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## ENVIRONMENTAL IMPACT OF GAS FLARING IN PARTS OF RIVERS STATE, NIGERIA

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### Abstract

The dishonesty of the Federal Government and the ecstatic approach of the multinational oil and gas companies towards addressing environmental issues on gas flaring has been a major concern in the Niger Delta. This work evaluates the environmental impacts and the government efforts towards addressing gas issues in Okrika and Eleme Local Government Area of Rivers State. Data was collected using well-structured questionnaires and analyzed using simple percentage. It was observed over 70% of the respondents agreed that gas flaring has adversely deteriorated the environment and has also affected the socio-economic life, health, vegetation, and income in Niger Delta populace in the negative. Corruption was also observed as the major problem towards the implementation of the good policies of Government in addressing gas flaring environmental issues. The essentials of this research can be employed by government and non-governmental agencies while evaluating environment impacts caused by gas flaring.

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**Keywords:** Environmental, Impact, Gas Flaring, Parts of Rivers State, Nigeria

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### Introduction

Nigeria possess plenty of gas that is not related with crude oil extraction, and in gas field, it is less capital intensive to extract. If the retribution of gas flaring were equivalent to the value of natural gas, gas flaring would reduce or eventually come to an end. Natural gas resources discovery and its extraction in Rivers State have had distinct effect on the people; significant economic deprivation and dispute have affected others. A good few put up with abject poverty, environmental harm, contamination, illness, ignorance hence score very low on the United Nations Development Programme Index (UNDP, 2006). Gas flaring has serious implementation to people living in Rivers State and its neighboring communities; it contributes to climate change, it acidifies the lakes and streams and also damages the environment (Watts, 2001). Due to years of increased petroleum and natural gas exploration, the inefficiency to extract these natural resources with low impact on the environment and the pollution associated with these activities has had unfavourable impact on coastal and ocean resident in danger of being exterminate (Argo, 2001). Two of the many elements contributing to the degradation of the environment, and increase contaminants contaminating the air and water for inhabitant of Rivers State are Flaring of natural gas and sanitary sewage runoff. The oil exploration industry in Rivers State and the environmental damage and pollution that is associated with it have affected the life and economics of the residents who get earnings through farming or fishing. The consequence of natural gas flaring and petroleum or oil spillage have touch the fish supply, fruits and vegetables that are harvested with poison and has taking a toll on the health of the residents also (Ashton et al, 1999). Petroleum exploration takes place with consequences and on the surroundings, which is seen as a source toward stimulating climate change which within the past years attained a lot of recognition (Vatn, 2005).

Many issues have occurred over years ago within Rivers State and its neighboring communities due to too much flaring of natural gas, such as pollution of the environment, economic friction, disease etc.

According to Ejiofoh, (2011), Carbon dioxide (CO<sub>2</sub>) in the atmosphere and the resulting water can become harmful to vegetation and aquatic life. In respect of health implications, acidic reactions meet and travel with the air which can lead to leukemia, asthma and premature death. Findings reveal that discharges of nitrous and sulphur oxide along with the atmospheric conditions are likely to induce acidic rain. According to Gervet, (2007), gas flaring in Nigeria has contributed greenhouse gases to the earth atmosphere. The health of people in the society had been mortgaged. Gas flaring causes serious social-economic degradation and systematic poisoning of the eco-system in the environment and the country in general (Oghifo, O. Thompson. 2011). The health impacts associated with gas flaring includes; cancer, neurological, reproductive and developmental effects. Deformities in children, lung damage and skin problem. (Orimogunje. O.et al., 2010). These affect the populace of people living in gas flared locations.

The study is aimed at evaluating the economic, social, health and environmental impact of gas flaring in Rivers State. This study can create awareness of danger on the populace living proximal to the flared area in Khana, Eleme, Bonny, Okrika and Port Harcourt Local Government Areas. It can also serve as a model for effective Corporate Social Responsibility (CSR) for the multinational oil and gas industries including NNPC, SHELL, Total and NLNG in bringing viable development in Rivers State. It can also serve as a bas lime for further studies and a source of literature for research institutions. The study only considers the environmental impact of gas flaring in two out of the twenty three government areas in Rivers State.

**Materials and Methods**

A descriptive survey was employed since the study is to evaluate the environmental impact of gas flaring in Rivers State. Primary attention was placed considering the impact of gas flared in the environment and human in Rivers State.

**Area of the Study:** The area of the study in this research work is Eleme Port Harcourt and Okrika in Rivers State. The reason for choosing these areas is that these areas are the most pollution prone in the society. It cuts across various locations with a good number of industries and oil exploration companies, and the economic activities of oil industries have caused significant migration of people. And it is noticed that the features in this area is gas flares, which causes acid rain, the diverse station with all kinds of pollution ranging from land, water, air and noise. The climate of the area is characterized by high temperature, rainfall, relative humidity and low wind velocity.

**Population of the Study/Sample:** The target population consists of enlightened populace above 18 years who knows the meaning and intricacies of Environmental pollution as regards to gas flaring residing in the study areas. In all one hundred and sixty (160) people are chosen as sample.

**Method of Data Collection:** A recognizance survey was carried out around the communities and at the site where the natural gases are flared with due spotting and identification of the various points at which gas is flared, during which inputs were made by the community leaders on greatly affected areas. Afterward a comprehensive list of the gas flare locations in the study areas was drafted. Well-structured questionnaires were administered to the respondent. Data was collected by gathering responses from the respondents. This study also employed data from secondary sources such as Conference Papers, Environmental Journals, Environmental Textbooks, Newspapers, Magazines and Seminars. The questionnaires were issued to individuals explaining the purpose of the research along with the assurance of confidentiality.

**Method of Data Analysis:** The data were analyzed using the simple percentage after presenting them using pie charts.

**Results**

The analysis presents results stemming from the questionnaire survey collected from Eleme and Okrika and so as to determine the health, economic, social and environmental impacts of gas flaring on the people that reside in Rivers State. A pie chart was used to demonstrate the responses received from those returning completed questionnaires. 160 questionnaires were distributed to individuals, and 153 were returned completed. The research questions were analyzed using simple percentage.

**Table 1: Questionnaire Distribution and Collection**

Questionnaire	No. Distributed	No. Retrieved	Percentage Retrieved
160	160	153	95.6%

From Table 1 above, out of 16 distributed in the study area, 153 copies were retrieved from the respondents.

**Respondents from Distributed Questionnaires**

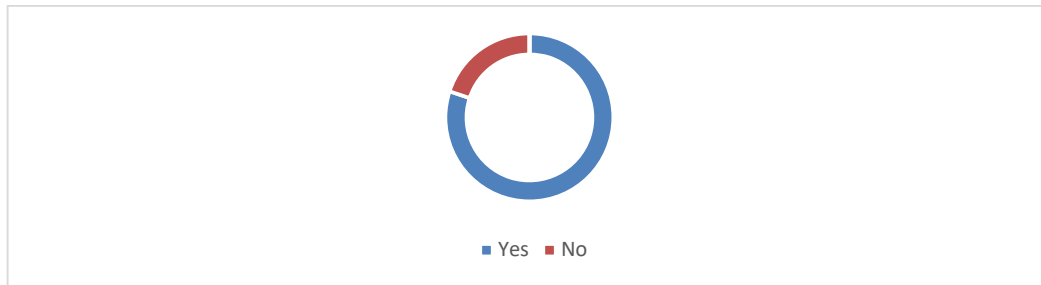
Respondents were asked to indicate if gas flaring has environmental and health effects on the people. The responses are shown in Table 2.

**Table 2: Respondents from Distributed Questionnaires**

Description	No. of Respondent	Percentage (%)
Resident in Eleme	66	43
Resident in Okrika	87	57
Total	153	100

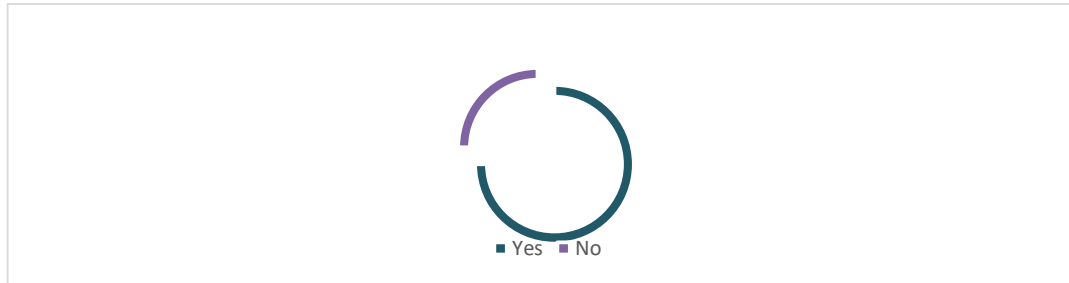
From Table 2, Forty three percent (43%) of the respondents are from Eleme Local Government Area while fifty seven percent (57%) of them resides in Okrika Local Government Area.

Does gas flaring affects the social life, economy and environment of Rivers State?



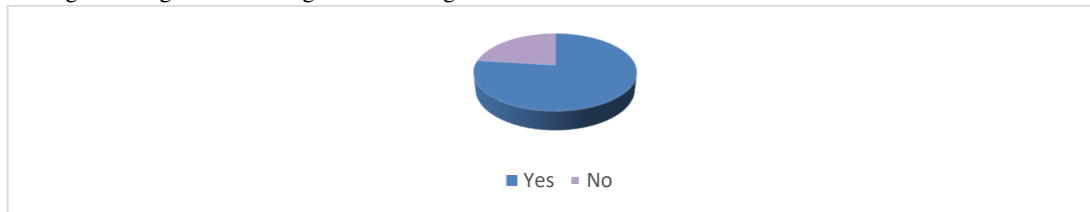
**Figure 1. The socio-economic and environmental impacts of gas flaring in River State**

Does gas flaring have environmental and health effects on the people of Rivers State?



**Figure 2. Environmental and Health Effects of Gas Flaring.**

Does gas flaring affect the vegetation and agricultural activities in Rivers State?



**Figure 3: the effect of gas flaring on agriculture and vegetation.**

Does gas flaring affect the income of Rivers State people?

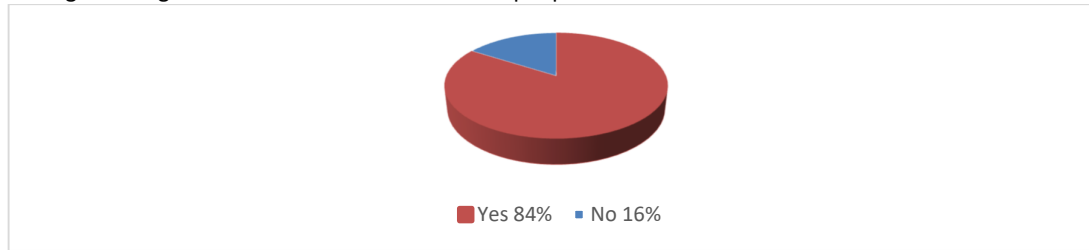


Figure 4: the effect of gas flaring on income generation.

Are the government and oil companies making effort to stop gas flaring in Rivers State?

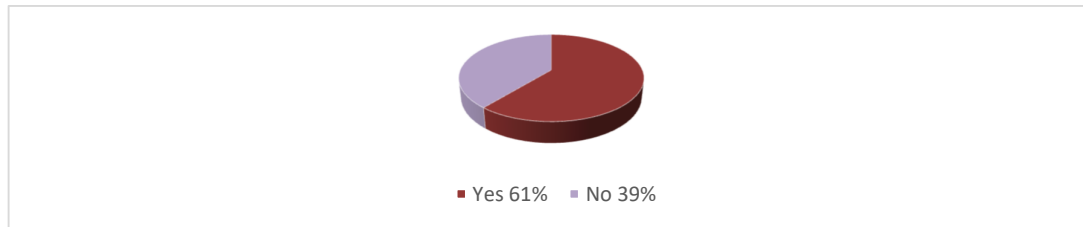


Figure 5: Government and oil company efforts to stop gas flaring

Is corruption and other unethical practices encouraging continuous gas flaring in Rivers State?

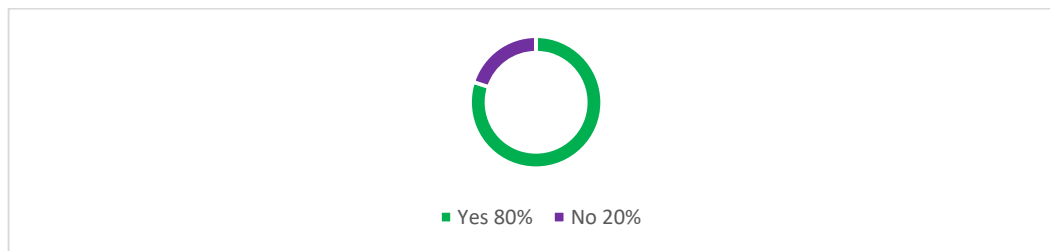


Figure 6: The effect of corruption and unethical practices on gas flaring

### Discussion

#### Does gas flaring affect the social life, economy and environment of Rivers State?

80% of the respondents are of the opinion that flaring of natural gas constitutes to social and economic warnings while 20% are of the opinion that flaring of natural gas will not contribute to social and economic warnings. by means of fishing and agricultural farming River State is agrarian in character that supports the occupants. in local markets, the reaps from industries are sold. Natural gas flaring is widely believed to release chemicals that are dangerous and poisonous into the air or atmosphere. These hazardous chemicals and toxic compounds in the air which by means of acid rains filter into the soil and will eventually absorb plants which may be meant for human consumption. Consequently, the toxic chemicals poisoned the food crops, waterways and killing a huge number of aquatic life that is suppose to serve as food for the residents. From the result of the respondents, it can be inferred that 80% are of the opinion that under such conditions, crop production was negatively affected which affected the economic growth of the area.

#### Does flaring of gas have environmental and health effects on the people of Rivers State?

75% of the questionnaire responses are of the opinion that as a result of flaring of gas, the health and the environment of the residents can be affected, while the remaining 25% have an opposite view. Devastating damage to the cells of the skin have been evident due to the toxic chemicals or compounds released into the air

or atmosphere. The toxic chemicals released into the atmosphere have also shown to cause different types of ailment such as cancer, disorders of blood, bronchitis and anaemia in areas that are in proximity to the discharged flares. The food chain is attacked by these discharges. The discharges consist of toxic elements and compounds which includes benzene.

Once life expectancy is adversely reduced substantially by health conditions caused by the intake of flared gas. This results to the expectancy of life of populace to be not more than 40 years while in other parts of the country the expectancy of life is roughly 45 years. For this reason, a decrease in release of greenhouse gas will be gain to all human health (Ishione, 2004). Disastrous effects on the environment such as climate change, flooding, global warming etc., are caused by the deposits discharged from the flared gas. As depicted in figure 3, 75% of the questionnaire respondents are of the opinion that flaring of natural gas affects the area, since methane, carbon mono-oxide and sulphur dioxide are some of the hazardous compounds released which impedes conservation of the environment and attacks the ecosystem (Ezzati & Karmmen, 2002; Ishione, 2004).

#### **Does flaring of gas affect the income of the populace in Rivers State?**

Flaring of natural gas which can result to climate change can bring about the occurrence of erosion of coastal shorelines and flooding in the Niger Delta region. Agricultural crops are destroyed and outbreak of diseases occur due to the disastrous climate events. 77% of the questionnaire respondents are of the opinion that flaring of natural gas contributes to destruction of crops due to floods, drought and extreme temperature changes.

#### **Does flaring of natural gas affect the vegetation and agricultural activities in Rivers State?**

Results from the questionnaire indicate that 84% of the questionnaire respondents are of the opinion that the income of the people of Rivers State suffer a direct impact from the flaring of natural gas while 16% of the remaining respondents feel that gas flaring has a negligible impact. The respondents include workers in the agricultural sector, farmers and fishermen. Before the installation of petroleum rigs and large-scale exploration of petroleum, the respondents were able to remember that they harvested bumper crops and accumulated tons of aquatic animals that are sold in the international and local markets for huge monetary gains, even though they do not understand the technical or scientific implications why they are fishing hauls and agricultural crops are being destroyed. Large parts of the income generated by the people were spent on medical bills to treat themselves. These medical conditions principally result from gas flaring. In some cases, farmers bring in parts of their earnings to take action on erosion check and vegetation disease to preserve the incomes and harvests.

#### **Are the government and oil companies making efforts to stop gas flaring in Rivers State?**

Thirty nine percent (39.0%) of the respondents believed that the Nigerian government and the multinational oil and gas companies have credible plan and established policies to eliminate natural gas flaring, which the remaining 61.0% believed that none of obviously implemented. Further investigation and analysis of the responses indicated that the majority of the 39.0% that said yes are in fact beneficiaries or employees in top governmental agencies/ministries and in the multinational companies. This has led to the belief that the respondents are biased. The fact is that the other 61.0% of respondents are residents of Rivers State with no affiliation or allegiance with the government or multinational are adversely affected with the menace called gas flaring.

#### **Is corruption and on ethical practices encouraging continuous gas flaring in Rivers State?**

In the eternal practice of flaring of natural gas in Nigeria, 80% of the respondents are of the opinion that corruption plays a key part. 20% of the remaining respondents are of the opposite opinion in that they disagree with the claim that corruption play a key part. numerous secret agendas exist behind the ceaseless flaring of natural gas in the Niger Delta which keeps the Niger Delta people in agog. The civil servants and the populace of the Niger Delta constitutes the majority of people that are of the opinion that corruption and ethical issues are some of the vital impulse of flaring of natural gas in Nigeria. The 20% of the remaining of the questionnaire respondents that are of the opposite opinion are majorly working with the oil companies. The principal reason this survey is carried out is to expose why natural gas flaring in Nigeria persist in breach of the plans, laws, legislations and standards. Of the questionnaire respondents, 20% maintained that the regulations, measures, legislations, and standards are enforced in a forthright way. In the gas and multinational oil industries in Nigeria, there is much political control to heads of government to reach whatever is required. For instance, constantly increasing the imposed time limit for the termination and extermination of flaring of natural gas in Nigeria.

### Conclusion

Based on the findings of this research, it can be concluded that:

- i. Gas flaring has adversely impacted on the Niger Delta environment and ecosystem.
- ii. Gas flaring significantly affects the social life, economy and environment of Rivers State.
- iii. Flaring of natural gas has environmental and health effects on the people of Rivers State and the Niger Delta in general.
- iv. Gas flaring affect the vegetation and agricultural activities of people in Rivers State.
- v. Gas flaring affect the income of River State people.
- vi. The governmental and multinational companies have failed in their obligations to implement policies to stop gas flaring in Rivers State.
- vii. Corruption is endemic and discouraging in the political spaces of the government and Multinational Corporation.
- viii. The Rivers State populace has suffered in the hands of government and multinational oil and gas companies.

### Recommendations

- i. The Federal Government should be honest on implementation of the policies and legislations concerning the stoppage of gas flaring.
- ii. Government should impose punishments against firms that flare Natural gas
- iii. The affected populace should be compensated financially and be provided quality health care.
- iv. The environment of the affected communities should be cleaned up to return the rural farmers to the state of bumper harvest.

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