

Acid Rain in Environmental Pollution: the Perception of the people of Edagberi/Betterland Communities in the Niger Delta region of Nigeria

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Abstract

This paper investigated acid rain in environmental pollution: the perception of the people of Edagberi/Betterland Communities in Engenni in Ahoada West Local Government Area of Rivers State. The work x-rayed the causes and effects of acid rain and also the contributions of the oil and gas companies to their host communities for this long period of time (over five decades) that they have already spent in siphoning the God-giving wealth of the Niger delta people. A total of one hundred and thirty (130) respondents were randomly selected for this study. Structured questionnaires (EBCSQ) were administered to the total respondents. The results of the study were analyzed using simple percentage and the results indicated that the prime causes of acid rain are the activities of oil and gas companies in the Niger Delta region; the activities of oil and gas exploration and exploitation companies are posing gigantic threats to the lives of their host communities. Additionally, it also indicated that there are little or no contributions made by the multinational companies to cushion the effects of the hardship they have plunged on the host communities. Based on this, recommendations were made.

Introduction

The quest for better living conditions has occasioned man to tamper with his natural environment handed over unto him by God. The drive and pursuit for industrialization and urbanization has inadvertently created untoward effects to our earth's environment, the atmosphere is not left out, as it is constantly being degraded as a result of pollution. An environment, as defined in the Federal Environmental Protection Agency Decree of 1988, encompasses air, land, water, plants and animals living therein and the inter-relationships which exist among these or any of them. Isirima (1998) posited that overpopulation and industrialization have contributed in diverse forms to the general deterioration of the environment upon which humanity is absolutely dependent for life. The activities that are causing these deteriorations to our environment are vehemently detrimental as it constitutes direct threat to human health. Odu (1991) defined environmental pollution as the unfavourable alteration of our surroundings, through direct or indirect effect of changes in energy pattern, radiation levels, chemical and physical concentration and abundance of organisms. Environmental pollution is the gradual introduction of harmful materials or substances into the environment which consequently occasion untoward effects on living and non-living things (Zudonu and Ekpa, 2012; Zudonu, Ezegbirika and Nnaobi, 2014).

Acid rain was first noticed in 1872 by a Scottish chemist, Angus Robert Smith, when he wrote a book titled "Acid rain: the beginning of chemical climatology". In the 60s the consciousness of the scourge, acid rain, was prominent in the area of fishing because of the waning size or quantity of fish in the ponds, creeks, rivers, lakes and oceans. Though, in the Niger Delta region of Nigeria, the awareness of the menace, acid rain, became increasingly high in the 70s as the activities of oil and gas climaxed. Weathers and Likens (2006) referred to it as "wet and dry depositions". The wet depositions include cloudwater, dew, fog and rain, while the dry depositions include particles and gases. Based on this fact, it is vivid that acid rain does not only exist in the form of water, it depends hugely on the climatic condition of the environment. According to Chang (2003), water has the pH value of 7 as neutral, and any liquids having pH values less than 7 are acidic, while those above 7 are basic. Likens, Driscoll, and Buso (1996) established that the effects of acid rain on soil can not hurriedly be quantified due to the addition of alkaline substances like limestone. However, when the pH value drops below 5.8, it is considered to be strongly acidic due to its destructive tendency. In this case the soil can not neutralize it all alone, therefore, the application of the mentioned limestone becomes imperatives. Ordinarily, rain has a pH value of 5.6. In situations where the pH values drop to 4.3 - 2.1, it becomes cataclysmic to the environment. Zudonu, Ezegbirika and Nnaobi (2014); Okpoba (2009) and Nwafor (2007) said that the activities of transnational oil and gas companies are causing numerous environmental problems in the Niger Delta region of

Nigeria. Likens (1984) describes smokestack (a vertical tube or hollow column used to emit environmentally polluting gaseous and solid matter; including but not limited to by-products of burning carbon or hydrocarbon based fuels) as the “smoking gun”.

Statement of the Problem

There is an insufficient scientific study on acid rain as it affects our environment here in the Niger Delta region of Nigeria. Even the few ones we have, they are not treated in detail. Zudonu and Ekpa (2012) established that acid rain is highly destructive and needs to be stopped or eliminated, if not into to, then, it has to be reduced to the barest minimum. The study observed that acid rain plunges the people of the Niger Delta into an extreme state of poverty by ravaging their environment and the peoples’ health is not left out as its impact are more lethal than the hydrogen bomb.

Severe damage has been reported on the destructions of mangrove, rain forests, farmlands, ponds, creeks, rivers, lakes and oceans in the Niger Delta region in general which has indicated serious untoward effects on the soil fertility, animals, economic trees, fish and other living organisms in the area (Zudonu and Ekpa, 2012; Zudonu, Ezegbirika and Nnaobi, 2014; Essien and Antai, 2005; Chikere and Okpokwasili, 2009; Onyenekenwa, 2011). Conflicts between local communities over ownership and host communities with oil and gas multinational companies over compensations are increasing daily (Alarape and Asagba, 2009 and Ogege and Ewhrudjakpor, 2009).

Questions could be asked at this juncture; do the activities of oil and gas exploration and exploitation companies posing threats to host communities? What are the things that should be done to ameliorate the problems resulting from the activities oil and gas companies encountered by the host communities? Are the transnational oil and gas companies operating in the Niger Delta Communities addressing the issues of pollution in their host communities? Are the oil and gas companies attending to issues of remediation of areas affected by pollution? Do the oil and gas companies give scholarship awards to host communities? Do the oil and gas companies give employment opportunities to their host communities?

Objective of the Study

The objective of the study seeks to;

- determine the causes of acid rain in the Niger Delta region of Nigeria.
- investigate the extent the activities of oil and gas exploration and exploitation companies posing are threat to host communities.
- determine the extent to which the oil and gas companies are doing to ameliorate the problems resulting from their activities in their host communities.
- investigate the extent the transnational oil and gas companies operating in the Niger Delta Communities are addressing the issues of pollution in their host communities.
- examine the extent the oil and gas companies are attending to issues of remediation of areas already affected by pollution.
- ascertain whether the oil and gas companies do give scholarship awards to indigenes of their host communities.
- examine whether the oil and gas companies do give employment opportunities to their host communities.

Significance of the Study

The findings of this study will be of colossal benefits to the government, host communities, oil and gas companies (particularly Shell), administrators, ministry of education, curriculum planners, teachers, counselors. It will also be a reference material for further research works.

Scope of the Study

The researchers limited this study to acid rain in environmental pollution: the perception of Edagberi/Betterland communities in Ahoada West Local Government Area of Rivers State in the Niger delta region of Nigeria

Research Questions

The following research questions were formulated to guide this study.

1. What are the causes of acid rain in the Niger Delta region of Nigeria?
2. To what extent do the activities of oil and gas exploration and exploitation companies posing threats to their host communities?
3. What are the causes of conflicts between oil and gas companies and host communities?

4. To what extent are the transnational oil and gas companies operating in the Niger Delta Communities addressing the issues of pollution in their host communities?
5. To what extent are the oil and gas companies attending to issues of remediation of areas affected by pollution?
6. To what extent do the oil and gas companies give scholarship awards to host communities?
7. To what extent do the oil and gas companies give employment opportunities to their host communities?

Research Design

Descriptive survey design was used.

Area of the Study

The study was carried out in Edagberi/Betterland communities in Engenni, Ahoada West Local Government Area of Rivers State in the Niger delta region of Nigeria

Population of the Study

The population of the study consisted of all the communities in Ahoada West Local Government Area in Rivers State.

Sample and Sampling Technique

The sample consists of one hundred and thirty (130) subjects which were randomly selected from Edagberi/Betterland Communities.

Research Instrument

The instrument used for data collection was Edagberi/Betterland Communities Structured Questionnaire (EBCSQ). The questions were structured in the types of yes or no.

Validity of Instrument

The Chemistry Achievement Test (CAT) was face and content (item analyzed) validated by two experts to check the appropriateness of content. Their observations, suggestions and corrections on adequacy of the instruments were incorporated.

Reliability of the Instrument

The test-retest method was used; questionnaires were administered to the sampled subjects and retrieved after completion. Two weeks later the same questionnaires were administered to the same set of subjects to obtain reliability of the instrument.

Data Collection

The Edagberi/Betterland Communities Structured Questionnaires (EBCSQ) administered by the researcher were collected back from the respondents after completion.

Method of Data Analysis

The responses of respondents to the items on Edagberi/Betterland Communities Structured Questionnaires (EBCSQ) were analyzed using simple percentage.

Research Question 1

What are the causes of acid rain in the Niger Delta region of Nigeria?

Table 1:

S/N	Item of the host respondents	Respondents	Yes	%	No	%	Total %
1	Did you notice degradation of your environment before oil and gas operations?	130	0	0	130	100	100
2	Is oil and gas operations the cause of acid rain in your area?	130	130	100	0	0	100
3	Is gas flaring the major cause of acid rain in your area?	130	127	98	3	2	100
4	Can oil spillage also cause acid rain?	130	110	85	20	15	100
5	Is bush burning also a source of acid rain the Delta area?	130	106	82	24	18	100
6	Can fossil fuels used in vehicles cause acid rain?	130	103	79	27	21	100

From table 1 above, item 1, shows that 0% respondent said yes and while 100% said no. The respondents said that they did not notice degradation of their environment before oil and gas operations. Item 2 of table 1, indicates that 100% respondents said yes and while 0% said no. The respondents said that oil and gas operations are the cause of acid rain in the Niger Delta area. Item 3 of table 1, indicates that 98% respondents said yes and while 2% said no. The respondents said that gas flaring is the major cause of acid rain. Item 4 of table 1, indicates that 85% respondents said yes and while 15% disagreed no. The respondents said that oil spillage can cause acid rain. Item 5 of table 1, indicates that 82% respondents said yes and while 18% disagreed (no). The respondents said that bush burning is also a source of acid rain. Item 6 of table 1, indicates that 79% respondents said yes and while 21% said no. The respondents said that fossil fuel used in vehicles can also cause acid rain. This implies that gas flaring, oil spillage; bush burning, fossil fuels etc are causes of acid rain in the Niger Delta region of Nigeria.

Research Question 2

To what extent do the activities of oil and gas exploration and exploitation companies posing threats to their host communities?

Table 2:

S/N	Item of the host respondents	Respondents	Yes	%	No	%	Total %
7	Do the activities of oil and gas companies corrode your roofing zincs and cooking utensils?	130	128	98	2	2	100
8	Do the activities of oil and gas companies produce noise and also crack your buildings?	130	127	98	3	2	100
9	Do the activities of oil and gas companies destroy your ponds, creeks, rivers, lakes?	130	127	98	3	2	100
10	Do the activities of oil and gas companies affect the sources of your drinking water?	130	130	100	0	0	100
11	Do you have any source of good drinking water?	130	12	9	118	91	100
12	Is there any depletion in the quantity of fish in your sources of fish?	130	130	100	0	0	100
13	Do the activities of the companies affect the economic trees?	130	112	86	18	14	100
14	Do the company's activities affect your education?	130	103	79	27	21	100

From table 2 above, item 7, shows that 98% respondents said yes and while 2% said no. The respondents said that the activities of oil and gas companies corrode their roofing zincs and cooking utensils. Item 8 of table 2, indicates that 98% respondents said yes and while 2% said no. The respondents said that the activities of oil and gas companies produce noise and also cracks their buildings. Item 9 of table 2, indicates that 98% respondents said yes and while 2% said no. The respondents said that the activities of oil and gas companies destroy your ponds, creeks, rivers, lakes. Item 10 of table 2, indicates that 100% respondents said yes and while 0% agreed no. The respondents said that the activities of oil and gas companies affect the sources of their drinking water. Item 11 of table 2, indicates that 9% respondents said yes and while 91% disagreed (no). The respondents said that they do not have any source of good drinking water. Item 12 of table 2, indicates that 100% respondents said yes and while 0% said no. The respondents said that the activities of oil and gas companies have resulted to a serious decline in quantity of fish in their sources of fish. Item 13 of table 2, indicates that 86% respondents said yes and while 14% said no. The respondents said that the activities of oil and gas companies affect their economic trees. Item 14 of table 2, indicates that 79% respondents said yes and while 21% said no. The respondents said that the activities of oil and gas companies affect their education. This implies that the activities of oil and gas exploration and exploitation companies are posing threats to their host communities.

Research Question 3

What are the causes of conflicts between oil and gas companies and host communities?

Table 3:

S/N	Item of the host respondents	Respondents	Yes	%	No	%	Total %
15	Does lack of good drinking water cause conflicts between host communities and oil and gas companies	130	100	77	30	23	100
16	Do oil and gas company's staff and their military guards drink water from the same source with you?	130	30	23	100	77	100
17	Does non-payment of compensations by the oil and gas companies for damaged property cause conflicts?	130	130	100	0	0	100
18	Does oil and gas company's military guards dehumanize you?	130	110	85	20	15	100
19	Do they provide electricity for host communities?	130	70	54	60	46	100
20	Do the activities of oil and gas companies deny you from your entire sources of livelihood?	130	130	100	0	0	100
21	Do the activities of oil and gas companies seriously affect the health of your people?	130	112	86	18	14	100

From table 3 above, item 15, shows that 77% respondents said yes and while 23% said no. The respondents said that lack of good drinking water cause conflicts between host communities and oil and gas companies. Item 16 of table 3, indicates that 23% respondents said yes and while 77% said no. The respondents said that the oil and gas company's staff and their military guards do not drink water from the source with host communities. Item 17 of table 3, indicates that 100% respondents said yes and while 0% said no. The respondents said that the non-payment of compensations by oil and gas companies for damaged property do cause conflicts. Item 18 of table 3, indicates that 85% respondents said yes and while 15% said no. The respondents said that oil and gas company's military guards normally dehumanize members of their host communities. Item 19 of table 3, indicates that 54% respondents said yes and while 46% disagreed (no). The respondents said that the oil and gas companies do provide host communities with electricity. Item 20 of table 3, indicates that 100% respondents said yes and while 0% said no. The respondents said that the activities of oil and gas companies deny their host communities from

their entire sources of likelihood. Item 21 of table 3, indicates that 86% respondents said yes and while 14% said no. The respondents said that the activities of oil and gas companies seriously affect the health of host communities. This implies that the activities of oil and gas companies are causing conflicts between them and their host communities.

Research Question 4

To what extent are the transnational oil and gas companies operating in the Niger Delta Communities addressing the issues of acid rain pollution in their host communities?

Table 4:

S/N	Item of the host respondents	Respondents	Yes	%	No	%	Total %
22	Are oil and gas companies doing anything to provide you good drinking water?	130	7	5	123	95	100
23	Are oil and gas companies not doing anything to stop or reduce gas flaring?	130	125	96	5	4	100
24	Are they doing anything to reduce poverty in their host communities?	130	3	2	127	98	100
25	Do the oil and gas company's staff live among you?	130	0	0	130	100	100
26	Have they provided you any hospital or health centre?	130	130	100	0	0	100
27	If yes, have they furnished it with resident doctor and equipments?	130	62	48	68	52	100

From table 4 above, item 22, shows that 5% respondents said yes and while 95% said no. The respondents said that the oil and gas companies are not doing anything to provide them good drinking water. Item 23 of table 4, indicates that 96% respondents said yes and while 4% said no. The respondents said that the oil and gas companies are not doing anything to stop or reduce gas flaring. Item 24 of table 4, indicates that 2% respondents said yes and while 98% said no. The respondents said that the oil and gas companies are not doing to reduce poverty in their host communities. Item 25 of table 4, indicates that 0% respondents said yes and while 100% disagreed (no). The respondents said that the oil and gas company's staff do not live among them. Item 26 of table 4, indicates that 100% respondents said yes and while 0% disagreed (no). The respondents said that the oil and gas companies have provided them hospital or health centre. Item 27 of table 4, indicates that 48% respondents said yes and while 52% said no. The respondents said that the oil and gas companies have not provided them with resident doctor and equipments. This implies that the transnational oil and gas companies operating in the Niger Delta Communities are not addressing the issues of acid rain pollution in their host communities.

Research Question 5

To what extent are the oil and gas companies attending to issues of remediation of areas affected by pollution?

Table 5:

S/N	Item of the host respondents	Respondents	Yes	%	No	%	Total %
28	Are the oil and gas companies in your area making any efforts to treat your water?	130	0	0	130	100	100
29	Are they doing anything to remedy your remaining farmlands?	130	60	46	70	54	100
30	Have they had any discussion with you for the remediation of your ponds, creeks, rivers, lakes?	130	3	2	127	98	100
31	Is it true that when you call for remediation they intimidate you?	130	115	88	15	12	100
32	When they finally agree, do they bring their people outside to do the remedial works?	130	106	82	24	18	100

From table 5 above, item 28, shows that 0% respondent said yes and while 100% said no. The respondents said that the oil and gas companies in area are not making any efforts to treat their water. Item 29 of table 5, indicates that 46% respondents said yes and while 54% said no. The respondents said that the oil and gas companies are not doing anything to remedy their farmlands. Item 30 of table 5, indicates that 2% respondents said yes and while 98% said no. The respondents said that the oil and gas companies have not had any discussion with them for the remediation of their ponds, creeks, rivers, lakes. Item 31 of table 5, indicates that 88% respondents said yes and while 12% said no. The respondents said that the oil and gas companies have been intimidating them when they call for remediation. Item 32 of table 5, indicates that 82% respondents said yes and while 18% disagreed (no). The respondents said that when the oil and gas companies finally agree to effect remediation that they always bring in their people outside the host communities to do the remedial works. This implies that the oil and gas companies are not attending to issues of remediation of areas affected by pollution.

Research Question 6

To what extent do the oil and gas companies award scholarships to host communities?

Table 6:

S/N	Item of the host respondents	Respondents	Yes	%	No	%	Total %
33	Do the oil and gas companies give scholarship awards to host communities?	130	60	46	70	54	100
34	Do they give scholarship to oil operation areas?	130	127	98	3	2	100
35	Have they ever sponsored anyone from host communities for studies abroad?	130	0	0	130	100	100
36	Do they have any educational programme in their host communities?	130	7	5	123	95	100
37	Host communities do not have any special treatment in scholarship awards?	130	118	91	12	9	100

From table 6 above, item 33, shows that 46% respondents said yes and while 54% said no. The respondents said that the oil and gas companies do not give scholarship awards to host communities. Item 34 of table 6, indicates that 98% respondents said yes and while 2% said no. The respondents said that the oil and gas companies give

scholarship awards to areas of operations. Item 35 of table 6, indicates that 0% respondent said yes and while 100% said no. The respondents said that the oil and gas companies have never sponsored anyone from host communities for studies abroad. Item 36 of table 6, indicates that 5% respondents said yes and while 95% disagreed (no). The respondents said that the oil and gas companies do not have any educational programme in their host communities. Item 37 of table 6, indicates that 91% respondents said yes and while 9% disagreed (no). The respondents said that the host communities do not have any special treatment in scholarship awards. This implies that the oil and gas exploration and exploitation companies do not give scholarship awards to host communities.

Research Question 7

To what extent do the oil and gas companies give employment opportunities to their host communities?

Table 7:

S/N	Item of the host respondents	Respondents	Yes	%	No	%	Total %
38	Do the oil and gas companies employ sons and daughters of their host communities?	130	0	0	130	100	100
39	Do you have anyone of your own gainfully employed in the oil and gas companies?	130	0	0	130	100	100
40	Do they consider you in menial works?	130	118	91	12	9	100
41	During employment, do they employ their own brothers and sisters and bring them to work here?	130	130	100	0	0	100
42	Have you ever had any dialogue with the oil and gas companies on employment issues?	130	127	98	3	2	100

From table 7 above, item 38, shows that 0% respondent said yes and while 100% said no. The respondents said that the oil and gas companies do not employ sons and daughters of their host communities. Item 39 of table 7, indicates that 0% respondent said yes and while 100% said no. The respondents said that the oil and gas companies do not have anyone of their own gainfully employed. Item 40 of table 7, indicates that 91% respondents said yes and while 9% said no. The respondents said that the oil and gas companies consider in menial jobs. Item 41 of table 7, indicates that 100% respondents said yes and while 0% agreed no. The respondents said that the oil and gas company's staff do go homes and bring their brothers and sisters for employment, instead of their host communities. Item 42 of table 7, indicates that 98% respondents said yes and while 2% disagreed (no). The respondents said that the host communities have had dialogues with the oil and gas companies on employment issues. This implies that the oil and gas companies do not give employment opportunities to their host communities.

Findings and discussion of results

The findings indicate that, in table 1 analysis of items 1, 2, 3, 4, 5 and 6 confirmed the causes of acid rain in the Niger Delta region of Nigeria. This is supported by Zudonu and Ekpa (2012) who opined that the major cause of acid rain is gas flaring, burning of fossil fuel, oil spillage, dumping and burning of toxic materials etc which are anthropogenic sources. In table 2, analysis of items 7, 8, 9, 10, 11, 12, 13 and 14 buttressed that the activities of oil and gas exploration and exploitation companies are posing threats to their host communities. This is in conformity with the findings of Okpoba (2009) and Nwafor (2007) who said that the activities of transnational oil and gas companies are causing numerous environmental problems in the Niger Delta region. In table 3, analysis of items 15, 16, 17, 18, 19, 20 and 21 confirmed that there are chains of causes which necessitate conflicts between oil and gas companies and host communities. This is confirmed by the findings of Ibaba (2001); Kimse (1998) and Zudonu and Ekpa (2012) who opined that the impunity exercised by the multinational companies in paying deaf ears to their host communities needs will snowball to crises that may not be managed by the multinational companies. In table 4, analysis of items 22, 23, 24, 25, 26 and 27 confirmed that the

transnational oil and gas companies operating in the Niger Delta Communities are not addressing the issues of acid rain pollution in their host communities. This is confirmed by the finding of Kadafa (2012) who was of the opinion that human's activities and primarily those of oil exploration and exploitation have raised a number of issues such as depletion of biodiversity, coastal and riverbank erosion, flooding, oil spillage, gas flaring, noise pollution, sewage and wastewater pollution, land degradation and soil fertility loss and deforestation, which are all major environmental issues. According to him, these issues are having disastrous effects on the environment in the region and have adversely affected people inhabiting in that region. This study is also in line with the work of Osuji (1998) who asserted that oil concentration in the soil has adverse effects on performance of crops and that the multinational companies are lackadaisical about the issues of control and remediation. In table 5, analysis of items 28, 29, 30, 31 and 32 confirmed that the oil and gas companies are not attending to issues of remediation of areas affected by pollution. This is confirmed by the finding of Osuji (1998) who asserted that oil concentration in the soil has adverse effects on performance of crops and that the multinational companies are lackadaisical about the issues of control and remediation. In table 6, analysis of items 33, 34, 35, 36 and 37 indicated that the oil and gas companies do not award scholarships to host communities. This is confirmed with the finding of Zudonu and Ekpa (2012) who opined that the oil and gas companies are perpetually impoverishing their host communities and refusing to improve their educational status. In table 7, analysis of items 38, 39, 40, 41 and 42 underscored that the oil and gas companies do not give employment opportunities to their host communities. This is in agreement with the findings of Zudonu, Ezebirika and Nnaobi (2014) who established that oil and gas companies give employment opportunities to their own brothers and sisters instead of indigenes of host communities.

Conclusion

The results of the study indicated that gas flaring, oil spillage; bush burning, fossil fuels etc are causes of acid rain in the Niger Delta region of Nigeria, the activities of oil and gas exploration and exploitation companies are posing threats to host communities, the activities of oil and gas companies are causing conflicts between them and their host communities, the transnational oil and gas companies operating in the Niger Delta Communities are not addressing the issues of acid rain pollution in their host communities, the oil and gas companies are not attending to issues of remediation of areas affected by pollution, the oil and gas exploration and exploitation companies do not give scholarship awards to host communities and the oil and gas companies do not give employment opportunities to their host communities. Therefore, acid rain is highly destructive, all measures should be taken to stop or reduce it to the barest minimum.

Recommendations

The following are recommendations put forward for onward improvement.

1. Host communities should endeavour to provide enabling and conducive operating environments for the transnational oil and gas companies instead of raising flimsy and insubstantial agitations and demands that are not practicable.
2. Projects to be sited should not be decided by the oil and gas companies but the host communities should be given the opportunities to prioritize their needs for strict compliance by the multinational companies after necessary dialogue.
3. Transnational oil and gas companies should design and implement elaborate economic empowerment programmes that will impact positively on the lives of the people like education and skill training, financial support to aid in trades development and direct awards of scholarship to indigenes of their host communities in the Niger Delta.
4. Provision of social amenities by multinational companies and government interventionist agencies: pipe-borne water, good roads, bridges, electricity, modern houses as the case may be, proper waste disposal system etc.
5. Establishment of forestation, pollution control and conservation of natural resources schemes in oil producing communities to restock and replenish damaged natural resources.
6. In order to eschew restiveness, industries should be created in oil producing communities to provide gainful and alternative employment opportunities to indigenes whose means of livelihood have been denied.

7. Multinational oil and gas companies should try to establish model and demonstration farms in their host communities to enable the people at least still carry out their traditional occupation of fishing and farming at strategic and suitable locations.
8. Multinational companies should be compelled through the enactment of appropriate legislations by the government to stress the negative effects of their operations if possible through advertisement on bill boards in their host communities.
9. The Federal Government of Nigeria should do everything possible to stop gas flaring as its effects are injurious in all facets to living and non-living things.

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