



## ENVIRONMENTAL POLLUTION AND WOMEN VULNERABILITY IN RIVERS STATE: THE WAY FOWARD

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<p><b>Received:</b> 30<sup>th</sup> March 2022 <b>Accepted:</b> 28<sup>th</sup> April 2022 <b>Published:</b> 10<sup>th</sup> June 2022</p>	<p>In recent times, most of the health challenges bedevilling the inhabitants of Rivers State and other crude oil-producing states have been attributed to the increasing rate of environmental pollution. This paper, therefore, focuses its attention on the impact of environmental pollution on women in Rivers State. To provide a theoretical foundation for the study, the study adopted the Ecofeminism theory to explain the untapped role of women in an attempt to eradicate environmental pollution and degradation. Three local government areas: Gokana, Ogba/Egbema/Ndoni, and Emohua from the three senatorial districts in Rivers State were purposefully selected and 300 respondents were accidentally selected for the study. The study adopted the simple per cent through the aid of a Statistical Package for Social Sciences (SPSS) Version 25 to analyse the demographic data, and the three research questions stated for the study. The study concludes that environmental pollution affects socio-economic activities of people, such as fishing and farming. The study, therefore, concludes that since women are the closest gender to the environment, the impact of environmental pollution is felt more by women than men. The study, therefore, recommended, among other things, that the women should be included in the share of royalties accrued from multinational companies to enable them to engage in secondary sources of livelihood.</p>

**Keywords:** Environmental-Pollution, Vulnerability, Challenges, Prospects.

### INTRODUCTION

Recently, climate change and environmental pollution have attracted global attention and it is possible the impact could vary depending on one's status or gender. The climate variability and pollutions of the environment affect the poor and both theoretical and empirical findings have shown that women constitute the dominant gender in the poverty stratum. According to Anijah-Obi (2001), women are the majority in rural areas, do menial jobs with less skill and are more vulnerable to disasters. The situation in the Niger Delta constitutes one of the worst in the world as many farmlands are degraded and sacred places desecrated due to the oil spillage from either the multinationals or vandals. Also, the spate of bush burning, deforestation, indiscriminate disposal of domestic waste, unsustainable harvesting of mangrove forests and seafoods by the coastal communities have constituted some of the sources of the problem. Before the discovery of crude oil, agriculture was the mainstay of the Nigerian economy. Nigerian people depended on the environment for source of food and livelihood both coastal and upland communities (Pyagbara, 2007).

However, even as the global community struggles with the challenges of climate change and environmental pollution, it is ideal to discuss the plights of women and how the women could participate in proffering solutions to the new global challenge. But despite attention of the world on the plights of rural women in the international framework on women right such as the Beijing Platform for Action, the Convention on the Elimination of All Forms of Discrimination against Women and the Sustainable Development Goals (SDGs), rural women continue to suffer several problems in the effective delivery of their roles as homemakers.

Gender/feminist related researches in virtually all segment of the globe have attempted to explain the important role of women. No doubt, women have contributed enormously to the growth of their families even in the face of climate change and environmental pollution. Given the important role of women, the World Bank (has noted that promoting equality and empowering women at the rural level will lead to "smart economics" all over the world. Despite the important role of women as homemakers, women suffer several daunting challenges ranging from political, social, and economic to cultural barriers. It is no gainsaying that rural women play important role in the development of rural

economy in developed and developing economies with their participation in crop production, caring for livestock, provide food, water and fuel for their families. In some other parts of the world, women go the extra mile to engage in off-farm activities to diversify their families' sources of livelihood. Also, women play the role of reproduction, caring for children, the old and the sick in the families (United Nations Fact Sheet, 2009).

The events of environmental pollution and degradation have had severe consequences on the environment, socioeconomic activities as well as on the health of people. While focusing attention on the impacts on the environment and humans, it is also important that the vulnerable groups and the causes of their vulnerability should be considered. Aroh, Ubong, Eze, Harry, Umo-Otong, & Gobo (2010) observed in their study on the Ishiagu community in Imo State quite number of health-related challenges associated with the pollution of freshwater. They observed that the local people suffered losses in terms of their livestock and some health-related issues such as skin rashes, tiredness, itchy nose, sore throat and headache. The impact of environmental pollution affects people differently. They noted that the level of resilience and the coping mechanisms adopted by the affected people determine the degree of the impact.

In corroborating the above, Pitkin (2013) noted that the realities on ground has rendered the womenfolk as the most vulnerable gender to climate variability and environmental pollution just because they lack resilient or multiple sources of income. Even though the women bear much of the brunt from environmental pollution, studies have indicated that more than 90 per cent of those employed in the multinational corporations are men (Egbe and Thompson, 2010). Again, it was also argued that anytime there is serious environmental degradation, it usually pushes the women and girls to search farther afield in search of fuel woods (United Nations Fact Sheet, 2009). The study, therefore, seeks to understand the impact of environmental pollution on society and the degree of women vulnerability to environmental pollution. The next section critically assesses the specific problems faced by both gender and the degree of women vulnerability amid the sustained pollution of the farmlands and the coastlines.

### **Statement of the Problem**

There is an alarming rate of food scarcity across communities and states in Nigeria such as Rivers, Edo, Delta, Abia, Imo, AkwaIbom and the Bayelsa States. However, oil-producing states and their local communities where oil production activities are carried out are experiencing low agricultural yields such as Alode, Alesa, Okari, Ekerekana, Bodo, Kpor, Umuechem, Igbo-Etche, Ubeta, Odiagbedi, Obagi, and Omokucommunities in Rivers State. Ironically, these are agricultural communities that produce their food in terms of crops, rearing of animals and fishing. Food production or agricultural yield was very high and the people subsisted on their environment with complete natural nutritional values. The history of oil exploitation in Rivers State has been like the history of oil pollution as the commencement of oil exploration was followed almost immediately with the three main pollutions such as land pollution, air pollution and water pollution (Pyagbara, 2007). The people of Rivers State have been known with a well-established social system that placed great importance on the environment before the invasion of the colonial government. Possessing fertile soil blessed with necklace of rivers and tributaries, the people seized the opportunity of having these natural endowments to become great fishermen and farmers, producing not only for their household but also for their neighbours within the Niger Delta and outside the region.

The cassava, yam, plantain, sugarcane, cocoyam, palm trees, corn or maize, fruits vegetables, animals and seafood which were associated with the Ikwerres, Etche, Ogbas, Ogonis, Kalabaris, Ikepeya's, Eleme, Abua, Okrikans and Ijaws are no longer available as in the past years. Eze (1997) stated that agricultural activities (food production) went on smoothly in Ogba communities, in Ogba/EgbemaNdoni Local government Area of Rivers State before 1962, when the oil was first seen in marketable quantities in the local communities. He went further to say that the people in those areas started experiencing a downward trend in all aspect of agricultural production with their neighbours. Therefore, it became obvious that oil spillages do result to loss of job by farmers due to destruction of farmland and some economic trees, as well as destroying food crops, water, air pollution and loss of soil fertility. It is against this background that this study seeks to provide answer to the following questions:

- i. what are the causes of environmental pollution in Rivers State?
- ii. how does environmental pollution influence women activities towards food production in Rivers State?
- iii. what are the causes of women vulnerability to environmental pollution in Rivers State?

### **Objectives Of The Study**

The general objective of the study is to examine the impact of environmental pollution influence women in Rivers State. The study specifically examines:

- i. the causes of environmental pollution in Rivers State;
- ii. the influence of environmental pollution on women activities towards food production in Rivers State;
- iii. the causes of women vulnerability to environmental pollution in Rivers State.

## **II LITERATURE REVIEW**

### **Environmental Pollution**

According to Sutton and Anderson (2004), the concept of environment could be seen in different perspective by different people and in different places. Sutton *et al* (2004) define the environment as consisting of surroundings within which an organism interacts. Corroborating with this, Irikana (2015) argued that the discourse on the existence of man cannot be detached from the definition of the environment. Hence, the definition of the environment must include the totality of man's surrounding and his interaction with his surroundings. Furthermore, Garg, Garg & Garg (2007) explain that

the environment is in two types namely; biotic and a biotic environment. The biotic environment comprises the living things while the abiotic types comprises of the non-living things. But the influence of man is greatly felt in the environment to the extent that the activities of man have become a problem to the environment and to man on the long run (Irikana, 2015).

According to Godson-Ibeji and Chikaire (2016), environmental pollution is the introduction of different harmful pollutants in a certain environment that make the environment unhealthy for survival of man, flora and fauna. Some of the most common pollutants are garbage, waste water and chemicals. Jhingan (2007) stated that environmental pollution in a country depends on the level of development in that country. For instance, the developed economies suffer less of pollution due to quality drinking water and good sanitation strategies but reverse is the case in underdeveloped societies such as Nigeria.

Sibiri and Udisi (2008) were concerned with the social consequences of environmental changes. He stated that before the discovery of oil, the people of Bayelsa particularly the riverine areas were predominately artisanal fishermen. Their livelihood depended on the surrounding aquatic ecosystem and the abundant water resources in their environment. Any environment changes in this area that is predominately water must impact on their livelihood. Regrettably, most of the changes that have taken place in these ecological zones have negatively impacted on the livelihood, health, social structure and polity of the people.

According to Butter (2006), some groups are more vulnerable to environmental stress than others are. Vulnerability to environmental pollution is classified into three namely; highly vulnerable, moderately vulnerable, and non-vulnerable. Highly vulnerable indicates those been fully exposed to environmental devastation and it is mainly people living in agrarian communities. Moderately vulnerable is when the level of resilience is high and the people can recover quickly from a degraded environment with suffering any psycho-social effects. The study identified class, ethnicity, disability, age and gender as some of the key factors determining peoples' vulnerability to environmental devastation (Butter, 2006).

Again, Jahan (2008) stated that there are varying causes of vulnerability to pipeline vandalism effects. The paper noted that poverty and proximity to a degraded environment constitute the major causes of vulnerability to vandalism effects. Nearly 82% of the entire population of the world lives in rural communities and the majority of these people are considered to be women. Those who collect food, fodder and fuel for the family consumption from trees and forest were predominantly women and few men. Jahan (2008) further noted that though, the activities of these people while collecting food and fuel leads to deforestation, the impact of pipeline vandalism is inimical to the people in a devastated environment. The impact shrink food supply in rural communities and affected the people disproportionately by less food, less fuel and harder work.

In assessing the challenges of food security in Southern Africa within the context of those vulnerable to food scarcity, Dhliwayo (1988) in Sibiri (2009) was specific in identifying the concern of the vulnerable group. He noted that the majority of those that suffer from food insecurity are mainly men, women and children who live and work in rural communities. Many of such people are people who lack access to land, or peasant farmers who either do not own land or lack adequate productive resources with which to produce enough food for themselves. The paper further argued that they are people who often lack access to credit facility, agricultural inputs, adequate training and extension services as well as other technical and marketing facilities.

### **Vulnerability**

Vulnerability is a combination of risk, social and economic exposure, and the capacity to withstand the subsequent disaster. Vulnerability has been described as the extent to which a system or component of a system may respond negatively upon the occurrence of a potentially dangerous event (Proag, 2014). Thus, persons are deemed "vulnerable" if access to resources at the household or individual level is the most important component in obtaining a stable livelihood or efficiently recovering from a calamity. When a calamity occurs, the families with direct access to finance, skills and equipment, and able-bodied individuals can recover the quickest. As a result, the most vulnerable individuals are the poor, who have no option but to live in risky environments (Proag, 2014).

### **III EMPIRICAL REVIEW**

Kadafa (2012) noted in his empirical research that oil exploration and exploitation have existed for decades in the Niger Delta. This strategy has had a devastating impact on the environment of the area and adversely affects the inhabitants of the area. He further noted that the Niger Delta contains diverse ecosystems of mangrove swamps, freshwater swamps, rain forest and is the most important wetland in Africa and among the ten most significant wetland and marine ecosystems within the environment, but because of oil pollution orchestrated damaged pipelines and thus the activities of vandals, the area is characterized by polluted streams and rivers, deforestation and biodiversity, and in general, the area is ecologically damp.

The occurrences of pipeline vandalism have had severe consequences on the environment, socioeconomic activities as well as on the health of people. While focusing attention on the impacts on the environment and humans, it is also important that the vulnerable groups and the causes of their vulnerability should be considered. Aroh et al. (2010) observed in their study of Ishiagu in Imo State quite several health-related challenges associated with the pollution of freshwater. The local people suffered losses in terms of their livestock and some health-related issues such as skin rashes, tiredness, itchy nose, sore throat and headache. The impact of environmental pollution as a result of pipeline

vandalism affects people differently. They noted that the level of resilience and the coping mechanisms adopted by the affected people determine the degree of the impact.

Inoni et al. (2006) researched the issues of environmental degradation of the oil-rich Niger Delta region and its consequences on health, social and economic activities of the people for over three decades. Using a sample of 262 crop farmers drawn randomly from 10 communities and 5 LGAs in the oil-producing agro-ecological zones of Delta State, the negative impact of oil spill on crop production was accentuated. Environmental pollution reduced crop yield, land productivity and greatly depressed farm income among others.

**IV THEORETICAL FRAMEWORK**

This paper adopted the Ecofeminism perspective to explain the relationship between women and environmental pollution. Vandana Shiva is credited with the advent of the Ecofeminism perspective into public awareness through her report on the Chipko movement. According to Jaggar (1983), Ecofeminism emerges in the 1970s intending to increase consciousness on the connection between women and nature. The term “*Ecofeminism*” was coined by French writer Françoise d’Eaubonne in 1974 to call on women to lead ecological revolution to restore order in the planet (Jaggar, 1983).

The theory posits that in terms of proximity to the environment, the women are closer to the environment than the men. As such, the closeness between women and the environment has conditioned the women to care and nurture the environment when compared with the men. According to Jaggar (1983), ecofeminism encompasses a variety of views but has a focus of patriarchy oppression and the social constructions relating to women and the environment.

**V METHODOLOGY**

The study adopted a descriptive survey design approach. This design allows the researcher the opportunity to collect samples and analysed them without influencing the samples. The study was conducted in three (3) LGAs namely Gokana, Ogba/Egbema/Ndoni and Emohua and the LGAs were selected because they are oil-bearing areas. The population of the study comprises of 351, 982 women from the Three (3) selected local government councils (National Bureau of Statistics, 2013). Six (6) communities namely; Bodo, K-Dere, Omoku, Obagi, Omudioga and Obelle were purposively selected. The sample size for the study comprises of Three Hundred (300) respondents and only Fifty (50) respondents were accidentally selected from each of the six (6) communities in the study area. As regards the validity of the study, Content validity was used for the instrument validation while Test-Retest reliability method was used to ascertain the instrument reliability. Statistical Package for Social Sciences (SPSS) Version 25 was used to analyse the demographic data and the research question as well as the hypotheses.

**VI Data Presentation/ANALYSIS**

300 questionnaires were administered in the study; only 283 questionnaires were correctly filled and returned for analysis. The response rate indicates 94.3% which was considered suitable for analysis.

**Table 1**  
***Respondents Demography***

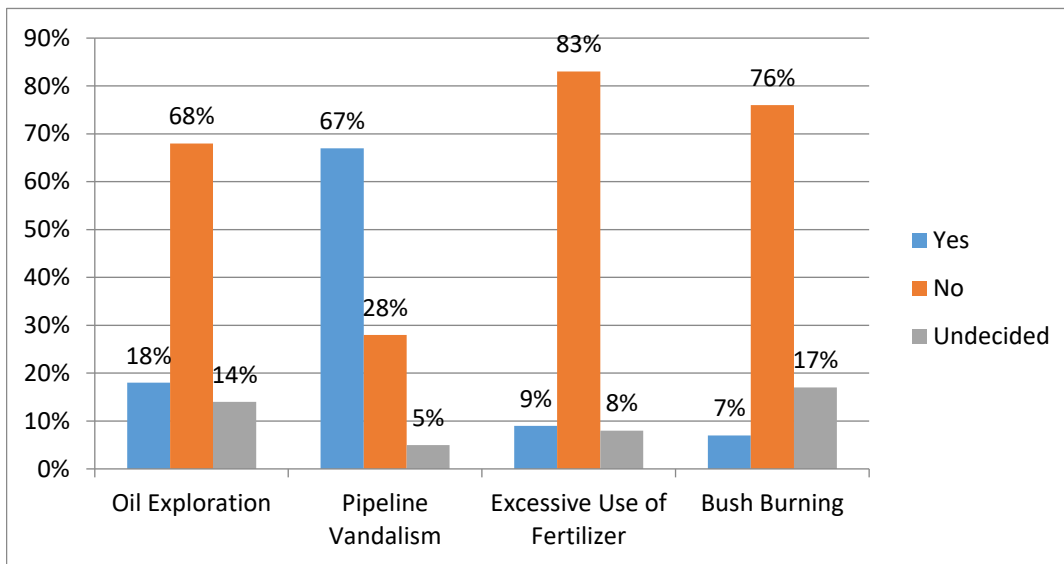
<b>1</b>	<b>Marital Status</b>	<b>Frequency</b>	<b>Per cent</b>
	Single	60	21.2
	Married	174	61.5
	Divorced	35	12.4
	Widow	14	4.9
	Total	283	100.0
<b>2</b>	<b>Age Distribution</b>	<b>Frequency</b>	<b>Per cent</b>
	30-40	38	13.4
	41-50	110	38.9
	51-60	102	36.0
	61+	33	11.7
	Total	283	100.0
<b>3</b>	<b>Occupational Distribution</b>	<b>Frequency</b>	<b>Per cent</b>
	Fishing	29	10.2
	Farming	119	42.0
	Civil Servant	69	24.4
	Trader	66	23.3
	Total	283	100.0

**Source: Fieldwork Survey (2022)**

The analysis of the marital status of the respondents shows that 174(61.5%) of the respondents were married, followed by 60(21.2%) who were single, 53(12.4%) divorced and the remainders 14(4.9%) were widowed. The facts on Table 1 above indicates that there were more married women in the study than single, divorced and widows. This shows that more of the women in rural communities were still married despite not having their husbands with them in the local communities as a result of rural-urban drift. The ages of the respondents were such that out of the 283 questionnaires

returned, 110(38.9%) of them were between 41-50 years, followed by 102(36.0%) who were 51-60 years, 38(13.4%) 30-40 years and 61 years plus, 33 respondents representing (11.7%) of the total respondents. The finding concludes that there were more women of advanced age in rural communities than women between 30 and 40 years. The analysis of the finding on Table 3 above shows majority of the respondents 119(42.0%) engages in farming, followed by civil servants 69(24.4%), traders 66(23.3%) and the remaining 29(10.2%) engages in fishing as their major source of livelihood. However, the majority of the women were found in farming for their main source of food and livelihood. This has shown that if the effects of environmental pollutions continue unabated or mitigated, it could lead to total damage of the women primary source of livelihood which is farming.

**Research Question 1:** What are the causes of environmental pollution in Rivers State?  
**Figure 1: Causes of Environmental Pollution**

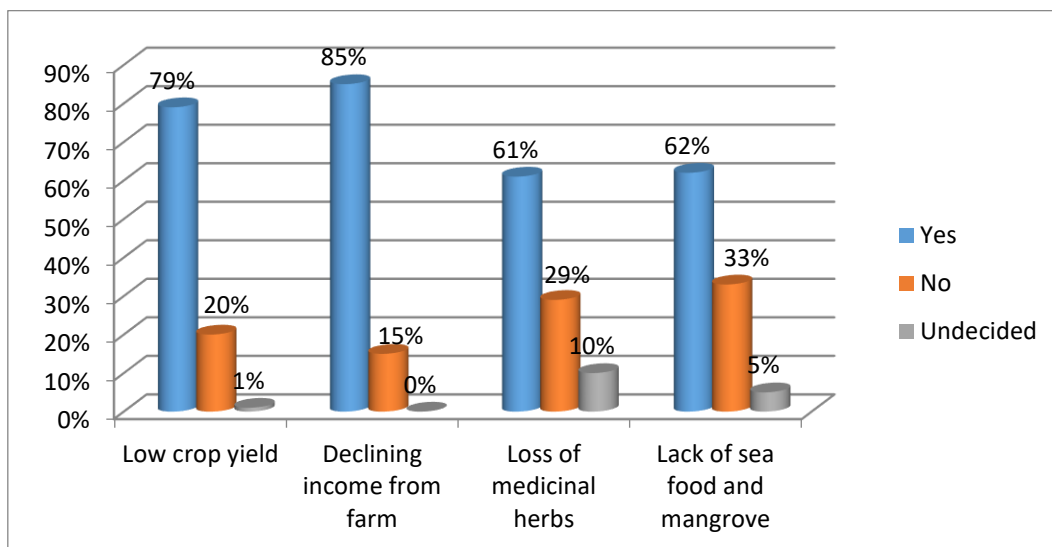


Source: Field Survey, 2022

The finding indicates that 192(68%) respondents disagreed with the fact oil exploration was the cause of pollution. 51 respondents representing (18%) agreed to the view while 40(14%) were undecided. Again, most of the respondents 189(67%) agreed that pipeline vandalism constitutes the main cause of pollution in the sampled communities. On the contrary, 79(28%) disagreed with the view while only 15(5%) were silent. Furthermore, the impact of fertilizer on the farmlands was assessed and the respondents show that out of the 283 respondents, 234(83%) disagreed, followed by 26(9%) agreed and 23(8%) were undecided. Majority of the respondents 215(76%) disagreed with the very fact that bush burning constitutes one of the causes of pollution within the study communities. While 47(17%) were silent, 21(7%) were in support of the view. A critical assessment of the respondents' views shows indicated a high rate of pipeline vandalism in recent time in most of the sampled communities.

**Research Question 2:** How does environmental pollution influence women activities towards food production in Rivers State?

**Figure 2: Influence of environmental pollution on Women activities towards production in Rivers State**

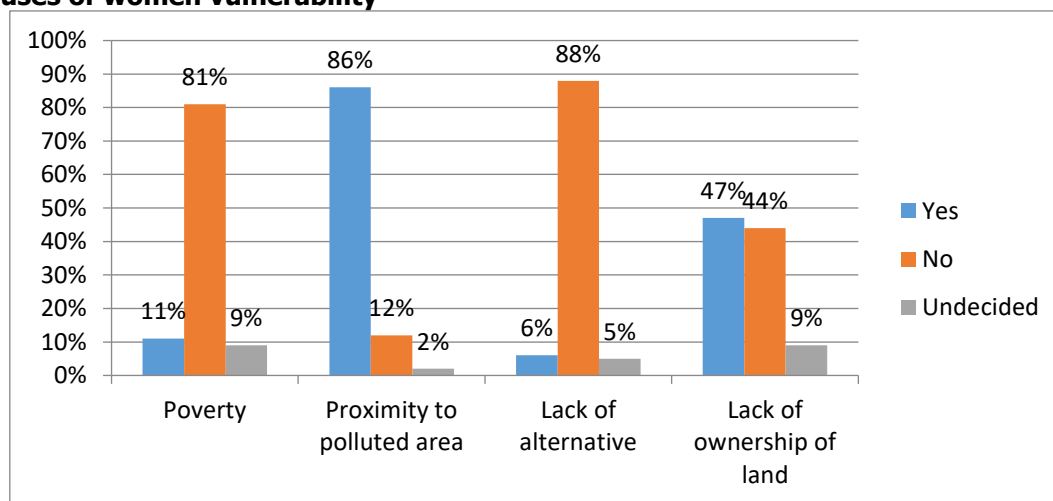


Source: Field Survey, 2022

The numerous impact of environmental pollution/degradation is severe in society and particularly on people with lack of resilient like women and youngsters. The result shown on the chart above indicates a severe impact of environmental pollution on the sampled communities. Out of the 283 respondents, 223(79%) agreed that it's reduced the production of crops, followed by 56(20%) who disagreed while 4(1%) respondents were undecided. Again, out of 283, 239 agreed, 44(15%) disagreed that environmental pollution results in declining income. As regards low medicinal herbs, 174(61%) agreed, 81(29%) disagreed while 29(10%) were silent. Owing to the result above, the study, therefore, concludes that pollution has led to loss of medicinal herbs within the communities. The impacts of pollution of seafoods and mangrove resources were also discussed. Due to scarcity and rise in the price of seafoods and mangrove resources, majority of the respondents 174(62%) agreed and 94(33%) disagreed that there is currently lack of seafoods and mangrove resources in the local markets. The remaining 15(5%) respondents were silent.

**Research Question 3:** What are the causes of women vulnerability to environmental pollution in Rivers State?

**Figure 3: Causes of women vulnerability**



Source: Field Survey, 2022

The analysis in Figure 3 above shows that out of the 283 participants within the study, 30 (11%) consented to the fact. The majority of them, 228 (81%) disagreed, while only 25 (9%) were undecided. The majority of the women, 244 (86%), agreed that being in close proximity to polluted areas is the most dangerous source of vulnerability for them while 34 (12%) and 5 (2%) disagreed and were undecided, respectively. As regards lack of alternative, majority of the respondents 250(88%) did not see link between lack of alternative and the vulnerability of the women but 18 of the respondents representing (6%) agreed to the fact while the remaining 15(5%) were silent. In some communities in Nigeria, women are considered strangers and are therefore denied access to land. In this study, half of the women, 134 (47%), agreed to the fact, while 124 (44%) disagreed, leaving the rest, 25 (9%), undecided.

**VII DISCUSSION**

As previously presented and analyzed, environmental pollution is clearly one of the major challenges confronting Rivers people, particularly those living in rural communities. The demographic analysis was such that out of the 283 participants in the study, 62 percent were married, followed by 21% who were single, 12 percent divorced, and 4.9 percent were widows. The ages of the respondents were such that out of the 283 questionnaires returned, the majority of them (39%) were between 41 and 50 years of age, followed by 102 (36.0%) who were 51–60 years of age. The implication is that more aged women were found in the sampled communities when compared with young women of 20–30 years of age. However, the analysis of the findings on Table 3 above indicates that the majority of the participants engage in farming, followed by civil servants and traders, and the remaining 29 (10.2%) engage in fishing as their main source of livelihood and food. Out of the 283, 148 of the participants were still dependent on primary sources of livelihood such as farming and fishing. This invariably means pollution of farmlands and coastal waters would greatly affect the livelihood activities of these women and those engaging in trading. As such, there is a need for urgent measures to cushion the plight of women.

The findings identified oil exploration, pipeline vandalism, use of fertiliser on farmlands and bush burning as the main causes of pollution in the studied communities. To an extent, the study was able to establish that the different sources of food for the indigenous people also contributed to the causes of environmental pollution in Rivers State and especially in the sampled communities, which correlates with the findings in Irikana (2006). According to Irikana (2006), indiscriminate and unsustainable exploitation of forest resources and seafood is the result of a reduction in the resources. Again, the majority of the respondents agreed to the fact that incidents of pipeline vandalism are on the increase in recent times and their impact has greatly impacted on farmlands and coastlines than any other pollution caused in Rivers State.

The study has further demonstrated the effects of environmental pollution, such as the impact on crop yield, declining income from the farm, loss of medicinal herbs, and reduction in seafood and mangrove resources. Apart from the

impacts on crops and seafood, the different discussions conducted with stakeholders showed that pollution has affected the social, economic, and health conditions of the people. It is no gainsaying that the impact has led several young men out of the local communities in search of greener pastures in urban centres, and this ugly scenario has further compounded the efforts of the women in coping with the vulnerabilities to pollution. This finding correlates with the Inoni et al. (2006) study. The study noted the level of environmental pollution in the oil-rich Niger Delta region to be wanton and in a continuous state with dire health, social, and economic consequences for its people for over three decades. They conducted a study using a sample of 262 crop farmers drawn randomly from 10 communities and 5 LGAs in the oil-producing agro-ecological zones of Delta State. Some of the negative impacts of the oil spill on crop production were accentuated in the study. An oil spill reduced crop yield, land productivity, and farm income significantly. Oil spills reduce crop yield by 1.3 percent and farm income by 5% for every 10% increase in spills.

Several factors were considered to be the explanation for the vulnerabilities of the women in an environmentally polluted area. There was a significant difference in the responses of the respondents during this study. A significant number of the respondents view proximity to polluted areas and lack of ownership of land as the major causes of vulnerabilities for women. Proximity to polluted areas and a lack of land ownership, among other factors, were identified as potential sources of vulnerability for women.

### VIII CONCLUSION AND RECOMMENDATION

The impact of environmental degradation in Rivers State has raised concern, particularly in oil-producing communities affected by polluted air, water, degraded forests, farms, and high temperatures for many years. Although many studies have been commissioned by oil companies in the region to investigate the socio-economic impact of their actions on host societies, there are many independent studies on the environmental impact of oil spills on people's health, social and economic life that have not been implemented. As the central government lacks the political will to enforce strict environmental laws to curb the environmental impacts of crude oil exploration and exploitation in Rivers State, the existence and destruction of the oil producers' ecosystem are worsening.

Given the above findings, it was recommended as follows:

1. It's also necessary for the state in conjunction with oil companies to hold out a broad-based public awareness campaign to teach the people of the communities on the risks of pipeline vandalism on their livelihood. This awareness campaign should mostly target youths who are the main players within the illicit activities that undermine agricultural food production. The government should make sure that policies are put in place where there are none or make sure that existing policies are enforced as to how of checking petroleum pipeline vandalism. Additionally, regulatory agencies also because of the soldiers should be encouraged either through financial incentives to extend their surveillance functions along pipelines and if possible arrest and prosecute vandals as the method of deterring other youths from venturing into the act.
2. Adequate support in terms of sentimental loans should tend to the agricultural women to enhance and enlarge their farmlands through the Extension Services. Also, women should be encouraged to shift to farmlands that weren't polluted. This can enable the ladies to supply more crops and sell to the market.
3. Women access to land and other resources should be ensured and not undermined. The government at all levels would have to step in in this respect to ensure gender equity regarding access to and control of resources. Government through the Central Bank should formulate and implement financial/credit policy which will compel financial institutions to extend certain percentage of loans to women involved in food production.

### REFERENCES

1. Anijah-Obi, F. N. (2001). *Fundamentals of environmental education and management*. University of Calabar Press.
2. Butter, M.E. (2006). Are women more vulnerable to environmental pollution? *Journal of Human Ecology*, 20(3); 221-226.
3. Darkwah, A. K. (2014). The impact of oil and gas discovery and exploration on communities with an emphasis on women. A Thesis Presented to the Department of Sociology, University of Ghana.
4. Egbe, A. F. & Thompson, D. (2010). Environmental challenges of oil spillage for families in oil-producing communities in the Niger Delta. *Journal of Health and Research*, 13; 24-34.
5. Garg, S. K., Garg, R. & Garg, R. (2007). *Environmental science and ecological studies*. Khanna Publishers.
6. Godson-Ibeji, C. C. & Chikaire, J. U. (2016). Consequences of environmental pollution on agricultural productivity in developing countries: A case of Nigeria. *International Journal of Agricultural and Food Research*, 5(3); 1-12.
7. Inoni, O. E., Omotor, D. G. & Adun, F. N. (2006). The effect of oil spillage on crop yield and farm income in Delta State, Nigeria. *Journal of Central European Agriculture*, 7(1), 41-48.
8. Irikana, G. J. (2006). Mangrove utilization and poverty alleviation in the Niger Delta: A case study of Andoni women. An unpublished PhD Dissertation Submitted to the Department of Sociology, University of Port Harcourt.
9. Irikana, G. J. (2015). The Niger Delta ecosystem and oil production: An analysis of capitalism incorporation of a natural economy. In M. Anikpo (ed.). *Conflict and development in the Niger Delta: Sociological perspective*. Abic Books.
10. Jhingan, M. L. (2007). *The economics of development and planning*. Vrinda Publications.

11. Kadafa, A. A. (2012). Environmental impact of oil exploration and exploitation in the Niger Delta of Nigeria. *Global Journal of Science Frontier Research, Environment and Earth Sciences*, 12(3), 18-28.
12. Nmomo, O. C. (2004). *Understanding rural development: A critical approach*. Pearl Publishers.
13. Pitkin, J. (2013). Oil oil everywhere: Environmental and human impacts of oil extraction in the Niger Delta. Pomona Senior Thesis. Paper 88. Retrieved from [http://scholarship.claremont.edu/pomona\\_these/88](http://scholarship.claremont.edu/pomona_these/88). On 11<sup>th</sup> January 2020.
14. Sutton, M. O. & Anderson, E. N. (2004). *Introduction to cultural ecology*. Attamira Press.
15. United Nations Women Fact Sheet (2009). Women, gender equality and climate change. Retrieved from [http://un.org/womenwatch/feature/climate\\_change/](http://un.org/womenwatch/feature/climate_change/). On 11<sup>th</sup> January 2020.
16. Eze, L. (1997). Oil Exploration and its effects on food production in Ogba community. Department of Agricultural Education, Federal College of Education (Tech.) Omoku, Rivers State, Nigeria.
17. Pyagbara, L. S. (2007). The adverse impacts of oil pollution on the environment and wellbeing of a local indigenous community: The experience of the Ogoni people of Nigeria. Being a paper presented at the International Expert Group Meeting on Indigenous Peoples and Protection of the Environment.
18. United Nation Women Fact Sheet (2009). Women, gender inequality and climate change. Available on [http://un.org/womenwatch/feature/climate\\_change/](http://un.org/womenwatch/feature/climate_change/). Retrieved on 21/01/2020.
19. Jaggar, A. M. (1983). *Feminist politics and human nature*. Rowman and Littlefield Publishers.
20. Anriquez, G. and Stamoulis, K. (2007). Rural Development and Poverty Reduction: Is agriculture still the key? ESA Working Paper No. 07-02. Available on <http://www.fao.org/3/a-ah885e.pdf>. Retrieved on 21/01/2020.
21. Marija, R. (ed.) (2012). Perspectives of women in rural areas. A publication of the United Nations Entity for Gender Equality and the Empowerment of Women. Available on [www.unwomen.org](http://www.unwomen.org). <https://www.citypopulation.de/php/nigeria-admin.php?adm2id=NGA033016>