

An Analysis of the Effects of Environmental Degradation on Sustainable Rural Subsistence in the Niger Delta, Nigeria (1990 – 2016)

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Abstract- There have been incidents of environmental degradation in the Niger Delta which affects sustainable rural subsistence. Most trigger factors affecting environmental degradation is linked to multinational oil companies and oil resources extraction which usually culminates to conflicts or tensions (Chalecki, 2002) in affected localities. Sustainable subsistence is the way in which people make a living without tainting the ecosystem or natural environment for the future (Carney, 1998).

The study examined triggers of environmental degradation and its implication on sustainable rural subsistence in the Niger Delta. The study adopted the Marxian Political Ecology theory which analyzes the inequality and scrupulous extraction of natural resources. The method of analysis is descriptive and historical with three research hypothesis. The study made use of primary and secondary source of data. Questionnaire was administered to 1,200 heads of rural households. The sample size was derived through the Taro Yamane Statistical tool from three specifically selected states in the Niger Delta. The Main finding of the study showed that the effects of environmental degradation impacts on rural subsistence negatively. Recommendation among others are the institutionalization of Eco- Literacy programmes, participatory rural ecological blueprint for sustainable rural subsistence, multi- stakeholder ecological tracking, ecological accounting and green collaboration involving the federal, State, Local Governments, the multinationals, community based organization (CBO), community leaders and heads of household as alternatives inclusive policy strategies to mitigate unsustainable rural subsistence efforts.

STATEMENT OF PROBLEM

The Niger Delta is perhaps confronted with complex environmental security threats which pose constraints to sustainable rural subsistence namely:

- Oil Spill

- Water Pollution
- Mangrove Deforestation
- Acid Rain
- Gas Flaring
- Land Pollution

The study seeks to understand the implication of the above to sustainable rural subsistence in the Niger Delta region.

AIM AND OBJECTIVES OF THE STUDY

The aim of this work was to examine environmental security threats and sustainable rural livelihoods in the Niger Delta.

The following are the specific objectives of the study.

To:

- Examine the impact of oil spill on rural farming in the Niger Delta.
- Ascertain the impact of water pollution on fishing in the rural Niger Delta.
- Examine the impact of mangrove deforestation on rural households in the Niger delta.

RESEARCH ASSUMPTIONS

The study posed the following research assumptions;

- Oil spill will likely result in land degradation and soil contamination which could cause low crop yield and negatively impact the rural farmers who rely on cultivation of the soil for subsistence.
- The incidence of water pollution could contaminate water for consumption, decimate aquatic creatures such as fish, crabs, crayfish, periwinkle etc. which are sources of rural livelihood, in particular, this may affect rural

fishing which is a dominant means of livelihood in the Niger Delta.

- Mangrove deforestation will result in wild life decimation, distortion of forest resources notably wood and medicinal plants which constitute sources of subsistence for rural household in the Niger Delta.

SCOPE/LIMITATIONS OF THE STUDY

- The focus of this study was on environmental security threats and sustainable rural livelihood in the Niger Delta.
- The study was limited to rural household from 12 selected communities in 6 Local Government Areas from three purposively selected States in the region namely Khana and Okrika in Rivers State, Warri South-West and Bomadi in Delta State, Southern Ijaw and Nembe in Bayelsa State.
- This is because of limitations posed by research funding and time constraints and perhaps over the years, these areas have proved more vulnerable to environmental security threats.
- The time frame for the study was 1990 to 2016 (Twenty Eight Years). This provides robust period to explore and put in perspective key scenarios for the research agenda for possible generalization and in particular, to appreciate any impact environmental security threats have had on the rural households in the Niger Delta.

LITERATURE REVIEW

Theoretical Framework

The theory of Marxian political ecology as propounded by Bryant and Bailey extrapolates that inequality in distribution of environmental costs and benefits results in variation and effects changes on the environment (1997:28).

According to them this inequality reinforces an existing socio-economics inequality which affects ecological condition and that the unequal distribution of costs and benefits has implications for the emergent power relationship. This is premised on the notion of inequality and exploitation inherent in capitalism (Bryant and Bailey, 1997:28).

METHODOLOGY

This Study adopted historical and descriptive research designs while population for the study was gotten from all heads of households in the Niger Delta states. The total Number of heads of Households in the state is 3,122,458 (NBS, 2015). The study utilized 1,200 heads of households systematically selected from ten (10) enumeration Areas (E.As) in six Local Government Areas of the three studied states in the Niger Delta namely Rivers (400), Bayelsa (400), and Delta (400).

The minimum Sample size was determined using the Taro Yamane Stated as: $n = \frac{N}{1 + N(e)^2}$; where n =sample size, N =population, and e =degree of error tolerable. The study used purposive sampling technique. This was suitable in exploring “existential situations where research discoveries could be ascertained through partial intuitive approach” (Saunders and Thornhill, 2012:288). This technique is suitable for this research in order to identify and select knowledgeable heads of rural households in the area of study in tandem with the research objectives.

METHOD OF DELTA COLLECTION

The study combined both primary and secondary methods of data collection. The primary sources of data for this study included structured household questionnaire, focus group discussions (FGDs) and key informant interviews while the secondary data sources were gotten from books, official government publications, gazettes, archival materials, oil company annual reports/newsletters, press releases seminar papers, internet materials, publications from academic journals, seminal report relevant periodicals, magazines, newspapers and previous research related to the study objectives.

METHOD OF DATA ANALYSIS

The data obtained for this study was largely qualitative which was analyzed using simple percentages, table and pictorials. Substantial descriptive analysis of the qualitative data was also undertaken.

Table 1: Impacts of oil spill in rural farming in the Niger Delta

S/N	TEMS	SA	%	A	%	SDA	%	DA	%
1	Oil spill results in low crop yield among rural farmers in the Niger Delta?	900	75	120	10	108	9	72	6
2	There have been decimation of food crops, fauna and flora as a result of oil spill?	960	80	180	15	24	2	36	3
3	Oil spill has resulted in low cassava yield?	972	90	60	5	24	2	36	3
4	Oil spill has contaminated the land for cultivation?	840	70	300	25	23	2	36	3
5	There has been an improved crop harvest following oil spill?	0	0	0	0	1,200	100	0	0
6	Government has provided effective policy measures to tackle oil spill in the Niger Delta?	0	0	0	0	900	75	300	25

Table 2: Impacts of water pollution on rural fishing in the Niger Delta

S/N	TEMS	SA	%	A	%	SDA	%	D	%
7	Water pollution results in low catch in rural fishing	1,200	100	0	0	0	0	0	0
8	Water pollution negatively impacts drinking water for rural households	1,200	100	0	0	0	0	0	0
9	Water pollution accounts for the domination of crayfish, periwinkle & other sea foods	960	80	120	10	48	4	72	6
10	Water pollution is not fundamentally caused by oil resource extraction by the MNOCs	48	4	0	0	960	80	180	15

Table 3: Negative impacts of mangrove deforestation on the rural households in the Niger Delta

S/N	TEMS	SA	%	A	%	SDA	%	DA	%
11	Mangrove deforestation has resulted to the massive destruction of the forest resources of rural households	1,200	100	0	0	0		0	0
12	The wild life and flora and fauna of the Niger Delta is largely destroyed by mangrove deforestation	900	75	120	11	60	5	108	9
13	Deforestation is a major environmental security threats impacting the rural household	960	80	180	15	48	4	12	1
14	Mangrove deforestation has caused despoliation of forest resources in the rural Niger Delta	840	70	240	20	72	6	48	4
15	Massive falling of trees in the region has resulted in biodiversity loss	1,200	100		-	-		-	-
16	Mangrove deforestation has negatively affected rural subsistence	900	75	100	10	72	6	108	9

DISCUSSION OF FINDINGS

The findings from the study showed that environmental security threats are problems to sustainable rural subsistence in the Niger Delta within the period under review. These problems include oil spill, gas flaring, land and water pollution, acid rains, mangrove deforestation etc. Findings consistent with most previous studies e.g 2015 Amnesty International report showed that both Shell and ENI (MNOCs) caused more than 550 oil spills in

the Niger Delta in 2014 alone, similar damages arising from oil spill compelled the people to abandon agricultural practices and as a result, they became poorer (Iaccino, 2015:2). Equally, the Department of Petroleum Resources (DPR) puts the volume of crude oil spilled in the region between 1976 and 2005 at about 3,121, 909.8 barrels in about 9.107 incidents (DPR, 2006).

The study found that there are threats to rural fishing as a result of water pollution which affected aquatic organisms. This findings were also corroborated in a related study. For instance, Egberongbe et al. (2006),

Showed that pollution from oil spill results in poor water quality, impacts species composition, causes damage to marine wildlife, distorts the ecosystem through elimination of species, the flora and fauna, decreases in both fishery resource, assemblages and distribution of fish and farm yields.

The more critical challenge water pollution poses to human consumption was identified as there were evidence of incidence of release of petroleum into most of the streams, lakes, Rivers, beaches, seas, oceans and land in the region. This is poisonous to human and the coastal ecosystem which was further supported in the works of Ihayere et al (2014) which provided insight into the problems of water pollution in some village and towns in the Niger Delta notably; Ogbe-Ijaw, Ogidigben, Odidi, Eqwa, Batan, Olisaro and Benette Island in Delta State. UNEP (2011) also reported that there has been high incidence of water contamination which affects aquatic species and humans (UNDP, 2006; UNEP, 2011; FOA; 2012). According to UNDP (2006), a total of 6,817 oil spills occurred between 1976 and 2001, with a loss of approximately three million barrels of oil. More than 70 percent was not recovered. Approximately 6 percent spilled on land, 25 percent spilled on swamps and 69 percent in the offshore environment. Oil extraction has impacted most disastrously on the socio-physical environment of the Niger Delta region (Uyigie and Agho, 2007; Kadafa, 2012).

CONCLUSION

As briefly highlighted in the background to the problem and literature review, various issues in an attempt to provide explanation to environmental security threats in the Niger Delta have been raised.

They are explained as stated below:

- The key environmental security threats the study identified include oil spill, water pollution, mangrove deforestation acid rain, gas flaring, land pollution.
- Our finding show that these problems negatively impact rural livelihoods.
- From the foregoing, this study has illuminated the prevalence of environmental insecurity problems in the Niger Delta and its impacts on sustainable rural livelihoods.

- It provided the basis for alternative thinking on environmental insecurity mitigation and its associated effects on sustainable rural livelihoods.
- One which calls for a collaborative engagement and awareness on environmental insecurity threats. The study in a distinct manner has provided such basis. For instance, against the background of the entire line of problems analyzed in this study.
- It is helpful to salvage the plight of the poor who subsists on less than \$2 per day (World Bank, 2015).
- More importantly, the natural environmental cannot be separated from the sustainable development paradigm.
- It is apparent that oil resources extraction by the MNOCs has been at odds with environmental sustainability.
- The complex ecological problems of this capitalist endeavor as the study suggested, have undermined ecological justice and resources equality in the Niger Delta.
- This has particularly resulted in a complex ecological problems as discussed in the study namely; oil spillage, gas flaring, deforestation, acid rains, decimation of aquatic and wild life species, destruction of the flora and fauna as the study has substantially explicated.

These pose threats to the very survival of the people of the region. What the study has particularly done is to throw more light on these problems as broader elucidation of environmental insecurity in inevitable.

RECOMMENDATION

From the foregoing discussion, it is clear that adequate policy response is necessary, the study among others made the following recommendation:

- The subject of environmental security threat requires urgent policy attention and engagement that aims to resolve the question of environmental degradation and its effects on sustainable rural subsistence. Although many environmental statutes exist in Nigeria, adequate attention has not been given to environmental security threats.

- Ecological blueprint for sustainable rural subsistence in the Niger Delta is Necessary as alternative policy strategy to mitigate unsustainable rural subsistence in the region.
- Inclusive “ecological literacy” programmes, advocacy and sensitization which has been major research and policy gap in most ecologically devastated regions of the global south.
- Government should introduce bottom top entrepreneurial subsistence strategy including livelihoods diversification, resilience and livelihoods mobility.

CONTRIBUTION OF KNOWLEDGE

- A key contribution of the work to development studies is its critique of the mainstream neo Malthusian debates which emphasize population explosion in Africa as responsible for natural resources conflicts and depletion.
- Alternative, the study demonstrated that the multinational oil corporations (MNOCs) in the global south account deleterious natural resource extraction which taints the natural environment and affects sustainable rural livelihoods. This is the theoretical basis of the neo-Marxist political ecology approach which is in opposition to the neo-Malthusian views of human/ society/ nature complexities.
- This study is an original contribution to the study of environmental security threats in the Niger Delta and perhaps one of the foremost conscious research efforts which adopted the Marxian Political Ecology theory to explore environmental security threats and sustainable rural livelihoods in the region.
- Previous studies as the literature reviewed suggested examined either “ecological problems” (Wordu, 2010; Amadi, Wordu & Igwe, 2014), “aspect of environmental problems”, “resources conflict of security” through the frustration aggression or political economy frameworks.
- There is absence of any previous study till date that has provided depth of knowledge of the concept of Marxian political ecology in Niger Delta ecological and environmental studies.

- This add new knowledge to ecological studies of the Niger Delta and development studies in general.
- This is a valuable addition to development studies literature. The study also serve as a useful source of knowledge with which to further examine the challenges of rural poverty and development.

REFERENCE

- [1] Allenby, B. (1998). Environmental security as a case study in dustrial Ecology. *Journal of industrial Ecology* (2): 45-60.
- [2] Amadi, L. (2013). Climatedae change, peasantry and rural food production decline in the Niger Delta region: A case of the 2012 flood Disaster. *Intl. J. agric. Crop res.* 1(6):94-103.
- [3] Carney, D. (1998). Sustainable rural livelihoods. What contribtion can we make? Papers presented at the DFID natural bresource advisers’ conference, July. London: DFID.
- [4] Chalecki, E. (2002). Environmental security: a case studyt of climates change (pacific iinstitute for studies of development, Eevnment and security) [http://www Pacinst.org/reports/environment and _security](http://www.Pacinst.org/reports/environment and _security).
- [5] Chambers, R and Conway, G.(1992).Sustainable rural livelihoods practical concept for the 21st Century IDS discussion paper No.296.
- [6] Dalby, S. (2002). Security and ecology in the age of globalilzation. *ECSP report.* Issue 8(95):95-108.
- [7] Dalby, S.(2013). Environmental dimensions of human security in floyd R and matthew R (2013). *Environmental security approaches and issues* London: Routledge.
- [8] de Haan, L. (2012). The livelihood ap[rosch: a critical exploration erdkunde. Vol.66. No. 4 app 345-357.
- [9] Duru, R.(1981)environmental consequences of West African Modernization, *Journal of African studies*, 8(2):69-78
- [10] Ihayere, C. Fovwe D, Ataine T. (2007).The effect of the Niger Delta oil crisis on woman folks. *Journal of African studies and development* 6(1):14-21.
- [11] Onakuse, S. and Lenihan, E.(2007)livelihood systems and rural linkages in Niger Deltaregion

- of Nigeria. Developments Futures conference, NUI Galway, 24th and 25th November, 2007.
- [12] UNDP.(2006). Niger Delta human development report. Lagos: Para graphics.
- [13] UNEP(United Nation Environmental programme) (2011). Environmental assessment of Ogoni land, UNEP Nairobi Kenya.
- [14] Wordu, S. (2010). Marxian environmentalism: a content analysis of classical and neo Marxian literature a monograph Port Harcourt: Pam Unique Publishers