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Article

Hydrocarbons Extraction in the Niger Delta: Reasons for the Acute Environmental Pollution

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Abstract: The Niger Delta has remained the epicentre of hydrocarbons exploration activities for over six decades. During this period, the oil companies' operations have had severe adverse impact on the environment, arising from unabated oil spillages and massive gas flaring. All these have happened despite existing plethora of laws that are aimed at precluding the environment from adversely been impacted by hydrocarbons extraction activities. Though hydrocarbons operations are not without some pitfalls, the paper argues that the Niger Delta situation was State-created. It contends that the situation was due to the State's sole reliance on hydrocarbons revenues to fund its budget; and the incomparable position of NNPC the joint ventures partner in relation to the oil multinationals.

Keywords: Hydrocarbons Extraction, Niger Delta, Acute Environmental Pollution.

INTRODUCTION

The Niger Delta has several definitions; historical; political and the oil company. The region as originally defined is the area bound by the Benin River in the West, Imo River in the East, Aboh in the North and in the South, Palm Point at Akassa (Dike, 1956; Willinks *et al*., 1958; Akinyele, 1998). The Niger Delta so defined, currently comprises of Bayelsa, Delta and Rivers States. The land area totals 25,640 km^2; low land area 7,400km^2, fresh water swamp 11,700 km^2, salt water swamp 5,400 km^2 and sand barrier islands 1,140 km^2 (Ashton-Jones, 1998). The region's ecology is of crucial importance, as it harbours many endemic species of diverse faunal and floral groups (Kingdom, 1990). The region has five major linguistic categories (Ijoid, Yoruboid, Edoid, Igboid and Delta Cross), with each embracing plethora of ethno-linguistic communities (Watts, 2003). These ethnic groups due to their individual population size are deemed ethnic minorities. The Niger Delta area is the twelfth richest area in oil resources in the world (Klett *et al*., 1997). Its massive oil deposits have generated an estimated $600 billion since 1960s (Wurthmann, 2006). Nigeria has as of January 2015 an estimated 37 billion barrels of proven crude oil reserves and produces 2.40 million bbl/d (OGJ, 2015).

Hydrocarbons were discovered at Olibiri in the present day Bayelsa State in 1956 by Shell-BP; then the sole concessionaire in Nigeria. It was after independence in 1960, that exploration rights in onshore and offshore were extended to other foreign companies. Shell-BP drilled 17 wells in the Oloibiri oil field. These wells according to Kashi and Watts (2008) yielded over 20 million barrels of crude oil before they dried up after about 20 years. The Oloibiri discovery led to frenzied exploratory activities that led to more discoveries. For instance, a giant field was discovered at Bomu in Ogoni land, then at Afam, Ebubu, Ughelli and Kokori between 1956 and 1958. Shell-BP which had acquired 46 oil mining leases expanded its operations across what is now today the Niger Delta. The feverish search for oil was such that almost the entire 25,640 km^2 land area of the Niger Delta was devoted to oil mining leases (Ashton-Jones, 1998). According to (Ifeadi *et al*., 1987) oil discoveries was so regular that 3,525 oil wells were drilled between 1960 and 1985. Oil export began in 1958 (Emuedo, 2007; Emuedo and Emuedo, 2019). Oil production rose to 12,000 barrels per day (bpd) by 1959 and 900,000 bpd in 1970. The rise in oil production made Nigeria to join the Organisation of Petroleum Exporting Countries (OPEC), and the creation of a state-owned Nigeria National Petroleum Company to oversee activities of the oil majors in the upstream and downstream of the oil sector.

Within ten years of oil discovery, several oil facilities were constructed; the Bonny oil terminal in April, 1961, and the Trans-Niger pipeline in 1965. Also, the oil fields at Ughelli (Western Delta) were connected to the Bonny terminal and the "twelve giant" oil fields including the first offshore

discovery at Okan near Escravos commissioned in 1964 (Kashi and Walts, 2008). As, such, by 1967, 300 miles (483km) of pipe lines had been laid and one and half million feet of wells drilled and daily oil output rose to 275,000 barrels. Thus, at the time of the 1973 oil boom, Nigeria's oil production was similar to the current (2.4 million barrels) daily production; accounting for over 3.5% of world output (Kashi and Walts, 2008). Since then oil has played pivotal role in Nigeria's economy. As at January 2007, proven oil reserves were estimated at 36.2 billion barrels (RWI, 2010) but NNPC (2009) put the figures at 40 billion barrels. This is expected to last for at least the next 40 years (UEIA, 2005; 2014). According to some experts daily oil production could be increased by between 100,000 and 500,000 barrels.

The region presently accounts for over 90% of onshore and about 85% of off-shore oil production. Additionally, the region also hosts massive oil facilities; 6006 oil wells, 250 oil fields (Watts, 2008), 10 export terminals, 275 flow stations, 10 gas plants, 3 refineries and a massive natural gas (LNG) sector (Watts, 2007; Emuedo, 2019) and technological and administrative infrastructure of the oil industry (Emuedo *et al*., 2017). Besides crude oil, the Niger Delta is also well endowed with huge deposits of natural gas. The Niger Delta is said to be richer in gas deposits (OGJ, 2005). The region's gas deposits have been estimated at about 159 trillion cubic feet (Tcf) (NNPC, 2009), 176 trillion cubic feet (Tcf) (Watts, 2008:36) and 182 Tcf (RWI, 2010) and 206.53 (tcf) (DPR, 2021)[1]. Thus, making Nigeria the foremost natural gas endowed country in Africa and among the top ten in the world.

Conceptual Framework: The Nigerian State and Petro-dollar Accumulation

The postcolonial Nigerian state; the oil-dependent or 'petro-state' (Global Witness, 2003) assumed a core position within the broader architecture of an international political economy of oil. Some writers have used the concept of the rentier state to explain the prevalence of conflicts in the Niger Delta and their trajectories within the context of the Nigerian nation. Most of these works were given fillip by the works of Beblawi and Luciane, (1987), Kuru, (2002). The rentier state is reliant mainly on extractive resource rents, taxes and royalties paid by multinational oil companies (MNCs), and on profits from its equity stakes in MNCs' investments (see Forrest, 1995:142; Yates, 1996:13; Karl, 1997; Ross, 1999:330). This scenario aptly describes Nigeria since the 1970s; the state and the economy have been solely reliant on oil rents and earnings from oil exports. This has had several impacts: the economy remains prone to global market oil price vacillations, the oil companies producing the oil for export are critical to the fate of the Nigerian state and the economy; its oil forms a vital source of energy for the Western world, outside the Middle East. Therefore when the Nigerian economy slid into crisis, due to the oil price crash in the early 1980s, a key aspect of the security calculations of the state was to preserve the interest of oil companies as the producers of its "lifeblood". "The term "rent" depicts the non-involvement of the state in the actual process of oil production, and its reliance on a share of the proceeds from oil sales". Crude oil from the Niger Delta provides over 95% of foreign revenues but in its production, the country is involved only marginally, due to its unequal partnership with the oil companies. Its partnership with the oil companies is highly unequal, lacking both the technology and the financial capability to operate on equal terms.

Thus, to say that "oil companies feed the Nigerian state" is an apt description of this unequal partnership; formalised by three types of joint agreements - joint venture agreements, production sharing agreement and risk sharing contract. The joint ventures agreements account for the mass of oil production and exports. What this implies is that the bulk of the crude oil produced by the oil companies, is as "operators or technical partners" of the state due to their ownership of the technology of the oil industry.

The petro-state is a rentier state in which oil revenues ("petro-dollars") account for a hefty proportion of GDP and a huge portion of government revenues and foreign exchange. This is over 80% in oil-states like Saudi Arabia, Nigeria and Venezuela (Amuzegar 1999; Obi 2001; Hodges 2001; Frynas 2004). These states are identified easily by a unique fiscal centralism; revenues from oil accrue to the state treasury directly, thus, centralising money and authority. Therefore, the petro-state is said to be dominated by revenue flows and the political mechanisms by which oil rents are "absorbed," distributed and spent (see Kapucinski1982; ICG 2000; Davis *et al*. 2003; Karl and Gary 2003; Ibeanu 2003; Birsdall and Subramanian 2004). The petro-state is therefore, extraverted. It responds only to the logic of external accumulation. This ensures that the State is in reverse perpetuity. The ruling elite are not only compradors but extraverted blocking transition and local autonomy, which ensure a constricted and autocratic oil sector. The petro-state is also made-up of five core institutional components: (1) a legal monopoly over exploitation of crude oil; (2) a state oil company, which operates in joint ventures with oil multinational companies who are granted oil blocs concessions; (3) the security apparatii of the state (often working as private security forces for the oil companies) to ensure security of their investments; (4) the oil-host communities within whose traditional area the oil wells are located; and (5) a political legal mechanism by which oil revenues are distributed to all the tiers of government. These five elements constitute the basic core of the petro-state. This has meant near or total focus and reliance on oil revenues by the state. These last two factors it could be argued has accounted for the abysmal state of the Niger Delta environment.

Petro-carbons Activities and the Environment

There are myriads of ways that hydrocarbons operations can adversely impact on the environment. This is also true of the Niger Delta. Several activities associated hydrocarbon exploration seismic and geophysical surveys; Drilling and production have had adverse impacts on the environment. However, most adverse impacts on the region's environment are from two main sources; huge and unabated oil pollutions and massive incidents of gas flares (FME, NCF, WWF UK, CEEP-IUCN 2006; Salau, 1993:19-22, Adeyemo, 2002:69; NRC, 2003; Twumasi and Merem, 2006; Emuedo, 2010, 2015; Emuedo and

Anoliefo, 2012). These two sources are briefly discussed below.

Crude oil Spillages

Crude oil has been the linchpin of the Nigerian economy for over six decades, (Ikein 1990; Khan 1994; Lewis 1996). Oil revenues have been on the upswing from mid 1960s, oil contributed 57% of export revenues in 2.7% in1960, 32.4% in 1966, 17.5% in 1968, in 1970; 96% , 73.7% in 1971, in 1980; 97% in 1990; 76%, in 1996, 98.2%, in 2000 99.6% and 92% in 2004 (OPEC, 2005; Opukri and Etekpe, 2008). On the average oil revenues have accounted for 80% of state revenues, 90% of foreign exchange earnings, 96% of export revenues and almost half of GDP (Karl and Gray 2003; ICG 2006b; SPDC, 2008; Emuedo, 2019), making it the world's most oil-dependent country (Ross, 2003). The crude oil is produced mostly from the oil fields dotting the landscape of the Niger Delta. The core oil producing states (COPSs) in Nigeria are the Niger Delta states of Bayelsa, Delta and Rivers, which were previously mostly part of the erstwhile Bendel, and Rivers States. The region also hosts the technology, and physical infrastructures of the oil industry. Oil infrastructures in the Niger Delta, consists of nearly 11,000 km of aging pipelines (Okoko and Ibaba 1999; Osuji 2002; Emuedo, 2010), 6006 oil wells, 606 oil fields (303 onshore), over 275 flow stations, 10 gas plants, 15 export terminals, 3 refineries and a massive liquefied natural gas supply complex (Watts, 2007, 2008). As it were, virtually every inch of the region has been touched by the oil industry directly through its operations or indirectly through neglect (Emuedo *et al*. 2012). The detail of Nigeria's crude oil reserves from 1980 to 2021 is shown below (Table 1).

Table 1: Nigeria Crude Oil Reserves (Million Barrels) 1980 – 2021

Nigeria Crude Oil Reserves (Million Barrels)					
Year	Crude Oil Reserves	Year	Crude Oil Reserves	Year	Crude Oil Reserves
2021	36,890.0	2007	36,220.0	1993	17,899.8
2020	36,972.0	2006	35,876.0	1992	17,899.8
2019	36,182.0	2005	35,255.0	1991	17,100.0
2018	37,453.0	2004	25,000.0	1990	16,000.0
2017	37,062.0	2003	24,000.0	1989	16,000.0
2016	37,070.0	2002	24,000.0	1988	15,980.0
2015	37,070.0	2001	22,500.0	1987	16,000.0
2014	37,140.0	2000	22,500.0	1986	16,600.0
2013	37,200.0	1999	22,500.0	1985	16,650.0
2012	37,200.0	1998	16,786.0	1984	16,550.0
2011	37,200.0	1997	15,520.9	1983	16,750.0
2010	37,200.0	1996	20,828.0	1982	16,500.0
2009	36,220.0	1995	17,899.8	1981	16,700.0
2008	36,220.0	1994	17,899.8	1980	17,400.0

Source: Emuedo, 2010

The increase in crude oil reserves also led to increased production activities in the entire region (Table 2). This is because unlike the Middle East, where oil reserves are concentrated mainly in certain areas, in the Niger Delta reserves are scattered across the entire region. This has also led to frequent incidents of oil spills in also every part of the region and often in increased numbers. Most of the oil spilled go unrecovered (see Table 3). As at June 2010 it was estimated that about 546 million gallons of oil or the equivalent of an Exxon Valdez spill yearly, have poured into the region's ecosystems over 50 years of oil activities (Nassiter, 2010; Francis, *et al*., 2011). Between 1976 and 2001 a total of 6,817 oil spills were recorded, with only 70% recovered (UNDP, 2006). The National Oil Spill Detection and Response Agency (NOSDRA) recorded another 2,405 spills between 2006 and mid-2010, with an increasing trend year-on-year: 252 in 2006, 598 in 2007, 927 in 2008 and 628 in 2009 (Ezigbo, 2010a). The magnitude of the problem could be gleaned from the fact that Nigeria recorded 4,919 oil spills between 2015 to March 2021 (NOSDRA, 2021). Indeed Nigeria is regarded as the most notorious country in the world for oil spills, loosing roughly 400,000 barrels daily.

Table 2: Nigeria's Oil Production and Export 1958 – 2007

Year	Production (million barrel)	Year	Production (million barrel)	Year	Production (million barrel)
1958	1.9	1975	660.1	1992	711.3
1959	4.1	1976	758.1	1993	695.4
1960	6.4	1977	766.1	1994	696.2
1961	16.8	1978	696.3	1995	715.4
1962	24.6	1979	845.5	1996	681.9
1963	27.9	1980	760.1	1997	855
1964	44.0	1981	525,291	1998	806.4
1965	99.0	1982	470.6	1999	774.7
1966	152.4	1983	450.9	2000	828.3
1967	116.6	1984	507.5	2001	859.6
1968	51.9	1985	547.1	2002	725.9
1969	196.3	1986	535.9	2003	844.1
1970	395.8	1987	482.9	2004	900.0
1971	558.7	1988	529.0	2005	919,286
1972	655.3	1989	626.7	2006	814.0
1973	719.4	1990	660.6	2007	880.0
1974	823.3	1991	689.9		

Source: Emuedo, 2010.

Table 3: Records of Oil Spills in Nigeria, 1976 – 2005

Year	No of Spills	Qty Spilled (Barrels)	Qty Recovered (Barrels)	Year	No of Spills	Qty Spilled (Barrels)	Qty Recovered (Barrels)
1976	128	26,157.00	7,135.00	1991	201	106,827.98	2,785.96
1977	104	32,879.00	1,703.01	1992	378	51,187.96	1,476.70
1978	154	489,294.00	391,445.00	1993	428	9,752.22	2,937.08
1979	157	694,170.00	63,481.20	1994	515	30,282.67	2,335.93
1980	241	600,511.00	42,416.83	1995	417	63,677.17	3,110.02
1981	238	42,722.00	5,470.20	1996	430	46,353.12	1,183.02
1982	252	42,841.00	2,171.40	1997	339	81,727.85	
1983	173	48,351.30	6,355.90	1998	399	99,885.35	
1984	151	40,209.00	1,644.80	1999	225	16,903.96	
1985	187	11,876.60	1,719.30	2000	637	84,071.91	
1986	155	12,905.00	552	2001	412	120,976.16	
1987	129	31,866.00	6,109.00	2002	446	241,617.55	
1988	208	9,172.00	1,955.00	2003	609	35,284.43	
1989	195	7,628.16	2,153.00	2004	543	17,104.00	
1990	160	14,940.82	2,092.55	2005	496	10,734.59	
				Total	9,107	3,121,909.80	550,232.90

Source: Compiled based on data obtained from Niger Delta Environmental Survey, Phase 1 Report (1997), Vol. I. NNPC (1997) – Annual Statistical Bulletin, Egberongbe *et al*., (2006; Emuedo, 2010; Emuedo, 2013). The DPR stopped recording oil spill incidents in 2006, ostensibly due to violent conflicts in the Niger Delta.

Gas flaring

Besides oil spillages, the other factor responsible for the adverse impacts of hydrocarbon operations in the Niger Delta is gas flaring. Reports show that about 16.8 billion cubic meters of natural gas was flared in the Niger Delta in 2007 (Newsblog, 2009). Gas flaring in Nigeria is said to be the highest in the world (Cedigaz, 2000; CBN, 2004) because most the gas produced is flared (Ibhade, 2001; USEIA, 2014). For instance, gas flares averaged 97% from 1970-1979, 97% from 1980 - 1989, 95% from 1990 - 1999 and 51% from 2000 - 2004. Thus, gas flares in Nigeria averaged 76% from 1970 – 2004; approximately, 70 million/m^3 of gas is flared daily into the environment. According to Gerth and Labaton (2004), an estimated 56.6 million cubic metres of gas is flared daily in the Niger Delta; amounting to about 17.2 billion cubic metres of gas annually. This is equivalent to 40% of African gas consumption and also, the single largest source of worldwide greenhouse gas emissions (Moffat and Linden, 1995; Wikipedia 2007). Relevant data showed that a total of 917.17 bcm of gas was flared for 51-year period, an average gas flare of 17.98 bcm annually and 49.27 bcm daily. Though gas flaring has been reduced to about 21% (or about 18 billion cubic meters in 2013) of the gas

produced, 86% of the gas produced by marginal field operators and independent operators is still flared (Adewale and Mustapha, 2015). There are 134 gas flaring point in Nigeria, with 131 in the Niger Delta. They are distributed as follows; Bayelsa 46, Delta 43, Rivers 42, Edo 1, while the remaining 2 are located off-shore in Akwa-Ibom State (Emuedo, 2010; 2019). The volume of gas produced and flared in the Niger Delta is as shown in Table 4.

Table 4: Gas production and utilisation in Nigeria 1970-2005 (Million Cubic Meters)

Nigeria Crude Oil Reserves (Million Barrels)									
Year	Output	Utilised	flared	% Flared	**Year**	Output	Utilised	flared	% Flared
1970	8,039	72	7,957	99	**1988**	20,253	5,516	14,737	73
1971	12,975	185	12,790	99	**1989**	25,053	6,323	18,730	75
1972	17,122	274	16,848	98	**1990**	28,163	6,343	21,820	77
1973	21,882	295	21,487	98	**1991**	31,588	7,000	24,588	78
1974	27,882	323	26,776	99	**1992**	32,465	7,058	25,406	78
1975	18,656	323	18,333	98	**1993**	33,445	7,536	25,908	77
1976	21,276	659	20,617	97	**1994**	32,793	6,577	26,216	80
1977	21,924	972	20,952	96	**1995**	32,980	6,910	26,070	79
1978	21,306	1866	19,440	91	**1996**	36,970	10,150	26,820	74
1979	27,619	1,546	26,073	94	**1997**	36,755	10,207	26,548	73
1980	24,551	1,647	22,904	93	**1998**	36,037	10,887	25,150	71
1981	17,113	2,951	14,817	83	**1999**	35,856	12,664	23,192	52
1982	15,382	3,442	11,940	78	**2000**	47,537	21,945	25,592	54
1983	15,192	3,244	11,948	79	**2001**	57,530	29,640	27,890	49
1984	16,255	3,438	12,817	79	**2002**	101,976	26,203	75,773	74
1985	18,569	3,723	14,846	80	**2003**	53,379	30,583	22,796	43
1986	18, 739	4,822	13,917	74	**2004**	69,748	45,156	24,592	35
1987	17,085	4,794	12,291	72	**2005**	58,247	34,818	23,429	40

Source: Central Bank of Nigeria, Statistical Bulletin 1998, and Annual Report and Statement of Accounts, 2000

Laws Governing Oil Activities in the Niger Delta

There are a plethora of laws in existence concerning the protection of the environment in the Niger Delta (Table 5). These laws when enforced and implemented would have given absolute protection to the region's environment as they cover all aspect of hydrocarbon operations. These laws have been abysmally ignored by state officials as a result, they are mainly observed in the breach by the oil companies.

Table 5: Some Statutory Instruments of Environmental Policy and their Objectives

S/No	Statutory Instrument	Objective/Remark
1	Minerals Ordinance 1914, amended 1925, 1950, 1958	To prohibit the pollution of water bodies in the process of mining and prospecting for any mineral, including petroleum.
2	Oil Pipeline Act 1956, amended 1965.	Provides among others for the prevention of pollution of land and water resources as a result of petroleum and production activities.
3	Public Health Act 1958	Provides the legal framework for the preservation and management of public health.
4	Criminal Code 1958	Provides the legal framework for seeking redress from environmental diseconomies, among others.
5	Mineral Oils (Safety) Regulations 1963	Provide framework for health, safety and environmental – friendly exploration and production activities.
6	Petroleum Regulations 1967	Provide framework for safe petroleum operations, including environmental protection.
7	Oil in Navigable Waters Act 1968	Prohibits discharge of oil into navigable water courses and other areas.
8	Petroleum Act 1969 and Related Regulations	A major legislation on petroleum industry to date. Provides encompassing framework for the regulation of upstream and downstream petroleum activities so as to protect the environment.
9	Land Use Act 1978	To reform existing land ownership rights through nationalisation. Adequate and fair compensation to be paid for loss of surface rights.
10	Associated Gas Re-injection Act 1979, amended 1984, 1985	.Provides statutory basis for the regulation of gas flaring in Nigeria.
11	Harmful and Toxic Wastes and hazardous (Criminal Provisions) Decree No. 42, 1988	Provides legal anchor for redressing the dumping of toxic wastes.

12	Federal Environmental Protection Agency (Decree No. 58, 1988 and related legislations.	Provides a quasi legal framework for checking environmental crimes, and to set environmental standards for different pollutants
13	Industrial Pollution Abatement Regulations 1991	To regulate the generation and disposal of industrial waste through the principle of environmental permits.
14	Effluent Limitations Regulations 1991	Provision of standards for industrial effluent discharge and emissions into the atmosphere.
15	Environmental Impact Assessment Act 1992	Provides statutory basis for EIAs, as part of all projects development authorisation process.
16	Environmental Guidelines and Standards for the Petroleum Industry (DPR), 1991, 1999.	Most comprehensive framework for environmental policy and management in the petroleum industry.

Source: Compiled by author based on field data, 2007.

As Table 5, above shows, Nigeria has plethora of laws guiding hydrocarbons operations. Therefore, the failure of oil companies' operations to observe best practices in the region is not due to of absence of relevant laws but failure to enforce existing laws. One of such laws is the Associated Gas Re-injection Act 1979, amended 1984 and 1985, which has been ignored by the oil companies. Had this law been even moderately enforced, the comatose situation of the region's environment due to gas flaring would have been averted. The lack of will to apply laws intended to protect the environment, it seemed derives from the State's prioritisation of hydrocarbons revenues over the environment. As, it appears, the State's desire for increased petro-dollar became antithetical to the wish of those backing environmental justice or mitigation of ecological damages.

Core Reasons for Acute Pollution

As has been mentioned elsewhere, the petro-state is a rentier state in which oil revenues "petro-dollars" account for most of GDP, State revenues and foreign exchange. The State relies mainly on revenue from oil for its services. This gives the oil companies a key role in the sustenance of the State. This dependence of the State on oil revenues makes it unwilling to do anything that would disrupt oil revenues flows. This scenario privileged the oil companies over the State and the operator of the joint ventures, NNPC. As a result, the oil companies tended to ignore best practices in their operations. Under the circumstance, the NNPC is also inhibited in the effective performance of its statutory role in joint venture with the oil companies. It became a situation where the tail (oil companies) is wagging the dog (NNPC). Thus, the fixation of the State on hydrocarbon revenues and failure of the NNPC in its role in the joint venture gave rise to the environment imbroglio in the Niger Delta.

Prioritisation of Revenue Generation over Environmental Health

The rentier nature of the Nigerian State and its inability to diversify the economy has made it more entirely reliant on oil revenues for survival. To say that oil companies feed Nigeria is no exaggeration. Indeed, the oil companies know this and they have leveraged this fact to operate unhinged in the region. The State has kowtowed largely to the whims and caprice of the oil companies at the expense of the environment. Thus, the oil companies' unabated flare of gas, though the law banning gas flaring has existed for over three decades. For instance, in 1969 General Yakubu Gowon, Nigeria's second military Head of State, ordered the oil companies to end gas flaring by 1974. However, following the failure of the oil companies to act, the date was shifted to 1979. The date was shifted to 1984 when the oil companies again failed to act but this time, a fine of ₦10/ 1000 cubic feet of gas flared was imposed on defaulters. The oil companies were also ordered to present their detailed gas utilisation plans to the State. In 1983, at the behest of the oil companies the date was again shifted to 2008 but on November 17, 2007, the 2008 date was declared unattainable at the behest of the oil companies and was again shifted to 2011. The oil companies' failure to comply may be due to two reasons. First, the fine (N10/ 1000 cubic feet of gas flared) is cheaper to pay by the oil companies compared to the amount required to acquire gas re-injection plants. Secondly, due the oil company's default, the State started earning revenues from gas flare fines. For instance, in 2007 alone, the State earned over $800 million from gas flaring fines (CDD, 2007). As gas flaring fines became a veritable source of revenue for the Statem it became increasingly unwilling to enforce the laws. As a result, adverse impacts of hydrocarbon operations on the environment have continued unabated in the region with no end in sight (Robinson *et al*., 2006; Emuedo and Anoliefo, 2012).

NNPC and the Oil Companies: Unequal Joint Venture

The oil business was vastly altered by insurgent nationalism driven largely by Third World oil producers. This led to the formation of OPEC and the oil boom of the 1970s (Nitzan and Bichler, 1999; Parra, 2004; Roberts, 2004). The structures of OPEC provided active role for national companies that manifested in the spread of joint-ventures and joint-production agreements (Van der Linde, 2000; EIA, 2004). This caused a radical shift from the Great Cartel system of the 1930s; dominated by three trans-Atlantic oil companies to the "limited flow" arrangements of the post-1970 era. This gave rise to the creation of a state-owned oil corporation. In the case of Nigeria; the Nigerian National Petroleum Company (NNPC); which became joint partners to the oil companies. However, the (NNPC) is no match for its partners and competitors in the oil business.

Though activities of the oil companies are mostly clouded in secrecy, it is still possible to glean the wide disparity between them and the NNPC. The first and most obvious is the wide disparity in the technological gap between the NNPC and its partners in the oil business. The oil

companies operate the joint ventures, as they own both the physical and technological infrastructures of the oil business. Also, the service companies without which oil cannot be produced are mostly subsidiaries of the oil companies, or those in which they hold substantial interests. This makes the core oil business (exploration and production) in Nigeria almost out of reach of the NNPC. Furthermore, the NNPC is entirely outclassed, in terms of the global spread of investments and sophistication in operations of the oil companies. For instance, Shell, the largest joint venture operator in Nigeria with over 51 % of the country's oil production, operates in over one hundred countries in Africa, Europe, the America's, Asia, the Middle East and New Zealand. Shell's combined assets amount to trillions of dollars in oil, chemicals, mining and real estate.

Shell in 2020 has combined assets of over $379.27 billion. It is active in exploration, production, refining, transportation, distribution and marketing, petro-chemicals, power generation and trading. In 2019, it has proven oil reserves of 11.1 billion barrels (1.76×10^9 m^3) of oil. It has 35 refineries, with capacity to process 4 million barrels daily; 40% refining capacity in Europe and Africa, 30% in the Americas and 30% in Asia-pacific. It also has over 44,000 gas stations. Mobil, Nigeria's second largest producer has combined assets of $332.8 billion in 2020 and operates in over one hundred countries. It has estimated global oil and gas reserves of 6.6 billion barrels, 37 refineries in 21 countries, 21,000 gas stations in 120 countries. Its daily refining capacity is 6.3 billion barrels. Like Shell, it has substantial interests in chemicals, mining, and real estate. Chevron, Nigeria's third largest producer has combined assets of $239.8 billion in 2020. It operates in 23 countries and has a worldwide refining capacity of 1.9 million barrels daily. It has 7,900 retail outlets in the United States, two hundred in Canada, five hundred in the United Kingdom and about eighteen thousand through its worldwide Caltex affiliate. Like its preceding "sisters", it also has substantial interests in chemicals, mining and real estate.

The NNPC has assets estimated at ₦287 billion, which pales into oblivion compelled to that of its joint venture partners. It produces (in partnership with the "sisters") about 1.8 million barrels of crude oil daily out of which about 1.6 million barrels or about 80% is exported. Its four refineries operate continually below installed capacities, while the domestic products market is controlled by the local subsidiaries of the "sisters". The NNPC does not have any substantial investment outside Nigeria, and its internal operations reflect a great deal of reliance on foreign technology and expertise. Although it is theoretically autonomous, in reality, it is firmly under the firm control of the state. However, the oil companies; the "sisters" that account for over 65% of Nigeria's crude oil operate in a highly integrated manner globally in upstream and downstream operations; controlling resources that are many times over Nigeria's estimated Gross Domestic Product (GDP) of $29.7 billion. These companies in the face of OPEC's waning clout and the opening up of the Pacific Rim, Eastern Europe's, Russia's, and the former Soviet Republics' oil fields, have been able to diversify their oil sources, expand their share of global oil reserves and steadily regained monopoly of global oil. Also, though NNPC seem awash in money contrasted to other State agencies, it is strapped financially; it is a Lilliputian in comparison to the oil companies. Due to its sparse financial state, NNPC has often, failed to meet its financial obligation (cash call) to the joint venture. Thus, the oil companies have in most cases borne the cost of joint venture investments alone. This has made it rather difficult for the NNPC to leverage its partnership and supervisory relationship with oil companies. Attempting a comparison of NNPC with the oil majors' is unnecessary, as, it is totally peripheral in the distribution of global oil power.

As such, not only has the state been susceptible to the variable fate of oil, the rentier economy has also over time impaired the real sectors of the economy. Thus, with little productive activities taking place, power calculations revolve around the increased generation oil revenues. This accounts for the State's willingness to overlook the infractions of the oil companies in their operations and their observance of oil laws in the breach.

CONCLUSION

The situation of Niger Delta environment is gleam. This has arisen from the failure of the State to enforce its myriads of laws designed to protect the environment from adverse effects of hydrocarbons operations. This is due to the State almost total reliance on revenues derived from hydrocarbons operations to fund its budget. As it were, the oil companies feed the State. The oil companies have taken cognisance of the strong link between its operations and the State's survival. Thus, they have operated without observing best practices in their operations in the Niger Delta as they do in other parts of the world. The implication is that unless the premium placed by the State on petro-dollar wanes, hydrocarbons operations will continue to adversely impact the environment. To avoid this scenario, the State must diversify the economy to create alternate sources of revenues. This will reduce its premium on hydrocarbons revenues and help it rein in the oil companies to observe best practices in their operations in the region.

Notes

1. Mr. Auwalu, Sarki Director, Department of Petroleum Resources (DPR), made this announcement on Thursday on June 10, 2021 at the Nigeria International Petroleum Summit in Abuja.

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