

**ARTISANAL CRUDE OIL REFINERIES: INDULGENCE, EFFECTS AND COPING STRATEGIES IN IKWERRE LOCAL GOVERNMENT AREA (L.G.A) OF RIVERS STATE, NIGERIA**

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**ABSTRACT**

*This study examined Artisanal Crude Oil Refineries: Indulgence, Effects and Coping Strategies in Ikwerre L.G.A of Rivers State, Nigeria. Three objectives and three research questions were used for the study. This study used descriptive research design. The population of the study consisted of residents in Ikwerre L.G.A of Rivers State, Nigeria. A sample of 365 respondents was selected for the study. This was achieved using purposive sampling technique to independently select artisanal crude oil refiners at their refining sites in Ikwerre L.G.A of Rivers State. The questionnaire was the instrument used to collate data for the study. The instrument was face validated by professionals in the Department of Sociology, Faculty of Social Sciences, University of Port Harcourt, Choba. Test retest method of reliability was used to establish the reliability value of 0.75 Correlation Co-efficient for the study. The percentage and frequency tables were used as a statistical method. The findings of the study revealed that corruption in government, unemployment, marginalization in the distribution of crude oil benefits and weak institutional structure predisposed people to indulge in artisanal crude oil refineries. The findings also revealed that the effects of artisanal crude oil pollutants on the environment and humans killed soil microbes, negatively affected farmlands and fishing activities, destroyed crops and livestock, which negatively affected national economy, and negatively affect farm yields which in turn predisposed farmers to poverty in the study area. The findings further revealed that coping strategies such as environmental education, curbing of corruption, friendly environmentally practices and monitoring of the whole processes of crude oil exploration by government halted the effects of artisanal crude oil pollutants. Based on the findings, study recommended among others, that the Federal Government in conjunction with the State Government should provide job opportunities to residents, especially youths in order to put an end to artisanal crude oil refineries in Ikwerre L.G.A of Rivers State. It was also recommended that the Federal Government in conjunction with the State Government should provide financial support and training for residents in communities to engage in alternative livelihoods, thereby reducing the reliance on artisanal crude oil activities in the study area.*

**Key words: Artisanal Crude Oil Refineries, Indulgence, Effects, Coping Strategies**

**INTRODUCTION**

For more than fifty years, the search for an extraction of crude oil has been the foundation of Nigeria's economy, contributing to more than 90% of its foreign exchange earnings (Sayne, 2013). Nigeria ranks as the sixth largest exporter of crude oil (Albert, *et. al.*, 2018), with the Niger Delta containing more than 37.4 billion barrels of crude oil reserves and being home to one of the world's most biodiversity ecosystems. The Niger Delta area in Nigeria contains the world's third-largest mangrove forest, featuring vast fresh water and saltwater swamps, along with a diverse range of plant and animal species (Temple, 2020). The Niger Delta region of Nigeria is one of the most environmentally affected areas globally due to crude oil extraction,

primarily because of inadequate regulations, and the actions of informal crude oil refiners, who are significant contributors to pollution (Temple, 2020). It is vital to emphasize that crude oil is the primary force propelling the Nigerian economy and, consequently, shapes its entire socio-political landscape. As a result, any factor that either subtly or explicitly impact oil production in Nigeria represents a significant risk to the country's economy, political stability, territorial integrity, and national security (Timothy, 2014).

Oil theft has considerable economic, social, environmental, governance and security implications. This criminal act has contributed significantly to the poverty and degradation that exist in the Niger Delta region of Nigeria today. The issue of oil theft in the Niger Delta has been a problem for a long time, but considered by many as tolerable. However, today there is a clear recognition from the Nigerian Government that this artisanal crude oil practice now has a direct negative impact on the entire economy (Temple, 2020). Large-scale crude oil bunkering has become an increasingly significant issue in recent years. The violence in Niger Delta is predicated on the activities of stealing crude oil. Oil stolen by syndicates in collaboration with foreigners also fueled the civil unrest in the Niger Delta Region of Nigeria. Another negative impact of oil bunkering is environmental damage. The social and environmental costs of oil theft have been very extensive as well.

The discharge of petroleum products into terrestrial (onshore) and aquatic (offshore) environments is harmful to ecosystems, and poses a threat to marine organisms. Since crude oil was discovered in Nigeria, approximately 13 million tons have been spilled in the Niger Delta, leading to significant pollution of both the land and coastal areas (Timothy, 2014). This kind of pollution arises from various sources, which can be either human-made or natural. Leakages from pipeline breaks, accidental spills, and improper management at production sites lead to soil and water contamination in the surrounding area. Furthermore, waste from unregulated refining locations is discharged untreated into nearby rivers, resulting in significant harm to aquatic ecosystems and local plant life. Crude oil pollution is a harmful activity that presents health risks and environmental issues for those who come in contact with it. This is so because worldwide, petroleum contributes to 41.0% of carbon dioxide emissions from fossil fuels, and emissions from oil bunkering add carbon dioxide to the atmosphere, exacerbating global warming, driving climate change, contaminating valuable landscapes, and costing billions of dollars (Ugwuanyi, 2013).

### **Statement of the Problem**

Unauthorized crude oil contamination in Nigeria has become a major environmental and socio-economic issue, especially in the Niger Delta area. In recent times, the Nigerian government has experienced a substantial decrease in revenue due to unauthorized crude oil bunkering in the Niger Delta region. The illegal siphoning of crude oil has significantly contributed to various environmental, social, and security issues in the Niger Delta region of Nigeria. This problem is marked by multiple factors and extensive consequences that affect both the environment and nearby communities. Although the dangers linked to artisanal crude oil pollutants are well-documented, there is a general lack of awareness, differing degrees of concern, and varying perspectives among stakeholders. This obstructs the enactment of thorough strategies aimed at alleviating the impacts and preventing additional harm to the environment. There is a widespread unawareness among impacted communities, policymakers, and the public about the particular health hazards linked to crude oil bunkering. Restricted access to information, insufficient health education, and the widespread presence of misinformation all play a role in this deficiency in awareness. Different stakeholders have varying perspectives on the health impacts of crude oil bunkering. Some people might downplay the risks or focus more on immediate financial benefits rather than the long-term

effects on health. Some individuals might recognize the risks better but do not have the necessary resources or support to manage them properly.

The Niger Delta Region of Nigeria is an international hotspot for oil-related criminal activities. There are complete criminals who engaged in illegal extraction, trading, refining, and transportation. Pipeline vandalism and the activities of local refiners are indicators of oil theft, leading to significant crude oil spills and pollution in the area. This devastation destroys local farmlands, harms vegetations, contaminates rivers, and ultimately undermines the livelihoods of the communities. The health issues related to artisanal crude oil bunkering can manifest in various ways, such as air pollution, resulting from gas flaring; as well as lead to environmental degradation and conflict. Artisanal crude oil refineries could also lead to increase in cancer and heart diseases, reduce life expectancy, and degrade soil nutrients.

Daniel (2014, P.19) investigated "Management of Amnesty Programme for Sustainable Livelihood in the Niger-Delta Region of Nigeria: Challenges and Policy Action." and found that there is a significant increase in artisanal crude oil pollution in Niger- Delta Region, Nigeria. Duru (2013, P.26) also explored "The Impacts of Artisanal Crude Oil Pollution on the Subsequent Food Crisis in Akwa Ibom State, Nigeria," and the findings indicated that artisanal crude oil contamination results in low agricultural yields and poverty in Akwa Ibom State, Nigeria. Based on the lacuna of the above studies to address the current issues of artisanal crude oil refineries, their indulgence, effects, and the strategies for coping with the activities, this study was carried out in Ikwerre L.G.A in Rivers State, Nigeria.

### **Objectives of the Study**

The following objectives are delineated for the study:

1. To investigate why people indulge in artisanal crude oil refineries in Ikwerre L.G.A in Rivers State.
2. To explore the effects of artisanal crude oil pollutants on the environment and humans in Ikwerre L.G.A in Rivers State.
3. To examine the coping strategies for the effects of artisanal crude oil pollutants in Ikwerre L.G.A in Rivers State.

### **Research Questions**

The following research questions are posited for the study:

1. Why do people indulge in artisanal crude oil refineries in Ikwerre L.G.A in Rivers State?
2. What are the effects of artisanal crude oil pollutants on environment and humans in Ikwerre L.G.A in Rivers State?
3. What are the coping strategies for the effects of artisanal crude oil pollutants in Ikwerre L.G.A in Rivers State?

### **Literature Review**

#### **Why People Indulge in Artisanal Crude Oil Refineries**

Emenike (2019, P.18) in a study entitled: "Causes of Crude Oil Bunkering in Nigeria" found that the causes of crude oil bunkering include poverty, ignorance, greed, lack of respect for national economic survival, get rich syndrome, and lack of gainful employment among the youths in the country. Emenike (2019, P. 18) in achieving these results:

The study adopted the survey research design. Interviews, questionnaires and observation instruments were employed in data generation and collection. The population of the study consisted of 452 respondents. A sample size of 120 respondents was selected using simple random sampling technique. The data

analysis was done with the aid of the Statistical Package for Social Sciences (SPSS) using mean, and standard deviation.

Bodo (2019, P.33) studied "Causes of Crude Oil Bunkering Activities in the Niger Delta of Nigeria" and found that unemployment and poverty are the causes of artisanal oil pollution. Bodo (2019, P.33) achieved this result by:

Adopting a descriptive research design. Six research hypotheses were formulated. Data were collected using a self-developed questionnaire. The questionnaire was validated and the Cronbach's alpha was 0.81, while the reliability was confirmed at 0.78 using a test-retest method. Copies of research questionnaire were administered to three hundred (300) respondents. Data were analysed using mean and standard deviation to answer the research questions while Pearson Product Moment Correlation was used to analyse the tested hypotheses at 0.05 levels of significance.

Furthermore, people indulge in artisanal crude oil refineries as a way to provide jobs to large unemployed people in Niger Delta which Federal Government was unable to provide. As far as the local people are concerned; bunkering of crude oil has provided jobs for a lot of persons in Niger Delta communities, including, women, men, and youths, and it has lessened the miseries of the public to an extent (Ozogu, *et.al*, 2023). With this ugly situation, and the attendant neglect of the Niger Delta people, some indulge in artisanal crude oil refineries as their way of partaking in the share of national cake in Nigeria. It is this injustice that has spurred the people to indulge in artisanal crude oil refineries in order to have better living conditions. Drawing from the above facts, Global Citizen (2022) argues that the practice of artisanal crude oil refining is also linked to long-standing dissatisfaction of local communities with the international oil companies that keep extracting natural resources for profit, without investing back into the communities that suffer the consequences. This inefficiency exacerbated the "quick money syndrome" among the people who in turn engaged in artisanal crude oil refineries.

Sadly, there is deliberate non-implementation of community-based policies on derivation from crude oil exploration benefits; which the Niger Delta people hardly get. This is worsened by multinational companies that hardly implement host communities' Memorandum of Understanding (MoU) for social welfare, alongside failure of implementation of Petroleum Industry Act (PIA) by Federal Government of Nigeria. Also, the reasons for people's indulgence in artisanal crude oil refining and pipeline vandalization are the facts that:

Nigerian crude oil is being stolen on an industrial scale. It is not entirely clear how much is exported. Proceeds are then laundered through world financial centres and used to buy estates in Nigeria and abroad. In Nigeria, politicians, government security forces, militants, oil industry personnels, oil traders and community members benefit to varying degrees along with organized criminal networks (Katsouris & Sayne, 2013, P.1).

### **Effects of Artisanal Crude Oil Pollutants on Natural Environment and Humans**

Nwosu (2017, P.89) investigated the "Effect of Artisanal Crude Oil Pollution in Selected Secondary Schools in Ikenne Local Government Area of Ogun State, Nigeria" and discovered that crude oil bunkering kills soil microbes. To achieve this, Nwosu (2017, P. 86) in his study adopted:

A survey design of ex-post facto type was used for the study. Four research hypotheses were formulated and tested at 0.05 level of significance. Data were collected using a self-developed questionnaire tagged "Teachers' Motivation and Performance in Secondary Schools". The questionnaire was validated and the Cronbach's alpha was 0.81 while the reliability was confirmed at 0.78 using a split-half correlation coefficient. Copies of research questionnaire were administered to two hundred (200) teachers who were randomly selected from four major (4) administrative zones in the LGA, but only one hundred and eighty-seven (187) were adequately filled and used in the analysis. Data were analysed using Pearson Product Moment Correlation and Multiple Regression statistical methods.

Ukpong (2023, P.28) investigated "The Effects of Bunkering of Crude Oil in Niger Delta Area of Nigeria", found that bunkering of crude oil has caused poverty to many people in these communities with health, environmental, and economic challenges. The study also discovered that Nigeria has loss revenues that are valued to ₦2.184 trillion per annum, because of illegal bunkering of crude oil (Ukpong, 2023). Rose (2020, P.56) in her study titled "The Effects of the Activities of the Local Refiners on their Host Communities' Farmlands, Rivers and Estuaries in Niger Delta Region of Nigeria" found that the high impact of the activities of the refiners on farmlands and fishing areas of the host communities is devastating. Rose (2020, P.56):

Employed a quantitative research method for this study through the administration of copies of questionnaire to local stakeholders (chiefs, the youth, farmers, traders, fishermen/fisherwomen, and residents of affected communities). Quantitative data were collected from three communities in the Niger Delta with local refineries and the data were analysed using descriptive and inferential (Chi Square and Correlation) methods.

Orisa (2023, P.31) studied "Health Problems Associated with Artisanal Oil Bunkering among the Residents of Rivers West Senatorial District, Rivers State" and found that the physical health problems of oil bunkering are; air pollution which affected the lungs, ( $3.99 \pm 0.14$ ) and breathing difficulties ( $3.47 \pm 0.49$ ). Mental health problems of oil bunkering increased stress and anxiety among the youths ( $3.51 \pm 0.51$ ), followed by distraction from mental work ( $3.28 \pm 0.47$ ); and social health problems were delinquent behaviour ( $3.74 \pm 0.49$ ) followed by aggressive behaviour ( $3.58 \pm 0.70$ ), smoking and alcoholism ( $3.55 \pm 0.51$ ) ( Orisa,2023). To obtain the above results, Orisa (2023, P.31):

Adopted the descriptive research design for the study, with a population consisting of 709,112 residents in Rivers West Senatorial District. A sample size of 880 was selected using the multi-staged sampling procedure. The instrument for data collection in this study was a structured questionnaire titled, "Health Problem Associated with Oil Bunkering Questionnaire (HEPAOBQ)" with a reliability coefficient of 0.89. The data analysis was done with the SPSS, using mean and standard deviation.

Additionally, Ikezam, *et.al.* (2021) argue that today, not only do legitimate oil exploration pipelines leak oil into the environment, artisanal crude oil refineries also contribute to pollution problems and by extension economic and health effects. Along this line, Babatunde (2020, P.278) also explains that:

The illegal and makeshift refineries that are built to refine crude oil to finished products through artisanal refining have all affected the air, water and land around the illegal refineries. Shrinking vegetables and asphyxiation of plants in different parts of the region as well as, diminishing arable lands for farming, and polluted waters for fishing, have all been attributed to artisanal refining.

According to Obenade & Amangbara (2014), the refining process generates a significant amount of waste being dumped in rivers and creeks and on land, while evaporated low fractions pollute the air shed. Concordantly, Nwankwoala *et.al.* (2017) on the effects of artisanal refining on water bodies and soil in Okirika and Ogu-Bolo in Rivers State, observed that the water analysis showed a high concentration of Fe and Zn which made the water in such areas unsuitable for drinking. Rose, *et.al.* (2020) also explain that pollutants have adverse health effects, including loss of respiratory and cardiovascular functioning, irritation of the sensory organs, and lead congenital disabilities.

It is also argued that living near oil spills and facilities that produce petroleum can be an environmental stressor that has a detrimental effect on one's health, well-being, and quality of life (Nriagu, *et. al.*, 2016). Also, artisanal crude oil refining can impact the respiratory system, and it may also exacerbate the symptoms of diseases that are already present (Ikezam, *et.al*, 2021). In addition, Onakpohor, *et.al.* (2019) delineate that most air pollutants may induce breathing and respiratory malfunction, and harm humans. Figures 1 & 2 show scenes of severely polluted aquatic and land ecosystems at artisanal refinery sites in the Niger Delta, while Figure 3 shows the effect of oil spillage on water.



**Figure 1:** A Scene of Severely Polluted Aquatic and Land Ecosystems at Artisanal Refinery Site in the Niger Delta

**Source:** Taylor (2011), Field Work



**Figure 2:** A Scene of Severely Polluted Aquatic and Land Ecosystems at Artisanal Refinery Site in the Niger Delta  
**Source:** Taylor (2011), Field Work



**Figure 3:** Effect of Oil Spillage on Water  
**Source:** Umannakwe & Aharanwa (2016), Field Work

### **Coping Strategies with the Effects of Artisanal Crude Oil Pollutants**

Okon (2015, P. 14) examined "Buying with a conscience: Curbing Crude Oil Theft in Nigeria" and discovered the need for the massive presence of international force in the Niger Delta Region of Nigeria. This special and multi-national joint task force will have only one mandate; make the shipment of stolen oil very difficult if not impossible. Okon (2015) suggests that security forces should get adequate allocation of resources, technology, equipment and logistics to make them more effective in the fight against crude oil theft. Okon (2015, P. 14) in achieving the foregoing results:

Employed the Ex-Post Facto research design. The population of the study was 540 respondents. A sample size of 183 respondents was selected using stratified random sampling technique. A questionnaire constructed by the researchers was used for data collection, while Pearson Product Moment Correlation statistical analysis was used for data analysis.

Ailemen (2013, P. 15) carried out a study titled " EITI to Help Halt Oil Theft in Nigeria" and found that curbing of corruption and job creation are the coping strategies for the effects of artisanal crude oil pollution. Ailemen (2013, P.15):

In his study adopted the survey research design for the study. The sample was made of five hundred and forty four (544) respondents drawn from the area of the study. The instrument for data collection was questionnaire. The reliability was established through test-retest method. Pearson Product Moment Correlation analysis was adopted to test the hypothesis at 0.05 levels of significance.

Rufus (2018, P. 19) carried a study on "The Effects of Crude Oil Bunkering on Peasants' Survival Mechanisms in the Niger Delta Region of Nigeria". The study observed that the government should clean up the environment as a matter of urgency so that those that depend on it to survive can have a means of livelihood, while contributing to the nation's economy; as the development crisis in the region has been linked to the production of crude. Rufus (2018,P.19) in achieving the foregoing results:

Employed the queer ladder theory as a theoretical roadmap for the study. The research design used was Ex-Post Facto research design. The population of the study was 760 respondents. A sample size of 248 respondents was selected using simple random sampling technique. A questionnaire constructed by the researchers was used for data collection, while a percentage was used for data analysis.

The coping strategies for effects of artisanal refining pollutants on humans and the environments are a *sine qua non* for healthy environment and living condition in the world. In minimizing the ecological impacts of oil spills, oil spill response, whether planned by government agencies, oil spill cooperatives or individual companies, can be planned and carried out with the goal of minimizing ecological impacts, not merely removing visible particles (Lindstedt –Siva, 1980). What is more is the fact that if minimizing ecological impact is to be the prime focus of oil spill response, then ecologists should be involved in both planning before, and in the field efforts during such spill events.

Also, the strategies to cope with artisanal crude oil pollutants and other pollutants from legitimate oil industries include solving the problems using remediation. Singh, *et.al* (2020) argue that nanotechnology is proving to be a valuable tool in the cleaning up of these oil spills or leaks in the water by utilizing magnetic nonmaterial such as; functionalized superparamagnetic iron oxide nanoparticles (SPIONs), magnetic nanocomposites, and magnetic carbon nano tubes (CNTs). Buttressing this point, Fatima (2024) explains that effective oil management is essential for minimizing environmental damage, protecting marine ecosystems, and safeguarding human health and livelihoods. By implementing comprehensive strategies,

leveraging innovative technologies, and fostering international cooperation, we can enhance our preparedness and response capabilities to mitigate the damage from oil spills (Fatima, 2024).

Essaghah, *et.al.* (2024, P.213) in their study titled "Effects of Oil Spills on the Health and Resilience of Ecosystem Services in Oil-based Communities of the Niger Delta, Ogidigben Community in Delta State, Nigeria" revealed that there are serious heavy metals, organic compound and hydrocarbons utilizing bacteria and fungi contaminations on impacted sites. Based on these findings, it was observed also that there is a likelihood of ecological and evolutionary effects or impacts of the oil spill on the environment (Essaghah *et.al.*, 2024). The way out is an environmental management strategy that incorporates the health and resilience of ecosystem organisms as a new paradigm for promoting long term ecological sustainability in oil based communities witnessing frequent oil spill incidents in the Niger Delta region of Nigeria (Essaghah *et.al.*, 2024).

**METHODOLOGY**

This study used the descriptive research design. The population of the study consisted of residents of Ikwerre L.G.A of Rivers State. A sample of 365 respondents was selected for the study. This was achieved using purposive sampling technique to independently select artisanal crude oil refiners at their refining sites in Ikwerre L.G.A in Rivers State. The questionnaire was the instrument used to collate data for the study. It was structured into Section A: Biographic data with multiple questions (items) based on marital status, income status and educational qualifications, while Section B: deals with responses from respondents based on Artisanal Crude Oil Refineries, Indulgence, Effects and Coping Strategies in Ikwerre L.G.A of Rivers State.

The study used modified four-point Likert scale of Strongly Agreed (SA) rated 4, Agreed (A) rated 3, Disagreed (D) rated 2 and Strongly Disagreed (SD) rated 1. Face validity of the instrument was established by professionals in the Department of Sociology, Faculty of Social Sciences, University of Port Harcourt, Choba. In addition to this, test retest method of reliability was used to establish the reliability value of 0.75 Correlation Co-efficient for the study. The researchers administered the copies of the questionnaire with the help of a research assistant who collected the copies of questionnaire as soon as the respondents completed the process. The percentage and frequency tables were used as a statistical method. Percentage and frequency tables were used to analyze biographical data of respondents, and responses from research questions of the questionnaire, with which the study delineated its findings.

**RESULTS**

The results of the study are presented in Tables 1, 2, 3, and 4. Table 1 results deal with biographic data of respondents, while Tables 2, 3 and 4 results deal with answers to research questions for the study.

**Table 1:** Biographic Data of Respondents

<b>Biographic Data</b>		<b>Percentage</b>
<b>Marital Status</b>		
Married	145	40
Single	220	60
Total	365	100
<b>Income Status</b>		

N25,000	106	29
N50,000	86	23.6
N75,000	87	23.8
80,000	86	23.6
Total	365	100
<b>Education Qualifications</b>		
First School Leaving Certificates (FSLCs)	110	30.1
West African Senior School Certificates (WASSCs)	124	34
Bachelor of Science (B.Sc) Certificates	86	23.6
Master of Science (M.Sc) Certificates	45	12.3
Doctor of Philosophy (Ph.D) Certificates	-	-
Total	365	100

**Source:** Oriji, Eze & Agwanwo (2024), Field Work

The results in Table 1 showed the information on biographic data of respondents. The results of table 1 revealed that 145 (40%) were married while 220 (60%) were Single. This implies that single respondents were of the majority. The results on income status of the respondents in Table 1 above showed that 106 respondents (29%) earned monthly income of N25,000, 86 respondents (23.6%) earned monthly income of N50,000, 87 respondents (23.8%) earned monthly income of N75,000, while 86 respondents (23.6%) earned monthly income of N80,000.

The results in Table 1 above showed that the respondents' level of educational qualifications. They were represented as follows: FSLCs 110 (30.1%), WASSCs 124 (34%), B.Sc certificates 86 (23.6%), M.Sc certificates 45 (12.3%), while those with Ph.D certificates were not part of the study, hence no responses in that regard.

**Research Question 1:** Why do people indulge in artisanal crude oil refineries in Ikwerre L.G.A in Rivers State?

**Table 2:** Why People Indulge in Artisanal Crude Oil Refineries in Ikwerre L.G.A in Rivers State

S/N	Statement Items	SA	A	D	SD
1	Corruption in government predisposes people to indulge in artisanal crude oil refineries	265 73%	100 27%	0 0%	0 0%
2	Unemployment predisposes people to indulge in artisanal crude oil refineries	200 55%	120 33%	20 5%	25 7%
3	Marginalization in the distribution of crude oil benefits predisposes people to indulge in artisanal crude oil refineries	222 61%	93 25%	25 7%	25 7%
4	Weak institutional structure to drive crude oil benefits predisposes people to indulge in artisanal crude oil refineries	200 55%	105 29%	30 8%	30 8%

**Source:** Oriji, Eze & Agwanwo (2024), Field Work

The results in Table 2, item 1 showed that 265 respondents, representing 73% of the study respondents SA to item 1 that corruption in government predisposes people to indulge in

artisanal crude oil refineries, while 100 (27%) A, 0 (0%) D, and 0 (0%) SD. Also, the results of item 2 indicated that 200 respondents, representing 55% of the study respondents SA that unemployment predisposes people to indulge in artisanal crude oil refineries, while 120 (33%) A, 20 (5%) D, and 25 (7%) SD. Again, the results of item 3 of the same table indicated that 222 (61%) respondents SA that marginalization in the distribution of crude oil benefits predisposes people to indulge in artisanal crude oil refineries, 93 (25%) A, 25 (7%) D, while 25 (7%) SD as well. Finally, the results in Table 2, item 4 indicated that 200 respondents, representing 55% of the study respondents SA that weak institutional structure to drive crude oil benefits predisposes people to indulge in artisanal crude oil refineries, 105 (29%) A, 30 (8%) D while 30 (8%) SD as well.

**Research Question Two:** What are the effects of artisanal crude oil pollutants on the environment and humans in Ikwerre L.G.A in Rivers State?

**Table 3:** Effects of Artisanal Crude Oil Pollutants on the Environment and Humans in Ikwerre L.G.A in Rivers State

S/N	Statement Items	SA	A	D	SD
5	Artisanal crude oil pollutants kill soil microbes	240 66%	105 29%	20 5%	0 0%
6	Artisanal crude oil pollutants negatively affect farmlands and fishing activities	205 56%	115 32%	22 6%	23 6%
7	Artisanal crude oil pollutants destroy crops and livestock which negatively affect national economy	125 34%	190 52%	25 7%	25 7%
8	Artisanal crude oil pollutants negatively affect farm yields, which in turn predispose farmers to poverty	190 52%	110 30%	40 11%	25 7%

**Source:** Oriji, Eze & Agwanwo (2024), Field Work

The results in Table 3, item 5 indicated that 240 respondents, representing 66% of the study respondent SA that artisanal crude oil pollutants kill soil microbes, while 105(29%) A, 20(5%) D and 0 (0%) SD. Furthermore, the results in Table 3, item 6 indicated that 205 respondents, representing 56% of the study respondents SA that artisanal crude oil pollutants negatively affect farmlands and fishing activities, while 115(32%) A, 22(6%) D 23(6%) SD respectively. Again, results in Table 3, item 7 illustrated that 125 respondents, representing 34% of the study respondents SA that artisanal crude oil pollutants destroy crops and livestock which negatively affect national economy, 190 (52%) A, 25 (7%) D while 25 (7%) SD. Also in this same table, the results of item 8 indicated that 190 respondents, representing 52% of the study respondents SA that artisanal crude oil pollutants negatively affect farm yields which in turn predispose farmers to poverty, while 110 (30%) A, 40 (11%) D and 25 (7%) SD.

**Research Question Three:** What are the coping strategies for the effects of artisanal crude oil pollutants in Ikwerre L.G.A in Rivers State?

**Table 4:** Coping Strategies that would Help Manage the Effects of Artisanal Crude Oil Pollutants in Ikwerre L.G.A in Rivers State

S/N	Statement Items	SA	A	D	SD
9	Environmental education as a coping strategy would help residents cope with the effects of artisanal crude oil pollutants	130 36%	200 55%	15 4%	20 5%
10	Curbing corruption as a coping strategy would	200	110	27	28

	help in solving the problem of artisanal crude oil bunkering	55%	30%	7%	8%
11	People cope by adapting to friendly environmentally practices and choose not to act or engage in any pollutant activity that will destroy the environment	185 51%	110 30%	45 12%	25 7%
12	Monitoring of the whole processes of crude oil exploration by the government as a coping strategy would manage the effects of artisanal crude oil pollutants	130 36%	204 56%	11 3%	20 5%

**Source:** Oriji, Eze & Agwanwo (2024), Field Work

The results in Table 4 depicted that 130 respondents, representing 36% of the study respondents SA to item 9 that environmental education as a coping strategy would help residents cope with the effects of artisanal crude oil pollutants, while 200 (55%) A, 15 (4%) D and 20 (5%) SD. Also results in this same table, item 10 indicated that 200 respondents, representing 55% of the study respondents SA that curbing of corruption as a coping strategy would help in solving the problem of artisanal crude oil bunkering as it will create awareness of the consequences of such actions, while 110 (30%) A, 27 (7%) D and 28 (8%) SD. Again, the results in Table 4, item 11 indicated that 185 respondents, representing 51% of the study respondents SA that people cope by adapting to friendly environmentally practices and choose not to act or engage in any pollutant activity that will destroy the environment, while 110 (30%) A, 45(12%) D and 25 (7%) SD. Furthermore, the results in the same table, item 12 indicated that 130 respondents, representing 36% of the study respondents SA that monitoring of the whole processes of crude oil exploration by the government as a coping strategy would manage the effects of artisanal crude oil pollutants, while 204(56%) A, 11(3 %) D and 20(5%) SD.

### **Discussion of Findings**

This study critically examined artisanal crude oil refineries, indulgence, effects and coping strategies in Ikwerre L.G.A in Rivers State. In the research question one, the findings of the study revealed that corruption in government, unemployment, marginalization in distribution of crude oil benefits, and weak institutional structure to drive crude oil benefits predispose people to indulge in artisanal crude oil refineries. This is supported by Emenike (2019, P. 80) who studied the "Causes of Crude Oil Bunkering in Nigeria" and found that poverty, ignorance, greed, lack of respect for national economic survival, get rich syndrome, and lack of gainful employment among the youths. Also, in the research question two, the findings of the study revealed that artisanal crude oil pollutants kill soil microbes, negatively affect farmlands and fishing activities, destroy crops and livestock which negatively affect national economy, and negatively affect farm yields which in turn predispose to poverty. These findings agree with Ukpong (2023, P.40) who in a study "The Effects of Bunkering of Crude Oil in Niger Delta Area of Nigeria", and found that bunkering of crude oil has caused poverty to many people in these communities with health, environmental, and economic challenges. Furthermore, in research question three, the findings of the study showed that environmental education, curbing of corruption, friendly environmentally practices and proper monitoring of the whole processes of crude oil exploration by the government are coping strategies that would manage the effects of artisanal crude oil pollutants. These findings are in consonance with Rufus (2018, P. 19) who did a study on "The Effects of Crude Oil Bunkering on Peasants' Survival Mechanisms in the Niger Delta Region of Nigeria"; and observed that the government should clean up the environment as a matter of urgency so that those that depend on it to

survive can have a means of livelihood, while contributing to the nation's economy; as the development crisis in the region has been linked to the production of crude.

## **CONCLUSION**

Based on the findings, the study established that corruption in government, unemployment, marginalization in the distribution of crude oil benefits, weak institutional structure to drive crude oil benefits predispose people to indulge in artisanal crude oil refineries. The findings also showed that artisanal crude oil pollutants kill soil microbes, negatively affect farmlands and fishing activities, destroy crops and livestock which negatively affect national economy, and negatively affect farm yields which in turn predispose to poverty. Finally, the findings revealed that environmental education, curbing of corruption, friendly environmentally practices and proper monitoring of the whole process of oil exploration by the government as coping strategies would halt the effects of artisanal crude oil pollutants in the study area. Thus, to halt the activities of artisanal crude oil refineries and pollutants there from, the study suggests for further researches on the relationship between unemployment and artisanal crude oil refineries, as well as government surveillance agencies collaboration with artisanal refiners and strive for artisanal crude oil refineries in the study area, and indeed in the Niger Delta Region of Nigeria.

## **RECOMMENDATIONS**

The following recommendations are made for the study:

1. The Federal Government in conjunction with the State Government should provide job opportunities to residents, especially the youths, in order to put an end to artisanal crude oil refineries in Ikwerre L.G.A of Rivers State. They should provide financial support and training for residents in communities as alternative livelihoods, thereby reducing the reliance on artisanal crude oil activities in the study area.
2. The Non-Governmental Organization should organize workshops to educate youths about the economic challenges caused by artisanal crude oil pollutants. They should allocate resources for more effective patrolling of vulnerable areas to prevent artisanal crude oil activities. They should launch campaigns to inform the public about the impacts of crude oil pollutants and the importance of environmental stewardship.
3. The Federal Government in conjunction with the State Government should provide educational and employment opportunities to youths. Partner with local industries to create sustainable job prospects. Provide scholarships and career guidance to open up legal pathways. Develop youth-led initiatives to clean up and restore polluted areas as well as educate people on the importance of environmental protection and sustainability, as well as encourage participation in community-based conservation efforts in the study area.

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