

Impact of Oil Spillage Disaster on Community Livelihood and Environment in Isoko South Local Government Area, Delta State, Nigeria

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ABSTRACT

The oil spillage disaster on the community livelihood and environment in selected communities in Isoko South Local Government Area of Delta State, Nigeria was carried out. Three hundred and sixty eight copies of questionnaire were administered to elicit information from the residents of selected communities in Isoko South LGA. Descriptive and inferential statistics were used for data analyses using Statistical Package of Social Scientists (SPSS) 20.0. Findings revealed that the major livelihood was crop cultivation (28.8%) and oil spillage disaster is majorly caused by sabotage (21.8%) and often occur on a yearly basis while the effect of the oil spillage on the community livelihood and environment has resulted greatly on fisheries depletion (28.1%). The coping strategies adopted by the people included acquisition of new unaffected land for cultivation and migration to other towns. Findings revealed that the awareness of the oil spillage disaster does not depend on the sex, religion or primary occupation but their level of awareness of the oil spillage disaster does depend on their age, marital status and their level of education. The study showed that oil spillage disaster has resulted to various degree of loss of farmland, severe health challenges, loss of domesticated livestock, loss of family members, reduced growth and productivity, crop destruction and loss of source of income. Findings also showed that compensations are not commensurate with the rate of loss to their livelihood (83.3%) and that the relationship between the residents and oil companies is not very cordial (65.4%). The study recommended the need to develop active response

system in case of oil spill incidence as a means to reduce the impact of such spillage; and that oil companies and the government need to provide some infrastructure like health care programmes, economic and social empowerment schemes.

Keywords: Oil spillage, Disaster, Livelihood, Environment, Social empowerment

I. INTRODUCTION

Oil is a general term used to denote liquid petroleum products which mainly consists of hydrocarbons. The release of oil into the natural environment is termed oil spill. The extraction, refining, transportation and storage of oil are accompanied by seepages and spills by operations or accidents (Egbe & Thompson, 2010). Deliberate act such as sabotage, oil bunkering, lack of maintenance of engineering equipment, tanker accidents cause oil spill. Oil spill can also occur naturally through natural disasters like hurricane and earthquake, movement of tectonic plate and inadequate trap system. According to Egbe and Thompson (2010) oil spill sites are a common phenomenon in the Niger Delta region and multinational oil companies (MNOCs) records and investigations of spills in the region are also heavily disputed and politically sensitive. As it were, there are no consistent figures on the quantity of oil spills in the Niger Delta (Ordinioha & Brisibe 2013; Adekola, Fischbacher-Smith, Fischbacher-Smith & Adekola, 2017), but it is estimated that oil spill accounts for as many as 546 million gallons of oil into the Niger Delta environment over the last five decades, equivalent of about 11 million gallons

annually (Amnesty International 2010; Adekola, et al., 2017). Oil spills continue to occur in alarming proportion in the Niger Delta communities, particularly in Ogoniland who are living in a chronic state of pollution (UNEP 2011; Adekola, et al., 2017). While most countries of the world faced natural hazards, Nigeria is faced with numerous technological and or human induced hazards, among which oil spills are leading with severe short and long term cumulative impacts on affected populace (Albert, Amaratunga and Haigh, 2017). For instance, European nation experienced 10 incidences of oil spills in 40 years, while Nigeria experienced 9,343 incidences in 10 years (Kalejaye, 2015 cited in Albert, et al., 2017). Studies have also shown that the quantity of oil spilled in the Nigerian environment in five decades was at least 9-13 million barrels, equivalent to (50) Exxon Valdez oil spills of 1989 (260,000 barrels) (Wolfe, et al., 1994 cited in Albert, et al., 2017). This positioned the region as one among five most ruthlessly petroleum damaged environment in the world (Albert, et al., 2017). Consequently, these disasters have affected the environment, arable lands, water resources and livelihood structures of the immediate oil producing communities of Nigeria (Albert, et al., 2017). The impact further degenerates to increase in poverty, crisis and unrest within the crude oil producing environment (Ebegbulem, Ekpe and Adejumo, 2013; Albert, et al., 2017) leading to formulations of different agitation groups in call for environmental justice and livelihood support mechanisms.

Various activities of Man on the surface of the earth lead to development have been acknowledged to be detrimental to the environment. This is exacerbated by rapid technological advancement particularly in the 21st century. The oil bearing communities of Nigeria otherwise known as the Niger Delta region, is presently composed of nine-states. They include Akwa-Ibom, Bayelsa, Cross-River, Rivers, Delta, Edo, Abia, Imo and Ondo States. The area is characterized by wetlands and water bodies with large mangrove forests and a network of creeks and rivers criss-crossing the entire region, with an aquatic splendour. The large expanses of mangrove forests are estimated to cover approximately 5,000 to 8,580 km² of land (Nwilo and Badejo, 2006) and they remain very important to the indigenous people of Nigeria as well as to the various organisms that inhabit these ecosystems (Omoredede, 2014).

Oil spillage and gas flaring which is the most referenced form of pollution resulting from oil exploration and exploitation in the Niger Delta

have had consequences on the Niger Delta region. The situation has affected the living conditions of the people who depend solely on the environment for their subsistence, ranging from fishing, agricultural activities, provision of portable water, recreational activities such as swimming, pure and refined air and green/clean land and water ways. This incidence has continued for decades and still threatens any hope for a sustainable living. Planning for oil spill disasters requires learning from previous events, yet this is challenging because consequences are conditional upon the particular geographic, ecological, societal, and temporal contexts in which the disaster occurs. Oil spill in Nigeria occurs as a result of sabotage, corrosion of pipe and storage tanks, carelessness during oil production operations and oil tankers accidents (Nwilo and Badejo, 2006). Other examples of oil spill in Nigeria includes: Shell Petroleum Development Corporation (SPDC) Forcados Terminal Tank in 1978 of about 580,000 barrels Texaco Funiwa-5 blowout in 1980 of about 400,000 barrels, and Abudu pipeline spill in 1982 of about 18,818 barrels (NDES, 1997 cited in Okoye and Okunrobo 2014). Major oil spill like the Jesse fire incident which claimed about a thousand lives and the Idoho oil spill in January 1998, in which about 40,000 barrels were spilled into the environment (Nwilo et al, 2000 cited in Okoye and Okunrobo 2014). Oil spill affects the environment negatively. The most damaging and well documented effects of petroleum spillage are the oiling and tarring of beaches, death of seabird, and the destruction of intertidal marine communities. The economy is also affected because of the cost of clean-up exercise, loss of the revenue that would have been generated by the spilled oil and also death of fishes (Zabbey, 2004 cited in Egbe and Thompson, 2010).

The discovery of oil in 1956 transformed Nigeria's political economy and it has earned around \$340 billion over the past 40 years. The country's dependence on oil revenue is immense. It accounts for 90-95% of export revenue, over 90% of foreign exchange earnings and 80% of oil revenue (Okoye and Okunrobo 2014). There is no doubt that the Nigerian oil industry has affected the country in a variety of ways at the same time. On the one hand, it fashioned a remarkable economic landscape for the country. However, on the negative side; petroleum exploration and production also have adverse effects on fishing and farming which are the traditional means of livelihood of the people of the oil producing communities. If the oil is considered in view of its enormous contributions to foreign exchange

earnings, it has to achieve a remarkable success. On the other scale, when considered in respect of its negative impact on the socio-economic life and the environment of the immediate oil bearing local communities, and its inhabitants, it has left a balance sheet of ecological and socio-physical disaster (Achi, 2003 cited in Okoye and Okunrobo, 2014).

The ecological devastation occasioned by oil exploration has rendered farming and fishing, which are the main occupations of the rural people of Niger Delta region useless (Ebegbulem, et al., 2013). Pollution and continuous flaring of gas from oil prospecting and production have created health hazards and rendered fishing and other farming activities almost impossible. Also, occasional large oil spills kill fish; destroy agricultural crops; pollute the waters which seriously affect families and communities. According to the Department of Petroleum Resources, between 1976 and 1996, a total of 4,835 incidents resulted in the spillage of at least 2,446,322 barrels. Several years of oil exploration and exploitation by Multinational Corporations, and the hazards of spillage and gas flaring which accompany it, have degraded the environment of the region and left the communities desolate (Ebegbulem, et al., 2013). Not only have farming and fishing, the major occupations of these mostly riverine minorities been decimated, their territories have continuously lacked basic infrastructure and amenities - electricity, roads, schools, hospitals, portable water, etc. (Ebegbulem, et al., 2013). The oil rich Niger Delta region of Nigeria provides a highly relevant context in which to explore various impact of oil spillage to the host communities. Many studies have considered the environmental

impact of the oil spillage disaster which on long term affects many major activities of the people such as farming, fishing and health wise (Ebegbulem, et al., 2013; Okoye and Okunrobo 2014; Egbe and Thompson, 2010; and Ejemeyovwi, 2015). There have, however, been very few such studies that considered the community livelihood change in pattern over the years due to oil spillage disaster impact. It is therefore on that basis that the study intends to assess the oil spillage disaster impact on community livelihood and environment in Isoko South Local Government Area of Delta State.

II. MATERIALS AND METHODS

The study area is IsokoSouth Local Government Area, Delta State with its headquarters at Oleh, Nigeria. The area is one of the two local governments that make up the Isoko region. It lies approximately at latitudes between 5°22'55.52" North and longitudes between 6°12'51.01" East. The Isoko South Local Government Area covers a low-lying section of the larger Niger Delta Basin, interspersed with streams, canals and rivers (Figure 1.1). IsokoSouth LGA is one of the twenty-five local government areas in Delta State. IsokoSouth is bounded by four local government areas. These include Patani Local Government towards the South, Ughelli North Local Government towards the West, Ndokwa East Local Government towards the East and Isoko North Local Government towards the North. Isoko South comprises various communities and villages among which include Oleh, Olomoro, Umeh, Igibide, Irri, Aviara, Ewhokpaka, Uzere, Oviri, Ivrogbo etc.

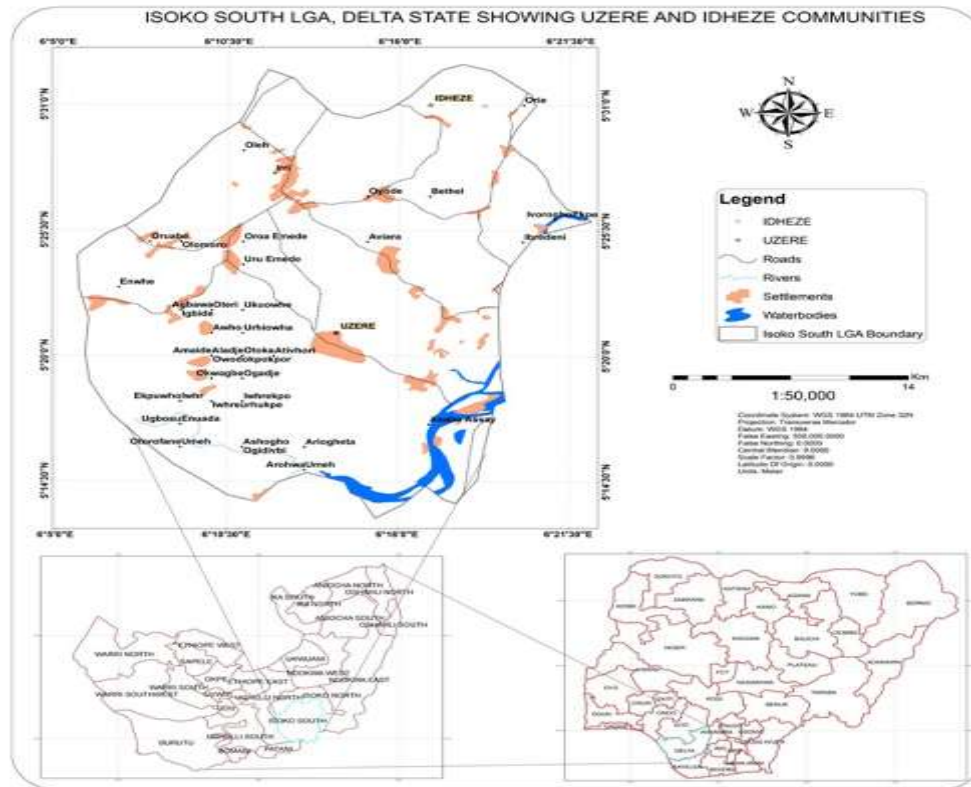


Figure 1. Study Area (Isoko South LGA)

Insets: Delta State showing Isoko South LGA; Nigeria showing Delta State

Climate and climatic variables do considerably influence water resources in the area. The climate of the area is defined by high values of evapotranspiration, humidity, temperature and rainfall that characterized humid tropical equatorial climate of the deltaic environment (Ejemeyovwi, 2015). The rainfall is mostly conventional and usually falls at any time of the day resulting from the effects of conventional rainfall and blown land and sea breezes. The climate of the area is the equatorial hot, wet type climate with fluctuations from humid in the south due to permanent Local influence of the River Niger to the sub humid in the northeast (Ejemeyovwi, 2015). The two seasonal winds of NE topical continental air mass that blows from October to February and the SW tropical maritime air mass blows from March to September maintains an average tropical temperature during the dry season and an average rainfall during the rainy season. The mean annual rainfall is high, over 2000mm per annum and temperature between 27°C – 35°C (Asaba Meteorological, 2007). Relative humidity in the area is about 69-80% and sunshine of 4.8 bars (Asaba Meteorological, 2007). There are two seasons in the area, namely, the dry season (November- March) and rainy season (April-

October) (Asaba Meteorological, 2007). The soil in the area is mainly silt-clay with interaction of sand and gravel. The vegetation is tropical evergreen rainforest with tall trees and undergrowth. This has been interfered by anthropogenic activities such as farming, bush burning, grazing and rapid development in the area. Due to these effects, the vegetation of the study area has been observed as mainly of secondary type with patches of trees in grassland. Most of the area lies below sea level (bsl) with only few places of 20mm height above sea level (ASL) (Ejemeyovwi, 2015). This result in marshy and waterlogged condition of the entire landscape, a poorly drained environment coupled with several tributaries and distributaries that empty waters into the River Niger. River Niger and its tributaries drainage system is characterized by very low velocity of flow due to its low elevation together with very high capacity discharge of sediments. This results in features such as braided channels, lagoons, canals, bars, creeks, meanders. In the rainy season, high rainfall and poorly drained soil of low retention capacity results in wide spread flooding and erosion. Thus, 80% of the entire area is flooded with the rivers overflowing their banks at the peak of wet season as the coastline is buffeted throughout the year by tidal current (tides) of the Atlantic Ocean (Ejemeyovwi, 2015). The surface

geology of the study area is made up of Ameki and Ogwashi-Asaba formations in the northeast of Delta State and the coastal plain sands (Benin formation) that astride the northern boundary with Edo State and beyond (Ejemeyovwi, 2015). The Ogwashi-Asaba formation is made up of coarse grained sands containing lignite and peaty clay seams. It is poor of ground water and characterized by the widespread occurrence of lost circulation (Rayment, 1965 cited in Ejemeyovwi, 2015). Both the Ameki and Ogwashi-Asaba formations are richly endowed with kaolinites, while the latter formation also contains lignite seams (Ejemeyovwi, 2008 cited in Ejemeyovwi, 2015). Three geologic formations are recognizable from the distinct attributes of depositional circles of sediments since early cretaceous (135my ± 65) in the area. They are upper Benin sands, middle Agbada of interbedded sands/marine shales and lower Akata made up of massive and regressive marine shales and clays deposits (Nwachukwu and Odjegba, 2001 cited in Ejemeyovwi, 2015). The major occupation is agriculture, and cassava, yam, plantain and maize are the food crops mainly grown in the study area. Rubber is also a widely grown cash crop in the area. In addition, the existence of Ase River, together with other numerous streams and creeks

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

Where: e= Level of precision (0.05)

N= Population

n= Sample size 588.8675

1= Constant

$$n = \frac{235,147}{1 + 235,147(0.05)^2}$$

n= 400

Therefore, the sample size was 400. This suggests that a total of 400 copies questionnaire were administered and 368 of them were retrieved for analysis. This represents 92% of the copies sent out.

For this study, a simple random sampling technique will be adopted in selecting respondents from the communities of the study area. Using simple random sampling technique in respondents' selection means chance alone determines who was included in the sample, removing any possibility of selection bias. The randomness of the sampling was achieved through sampling without replacement in which every selected respondent has only one chance of selection.

makes it possible for Erohwa, Uzere, Aviara and Igbide clans to have fishing as a major seasonal occupation. There are also numerous local fish ponds which are a major source of fish supply in Isokoland. The abundance of oil palm has also made the production of palm oil and palm kernel possible in the area. They also engage in trade of food crops for cash to meet other basic household needs. On market days, it is common to see Isoko women peddling their assorted goods around neighbouring villages.

The survey research method was adopted to carry out the study. This method was adopted because it is a suitable and efficient way of studying large population. It allows only a sample population to be used to represent the entire population. The population of the study comprised carefully and randomly selected residents' of communities (Uzere and Idheze) of Isoko South Local Government Area, Delta State, Nigeria. To have proper coverage, samples for the study were collected in a systematic random sampling form from the statistical population of 235,147 (NPC, 2006). To get a true representative sample of the target population, the Taro Yamane (1964) formula for sample size determination was used;

The data were collected from both primary and secondary sources. The primary data involved the use of a well-structured questionnaire to elicit information on the impact of the oil spillage as a result of oil exploitation on the livelihood of the communities in Isoko South Local Government Area of Delta State. The secondary data involved the international and national literatures on oil spillage and its impact on the livelihood of the hosting communities was reviewed in order to identify various causes, incidents and the resulting impact on various means of living in the communities in Isoko South Local Government Area of Delta State.

The copies of questionnaire for the study were administered on the people of the

communities in Isoko South Local Government Area of Delta State. The researcher personally delivered the questionnaires to the respondents with the help of three (3) assistants and waited to collect the questionnaires. The questionnaire used both the Open-ended and Closed-ended questionnaire in eliciting information from respondents. The administered questionnaires were collected, sorted, coded and analyzed. The research questionnaire was subjected to Statistical Package for the Social Sciences (SPSS) for proper analysis. The study objectives were analysed through descriptive statistics and the result was presented in frequency counts, percentages and chart in order to show the occurrence of each of the variables. The adopted statistics tools allowed the researcher to summarize and describe finding in a manner that are better to understand their characteristics, similarities, variation, trends etc. The research hypotheses were tested through inferential statistics at 95% level of significant. Research hypothesis (I) was tested with Students T-test. The statistical tool was employed for making inference about a population mean based on a single sample. The research hypothesis (II) was tested with Chi-square. As inferential statistics, Chi-square allows for

exploring the statistically significant relationships between two sets of variables.

III. RESULTS AND DISCUSSIONS

Socio-economic Status of Respondents

Findings in Table 1 showed that 57.30% of the respondents were male while 42.70% were females. This shows that most respondents sampled were males. Figure 1 presents the age ranges of the respondents. Most of the respondents' age ranges from 30-40 which represents the majority of the respondents (40.70%). The result in Figure 2 showing the marital status of respondent claimed that 59% of the respondents were married while 24%, 13% and 4% of the respondents were single, divorced and widowed respectively. Table 2 presents the various religions of the respondent. Most of the respondents are of Christian religion and it represents 235 of the sampled population. Figure 3 presented the level of education of the respondent. Majority of the respondents had a Primary level of education and it represents 121 of the sampled population. Table 3 presents the various primary source of livelihood of the respondent. Most of the respondents are into crop cultivation and it represents 28.8% of the sampled population.

Table 1: Sex of the respondent

Respondents	Percentage (%)
Male	57.30
Female	42.70
Total	100

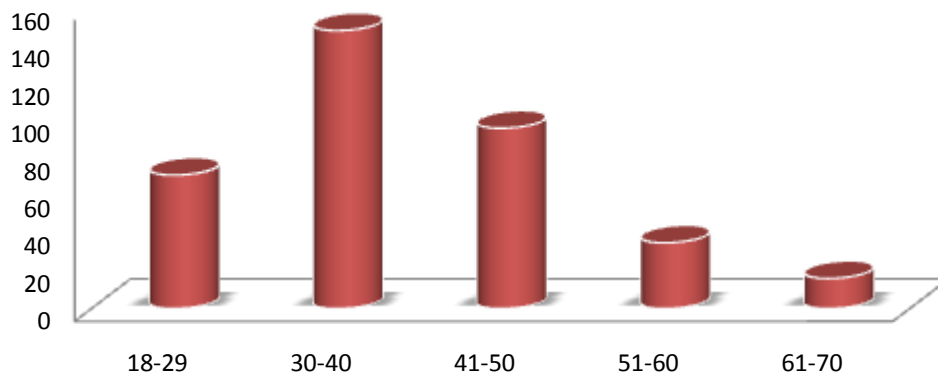


Figure 1: Age of Respondents

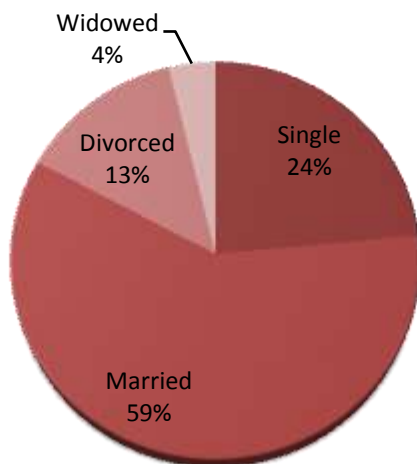


Figure 2: Marital Status of Respondents

Table 2. Various religions of the Respondents

Respondents	Percentage (%)
Christianity	66.60
Islam	18.40
Traditionalist	13.30
Others	1.7
Total	100

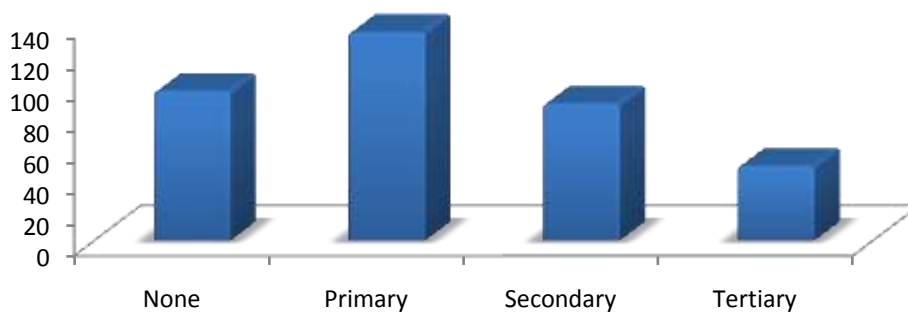


Figure 3. Level of Education of Respondents

Table 3: Primary Source of Livelihood of the Respondents

Respondents	Frequency
Crop Cultivation	106
Fishing	49
Livestock Sales	93
Trading	59

Public Sector Worker	51
Oil Company Worker	3
Other	7
Total	368

Knowledge about the Causes of Oil Spillage Disaster and Frequency of Occurrence in the Study Area

Table 4 presents the causes of oil spillage disaster in the study area. Most of the respondents perceived sabotage as the cause of oil spillage

disaster and it represents 79 of the sampled population. Figure 4 presents the frequency of oil spillage occurrence in the study area. Most of the respondents (46%) claimed spillage occurs on a yearly basis.

Table 4. Causes of Oil Spillage Disaster

Respondents	Percentage (%)
Equipment failure	20.7
Sabotage (bunkering)	21.8
Damage to oil tankers or storage vessels	8.6
Leaking tanks or oil tank	16.6
Overflow	10.5
Accidents	19.1
Others	2.8
Total	100

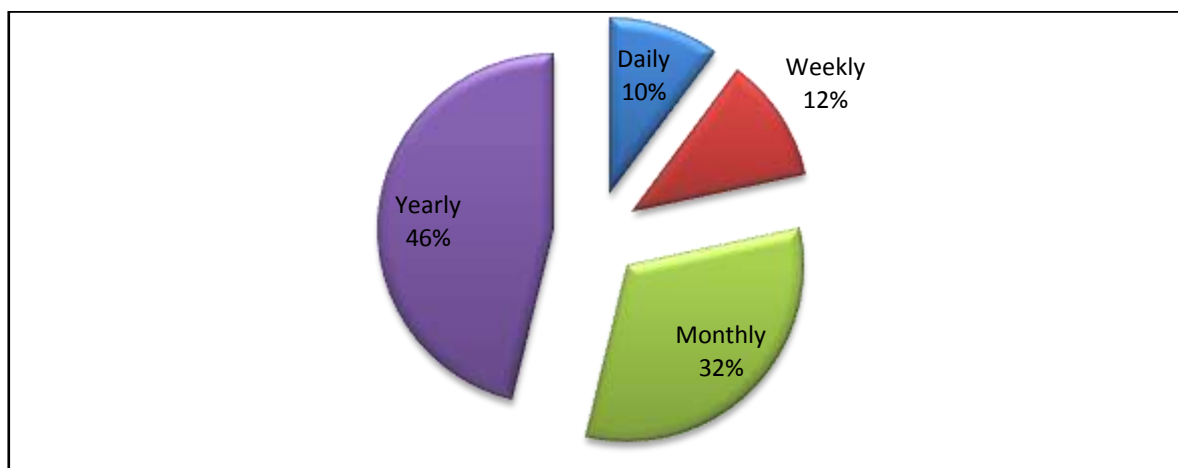


Figure 4. Frequency of the Oil Spillage in the Community

Effect of Oil Spillage on the Community Livelihood and Environment

Table 5 presented the effect of oil spillage on the environment of the study area. Most of the respondents claimed fisheries depletion as the most common effect and it represents 103 of the sampled population. Figure 5 presents the effect of oil

spillage on the livelihood of the study area. Most of the respondents claimed oil spillage has resulted to loss of source income and it represents 33.6% of the sampled population. Figure 6 presented the source of livelihood increase in the study area. Most of the respondents claimed source of livelihood has not increased in the last 10 years.

Figure 7 presents the reason for livelihood increase or decrease in the study area. Most of the respondents claimed livelihood has decreased due to oil exploitation activities. Student T-test analysis shows that there is significant variation in the effects of oil spillage between the communities across the study area ($t=44.827$; $p<0.05$) (Table 6). The association between oil

spillage and socio-economic characteristics of residents in the study area was discovered through the use of Spearman rank correlation and the results showed that the occurrence of oil spillage disaster does not depend on the socio-economic characteristics of the residents in the study area ($r=0.341$; $p>0.05$) (Table 7)

Table 5: Effect of Oil Spillage on the Environment

Respondents	Percentage (%)
Deforestation	14.2
Ecological degradation	13.1
Fisheries depletion	28.1
Biodiversity loss	19.6
Depletion of ecosystem services	20.4
Other	4.6
Total	100

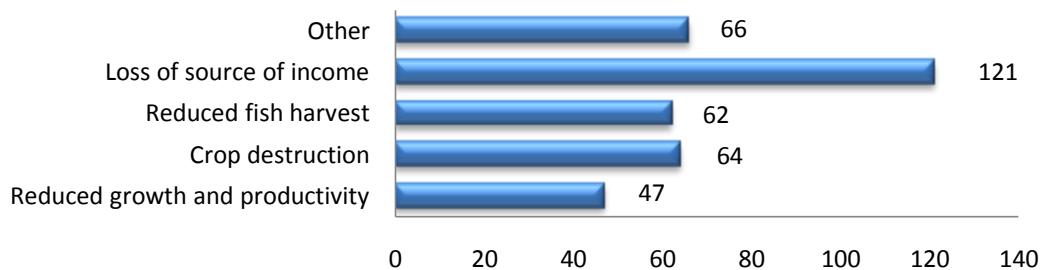


Figure 5: Effect of Oil Spillage on the Community Livelihood

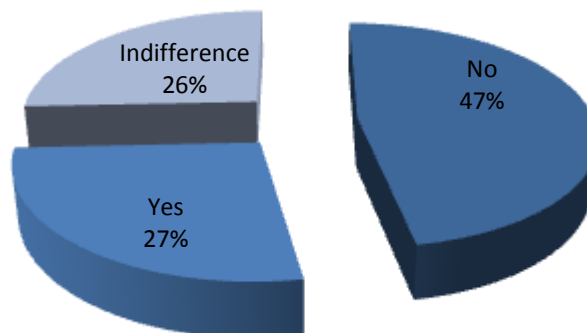


Figure 6: Source of Livelihood Increase

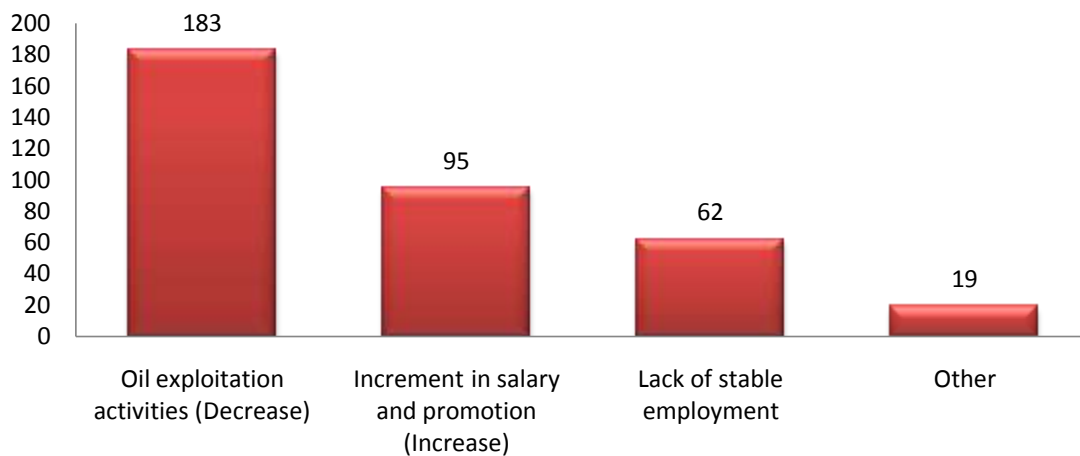


Figure 7: Reason for Livelihood Increase or Decrease

.Table 6. Chi Square analysis

	T	Df	Asymp. Sig. (2-sided)	Mean Diff.
Variation in the effects of oil spillage between the communities	44.827	366	.000	3.330

Table 7. Spearman Rank Correlation Statistics

			Socio-economic Characteristics
Spearman's rho	Occurrence of Oil Spillage	Correlation Coefficient	0.341
		Sig. (2-tailed)	0.721
		N	70

Coping Strategies of the Residents in the Communities

Figure 8 presents the coping strategies employed by the host community against the effect of oil spillage. Most of the respondent's claimed they cope by acquisition of new land for cultivation (40.70%).

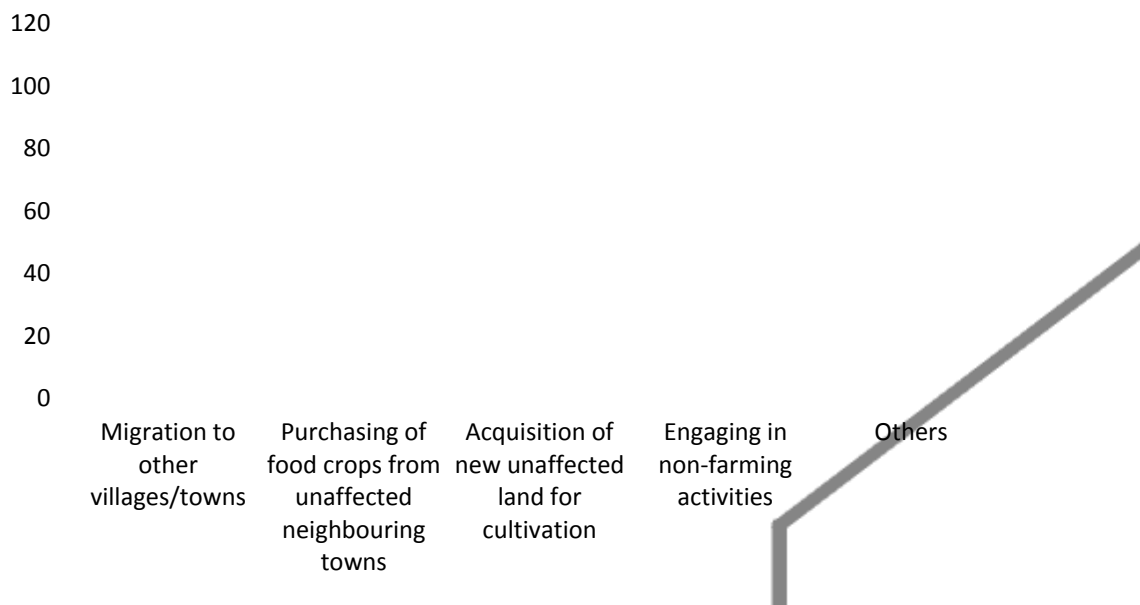


Figure 8. The Coping Strategies Employed

Table 6 presents that compensations are not commensurate with the rate of loss of livelihood. Most of the respondents strongly agreed and it represents 42.6% of the sampled population. Table 7 presents relationship existing

between the community and the oil producing company is very cordial. Most of the respondents are disagreed and it represents 124 of the sampled population.

Table 6. Compensations are not Commensurate with the Rate of Loss of Livelihood

Respondents	Percentage (%)
Strongly Agree	42.6
Agree	40.7
Disagree	10.9
Strongly Disagree	5.7
Total	100

Table 7. Relationship existing between the Community and the Oil Producing Company

Respondents	Percentage (%)
Strongly Agree	10.6
Agree	24.0
Disagree	34.5
Strongly Disagree	30.9
Total	100

Government and/or Oil Companies Mitigation against Oil Spillage Disaster

Figure 9 presents the mitigation against oil spillage disaster by government and/or oil companies. Most of the respondent's claimed creation of monitoring agency will mitigate against

oil spillage disaster (24.70%). Figure 10 presents the effectiveness of government and/or oil companies' mitigation in the study area. Most of the respondents claimed spillage occurs on a yearly basis.

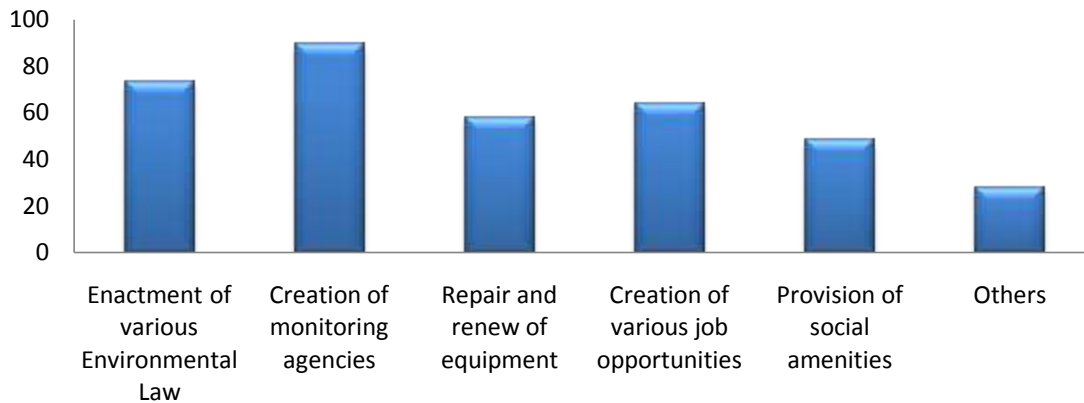


Figure 9. Mitigation against Oil Spillage Disaster

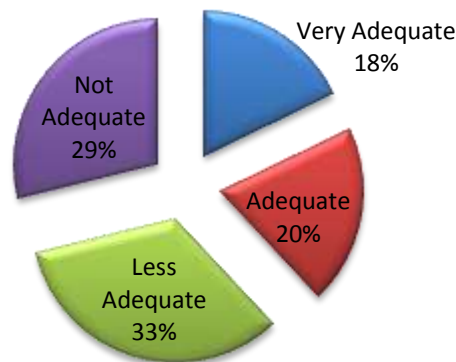


Figure 10. Effectiveness of Mitigation

IV. DISCUSSION OF FINDINGS

From the finding of the study, 57.3% (208) of the respondents were males, 42.7% (155) were females. The age of the respondents showed that majority of the respondents are between the age ranges of 30-40 (40.7% of the total respondents), 19.5% are between the age of 18-29, 26.4% are between the age of 41-50, 9.6% are between the age of 51-60, 3.6% are between the age of 61-70. The implication of this to the study is that the study participants were of grown up ages. From the marital status of the respondents, the result showed that majority of the respondents were married 59.30% (217), 23.5% (86) of the respondents were single, 13.4% (49) of the respondents are divorced while the widowed represented by 3.80% of the total respondents. The result of the religion of the respondents showed that most of the respondents are of Christian religion and it represents 66.6% (235) of the sampled population, 13.3% (47) of the respondents were traditionalist, 18.4% (65) were Islam while 1.7% (6) of the respondents claimed other forms of religious. On the level of education, the result showed that 36.6% (134) of the respondents claimed to have attained primary level of

education, 24.0% (88) of the respondents claimed to have attained secondary level of education, 13.1% (47) of the respondents claimed to have obtained a tertiary education while 26.2% (96) of the respondents had no forms of education. This implies that the study area has high level of education and literates among the participants. According to Ismail and Mustaqim (2013) education is among the key indicators for socio-economic development, means to improve occupational structure of the societies and a determinant of both level of occupation and level of income. Furthermore, the primary source of livelihood of the respondents indicated that 28.8% (106) of the respondents are into crop cultivation, 13.30% (49) are into fishing, 25.3% (93) are livestock sellers, 16% (59) of the respondents claimed to be traders, 13.9% (51) of the respondents claimed to be public sector workers while 0.8% (3) and 1.9% (7) claimed to be oil company worker and other forms of livelihood respectively.

On the cause of oil spillage disaster, 75 (20.7%) of the respondents claimed oil spillage is caused by equipment failure, 79 (21.8%) claimed is caused due to sabotage (bunkering), 31 (8.6%) claimed damage to oil tankers and storage vessels,

60 (16.6%) claimed spillage is due to leaking tanks while 38 (10.5%), 69 (19.1%) and 10 (2.8%) claimed the spillage is caused by overflow, accidents and other forms respectively. The finding implicated that majority of the respondent's perceived sabotage (bunkering) as the main cause of the oil spillage disaster. According Raji and Abejide, (2013) the major causes for the consistent oil spills in the Ijaw environment or elsewhere in the NigerDelta include blowout, pipeline corrosion, equipment failure and sabotage. Other minor causes of oil spills also include accidental spills, overflow of tanks, valve failure, overpressure, sand cut through erosion, and engineering error (HRW, 1999). Considering the oftenness of the spillage, the outcome showed that 10.1% of the respondents claimed the spillage occurs on a daily basis, 11.5% claimed is on weekly basis while 32.2% and 46.2% claimed the spillage occurs on monthly and yearly respectively.

On the effect of oil spillage on the environment, the evidence of the study showed that 14.2% (52) of the respondents claimed the spillage effect is deforestation, 13.1% (48) claimed ecological degradation, 28.1% (103) claimed fisheries depletion, 19.6% (72) claimed biodiversity loss while 20.4% (75) and 4.6 (17) claimed depletion of ecosystem services and other forms of effect respectively. The implication of the finding is that many respondents claimed fisheries depletion is the major the community livelihood and environment. As Eteng (1996) indicated, the negative impact of petroleum development on the ecosystem of the Niger Delta region has given rise to intense land degradation, rapid agricultural decline, fisheries depletion, rampant and destructive oil spillages, continuous gas flaring and toxic water contamination among others. According to the study conducted by Ebegbulem et al., (2013), the greatest negative tendency associated with this exploration and exploitation is environmental degradation. This problem is reflected in cases of water pollution, air pollution, soil degradation, deforestation and atmospheric changes among others. The effect of oil spillage on the livelihood indicated 33.6% of the respondents claimed loss of source income as the effect; 13.1% claimed reduced growth and productivity, 17.8% claimed the effect of the spillage resulted to crop destruction while 17.2% and 18.3% claimed the effect resulted to reduced fish harvest and other effects respectively. The outcome of the study showed that source of livelihood has not increased in the last 10 years, representing 47.2% (167) respondents, 27.1% (96) claimed the source of livelihood has increase within the year under study

and 25.7% (91) claimed indifference to the source of livelihood increase. Although, the reason behind the increase or decrease in the livelihood indicated that oil exploitation activities in the study area as resulted to decrease in various forms of livelihood. The finding corroborate with that of Onyegeme-Okerenta, Oharisi, Wegwu (2017) environmental pollution resulting from oil spillage is capable of degrading the environment; altering the natural quality of soil with an attendant cascade of its impact down the food chain. Therefore, it can be deduced from the study that, oil spillage does have effect on the community livelihood and environment of the study area, such effects includes loss of farmland, severe health challenges, loss of domesticated livestock, loss of family members, reduced growth and productivity, crop destruction and loss of source of income. The outcome corroborate with the study of Adekola and Igwe (2014) which highlighted damage to land, negative impact on finances, contaminated water, and increased cost of transportation and prevention of good yields from farms, fishing among others as the effect of oil spillage.

On the coping strategies adopted by the people of the study, 29.5% claimed to migrate to other villages/towns, 20.7% claimed to purchase food crops from unaffected neighbouring towns, 29.8% claimed to have acquired new unaffected land for cultivation while 18.2% and 2% claimed to have engaged in non-farming activities and other forms of strategies. The study further considers the statement "compensations are not commensurate with the rate of loss of livelihood", the outcome indicated that 42.6% of the respondents strongly agreed to the statement, 40.7% agreed while 10.9% and 5.7% disagreed and strongly disagreed respectively. The implication of the finding indicated that majority of the respondents felt the compensations are not commensurate with the rate of loss to their livelihood. Also, the relationship existing between communities and oil companies was considered if "very cordial", the finding showed that 10.6% strongly agreed to both parties cordial relationship, only 24.0% agreed while 34.5% of the respondents disagreed and 30.9% strongly disagreed to a cordial relationship between the oil companies and communities.

On the mitigation against oil spillage disaster by government and/or oil companies, the outcome of the finding indicated that 20.3% of the respondents claimed enactment of various environmental law, 24.7% claimed the mitigation was in form of creation of monitoring agencies, 16.1% claimed through repair and renew of equipment, 17.8% claimed mitigation is in form of

creation of various job opportunities while 13.3% and 7.8% of the respondents claimed mitigation was in form of provision of social amenities and other means respectively. On the effectiveness of the mitigation adopted by government and/or oil companies, the finding of the study revealed that 17.9% (65) of the respondent claimed the mitigation adopted is very adequate, 20.1% (73) claimed it's adequate, 33.2% (121) of the respondents claimed the mitigation is less adequate while 28.8% claimed the mitigation adopted is not adequate. The implication of the finding indicated that the majority of the respondent felt the mitigation put in place by the government and/or oil companies is less adequate. This is corroborative of Ejiba, et al., (2016) and Omorede's (2014) argued that Government and Oil Companies efforts in the management of problems caused by Oil Resource Exploitation in Delta state of Nigeria are not adequate. This is very fundamental to the constant protestation of the displeased youth of host communities.

It was deduced that obtained probability was lower than 0.05 therefore, the null hypothesis that there's no significant variation in the effects of oil spillage between the communities was rejected for alternate hypothesis that says there's significant variation in the effects of oil spillage between the communities. The implication of such deduction is that the variation in the effect of the oil spillage between the communities would be influence by the amount of spill, oftenness of the spillage, the clean-up method engaged and the platform that had the contact with the spillage (such as water and/or land). It was also deduced that the obtained probability was higher than 0.05 therefore, the null hypothesis that says the influence of oil spillage disaster does not depend on the socio-economic characteristics of the residents in the study area was accepted. The implication of such finding is that irrespective of the socio-economic status of the residents in the study area, they are all bound to be affected by the effect of oil spillage disaster on environmental degradation which could be in form loss of farmland, polluted Rivers/Stream, severe health challenges, polluted air, loss of domesticated livestock, loss of family members etc.

V. CONCLUSION AND RECOMMENDATIONS

In conclusion, the oil spillage leading to oil pollution has continued for many years in the study area and Niger Delta region with many irregularities which since resulted to loss of livelihood in many communities in the region including the study area. The effect of oil spillage

disaster has resulted to various degree of loss of farmland, severe health challenges, loss of domesticated livestock, loss of family members, reduced growth and productivity, crop destruction and loss of source of income. Oil spillage has resulted in substantial destruction of the once green delta environment turning large section of the region into wastelands. The mitigation strategies put in place is deemed less adequate because communities could sense the carefree attitude of the oil companies towards environmental management which is deeply frustrating for the communities considering the fact that the compensations are not commensurate with the rate of loss to their livelihood. The study therefore recommends that engagement and empowerment of the youth and women groups can help in putting an end to sabotage (bunkering), and proper and adequate monitoring of pipeline and oil installations/facilities; there is need for regular monitoring and upgrading of equipment and facilities to curb equipment failure; there is need to develop active response system in case of oil spill incidence as a means to reduce the impact of such spillage; there is an urgent need for an independent environmental policies and governance with sustained people oriented environmental protection interest, to respond to the problem of oil spills and to monitor Oil Company's compliance with international standard; and the oil companies and the government to provide socioeconomic activities including health care programmes, economic and social empowerment scheme.

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