environment but should rather evacuate products from such sites.

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