

Oil Exploitation and Marine Pollution: Evidence from the Niger Delta, Nigeria

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ABSTRACT This study examines two cases of oil spillages and their concomitant impact on the flora and fauna of the Niger Delta region of Nigeria, where much of Nigeria's oil and gas is exploited. It seeks to evaluate how the oil firms and the federal government responded to the despoliation of the environment occasioned by the Texaco/Funiwa-5 oil blow out and the Qua Iboe oil spillage. The study makes use of both primary and secondary sources of information and data to analyze the issues in contention. The findings of the study show that neither Texaco nor Mobil made genuine effort to combat the oil spilled from their various platforms until much harm had been done to the environment. Indeed, the study revealed that Nigerian environmental laws are lax and inadequate. The author suggests the need for government to impose strict liability for environmental degradation. The Nigerian government should go beyond command and control approach to pollution abatement and adopt various economic instruments to combat oil industry-induced environmental pollution. The paper concludes that the oil producing companies in Nigeria should adhere to international best practices in oil exploitation.

INTRODUCTION

The economic significance of the Nigerian Petroleum Industry is no longer doubt. It is now a vast operation covering on-shore and off-shore oilfields. As it is with many blessings of modern civilization, there are benefits and adverse externalities from the exploration and production of oil and gas. Thus, the appellation of "black gold" ascribed to oil is succinct. Black as it were, connotes "evil", while gold typifies what is worthwhile. Expectedly, the Nigerian economy has experienced this dual attribute of oil. Oil has been vital in financing the nation's economic growth and development. Oil fuels power and social transformation. As of now, oil is the basis of the existence of the Nigerian nation state. In spite of the stupendous wealth that Nigeria has generated from the production and sale of oil, one of the negative externalities from the oil industry is marine pollution occasioned by oil spillage and discharge of effluents. Pollution is generally believed to be the necessary price for the development ushered in by the petroleum industry. It has been asserted that even in the best oil field practice, oil spillage cannot be completely eliminated (Ekpu 1996; Aghalino 1999).

World-wide marine pollution caused by the oil industry is enormous. With an estimated 3.6

million tones of oil spilt into the sea annually, mainly as a result of shipping accidents involving oil tankers and deliberate flushing of tanks and engines as well as offshore and onshore oil well-blowouts, the issue of marine pollution has taken an international dimension (World Resource Institutes 1990). Arguably, the most important pollution in the marine environment and coastal waters therefore, is petroleum and its products. Memorable cases of large scale pollution of the marine and coastal environments by petroleum include such tanker disasters in the North Atlantic sea route as the Torrey Canyon (1967) and the Amoco Cadiz (1978). Over 120,000 and 223,000 tones of crude oil were released into the sea off Cornwall (South west England) and the coast of Brittany (France).

Although Nigeria has recorded several cases of marine pollution, it would appear, there are two outstanding cases namely, the Funiwa-5 oil well blow-out of 1980 in which, well over 400,000 barrels of crude spilled into the marine environment of Nigeria, as well as Mobil's Qua Iboe oil spillage of 1998 which resulted in the spillage into the marine environment of about 40,000 barrels of crude oil. These two notorious cases draw attention to the peculiar and precarious circumstances of the oil-barring enclave and the degree of risk to which they are

exposed to on account of oil exploitation in the area. In consonance with this, this paper attempts to examine the Funiwa-5 and the Mobil Qua Iboe oil spillage as these two incidents appeared to have impacted heavily on the marine environment. In doing this, a synoptic appraisal of the causes of these incidents, their dynamics as well as their effect are evaluated. Finally, a conclusion is drawn based on our findings while also highlighting some policy options.

THE FUNIWA-5 (TEXACO) OIL-WELL BLOW-OUT

What appear to be Nigeria's worst case of marine pollution happened on January 17, 1980, when the Texaco (Funwa-5) oil well blew out, releasing about 400,000 barrels of crude oil into the marine environment. The blow out occurred during completion operation by the semi-submersible drilling rig, Sedco 135C. It must be noted that the Funiwa-5 oil well is owned by Texaco Overseas Petroleum Company of Nigeria (TOPCON), who is the operator of a Joint Venture of the Nigerian National Petroleum Corporation (NNPC). In the Joint Venture, the NNPC owns 60 per cent, Chevron Oil Company Nigeria Limited, 20 per cent and Texaco Overseas Petroleum Company of Nigeria, 20 per cent (Ekekwe 1981). There seems to be no consensus on the quantity of oil spilled into the marine environment. Oil industry sources stated that the quantity of oil spilled was about 200,000 barrels while the Department of Petroleum Resources (DPR) put the figure to be well over 400,000 barrels (16.8 million gallon of oil) (Fekumo 1990; Environmental Resources Managers 1997). No matter the quantity of oil that spewed into the Niger Delta, what is certain is that it resulted in a deleterious impact on the marine environment.

Perhaps because of the inability of Texaco to respond appropriately to the incident, the blow-out continued until January 30, 1980, when finally the oil well caught fire. Consequently, the well bridged and flow of oil stopped. It is worthwhile to state that prior to the outbreak of the fire, the flow had continued unabated for twelve days and understandably this was attended by massive marine pollution. Possibly because of the absence of any serious environmental regime in the period under review, the response of Texaco to the blow-out seems to have been lukewarm. Nevertheless, attempt was made by an internationally recog-

nized oil well blow-out control specialist – Red Adair Corporation to combat the spill. The Corporation was enlisted to cap the over-flowing oil well. Due to the hazardous nature of the blow-out, the effort to cap the well proved abortive (Ekekwe 1981).

In the face of failure to cap the well, two additional drilling rigs, the Transworld 46 and the Sedneth 1, were brought to the scene by TOPCON in order to drill relief well. Not much could be achieved from this effort as the well bridged before the relief drilling could reach the blow out interval. Admittedly, the Sedco 135C completely caught fire, thus putting an end to efforts aimed at salvaging the well. Capability to combat oil spills in Nigeria in the period under review was primarily confined to the application of dispersants. In this case the dispersant used were sprayed from a derrick barge hanging alongside the North Apoi platform, which was some two miles from Funiwa-5 oil well. The maximum amount of dispersants applied during any single day was sixteen drums and this served to reduce the volume of oil which in fact has been moving towards the shore. Nature seem to have worked in favour of Texaco because, due to high tides and roughness of the sea, coupled with the "prompt" cleaning up operation, using chemicals and sawdust, most of the oil was dispersed (Ekekwe 1981).

The effects of the oil-well blow-out were clearly discernible. As it were, it led to environmental pollution, which resulted in the drying up of vegetation and deprivation of plant and animal life occurred. Even after well over five months, crude oil was found on beaches and mudflat around the vicinity of the incidence. The crude oil percolated to the extent that oily sheen was observed in wells dug along the beach. It would appear that villages like Sangama, Kuluma-1, Kuluma-2 and Otuo Island were adversely affected by the blow-out. The Funiwa-5 blow-out impacted negatively on fresh surface water used by the people. A manifestation of this was that Texaco had to dig emergency wells. This however, did not assuage the situation as most of the shallow wells were abandoned after encountering the spilled oil. The topography of the area did not help rescue attempts by Texaco. The inaccessibility of the swamp area and absence of motorable roads did not readily facilitate provision of potable water by means of waters tankers. There is no denying the fact that water is vital to life, precious, irreplaceable and

without substitute. When people lack potable water that is fit for drinking and sanitation, their health is at risk and virtually every aspect of communal life may be jeopardized.

Ground water pollution from oil spills is not always amenable to total clean up. Thus, it is safer and wiser to prevent its occurrence (Mais 1971; Oteri 1981). Some of the observable effects of the blow out in the Sangama mangrove were the defoliation of some *Rhizophera* seedlings, death of crabs, as well as molluscs. Empirical data has shown that a ground total of 836 acre of mangrove was killed as a result of the blow-out (Fekumo 1990). It must be noted that mangrove swamps supports commercially important species of fish and shellfish. Mangrove wood has many uses for the people, including firewood, charcoal and for the construction of buildings (Cowell 1971; Baker 1981). Beside the deleterious impact of the blow out on the mangrove, about 180 casualties were recorded and 1,000 people were hospitalized. School children were particularly hard hit with cases of such illnesses as catarrh, cough, cholera and diarrhoea afflicting them after drinking contaminated water were reported (Greenpeace 1993; Aghalino 1999).

The impact of the Funiwa-5 blow out on agriculture is easily discernible from the decline in crop yield in Rivers State. Parts of the State are well known for swamp rice cultivation. During the period of the blow-out, it was reported that thousand of acres of swamp rice farms were destroyed. As it were, crude oil has adverse effect on the land, as it renders it not only barren, but could affect soil micro-organisms, which could be irreversibly destroyed. Contact between oil and cultivated crop is always disastrous. The land itself will remain unproductive for several years. Following the spill, the residents complained of an alteration in the taste of fish. Specifically, it was observed that there is a taste of kerosene in the fish, which is an indication of the presence of hydrocarbon contamination. The Funiwa-5 blow-out impacted on beaches as there was noticeable oil film which coated the sea sands along the coastline around Furupa in Rivers state (Odu 1981).

Generally, oil limits oxygen, entangle and kill surface organisms and by extension coat the gills of fishes, which invariably lead to asphyxiation and death. These traits were observed in the aftermath of the Funiwa-5 incident. In some cases however, the effects may appear less dramatic

with only a change in the evenness of species reflecting their different "tolerance to levels of pollution" (Koziell and Saunders 2001). In all, although the long term effects of the pollution are yet to be computed and documented, the fact that huge sum of money was paid out for the damages caused by the incident is an indication of its extent and magnitude (Nwankwo and Ifeadi 1983).

THE MOBIL/QUA IBOE OIL SPILLAGE

On January 12, 1998, a major oil spillage occurred in one of Mobil's oil wells in its southeast operational base. The spillage occurred as a result of leakage from the pipeline linking Mobil's Idoho's platform with its Qua Iboe onshore terminal in Akwa Ibom State. The affected pipeline according to Mobil Producing Nigeria Unlimited was installed in 1971 and was certified in May 1991 for a period of twenty years (until 2011). The oil spillage covered a distance of two hundred kilometres, embracing such areas as Fish Town, Koloama and Penington beach in Bayelsa State. It also drifted to the Bakassi Peninsula in Cross Rivers State, as well as the shoreline of Lagos State (Human Rights Watch 1999).

It was estimated by oil industry sources that well over 40,000 barrels of crude oil was spilled into the marine environment. In spite of Mobil's claim that more than 90 percent of the spilled oil had evaporated or dispersed naturally, well over 500 barrels of crude oil was still washed ashore (Green Heritage October-December 2000). The magnitude of the spill was attested to by the fact that by the end of February 1998, about 14,000 claims for compensation had been submitted from individuals and groups totalling US\$100 million. It would appear that about twenty communities were considered to be the worst hit especially those at the estuary of the Pennington River.

In response to the spill, Mobil put in place off shore protection measures and clean-up activities were initiated. Unlike the Funiwa-5 blow out, Mobil appeared to have assembled an array of equipment to combat the spill. The equipment includes: boats, skimmers, helicopters and other fixed wing aircraft and specialized coastal protection equipment. Over time, specialists were flown from abroad to give expert advice (Green Heritage October-December 2000).

The scale of the spill probably forced Mobil

to look up for assistance from Clean Nigeria Association (CNA), a local oil industry-funded spill response cooperative to help contain the spill before the arrival of the expatriates. Unfortunately, not much was achieved by CNA because it was limited by government's environmental regulations to handle only medium scale oil spill. Given the magnitude of the oil spill, it was in fact far beyond the skill of the CNA. Perhaps because of the inability of the government to enforce environmental laws and bearing in mind the laxity of regulatory bodies, Mobil did not engage in shoreline clean-up until January 28, 1998, eleven days after the oil spill occurred. This delay was however attributed to the fact that staff had to train crew leaders and also time was needed to deliver appropriate appliances and equipment to site. Understandably, if there was cost implication for Mobil, it is logical that there would have been swift response to clean up the marine environment. This contrast sharply with how such incidents are handled in Europe.

As it were, the disastrous effects of oil spillage and the need to conserve the "Same Boat", probably informed the stiff punishment meted out to perpetrators of oil spillage in developed countries. In the United Kingdom for example, the Prevention of oil Pollution Act, 1971, increased the penalty for oil spillage from £1,000.00 to £50,000.00. In the United States, the Water Quality Improvement Act fixes the liability for oil spillage at US\$100/tonne or \$14,000.00 (Gberesu 1995). In Nigeria however, the leniency of environmental laws and government inertia in enforcing same seems to have informed the lukewarm attitude of the oil majors to environmental protection and conservation. This is in spite of the fact that the Nigerian Petroleum Act, 1969 requires oil companies to "conduct their operations in a manner consistent with good oilfield practice" and a proper and workman like manner" to prevent environmental pollution (Etikerentse 1985).

Specifically, the regulation made it mandatory for an oil company to adopt all practicable precautions to prevent pollution, and where such pollution occurs, the company should take remedial measures to control and remove it. The Oil in Navigable water Decree 1986 and the Harmful waste (Special Criminal Provisions etc.) Decree of 1988; prohibits any form of oil spill pollution. The defence of accident that is provided for in Section 4 (2a) of the Navigable Waters

Decree is often used by the oil companies to cover up what is in fact, a case of gross negligence. Indeed, the oil industry adherence to these Decrees is suspect. To be sure, Mobil's response to the Qua Iboe spillage was quite impressive compared to Texaco attitude during the Funiwa-5 blow out. Perhaps, it is reasonable to state that in the 1980s, environmental issues were still regarded as costly indulgence that a developing country like Nigeria cannot afford to engage in because of the compelling need to industrialize.

A tacit determination of Mobil to combat the spill was seen in the fact that although belatedly, two weeks after the oil spill spread to shores of Lagos, it commenced clean up of the spillage under trained supervisors. It was claimed that on each day after the spill, aerial surveys were conducted to monitor the spread of the spill. In addition, experts from Mobil and some Nigerian Universities visited 15 rivers along the coast from Calabar River in Cross River State down to the Koloama River in Bayelsa State. Reports from water sample confirmed that the Idoho spill did not significantly affect river water. The Department of Petroleum Resources upper limit for oil in inland water is ten parts per million (ppm). To attest to the "insignificance" of the spill, samples of river water were collected with readings between 0-82 and 3.15 (ppm); well below the prescribed limit. Understandably, a farmer or fishermen whose nets had been destroyed by the pollution would find it difficult to interpret and/or accept the above 'complex and mysterious' scientific findings. This is particularly so because as Shell admits, "depending on the area, oil pollution could cause adverse impact on people (water quality, vegetation and fauna... as demonstrated in several post impact studies..." (Shell Handbook 1993).

The toxicity of the spill is demonstrated by the fact that a test showed that 96.5% of the mangrove seedlings among other plants on the shoreline died within fourteen days of exposure to oil film. This is in contrast to earlier test which did not show marked impact on water. In a way, it would appear that impact of the spillage had been politicized and science appears to be a major casualty. The death of the mangrove is significant because mangrove supports important species of fish and shellfish as stated earlier. In fact, when oil accumulates around mangrove roots it can lead to large mortality of many species of invertebrates, turtles and fishes as was the case with Qua Iboe spillage (Baker 1980; Ajiboye 1983; Sheppard and

Price 1991. What however, seem salutary about Mobil's response was its prompt and civilized public apology by its Chairman and Managing Director, to the communities affected by the oil spillage. Beside this, it raised an incident committee with a mandate to probe the incident, remove the failed pipe and conduct a failure analysis to unravel the cause of the rupture. In line with this, a team of scientists, public relations personnel, managers and representatives of the Federal Environmental Protection Agency (FEPA) as well as the DPR was set up. This team was to among other things; coordinate the tracking, dispersal and clean up of the spilled oil, monitor the streams, rivers, beaches and swamp. They were to carry out soil or beach test and catalogue and analyze the derived data.

The Qua Iboe incidence exposed the inadequacy of Mobil safety unit. Furthermore, the need for mitigation measures was not given a pride of place in Mobil's safety philosophy. As it is, the concept of mitigating damages from disasters has gained full currency for some time now (Mary and Gilbert 1997). There is now a well-established consensus that the disaster cycle of preparedness, response and recovery must include the fourth component of mitigation. From the analysis of the Qua Iboe incident, there is little evidence of Mobil's compliance to this urgent imperative. Nevertheless, of late, Environmental Impact Assessment carried out by oil industry seems to have given primacy to mitigation measures (Chevron 1998).

It must be noted however that Mobil's attitude to the environment in Nigeria is not an isolated case. It would appear the oil multinationals in Nigeria feel little qualms on the deleterious marine impact of oil pollution hence their reluctance to adhere to international standards in their operations. Mobil's response to the Qua Iboe incident for example contrasts sharply to a similar case that involved Exxon Corporation in 1989 when there was an oil spillage in Alaska. Exxon Corporation rushed sixty experts and five plane load of equipment to the scene to contain the spill. For the Qua Iboe case, under the guise of seeking security clearance from Government, Mobil dilly-dallied for two weeks before commencing clean up of the coastline.

In any case, environmental regimes in Europe and America would not permit this kind of lukewarm response as such firm could be sued out of existence, (Aghalino 1999). More

importantly, in the United States there is an important law on pollution – Comprehensive Response Compensation and Liability Act (CERCLA), under which a Federal Trust Fund was established in response to contaminated land. The CERCLA law was later amended in form of the Superfund Amendment and Reauthorization Act (SARA) to enable the collection of funds for remedial action on pollution. This Act has proved vital for maintaining and improving water and land quality and developing environmental strategies, as well as helping to provide models for other countries (Gleick 1997).

Perhaps, it is worthwhile to state that the Nigerian equivalent of the Superfund is the contingency plan, which is still in the pipeline. What however appears to be a semblance of the CERCLA is the CNA which, in any case seems to be a toothless bulldog as exemplified by its cavalier response to the Mobil's Qua Iboe and Finiwa-5 oil spillages. This possibly explains why on Monday, January 19, 1998, Ibeno women took to the street in protest against Mobil and Government inertia in tackling the aftermath of the oil spillage. In point of fact, the protesters demanded for full compensation from Mobil, claiming that as a predominantly fishing community, the spill had made them jobless and also exposed them to health hazard .

CONCLUSION

There is no denying the fact that Marine pollution is a recurring phenomenon in Nigeria. While it is arguable that there are many sources of marine pollution in Nigeria, what is not in dispute is that oil is the major culprit. The two case studies analyzed in this paper namely, Funiwa-5 oil well blow-out and the Mobil's Qua Iboe oil spillage copiously demonstrates in unequivocal terms the laxity of Nigerian environmental laws. In all however, this study has shown that excessive marine pollution occasioned by oil spillage had deleterious effects on the ecosystem. The author therefore suggests the need for government to impose strict liability for environmental degradation. The Nigerian government should go beyond command and control approach to pollution abatement and adopt various economic instruments to combat oil industry-induced environmental pollution. The paper concludes that the oil producing companies in Nigeria should adhere to

international best practices in oil exploitation and should be more concerned about environmental conservation, the safety and maintenance of their facilities.

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