Aquatic Pollution and Women's Health

Waves from the Niger Delta, Nigeria

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La pollution du delta du Niger est due au déversement des huiles pétrolières et des pluies acides qui a mené à la destruction massive de toute vie aquatique, les poissons, les crustacées, les animaux marins. Les femmes en sont aussi sérieusement affectées de par leurs occupations.

The Niger Delta region on the Atlantic seaboard of the West Coast of Africa has been a popular maritime trading zone for several centuries. From the peak period of the slave trade in the eighteenth century to the era of extensive trans-Atlantic trade in palm oil and allied agro-based products, the estuaries and creeks of the Niger Delta have continued to host sea-farers and entrepreneurs as well as ocean-going crafts of varying sizes. Thus there was nothing strange or extra-ordinary about the tankers that arrived at Bonny Sea-port about the mid-1950s to evacuate crude oil. Howbeit, the production of these commodities does not go without leaving an impact on the environment and the people of the region. Starting with slave trade, through the trade in palm oil, and recently to the trade in the "black gold," water bodies in the Niger Delta have experienced one form of pollution or the other owing to the activities of various multinational corporations. Whether it is Britain's Royal Niger Company, Shell D'Arcy, Shell British Petroleum, Shell Petroleum Development Company, Italy's Nigerian Agip Oil Company, America's Chevron or France's Elf Petroleum, all have contributed their fair share to the pollution of the waters of the Niger Delta.

Women in the Niger Delta are worst hit by the pollution of water bodies in the region. The brunt of low agricultural yields, unproductive fishing expeditions and outbreak of water-borne diseases (whether it affects the men or children) is borne by the women. Economically, the majority of women rely wholly and solely on sea foods as their source of livelihood and protein. In this paper, I propose to examine the impacts of water pollution on the health of women in the Niger Delta. I intend to show that water pollution, especially that resulting from crude oil exploitation activities (especially drilling, oil spillages and gas flaring which results in acid rain), have had momentous negative impacts on the health of women in the Niger Delta. I shall conclude by suggesting some possible solutions to this hazardous situation.

The Niger Delta

The Niger Delta is a floodplain shaped like a bird's foot, covering a total land area of approximately 112,000 square kilometers falling within the intersections of latitudes $5^0$31N and $5^0$33N and longitude $5^0$30E and $5^0$32E (Adeyemo). The Niger Delta, a mosaic of fragile ecological units, is the world's third- and Africa's largest delta. The region is home to the world's largest mangrove forest, West and Central Africa's most extensive freshwater-swamp forest. It is Nigeria's best remaining rain forest and one of Africa's remaining natural reserves of unique wildlife. It is a maze of creeks, streams and swamps formed by the Niger River as it divides into six main tidal channels before spilling into the Atlantic Ocean (Onosode).

Aquatic Pollution in the Niger Delta

Water pollution occurs when water is contaminated by substances such

as human and other animal wastes, toxic chemicals, metals and oils. Water pollution may come from point sources, which discharge pollutants from specific locations, such as factories, sewage treatment plants and oil tankers, or non point sources, which occurs when rainfall moves over and through the ground. As the run-off moves, it picks up and carries away pollutants, such as pesticides and fertilizers, depositing them into lakes, rivers, wetlands, coastal waters, and even into underground sources of drinking water.

Coleridge's famous quotation "Water, water everywhere, nor any drop to drink" cannot apply any better elsewhere than it does in the Niger Delta. This is a region covered with water, yet the inhabitants lack potable drinking water. This is the product of incessant water pollution that has become very common in the region. Several factors have been identified as very significant contributors to pollution of water bodies in the Niger Delta. Some scholars like Isaac Sindiga argue that the majority of people in the Niger Delta live in the rural areas where basic amenities such as good water supplies, lavatories, and the like are grossly inadequate. The people have no option other than to defecate in places that can cause water pollution. Sindiga explains further:

> Clean water supplies are often unavailable and faeces disposal is a problem. Many people do not have pit latrines and help themselves in the bush. Such waste is often collected by rain water and taken to rivers where people take their livestock to water and also fetch water for domestic use. (6)

Though the local Indigenous population may pollute the waters of the Niger Delta, research shows that the greatest polluters of water bodies in the Niger Delta are the exploitative activities from start to finish of the multi-national oil companies operating in the region: line cutting, pipeline-laying, drilling, oil spillage, and gas-flaring all pollute water.

While cutting pipelines, wastes are deposited into water bodies. Sometimes the operators dredge canals and the waters are polluted. For instance, in March 2008, the water in Jones Creek was polluted as a result of mud churned out of the bottom of the creek by Dumez, an oil contracting firm, dredging the creek. The resultant effect was the death of fishes, crocodiles and even birds. Chief Alfred Bubar states:

> On Sunday the 22nd day of March 1998, I was passing through Jones creek to my community when I noticed that the whole water had changed its color. It was turbid, dark and not clear. I saw fishes floating on the water; red snappers, groupers, golden fish, big, big ones floating. I also saw a dead crocodile. I saw also a few dead birds…. (qtd in *Environmental Testimonies* 7).

He further laments:

> I saw dead fishes floating to nowhere. No home for them. No life for them. They are of no use to man or to nature. They have been forced to drink crude oil and they are dead. You know the importance of fish to a man who lives by the river, don't you? (8).

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Also, in the course of drilling for oil, formation water (also known as "produced water"), separated from hydrocarbon fluids with which it is mixed underground, is deliberately discharged from flow stations and terminals and released directly into the environment. An Environmental Impact Assessment study carried out in Bonny by the Shell Petroleum Development Company (SPDC) in 1993 detected high hydrocarbon contents in the nearby creek, indicating "poor or no treatment of effluent" (Manby 58).

The discharge of effluents from refineries (like the Port Harcourt Refinery and the Eleme Petrochemical Company) into creeks and rivers contributes to the contamination of water bodies. In the case of Port Harcourt refinery, effluents are discharged into Ekerekama in Okrika Local Government Area (Kalio). The result of a study carried out by Ifedi Okoye and Fedelia Chukwuneke using water samples from different points along Woji river show that the metal contents of the river are far below the recommended limits set by the Federal Environmental Protection Agency (FEPA), the Department of

Figure 1: A Wellhead spewing out oil at Bomu in Ogoni.

Figure 2: A girl taking her bath in a polluted Bodo River

Petroleum Resources (DPR) and the World Health Organization (WHO) (120).

Oil spillage is the most devastating of all the contributors to aquatic pollution in the Niger Delta. When oil spills into the water. both aquatic plants and animals are impacted negatively. As the oil spreads over the surface of the water, it prevents contact between aquatic animals and atmospheric oxygen, thus causing the death of these animals.

Many inhabitants of the Niger Delta region hold that oil spills occur because a good number of oil companies' pipelines through which the oil is transported to terminals are rusty, obsolete and poorly maintained. Some Shell and other oil companies' pipelines and their installations in the Niger Delta are dilapidated as they have not been replaced since they were laid in the 1960s (Oji, Finomo and Warder).[1] This has resulted in an increase in the rate and volume of oil spills. Accelerating oil production brings increasing pressure on the old and worn out pipelines. The pipelines which have outlived their life spans corrode, crack, buckle down and explode spewing crude oil into water bodies as the picture below shows.

The 1983 NNPC report encapsulates this result of the operations of the oil companies: "We witnessed the slow poisoning of the waters of this country…" (qtd. in Okonte and Douglas 64).

In some communities in Rivers State rivers and creeks are constantly polluted. In Ikuru Town, a community in Andoni Local Government Area, a rivulet of Okwanaja close to the Elf Nigeria Limited flow station has remained contaminated for over twenty-five years. All aquatic life around this area has been utterly destroyed. At Sakpenwa in Tai Local Government Area, the water is constantly polluted by the presence of crude oil. During the dry season, the water dries up and the area hosting a bamboo farm is devastated. During rainy season as rain water accumulates in the small stream, slicks of crude oil are seen constantly covering water surface. According to the residents, this situation has continued for over two decades (Mpigi). In Bodo, Ogoni, the rivers are constantly polluted.

Shell's former head of Environmental Studies, J.P. Dessel, correctly sums up this situation in the Niger Delta when he observes:

> Wherever I went, I could see everywhere that Shell's installations were not working cleanly. They did not satisfy their own standard, and they did not satisfy international standards. Every Shell terrain I saw was polluted, every terminal I saw was contaminated. (qtd. in Okonta and Douglas 90)

Another factor that contributes to the pollution of water bodies in the Niger Delta is the explosion of oil installations. For instance, in the early hours of 16 January 2012 there was a gas explosion in the Atlantic off the coast of Koluama 1 and 2, Ekeni, Fishtown, Forupa, Ezetu 1 and 2, and Sangana, leaving two people missing. The gas explosion occurred at the K.S. Endeavour (Panama) Rig, a facility belonging to Chevron Nigeria Limited while Fode Drilling Limited, a contracting firm to Chevron, was drilling gas at the North Apoi Field in Koluama. From the Koluama River, the huge flames could be sighted deep in the Atlantic Ocean. Dangerous gases and other toxic chemicals were emitted into the environment. Polluted water was

Figure 3: Dead fish from Chevron Gas Pipe explosion in Kuloama II in Bayelsa State

conveyed into the Koluama Rivers and creeks and other neighboring communities in the coastline. A lot of fishes died as the picture below shows. Since the majority of the people relied solely on these natural water courses for their daily domestic water needs, as they have no alternatives, many ended up falling sick. Women were most affected.

Impacts of Water Pollution in the Niger Delta

According to the United States Environmental Protection Agency, "[i] t has been clearly established and accepted that exposure to benzene and its metabolites causes acute non lymphocytic leukemia and a variety of other blood-related disorders in humans" (viii). Samples taken from water bodies used for drinking and washing by villagers in April 1997 and analysed in the United States showed horrifying results. The sample from Luawii in Ogoni, where oil production had stopped for four years, had 18ppm of hydrocarbon in water, 360 times above the level allowed in drinking water in the European Union. Other studies, Human Rights Watch indicates, have found hydrocarbon contamination of systems and adverse effects on fisheries (Manby 7). The community of Ogbodo, Aluu, was deprived of its source of drinking water as a result of a spill that occurred in June 2001. Several other communities in the Niger Delta are deprived of potable water as their main sources of drinking water are perpetually polluted by the presence of oil in them.

Destruction of Aquatic Life

Oil spillage has a major impact on the ecosystem into which it is released. Shell Nigeria reports 250 oil spills annually. The people of the Niger Delta are predominantly farmers and fishers due to the availability of the rich alluvial farmlands and the copious surface grounds for marine fishing operations. Divergent geographic environments have produced varied estimates concerning the role mangroves play in the larval biology of commercial fishes. It has been estimated that 60 percent of the fish in the Gulf of Guinea breed in the mangroves of the Niger Delta. The consumption of dissolved oxygen by bacteria feeding on the spilled hydrocarbons also contributes to the death of fish.

Several studies have reported on the safety of seafood in Nigerian coastal waters and there are indications of bioaccumulation of heavy metals in fish (see, for example, James and Okolo, and Agbozu *et al.*), in periwinkle (Ayenimo *et al.*), crustaceans (Chinda *et al)* and even in crops harvested in oil producing areas (Hart *et al,* 2005). Unyimadu *et al.* reported moderately elevated levels of cadmium, lead, manganese, zinc, copper, iron, and chromium in different species of finfish from coastal waters at Nun River and Sombreiro River.

Inhabitants of the Niger Delta frequently complain that fish taste of paraffin (kerosene). This shows hydrocarbon contamination. This is very common in Soku where fish from the rivers can hardly be eaten because of the smell and taste of paraffin. A worse situation is recorded in Aluu,

the home of Shell's Agbada flow station and gas site. The natives of Aluu complain that fishes from their streams, especially catfish, carry maggots on their heads even when they are alive (Oji). Interestingly, periwinkle from the Soku River (which has been confirmed as the most polluted river in the world) survive longer outside its natural habitat than those from other rivers. While those from Soku can survive for up to two months, those from other rivers die in a few days. What then are the effects of all these on the health of Niger Delta women?

Impact of Aquatic Pollution on the Health of Women in the Niger Delta

Water pollution causes a lot of health hazards as industrial waste contamination of water causes the death of water birds, shellfish and some aquatic lives. By polluting the rivers with human waste, our traditional society exposes itself to some water-borne diseases such as dysentery, diarrhea, typhoid and cholera. However, these are relatively small in magnitude compared to the impact of oil related pollution.

Rural women and children are the worst hit as they depend wholly on protein from mangrove fisheries such as periwinkle (*Tympanotonus* spp and *Pachymenalia* spp). On the average, fish constitute 40% of animal protein intake in Nigeria, with the residents of the Niger Delta region consuming a high percentage. With oil spills and acid rain affecting the water and rivers, the consequent decline in the availability of fish has had grave consequences on the nutritional status of the people, especially the women.

In June 2005, a spill occurred in Asitubo Gbanraun in Bayelsa State. This spill was not cleaned up for six months. There was interference in the food chain. Humans showed signs and symptoms of crude oil toxicity which included frequent spontaneous abortions (miscarriages), secondary infertility, and many cases of deaths (Georgewill 30). As Georgewill notes, it has been sufficiently demonstrated that the constituents of crude oil and by-products of its metabolites and pollution are carcinogenic (Weisburger and Williams). Research carried out in 2006 by Georgewill and others analyzing the occurrence of cancers and other tumors in Rivers and Bayelsa States showed that 362 cases of cancer were reported and treated at the University of Port Harcourt Teaching Hospital between December 1997 and December 2000.

Aquatic pollution from all that we have seen has had devastating effects on both the environmental and human beings. In all these, the women are the most affected. Women in the Niger Delta have continued to suffer tremendously as a result of oil related activities in the region.

The Way Forward

The effects of aquatic pollution on women in the Niger Delta are devastating. Current operational policies of multinational companies must change. These policies affect basic economic, technological, and cultural structures. The oil companies must stop dodging their responsibilities by tagging all oil spills "acts of sabotage." If this is done, the resulting state of affairs will be markedly different from the present. To achieve the above, the Federal Government should be able to give the appropriate roadmaps to the multinational oil companies operating in the Niger Delta to address in an effective manner the ways of engaging the environment to promote environmental harmony.

I suggest that government should stop blowing hot air and face the realities on the ground. Flow stations where gas is still being flared should be shut down. Penalties for flaring gas should be revised upwards to match the price of gas in the international market. A penalty of $100 US should be charged per 1 million standard cubic feet of gas flared and the flare-out date no longer be extended. To achieve the above, the government should ban the use of non-associated gas (otherwise known as natural gas) by Nigeria Liquefied Natural Gas Company (NLNG) and by extension enforce the utilization of associated gas (AG) which has hitherto been flared.

Above all, the women should continue to rise up (as they did when they staged protests at the offices of oil companies) and insist that the government carry out a proper audit of oil spills in the Niger Delta. They should also call for a thorough cleanup of the region, and ensure that contracts are not awarded merely as window-dressing. A process of bio-remediation can help restore the environment to close to its pristine state.

Conclusion

Yes, water may be everywhere but what quantity is useful to human beings? In the Niger Delta, where the people—especially the women—are dependent on water resources for survival, the pollution of water creates a tremendous impact. As the waters get polluted, so the women are robbed of their means of livelihood. This situation calls for urgent and stringent measures to be taken by government at all levels. The multinational oil companies exploiting oil in Niger Delta need to play by international rules. They must ensure they employ international best practices.

Water is life, and the women of the Niger Delta deserve this all-important liquid to remain alive. It becomes obvious from all the researches carried out that water pollution has affected the health of the women negatively.

The right to clean water is also the right of the Niger Delta women. The government and their economic cohorts should respect this right of the people and help them live a healthier life.

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[1]I. Oji is a native of Aluu a community where Shell Petroleum Company has had gas being flared since 1960. Roseline Finomo is a 77-year-old native of Ikuru Town in Andoni Local Government Area of Rivers State, Nigeria. A. Warder is a native of Okpoma.

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