

Effects of Oil Spillage on Community Development in the Niger Delta Region: Implications for the Eradication of Poverty and Hunger (Millennium Development Goal One) in Nigeria

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Abstract

This paper assessed the effects of oil spillage on community development in the Niger Delta Region of Nigeria with a view to determine its adverse effects on poverty and hunger and its eradication in the region. The concepts of oil spillage, community development, poverty and hunger were reviewed. To effectively assess the effects, three research questions were formulated and analyzed. The instruments used for data collection were the questionnaire, focus group discussions and observation. The face and content validity was tested and also the reliability. Research assistants were used to administer the 15 items questionnaire while the focus group discussions and observations were done by the researchers. The data was analyzed using percentages and weighted mean. The modified likert scale was used to assign values and criterion mean of 2.50 to analyze the research questions. The results of the study showed that the causes and effects of oil spillage were the same in the oil producing states; poverty in the community caused by oil spillage has led to environmental degradation; poverty rate is still on the increase due to poor health as the children are malnourished; the rate of youth unemployment is high and there is no evidence of the national food security in the communities. Thus, achieving millennium development goal one is still a mirage in this region. It will take the efforts of the oil companies, government and community members to institute control measures on oil spillages.

Keywords: oil spillage, community development, pollution, eradication, poverty and hunger

1. Introduction

The essence of Community development in any region is to improve the socio-economic lives of the people. It is a holistic development which lay much emphasis on sustainability. Sustainability in a broad sense is the capacity to endure, development that meets the needs of the present generation without compromising the ability of future generations to meet their needs (Imobighe, 2011).

In the light of sustainability as the cornerstone for quality life, 192 United Nation member states and at least 23 International organizations came up with the blue print tagged Millennium Development Goals (MDG^s) in 2000. They came up with eight international development goals and resolved to harness ideas, efforts and resources to ameliorate the problems of the world's underdeveloped nations and those of high-risk strata of society. These lofty goals are earmarked to be achieved by the year 2015.

The MDG^s seek to eradicate extreme poverty and hunger, achieve universal primary education, promote gender equality and empower women, reduce child mortality, improve maternal health, combat HIV and AIDS, malaria and other diseases, ensure environmental sustainability and develop a global partnership for development. The achievement of these goals will eventually lead to civilized transformation of communities and their subsequent emancipation from regressive tradition, poverty, ignorance and diseases which are the hallmark of community development (Fasokun, 2006).

Unfortunately, the achievement or the realization of Millennium Development Goal one which is the eradication of extreme poverty and hunger is being threatened in the Niger Delta Region of Nigeria due to incessant oil spillage. Massive oil deposits are found in this region, which have been extracted for decades by the government of Nigeria

and by multinational oil companies. Oil has generated an estimated \$600 billion since the 1960s (Okereke, 2001).

The region suffers from environmental degradation since oil was discovered at commercial quantity in 1956 at Oloibiri in the present Bayelsa State. The major cause of the environmental degradation is oil spillage. This region has suffered for decades from oil spills, which occur both on land and offshore. Oil spillage is a worse form of pollution which poses great threat to man, the ecosystem and the environment. It is even worse because the impact of environmental pollution is felt on long-term, recurrent basis, making it difficult to arrive at an exact impact assessment as the incident occurs (Osuji, 2004).

Incidents of oil spillage had in the past caused irreparable damage on the farmlands and streams in the oil producing communities, often reducing inhabitants of the affected villages and communities to refugees. In some cases, the spillage has directly or indirectly caused death of people. The magnitude of oil exploration activities in the Niger Delta is so enormous that the toxic effect of oil pollution and spillage of biological species, water contamination and habitat disturbance pose great biochemical and ecological impact (Akpomuvie, 2011).

The economic impact of exploration activities and oil spills according to Akpomuvie on poverty, crop and fisheries losses and so on has adversely impoverished the economic lives of the people of the region. The effect of the oil spillage on occupational health, traditional values, life-styles and customs of the people has negative impact on the socio-cultural values of the people of the Niger Delta.

Oil spillage – the uncontrolled discharge of oil or its by-products including chemicals and wastes, which mainly occurs through equipment failure, operation error or willful damage have been identified as the main source of environmental damage in the region overtime (Nwilo and Badejo, 2001). The various stages of the mineral oil business - geographical prospecting, drilling, production, transportation, and refining, cause hazardous effects of one type/degree or the other.

There is no doubt that sabotage, vandalism of oil infrastructure and thefts of oil are serious problems in the Niger Delta, although the scale of the problem is unclear. Sabotage ranges from vandalism by community members to theft of oil and deliberate attack by criminal groups. Some people damage pipes while trying to steal small quantities of oil for sale at local markets or for personal use. Others damage pipes and installations to extort compensation payments or clean-up contracts from companies (Mba, 2013).

The increase in community sabotage activities (as opposed to organized theft, described above) is a reflection of wider problems that exist in oil-affected areas of the Niger Delta. For some people, causing an oil spill and getting a clean-up contract or compensation is the only way they can access any benefit from the oil operations. Nigeria has had the misfortune of one oil spill too many due largely to negligence on the part of the oil companies when they fail to adhere to basic international standards in facilities installation and clear acts of sabotage of oil bunkers and miscreants. Added to that is oil waste dumping and indiscriminate gas flaring. All these coalesce to destroy the biodiversity of the affected areas leading to loss of wild life, aquatic life and soil, and health degradation. In the main, the nation loses economically and socially (Imobighe, 2011).

The following as identified by Onojake, (2004) are some of the consequences of oil spillage in the Niger Delta Region of Nigeria.

- i. Damage to the fragile mangrove forest
- ii. Threatening of rare species including primates, fish, turtles and birds.
- iii. Destruction of the livelihoods of many of the 20 million people living there
- iv. Reducing the fertility of the soil
- v. Increase cost of living
- vi. Increasing poverty
- vii. Poor health status
- viii. Reduced life expectancy which is estimated at 41 years in the Niger Delta
- ix. Fuelling the upsurge of violence

The above indexes are associated with extreme poverty and hunger which Millennium Development Goal one is fighting against. Therefore, a research of this nature is needed to ascertain the effects of oil spillage on community development and eradication of extreme poverty and hunger in the Niger Delta Region.

1.1 Conceptual Clarifications

Oil Spillage

An oil spill according to Osuji, (2004), is a release of a liquid petroleum hydrocarbon into the environment due to human activity, and is a form of pollution. The term often refers to marine oil spills, where oil is released into the ocean or coastal waters. Oil spills include releases of crude oil from tankers, offshore platforms, drilling rigs and wells, as well as spills of refined petroleum products (such as gasoline, diesel) and their by-products, and heavier fuels used by large ships such as bunker fuel, or the spill of any oily refuse or waste oil. Spills may take months or even years to clean up. Oil also enters the marine environment from natural oil seeps. Most human-made oil pollution comes from land-based activity, but public attention and regulation has tended to focus most sharply on seagoing oil tankers (Nwilo, and Badejo, 2001).

Pollution can be broadly defined as the introduction by man directly or indirectly of substances or energy into the environment resulting in deleterious effects of such a nature as to endanger human health, harm living resources and ecosystems and impair or interfere with amenities or other legitimate uses of the environment (Osuji and Onojake, 2007). One major pollutant that has aroused public and research interest is crude oil (Osuji and Ezebuio, 2006). Pollution by crude oil usually occurs as spillage that is uncontrolled, release of crude oil into the environment as a result of equipment failure, operational mishaps, or intentional damage to facilities (UNDP, 2010).

Over the years, the economy and future of Nigeria have been inextricably linked to the exploitation and export of crude oil, and this development has led to massive pollution of the oil producing areas. For example, between 1970 and 1982, a total of 1,581 oil spills involving nearly two million barrels of oil was reported in Nigeria. In the Niger Delta, the “centre- nerve” of petroleum in Nigeria, the most serious oil spillage occurred in July 1979, when a storage facility at the west end of shell-operated Forcados terminal collapsed spilling an estimated 560,000 barrels of oil into the surrounding land, mangrove swamps and territorial waters (Nwankwo and Ifeadi, 1988). With nearly 200 oil fields operated by multinational oil companies, the Niger Delta is today famous for its highly sought-after light, sweet crude oil and unrestive rural communities. The region which is endowed with considerable ecological value “lowers”, 000km of aging flow lines land over 160 flow stations connected to nine major terminals. Over a period of 40years the region has produced some 18billion barrels of some of the world’s finest crude oil, Okoko and Ibaba, (1999).

The implications of the present increasing trend of oil pollution are enormous as it is far reaching. Admittedly, economic losses exist, but a more dangerous hazard has to do with the health of the citizenry, increasing poverty level of the communities and reduced rate of community development.

Table 1. Oil spillage, volume and causes from 2005 to 2010 in the Niger Delta Region of Nigeria

Year	No. of spills	Vol. of spills / barrels	Major causes
2005	180	10,000	Sabotage - 95%
2006	170	20,000	Sabotage and operational 50% each
2007	250	30,000	Operational 70% sabotage 30%
2008	170	100,000	Operational and sabotage 50% each.
2009	150	110,000	Sabotage 90% and operational 10%
2010	190	28,000	Sabotage 80% and operational 20%.

Source: Amnesty International (2011)

Environmental quality and sustainability are fundamental to the overall wellbeing and development of the people of the Niger Delta. According to UNDP (2010), more than 60 per cent of the people in the region depend on the natural environment for their livelihood. For many, the environmental resource base, which they use for agriculture, fishing and the collection of forest products, is their principal source of food. Pollution and environmental damage, therefore, pose significant risks to human rights.

Oil spills on land as analysed by Akpomuvie (2011) destroy crops and damage the quality and productivity of soil that communities use for farming. Oil in water damages fisheries and contaminates water that people use for drinking and

other domestic purpose. Environmental pollution by oil spills has been identified as the major cause of poverty in the Niger Delta. Nwankwo and Ifeadi (1988), identified contamination of streams and rivers; forest destruction and bio-diversity loss; environmental effect of gas flaring as some of the pollution problems associated with oil exploration and production in the Niger Delta which has affected development.

1.2 Concept of Community Development

Community development today has gone beyond its traditional boundaries of developing the community and the physical, economic and social conditions of the people to include emotional and psychological development of the people. Oyebamiji and Adekola (2008) define community development as a process by which the efforts of members of a community are united with those of governmental and non-governmental bodies for a gradual and positive reconditioning process with much reliance on local initiatives, leadership and resources improvement in the physical and social structure of the community and general well-being of the inhabitants.

The goal of community development is essential to make it possible for everyone to have at least the minimum essentials of the good life in a community. Oduaran (1994), asserts that the goals of community development ranges from material ones like construction of roads, bridges, culverts, etc to such non-material ones like provision of basic education for the adults, attitudinal change, reducing infant mortality etc. To Inuuk and Obits, cited in Oyebamiji and Adekola (2008), the objectives of community development should be to:

- i. Contribute to the process of building democracy and human development
- ii. Promote the popular sectors in the development and reinforcement of social and political awareness and make community members to become protagonist of their lives
- iii. Promote the human development of the groups with which it works
- iv. Promote popular culture and education and assert the values and attitudes required to change and develop realities both locally and nationally.

According to Anyanwu, (1981, 1988 and 1992), Community development objectives can be summarized as follows;-

- a. To educate and motivate the people for self help.
- b. To develop responsible local leadership.
- c. To inculcate among the members of the community the sense of a community, citizenship and spirit of civic consciousness.
- d. To introduce and strengthen democracy at the grass root level, through the creation and revitalization of institutions designed to serve as instruments for local participation
- e. To initiate a self-generated and self-sustaining and enduring process of growth
- f. To enable people to establish and maintain co-operative and harmonious relationships
- g. To bring about gradual and self-chosen changes in the life of a community with a minimum stress and disruption.

In contemporary society, the goals of community development has broadened to cover a crusade against ignorance, poverty, disease, harmful and out-modeled customs, social apathy and personal boredom in people without the limitations of age, sex, class or

1.3 Concept of Poverty

Poverty in its most general sense is the lack of necessities. Basic food, shelter, medical care, and safety are generally thought necessary based on shared values of human dignity (Bradshaw, 2007). According to Valentine (1968) the basic meaning of poverty is relative deprivation.

Poverty according to Gordon (2005) is fundamentally a denial of choices and opportunities, a violation of human dignity. It means lack of basic capacity to participate effectively in society. It means not having enough to feed and clothe a family, not having a school or clinic to go to, not having the land on which to grow ones food or a job to earn one's living, not having access to credit. It means insecurity, powerlessness and exclusion of individuals, households and communities. It means susceptibility to violence and it often implies living in a fragile environment, without access to clean water or sanitation.

People are counted poor when their measured standard of living in terms of income or consumption is below poverty line. Thus, the poverty line is a measure that separates the poor from the "non poor" (Bradshaw, 2007). However,

poverty has both income and non income dimension usually intertwined. For example, scholars have described the poor as those who are unable to obtain an adequate income, find a stable job, own property or maintain healthy conditions. They also lack adequate level of education and cannot satisfy their basic health needs (Blank, 2003). Thus, the poor are often illiterate, in poor health, and may have short life span. They have no (or limited) access to basic necessities of life such as food, clothing, decent shelter, are unable to meet social and economic obligations, lack skills or are unable to use their skills as is the case with the Niger Delta fishermen and farmers, which has led to lack of gainful employment. They have few, if any economic assets and sometimes lack self-esteem (Olayemi 1995). According to Nnamani (2003) poverty is a degradation of the human race. Very often, the poor lack the capacity to escape from the situation by themselves and may need the help of the state.

Certain factors like warfare, colonial history; agricultural cycles; drought and flooding; natural disaster; centralization of power; corruption; social injustice and environmental degradation are some of the main causes of poverty. Poverty is diverse and comes in many forms. However, there are many common factors, and these mostly tend to be related to limited access to land, assets, and services. In general the poor have:

- i. No voice in policies or in the delivery of livestock services
- ii. Limited access to education, resulting in reduced literacy rates
- iii. Limited access to health services
- iv. Limited access to land and water, or insecure rights of access to these resources
- v. Poor access to credit facilities, extension services and agricultural services
- vi. Limited or difficult access to markets and
- vii. Low household incomes, related to generally high levels of unemployment or under-employment.

The World Bank's "Voices of the Poor," based on research with over 20,000 poor people in 23 countries, identifies a range of factors which poor people identify as part of poverty, (Badejo 2007). These include precarious livelihoods; excluded locations; physical limitations; gender relationships; problems in social relationships; lack of security; abuse by those in power; dis-empowering institutions; limited capabilities and weak community organizations. Gordon (2005) summarizes these factors as poor governance; economic determinants or meltdown; social determinants and environmental degradation.

1.4 Concept of Hunger

Hunger means different things to different people. We have physiological and socioeconomic aspects of hunger. According to Valentine (1968) Hunger is a term which can be seen as uneasy or painful sensation caused by want of food; craving appetite.

Anderson, (2005) citing Valentine define hunger as physiological hunger; the uneasy or painful sensation caused by lack of food. Socioeconomic hunger implies the recurrent and involuntary lack of access to food. Anderson further explained that hunger means, not just symptoms that can be diagnosed by a physician, it means the existence of a social, not a medical problem. A situation in which someone cannot obtain an adequate amount of food even if the shortage is not prolonged enough to cause health problems. It is the experience of being unsatisfied, of not getting enough to eat.

According to the United Nations (2010), hunger is any caloric intake below the minimum established by the World food program of 2000kcal/day, and the uneasy or painful sensation caused by a lack of food; the recurrent and involuntary lack of access to food.

2. Methodology

2.1 Population

Two states, Bayelsa and Rivers States were randomly selected out of the nine oil producing states of the Niger Delta region. 6 Local Government Areas out of 31 Local Government Areas were purposively selected from the two states with a population of 26,410 (male and female).

2.2 Sampling Procedure

Six Local Governments with 157 communities of the two states were selected with a population of 26,410. Out of the 157 communities, 17 communities were purposively selected representing about ten percent. 2,641 were selected through a multi stage sampling technique.

2.3 Instrumentation

A set of questionnaire with reliability index of 0.83 complemented with interviews serves as the instrument to collect data. Three research questions were analyzed using mean and standard deviation

2.4 Research Design

The descriptive survey research method was used in this investigation. It is a method of description of phenomena based on the collection of data and statistical analysis of numerical values.

3. Results and Discussions

Research Question 1: What are the causes of oil spillage in Bayelsa and Rivers States?

To answer this research question the mean and standard deviation for each of the five items (i.e. 1-5) were computed. The results obtained are summarized and presented as shown in table 2 below.

Table 2. Mean and standard deviation for the items statement

General N=2606		Rivers N=1341			Bayelsa N=1265					
S/N	Items Statement	Mean	SD	Result	Mean	SD	Result	Mean	SD	Result
1	Broken down pipes.	3.00	0.77	Accept	2.95	0.79	Accept	3.06	0.75	Accepted
2	Sabotage (bunkering)	2.89	0.85	“	2.88	0.87	Accept	2.91	0.83	Accepted
3	Damage to oil tankers or storage vessels	2.68	0.98	“	2.79	0.86	“	2.55	1.08	Accepted
4	Leaking tanks or oil tank overflow	2.78	0.90	“	3.01	0.77	“	2.54	0.96	Accepted
5	Accidents	3.06	0.77	“	2.90	0.79	“	3.24	0.70	“

Aggregate mean (Grand mean) for both states = 2.88, for Rivers state = 2.91 and for Bayelsa state = 2.86.

Table 2 shows that the Rivers State mean scores for the items ranged from 2.88 to 3.01 for items 2 and 4 respectively. It also shows that items 1, 2, 3, 4 and 5 are identified as the causes of spillage in Rivers State are: broken down pipes, sabotage (bunkering), damage to oil tankers or storage vessels, leaking tanks or oil tank overflow and accidents.

In considering the response from Bayelsa state, table 2 shows that their mean scores ranged from 2.54 to 3.24 for items 4 and 5 respectively. It is also shown in the table that items 1, 2, 3, 4 and 5 are also identified as the causes of spillage in Bayelsa state. This is because these items mean scores were all above the criterion mean of 2.50. Hence the causes of oil spillage in Bayelsa are the same with that of Rivers State. On a general look, that is a combination of responses from both states (Rivers and Bayelsa), the mean scores of the items range from 2.68 to 3.01 for items 3 and 5 respectively. All the items were also accepted as the causes of the oil spillage

Research Question 2: What are the effects of oil spillage on community development?

To answer this research question the mean and standard deviation for each of the five items (i.e. items 6-10) were computed. The results obtained are summarized and presented as in table 3 below:

Table 3. Mean and standard deviation for the items statement

Rivers N=1341		Bayelsa N=1265			General N=2606					
S/N	Items Statement	Mean	SD	Result	Mean	SD	Result	Mean	SD	Result
6	The oil spillage has damaged the land.	3.36	0.69	Accept	3.33	0.72	Accept	3.34	0.71	Accept
7	It has impacted on our finances negatively	3.14	0.84	“	3.39	0.62	Accept	3.26	0.75	Accept

8	The spilled oil has contaminated the water source of the community.	3.06	0.90	“	3.37	0.68	“	3.21	0.82	Accept
9	The spilled oil on the road prevents easy transport to town for business, hence increases cost of transportation and cost of living.	3.26	0.70	“	3.26	0.78	“	3.30	0.74	Accept
10	The oil in the soil prevents good yields from the farms and destroys fishes in the water making self-help difficult	3.18	0.72	“	3.44	0.58	“	3.31	0.67	“

Grand mean for Rivers = 3.2 Bayelsa = 3.36, for both states = 3.28

Table 3 shows that for Rivers state the mean scores for the items ranged from 3.06 to 3.36 for items 8 and 6 respectively. It also shows that items 6, 7, 8, 9 and 10 were identified as the effects of oil spillage on community development. This is because mean scores of all the items were above the criterion mean of 2.50. Hence the effects of oil spillage on community development in Rivers state are: damage to land, negative impact on finances, contaminated water, and increased cost of transportation and prevention of good yields from farms, fishing etc.

In considering the responses from Bayelsa state, the items mean score ranged from 3.26 to 3.44 for items 9 and 10 respectively. It was also shown that item 6, 7, 8, 9 and 10 were identified as the effects of oil spill on community development in Bayelsa state. These are the same with that of Rivers state.

To support the above, when the responses from Rivers and Bayelsa state were combined, all the items were also accepted as the effects of oil spillage on community development in Rivers and Bayelsa states.

Research question 3: To what extent has millennium development goal I been achieved in Bayelsa and Rivers state in terms of poverty and hunger eradication through agriculture?

To answer this research question mean and standard deviation for each of the five items (i.e. items 11 to 15) were computed and the results obtained summarized and presented in the table 4 below:

Table 4. Mean and standard deviation of the item statement

General N=2606tem statements		Rivers N=1341			Bayelsa N=1265					
S/N	Item Statement	Mean	SD	Result	Mean	SD	Result	Mean	SD	Result
11	Despite the spills, it is still easy to make more than one hundred and fifty naira gain from business daily.	2.67	0.99	Accept	2.77	0.95	Accept	2.72	0.97	Accept
12	There are more poor people than rich ones in the community.	2.73	0.99	“	2.70	1.10	Accept	2.72	1.04	Accept
13	There is employment for people in the community.	2.62	1.02	“	1.80	0.80	Reject	2.22	1.01	Reject
14	Most children in the community are healthy.	2.84	1.00	“	2.17	1.00	“	2.52	1.05	Accept
15	The national food security is known and has been implemented in the community.	1.70	0.60	Reject	1.61	0.51	“	1.66	0.56	Reject

Aggregate (grand mean) for Rivers states =2.37, for Bayelsa = 2.21 and for both state = 2.51.

Table 4 shows the responses from Rivers state, the mean scores for the items ranged from 1.70 to 2.84 for items 15 and 14 respectively. It also shows that the mean scores of items 11, 12, 13 were identified as the extent to which eradication of poverty and hunger had been achieved in Rivers state which was adequate on the making of more than one hundred and fifty naira gain on daily business, employment for people, while the knowledge of national food security and its implementation has not been adequately achieved. Then, poverty rate is still on the increase because the mean score of item 12 which states that there are more poor people than rich ones in the community; was high (2.73).

In considering the responses from Bayelsa state, the table shows that the items mean scores ranged from 1.61 to 2.77 for items 15 and 11 respectively. It also shows the extent to which poverty eradication and hunger had been achieved in the communities was only adequate on the making of more than one hundred and fifty naira gain daily, while the rest items statement are not adequately achieved especially the poverty rate, which is still on the increase. This is because only items 11 mean score was above the criterion mean of 2.50 on the positive keyed statement while the rest items had mean scores lower than the criterion mean score of 2.50. Item 12 with a mean score of above the criterion mean was on the negative key statement hence it is not regarded as something adequately achieved

Finally, considering the combination of the responses from Rivers and Bayelsa, the table shows that the statements in items 11 and 14 had been achieved while items 12, 13, and 15 are not inadequately achieved in both states.

Generally, the millennium development goal one had not been adequately achieved in terms of reduction of poverty and hunger in the region.

4. Recommendations

Based on the results, the following recommendations are made:

1. There is a need for a better understanding of the coastal ecology so as to evaluate the significance of the impacts generated by oil spill incidents. A thorough environmental impact assessment should be done prior to oil exploration and exploitation in oil rich regions.
2. The petroleum industry should work closely with government agencies, universities and research centers to reduce the frequency and impact of oil spills in the region, and any company that breaches environmental protection laws should be seriously penalized by suspending their operations in that community.
3. Educational programmes on income generating activities that lead to small, and medium scale entrepreneurship should be ensured to minimize unemployment
4. The national food security project should be introduced in all the oil producing communities to ensure food security and reduce the poverty rate.
5. Government and the Multi-national companies should invest in awareness creation through community education so as to minimize the causes and impact of oil spill in the Niger Delta region.

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