

CORPORATE RESPONSE TO ENVIRONMENTAL DETERIORATION IN THE OIL BEARING AREA OF THE NIGER DELTA, NIGERIA, 1984–2002

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ABSTRACT

Oil has been exploited in the Niger Delta region of Nigeria for well over forty years and the environmental cost has been enormous. Environmental deterioration in the oil-bearing enclave of the Niger Delta has created restiveness and social instability as attested to by the Ogoni episode. What then is the corporate response to the environment crisis in the oil belt? This paper examines corporate response to environmental deterioration in the Niger Delta region of Nigeria. It is argued that until recently, the oil firms in Nigeria paid little attention to the environment. Faced with local and international pressure, the oil firms responded by putting in place some measures to check oil-induced environmental pollution. It is found that, due in part to gross negligence on the part of the oil firms, as well as government inertia, coupled with weak and inefficient institutions, environmental laws are flouted with impunity. It is suggested that effective fiscal regime in the form of tax should be put in place to check environmental abuse by the oil firms.

INTRODUCTION

The 1972 Stockholm conference focused world attention on the necessity of protecting the natural environment to ensure the sustainability of life on earth. During the 1980s, the message was reinforced by a series of environmental disasters, including the 1984 Bhopal disaster in India (Haynes, 1997:97). More unhealthy developments relating to the environment were the destruction of Europe's forest by acid rain, the growing hole in the ozone layer, and global warming.

There is no denying the fact that the publication of the World Commission on Environment and Development Report had a very positive and stimulating effect on national thinking on environmental issues (World Commission on Environment and Development Report, 1987). For one, it changed the approach to issues on the environment and development to one along the lines of sustainability and integration. A tangible realization of the growing world concern was the Earth Summit held at Rio de Janeiro, Brazil in 1992. The conclusion of the Earth Summit was marked by the signing, by representatives of the countries present, of a document known as "Agenda 21", which was acclaimed as a plan of action to save planet earth. The developed and the developing countries reacted differently to the outcome of the conference. To the third world countries, too much protection of the environment was seen as a luxury only rich Western countries can afford to entertain.

Nigeria, like many developing nations, is under pressure to exploit her natural resources, such as oil, in order to attain a measure of economic growth and development. By virtue of this, in order to attain a measure of economic growth and development the environment is put under excessive strain. Oil has been exploited in Nigeria for well over forty years and the environmental cost has been enormous. Environmental deterioration in the oil-bearing enclave of the Niger Delta region of Nigeria has created restiveness and instability in the region, as attested to by the Ogoni episode. What then is the corporate response to what has been termed genocide in the Niger Delta? In this paper, attempt would be made to examine oil industry response to the environmental crisis in the oil belt of Nigeria. As a prelude, a concise analysis of oil exploitation and the environment is undertaken. The environmental regime of the oil firms is also evaluated against the backdrop of why the environment is of little consequence for the oil majors; finally a conclusion is drawn based on our findings from the study.

OIL EXPLORATION AND THE ENVIRONMENT

For the people of the Niger Delta of Nigeria, the discovery of oil in their region is a paradox. While it could be conceded that the oil exploration and production has engendered massive revenue inflow for the Nigerian state, for the people of the oil-bearing enclave, oil is a curse; at best, it is hemlock. The history of oil exploration in Nigeria is sufficiently familiar. Suffice it to state, however, that in 1956 the Anglo-Dutch group, Shell D'Archy, discovered oil in commercial quantities at Oloibiri. Since then, other oil multinationals have joined Shell, namely Mobil, Elf Aquitaine, Chevron, and AGIP.

Nigeria is rated as the sixth largest producer of crude oil within the Organisation of Petroleum Exporting Countries (OPEC). It currently exports well over a million barrels of crude oil, mainly to the United States of America. Crude oil export provides over ninety percent of government foreign revenue and over eighty percent of federal annual budget of N\$1.78 trillion in 2004. Revenue from oil and gas is expected to rise to \$20 billion (N\$2.8 trillion) per year in 2007, from the current \$14 billion (Chokor, 2005:359). In spite of these, oil contributes only thirteen percent of Nigeria's gross domestic product (Agbu, 2005:81-94; Ohiorhenan, 1984; Ikein, 1990; Forrest, 1993). The foregoing is a tacit indication that the oil industry is not properly integrated into the mainstream of the national economy.

When oil was struck at commercial quantity in Oloibiri in 1956, the people bubbled with joy and beamed with expectation of the transformation of their environment, provision of jobs, and the establishment of cottage industry. This ray of optimism evaporated when the environment of the oil industry began to dawn on the people (Aghalino, 2007). The environmental cost of oil exploration are said to be inevitable. Moffat and Linden (1995) have shown that mangrove losses, gas flaring, industrial wastes, oil pollution, and heavy metals contamination bring about the physical deterioration in the Niger Delta. Mangrove losses in the region are due mainly to gas flaring.

It has been asserted that between 1988 and 2000, over 5.7 trillion cubic feet of gas was associated with oil produced and over 5.0 or 88 percent was flared (Egborge, 1991; Onosode, 1998). In energy terms, that is some 2.8 billion barrels of oil equivalent at today's value. Besides, each square kilometre of an oil producing area is exposed to 1.52 million kilowatts of heat per day from flaring. Before the Bonny Liquefied Natural Gas plant (LNG) was commissioned in 2000 and other gas export programmes came on stream, Nigeria was said to account for 25 per cent of gas-flared world

wide. Yet, about 90 percent of rural inhabitants still use fossil fuel from firewood for cooking and thereby creating much domestic thermal pollution and health hazard (Aghalino, 2002:12-21).

Environment pollution, caused mainly by oil spillages and indiscriminate disposal of oil industry waste and cuttings, are commonplace in the region. The World Bank estimates that oil companies in Rivers and Delta states spill over 2,300m³ of oil in 300 major accidents yearly. On its part, Shell says it spilled an average of 7,350 barrels of oil a year between 1989 and 1994 and that a total of 221 spills occurred in the course of its operation. It is, however, not unlikely that the figures above are under reported. Grevy (1995) notes that oil companies tend to under-estimate the incidence of oil spillage and the total spillage might be ten times as high.

Indeed, for well over four decades that the oil majors have been prospecting for oil in the Niger Delta, they have not only radically disrupted the ecological balance of the area, but have also, through negligence and cynical indifference, orchestrated a vicious ecological war. To attest to the grave environmental disaster through pollution, as stated earlier, there has been no concerted and effective effort on the part of Government, let alone the oil operating companies, to control the environmental problem associated with the oil industry (Greenpeace International, 1994; Greenpeace Nederland, 1996).

Drilling for oil is also a potential source of environmental pollution. Oil industry drilling operations are in four stages: preparing the drilling site, exploration drilling, production testing, and transportation. This stage's impact on the environment, through access roads, clearing of vegetations, and access channels, are dredged using barges. Dredging is particularly harmful to the environment as dredged materials dumped on either sides of the canal turn acidic and overtime contaminates the ground (Van Dessel, 1995). We need to emphasize the point that the contamination of ground water is a very serious environmental problem in the Niger Delta. Ibiebele, (1986) reported high concentration of dissolved petroleum hydrocarbon in waste water from refineries, and oil exporting terminals in the Niger Delta. In 1993, a Shell environmental impact study also found an average hydrocarbon content of about 62.7 mg L⁻¹ in the Oloma Creek, near the Bonny terminal (Orubu, 2002; Ndkwere and Ezehe, 1990).

In the same vein, project underground led a group of local and international observers to Luawi, an Ogoni village in 1997. The team analysed samples taken from streams and discovered that the total petroleum hydrocarbon tested at 18 parts per million (ppm) which was 360 times higher than levels

deemed acceptable in European Countries (Human Rights Watch, 1999). Perhaps more alarming is the charring of the mangrove and rainforest vegetation with its attendant loss of numerous trees and plants with potential economic and pharmaceutical values. The mangrove of the Niger Delta is the third largest in the world and the largest in Africa. Over 60 percent of this mangrove (or 6000 sq kilometres) is found in the Niger Delta. The Niger Delta has a high biodiversity characteristic of extensive swamp and forest areas, with many unique species of plants and animals (World Bank, 1995; Moffat and Linden, 1995; Jones, 1998). The concomitant loss of biodiversity has been well documented that it should not delay us here (NNPC/AAPW, 2004).

It could be conceded at the beginning of the oil industry in Nigeria up to 1981 could be regarded as the period of innocence. The level of awareness of the deleterious impact of oil business was low. But from the 1990s, this gave room for proper articulation of several issues bothering on the oil industry (Odoegwu, 1981). Foremost, in this regard, was environmental justice. This course was given ideological underpinning by Ken Saro Wiwa. Over time, the oil majors came to realize that it could no longer be business as usual. Thus, there was a semblance of a prodded response to the environmental challenge in the oil-bearing enclave of the Niger Delta.

CORPORATE RESPONSE TO ENVIRONMENTAL CONCERN

Until recently, the oil companies in Nigeria would appear to have directly or implicitly opposed anti-pollution regulations on a number of grounds. For one, they insist that oil pollution is only one aspect of the pervasive human and industrial pollution in Nigeria and not necessarily the worst.

Furthermore, increase in the cost of investment in Nigeria, as a result of unreasonable anti-pollution legislation, would discourage overall investment and by implication, retards economic growth and development. Another argument is that the cost of pollution control equipment is primarily of a fixed nature, so that decreases in capacity utilization tend to increase the cost-burden of pollution equipment sharply. Under Nigerian condition, all equipment and chemicals are to be imported and possibly stored for a long period with associated dangers (Hutchful, 1985).

Where these spurious arguments failed, there is of course the warped declaration that oil pollution does not degrade the environment to the extent popularly imagined. Before now, spill studies conducted by oil companies, or their consultants, attempt to minimize, or at best deny, the environmental and socio-cultural impact of oil pollution. In the view of the oil majors in Nigeria, most cases of oil spillages are not due to company personnel neglect, but to sabotage of oil installations by locals (Daily Times, 1981; Financial Punch, 1982; Shell Annual Report, 1995).

Blaming major oil spillages on sabotage is a lazy and pedestrian explanation of the obvious and archaic oil field practices of the oil firms in Nigeria. The incentive for this, however, is the fact that according to Nigerian Law relating to oil, in an event of oil spill attributable to sabotage, victims are not entitled to compensation (Olisa, 1981). This resort to sabotage has been well lampooned and described as irresponsible propaganda (Ake, 1995). It is apposite to state that possibly because of the nonchalant attitude of the federal government towards environmental conservation, oil firms virtually had a field day in environmental despoliation. In any case, the environment and sustainable development never took pride of place in the development calculus of the government (Federal Republic of Nigeria, 1985; Agboola, 1985).

The dumping of toxic waste in Koko, a sea port in Delta state, Nigeria in 1988 must have acted as a catalyst and also served as an eye-opener to the government on the implication of the negligence of her environment (Ikhariale, 1989; Davies, 1993; Ayaegbunam, 1998; Newswatch, 1988). Indeed, it is plausible to suggest that the icing on the cake for environmental consciousness was given a lease of life by the activities of the movement for the survival of Ogoni people under the astute leadership of Ken Saro Wiwa. Under local and international pressure, the oil firms in Nigeria went back to their drawing board as they realized painfully that it could not be business as usual. Consequently, over time they initiated some programmes aimed at environmental conservation.

One of the first initiatives of the firms in this regard was the establishment of the Clean Nigeria Associates (CNA). The CNA was a co-operative of about eleven major oil firms in Nigeria established to jointly combat oil spills. The CNA had an initial capital base and current budget of fifteen million dollars. The CNA made it a cardinal principle to retain a contractor to handle spill incidence. For example, the contract with Halliburton was signed in 1984 and part of the terms of the agreement was that the company should maintain two bases in Port Harcourt and Warri, which are the two nuclei of oil production in Nigeria (National Concord, 1998). Alba Nigeria was subsequently selected after the expiration of the contract with Halliburton in March 1989. The point should be made that Shell contributed the lion share to the oil cooperative fund. This is understandable because it produces more barrels of oil in Nigeria (Daily Times, 1991; Okunola, 1996).

Since the Ogoni episode, some changes have taken place with regards to the corporate response to environmental degradation in the Niger Delta. Shell, for example, is now embarking of the replacement of its flow lines and pipelines. All flow lines older than fifteen years are now being replaced. Flow stations are also being gradually upgraded. This upgrading involves installing more

modern equipment to improve operation, environmental, and safety standards. To reduce waste of land, new flow- lines are now laid along old paths where possible (Shell, 1995). In response to the agitation against land-take, the corridor of land cleared for flow lines has been reduced from 15 metres wide to 10 metres.

There are strong indications that the oil firms are taking the issues of Environmental Impact Assessment (EIA) more seriously as they are now undertaken before any major project is carried out. Indeed, the Environmental Impact Decree of 1992 prohibits public and private operators of the Nigerian economy from embarking on any project likely to significantly affect the environment without prior consideration of the environmental impact. The decree provides for the content of the EIA (Anyahara, 1995). It must be noted that even the few EIAs the oil firms have conducted have been heavily criticized. In point of fact, the EIAs tend to be too academic in nature focusing on defining the environment rather than looking at potentials of minimizing the impact of the conceived project (Van Dessel, 1995). In all, most of the EIAs are too lengthy and poorly constructed to serve any planning purpose (Environmental Resource Managers, 1994; Smith, 1995).

Although the Petroleum (Drilling and Production) regulations of 1969 provided contingency planning for oil spill prevention, control, and removal, it became apparent, from the Shell Forcados tank failure of 1980, that oil companies do not have effective plans for dealing with oil spill emanating from their operations (Nwankwo and Ifeadi, 1995). It is heart warming to note that of late, most of the oil companies in Nigeria have placed premium on contingency planning. As it were, contingency plan shows principles of oil spill response and the immediate actions to be taken for specific incidents.

The oil firms, in collaboration with the federal government, have initiated several ambitious natural gas utilizations and conservation projects. This is possibly in response to the loss of non-renewable gas resources and the adverse effects of gas flaring on the environment. The Nigerian Liquefied Natural Gas Project (LNGP) at Bonny, which was completed in September 1999, is a bold step at reducing gas flaring. The LNGP is expected to process 252.4 billion cubic feet of LNG annually (Aghalino, 2007). In order to reconcile the conflict between environment and development process, particularly as they affect the oil mineral producing communities, the Niger Delta Environmental Survey (NDES) was initiated in February 1995 by Shell on behalf of its joint venture partners (Environmental Resource Managers, 1994). The primary aim of this survey was to provide a good data base for the sustainable development of the region. It would appear the survey was more of a

fire brigade response to the alarm raised by the World Bank when it warned that, 'an urgent need exists to implement mechanisms to protect the life and health of the region's inhabitants and its ecological system from further deterioration (World Bank, 1995).

There is no denying the fact such data was important for effective policy on management of environmental problems. The report of the survey had long been submitted and nothing substantial has come out of it since then. The oil firms in Nigeria have taken steps to sensitise the people in the oil-bearing enclave of the Niger Delta of the deleterious effect of oil pollution (Odoegwu, 1983:274). The point must be made, however, that the environmental education being championed by the oil firms is not for any altruistic reason. It may not be unconnected with several barrels of oil that may have been lost due to sabotage. Nonetheless, the place of environmental awareness cannot be over-emphasised. As it is, much of traditional management practices such as economic evaluations, ecological ideals, and government regulations often arouse conflict. Public awareness, therefore, can promote a forum for dialogue and conflict resolution. As noted by Chokor (1988). Environmental awareness can create public commitment and responsibility to policies.

Quite recently, most of the oil firms have carried out awareness sessions in their areas of operation. Shell, for example, held awareness workshops that covered more than 10,000 staff, contractor staff, and community people in 1997 (Shell, 1997). The oil firms are also engaged in remediation programmes on past impacted oil production sites. This involves a risk-based methodology to prioritise the sites with respect to health, safety, and the environmental risks. In line with international standards, the oil firms in Nigeria are now engaging in external verification of their environmental management system. Shell, for example, has done this for two facilities in the Jones Creek and Alakiri (Aghalino, 1999:282). It must be recalled that the internal policies on the environment by the various firms are well articulated. In 1995, SPDC had a budget of \$159 million on environmental protection and abatement facilities. The figures for 1996 and 1997 were \$314 and \$281 million respectively. Shell's initial policy is expressed in the CASHES acronym (Community Affairs, Safety, Health, Environment, and Security). Chevron and Elf also have relatively well defined internal environmental strategies, including the gradual reduction of effluent production activities (Orubu, 2002:26).

One way of judging the environmental regime of the oil firms is in the realm of their compliance to laid down environmental standards and guidelines for the petroleum industry in Nigeria. The oil firms have attempted to comply with the standards. In Shell's Eastern Division, it was able to meet

149 out of 157 compliance items stipulated by the Department of Petroleum Resources in 1998. On a general note, full compliance with regulations is not possible due to a number of reasons relating to cost and budgetary constraints, transfer of technology, and improper perception of the content, and implementation of Guidelines and Standards (Nwankwo and Ifeadi, 1983). It could be conceded that the oil firms in Nigeria have made some concerted effort in the realm of environmental conservation, yet it is obvious that more needs to be done in order to attain sustainable growth in the region. It is apparent that a number of factors militate against the effective realisation of the set objectives of the oil firms. The factors relate to the need to make more definite laws to encourage environmental protection and define enforceable sanctions to serve as deterrent. There is also the need to adequately fund environmental management programmes and possibly secure reliable political commitment by government. More importantly, there is the compelling need to update the existing technology on environmental monitoring, evaluation, and laboratory measurements.

CONCLUSION

In this paper, attempt has been made to examine the corporate responses to the environmental cost of oil exploration and production. Some of the environmental issues consequent upon oil prospecting were isolated and discussed. It is argued that due in part to local pressure and global attention focussed on the environment, which culminated into the Earth Summit, must have played a role in the interest of the oil firms paid to the environment in Nigeria. An adjunct to the above, is that until the Ogoni episode, the oil firms applied spurious logic to sustain their unwholesome environmental practices.

When it became imperative for the oil firms to address the issue of the environment in Nigeria, they resorted to a number of measures to tackle the incessant problem of environmental pollution. For one, the oil firms pooled resources in form of cooperative to combat minor and major spills. Besides, with the compelling need to put in place environmental standards and guidelines, Department of Petroleum Resources made it mandatory for the oil firms to adhere and comply with the guidelines and standards and those that cannot be complied with, were given a time frame. In point of fact, some attention is now being paid to EIA and environmental awareness. The LNG project and the successive gas to liquid projects embarked upon by the oil firms were all geared toward environmental conservation. While it could be conceded that the oil firms have attempted to respond to the challenges of environmental deterioration, there are strong indications that their efforts have not gone far enough. There are inherent problems of compliance to regulations by the firms. When, for example, the government set the 2008 deadline for gas flaring, Shell claimed it was not feasible.

The government is helpless in most cases in enforcing her own laws because of official complicity. In this view, it is suggested that there should be institutional strengthening so that the regulatory bodies can perform their duties. There must be a clear delineation of duties between the Ministry of Environment and the Department of Petroleum Resources. The government should, as a matter of priority, place premium on taxing the oil firms when regulations are flouted. Again, more emphasis should be laid on the 'polluter pay principle'. This, in no time may discourage the despoliation of the environment. Again, the government must compel oil firms to adhere to international environmental standards. As a deterrent, failure by oil companies to comply with environmental standards and guidelines should automatically lead to forfeiture of oil mining and prospecting rights. One way that can effectively make the oil firms to take environmental conservation seriously is for the government to free itself from joint venture arrangement with the oil firms in order for it to creditably enforce environmental standards. In all, government requires re-orientation and strategic unity to construct a consensual basis for the development of the Nigerian oil industry. This should entail balancing social, economic, and environmental considerations.

REFERENCES:

- Agboola, T. A. (1985). 'Review of the Environmental Component in Nigeria's National Development Plans, 1940-1986', Paper presented at the Policy Seminar on Environmental Issues and Management in Nigerian Development under the auspices of the Department of Geography and Regional Planning, University of Benin, Nigeria, 25th-27th November.
- Agbu, O. (2005). 'Oil and Environmental Conflicts', in Hassan A. Saliu (Ed.) *Nigeria Under Democratic Rule, 1999-2003*(Ibadan: Ibadan University Press), Pp. 81-94.
- Aghalino, S.O. (1999). 'Oil and Gas Exploration and Production in the Isoko /Urhobo Areas of the Western Niger Delta, Nigeria, 1956-1995', Unpublished Ph.D Thesis, University of Ilorin, Ilorin, Nigeria, P.282.
- Aghalino, S.O. (2002). 'Oil Mineral Exploitation, Environmental Deterioration and Public Policy in Nigeria', *Political Science Review*, Vol. 2 No 1, Pp.12-21.
- Aghalino, S.O. (2007). 'Gas Flaring, Environmental Pollution and Abatement Measures in Nigeria, 1969-2001', forthcoming in *Third World Quarterly*.
- Ake, C. (1995). Cited in Green Peace, *Shell Shocked: The Environmental and Social Cost of Living with Shell in Nigeria*.
- Anyahara, S.O. (1995). 'The Role of Environmental Impact Assessment on the Petroleum Industry', in *Petro-Business*, September/October. P. 27.
- Ayaegbunan, E. O. (1986). 'Environmental Protection and Management Laws in Nigeria: The Constitutional Question', In Osuntokun .A. (Ed.) *Current Issues in Nigerian Environment* (Ibadan : Davidson Press) P.104.
- Chokor, B. A. (1988). 'Environmental Awareness as a Strategy for an Effective Environmental Policy and Pollution Control', In Sada, P.O and Odemerho, F.O (Eds.) *Environmental Issues and Management in Nigerian Development* (Ibadan: Evans).P. 325.
- Chokor, B. A. (2005). 'Humanistic Approach to Environmental Assessment with Case study from the Niger Delta', In Onokerhoraye, A.G. and Gideon E. D. Omuta (Eds.) *Perspectives on Development: A Book in Honour of Pius Oghenerukowho Sada*, Benin City: Centre for Population and Environmental Studies.
- Daily Times (1981). Lagos, December 3, 1981.
- Daily Times (1991). Lagos, Friday, March 29, 1991, P.21.

- Davies, A. E. (1993). 'Environmental Protection in Nigeria: Problems and Prospects', In: *The African Review*, Volume 20, Nos. 1 and 2.
- Egborge, A. B. M. (1991). 'Industrialization and Heavy metal Pollution in Warri River', 32nd Inaugural Lecture, University of Benin, Nigeria.
- Environmental Resource Managers (1994). *Niger Delta Environmental Survey* (NDES), Socio-Economic Characteristics, Volume 1 (Lagos: NDES Niger).
- Federal Republic of Nigeria (1985). *Fourth National Development Plan, 1981-1985*, (Lagos, Government Printer).
- Financial Punch* (1982). Lagos, January 25, 1982.
- Forrest, T. (1993). *Politics and Economic Development in Nigeria* (London: Oxford University Press).
- Green Peace International (1994). *Shell Shocked: the Environmental and Social Cost of Living with Shell in Nigeria*, July.
- Green Peace Nederland (1996). *The Niger Delta: Disrupted Ecology, the Role of Shell and other Companies*, October.
- Grevy, P. (1995). *The Niger Delta: A Pollution Assessment Study* (World Bank: Washington DC).
- Haynes, J. (1997). *Democracy and Civil Society in the Third World* (Cambridge: Policy Press).
- Human Rights Watch (1999). *The Price of Oil: Corporate Responsibility and Human Rights Violation in Nigeria's Oil Producing Communities* (Washington DC: Human Rights Watch).
- Hutchful, E. (1985). 'Oil Companies and Environmental Pollution in Nigeria', in Claude Ake, (ed) *Political Economy of Nigeria* (London: Long man).
- Ibiebele, D. D. (1986). 'Point Source inputs of Petroleum Wastewater into the Niger Delta, Nigeria', *The Science of the Tropical Environment*, Volume 52.
- Ikein, A. A. (1990). *The Impact of Oil on a Developing Country: The case of Nigeria*, (New York: Praeger).
- Ikhariale, M. (1989). 'The Koko Incident, the Environment and the Law', In Folarin Shylon (Ed.) *The Law and the Environment in Nigeria* (Ibadan: Vintage Press).
- Jones, N. A. (1998). *The Era Handbook of the Niger Delta: the Human Ecosystem of the Niger Delta*. (London and Benin City: Environmental Rights Action).

- Moffat, D. and Linden, O. (1995). 'Perception and Reality: Assessing Priority for the Sustainable Development in the Niger Delta,' *Ambio: A journal of Human Environment*, Volume 24 No. 7-8. National Concord, (Lagos), Tuesday, August 9, 1986, P.7.
- Ndikwere, C. L. and C. A. Ezehe (1990). 'The Occurrence of Heavy Metals in the vicinity of Industrial Complexes in Nigeria', *Environment International*, Volume .16. *Newswatch*, Lagos, July 4, 1988, p.16.
- NNPC/AAPW (2004). Report of the Niger Delta Youths Stakeholders Workshop, Port Harcourt, April 15-17.
- Nwakwo, J. N., and Ifeadi, C. N. (1983). 'The Status of Oil Spill Control Planning', in *The Petroleum Industry and the Nigerian Environment*, (Lagos: NNPC).
- Nwankwo, J. N., and Ifeadi, C. N. (1995). *The Guidelines and Standards for the Petroleum Industry in Nigeria: The 1998 Revision*, Paper presented at the 9th International Seminar on the Petroleum Industry and the Nigerian Environment, Abuja, November.
- Odoegwu, E. C. (1981). 'Impact of Environmental Regulation on the Petroleum Industry: economic and Social Considerations' (Lagos: NNPC).
- Odoegwu, E. C. (1983). 'Education and Orientation for Control of Spillage in Nigeria,' in *The Petroleum Industry and the Nigerian Environment*. (Lagos: NNPC) P.274.
- Ohiorhenan, J. F. E. (1984). 'The Political Economy of Military rule in Nigeria', *Review of Radical Political Economy*, Vol. 16 Nos. 2 and 3.
- Okunola, R. (1996). 'Environmental Management and Corporate responsibility in Nigeria', In *Nigeria Oil and Gas Monthly*, December.
- Olisa, M. M. (1981). 'Legal Frameworks for Pollution Control in Nigeria', in *The Petroleum Industry and the Nigerian Environment* (Lagos: NNPC) P.13.
- Onosode, G. O. (1998). 'Developing the Niger Delta and Nigeria's Territorial Waters,' address delivered at the National Symposium on the Impact of Development on Nigeria's Territorial Waters, organized by FEPA in collaboration with Abuja Environmental Protection Board on World Environment Day at Sheraton Hotels and Towers, Abuja, June.
- Orubu, C. O. (2002). 'Petroleum-Induced Environmental Diseconomies and Sustainable Development: The Case of the Niger Delta', in Orubu, C.O., Dicta, O.O. and Okoh, R.N. (Eds). *The Petroleum Industry, the Economy and the Niger Delta Environment*, (Abraka: Delta State University).P.26. p.5.

Shell, *Annual Report: People and the Environment* (1995). (Lagos. Shell) P.6.

Shell, *Annual Report, People and Environment* (1997). (Lagos: Shell) P.18.

Smith, P. (1995). *Review of the Environmental Statement Prepared for Nigeria LNG Ltd by SGS Environment Ltd*, (London: Environmental Consultants) p.58.

Van Dessel, J. P. (1995). *The Environmental Situation in the Niger Delta, Nigeria* (Internal Position Paper prepared for Green peace, Netherlands, February).

World Bank (1995). *Defining an Environmental Development Strategy for the Niger Delta*, World Bank, Washington DC Western And Central African Department, Industry and Energy Operations Division, Volume 11.

World Commission on Environment and Development (1987). *Our Common Future*, Washington DC.