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SHREDDING THE TREES AND COOKING THE LUNGS: A NEO HISTORY OF GREEN CRIME IN PORT HARCOURT

T.C Akujobi, T.R Odubo and S. E Boroh

Abstract

The study sought to unveil the deficiencies of relevant institutions on the fight against sustainable environmental protection. The study employed the content analysis in examining the efficacy of environmental and urban development laws in Port-Harcourt. The study identified some interplay of politics and economic deprivations as root causes that fosters the perpetuation of the ecosystem been shredded and the impact that cooks up the health and livelihoods of most inhabitants in Port-Harcourt cities

Keywords: **Environmental Degradation, Health Impact and Green Crime.**

Introduction

Global consumptions patterns have put the wheels of our national progress on a per second demand system that is unhealthy for our development. This has in turn influenced the immediate environment that was once self-sustainable. Oil and gas are Nigeria's strategic minerals Takon (2014). Based on "official government estimates the oil sector accounts for 70-80 per cent of the Federal Government's revenue (depending on the oil price), around 90 per cent of export earnings, and about 25 per cent of GDP measured at constant basic prices" (Takon, 2014, 587-588). On the international level, Nigeria is among the world's top 10 oil exporters, and Niger Delta generates a substantial amount of the nation's production capacity, and houses a significant proportion of the country's oil infrastructure (Alagoa, 1999).The interplay of these indices of oil narratives has unarguably transformed DNA of our national character and economy to a subservient or pseudo capitalist fuelling the metabolic process of global production. Smil (2008) describes it as the *"lifeblood of modern world*", adding that, *"without oil, there would be no globalization, no plastic, little transport, and a worldwide landscape that few would recognize"*. Yergin (2008) also calls it "the world's most important resource". In recognition of the significance of oil, Feyide (1986) aptly stated that*:*

> *"Oil is raw material as well as a convenient and effective source of energy. In the form of energy it increases man's capacity to get work done. As a raw material it provides the feedback for the fasts expanding industry in the world-the petrochemical industry…All over the world lives of people are affected and the destinies of nations are probably determined by the results of oil industry operations. Oil keeps the factories of the industrialized countries working and provides the revenues which enable oil exporters to execute ambitious national and economic development plans. Those developing countries*

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> *that have no oil are faced with a grim struggle for survival: if they lose they are relegated to the "fourth world" the march of progress would be retarded and life itself would become unbearable if the world was deprived of oil. That is why oil has become the concern of governments, a vital ingredient of their policies and a crucial factor in their political and diplomatic strategies".*

Wilson (2012) states that the increase or otherwise in crude oil production affects directly the revenue base and development programmes of Nigerian state. Oil has been the mainstay of Nigeria's economy. It is the country's major export, fetching millions of petrodollars to the country each day Odalonu (2015). Despondently, our common future and resources is being savagely stolen in copious quantities on daily basis Adeboboye, (2013) to serve the international capitalist system.

Problematique

The interplay of oil and gas exploration and the attendant environmental impact is indefensibly a concurrent global health challenge till present. Several scholars have made attempt to draw the link between environmental degradation and its health impact such as evident in extant literature herewith. This is supported Hudson,(2004) "*that the interests of international capital to exploit resources, have long been issues within the literaturein particular in terms of how they generate environmental impacts on local publics as a function of their activities, and the sometimes concomitant illegal activities"*. Concerns have also been expressed about the hazards associated with offshore oil and gas activities (Oil Spill Commission, 2011; Osofsky, 2011) and increasingly with the processes around fracking (Davis, 2012; Howarth et al., 2011). Many communities are experiencing unprecedented environmental degradation which generates significant, often large scale, risks to human health (Landrigan et al., 2004; World Health Organization, 1992). As a consequence, managing the risks arising from environmental degradation is a key priority for health and safety (Donohoe, 2003), and a particularly challenging one given the uneven distribution of risks and benefits. As a consequence, debates about environmental justice associated with environmental impacts from oil and gas production activities feature prominently in the literature (Bamberger and Oswald, 2012; McKenzie et al., 2012). Such impacts include air pollution and agricultural land contamination (Dung et al., 2008), river pollution (Mendelssohn et al., 2012), and the potential threats from accidents and major hazards (Awajiusuk and Lomo-David, 2012); collectively, they present significant risks to public health (Wilson et al., 2015).

The consequences of such environmental impacts can be heightened when the risks are either inadequately communicated or not communicated at all to those affected. Any such lack of communication in turn erodes the abilities of local populations to take mitigating actions, and this is particularly damaging where the population lacks political and economic power

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(Fischbacher-Smith and Hudson, 2010; Smith, 1990). from the above literature this study argues that the narratives of oil and its development implications in Port Harcourt city has recently presented a new wave of socio-economic and health challenges that would possibly put the city at the brims of destruction. The consequences of non-implementation and compliance with sustainable green practices by government and communities have resulted in profound social, economic and environmental risk. These risks are geometrically expanding to overall health disaster of our children and their future on earth. if oil related pollution were at the helm of European twin revolution that ushered in industrialization and globalization, it would have had multiplier effects or impact on their livelihoods and existence but with the expansionist agenda that balkanized Africa, and the rest of the world the sustenance of this cruel form of capitalism is opening the trench of hell for our health crisis and underdevelopment. This system is consciously sustained by the pseudo capitalist and intermediate capitalist of our nation and region. Against the backdrop of the above this study seek to

1. Unveil the deficiencies of relevant institutions on the fight against sustainable environmental protection.
2. Examining the efficacy of environmental and urban development laws in Port-Harcourt.
3. Identify some interplay of politics and economic deprivations as root causes that foster the perpetuation of the ecosystem been shredded and the impact that cooks up the health and livelihoods of most inhabitants in Port-Harcourt cities.

Methodology

The paper utilized a content analysis to x-ray the health impact of oil pollution and artisanal refinery on inhabitants of Port –Harcourt, Nigeria. Secondary and Tertiary data from relevant sources – local documentation and library research – were useful and collected. The data provided historical and current information that illuminate the narratives on artisanal oil activities vis-à-vis the nature and consequences of gas flaring, pollutions by oil operations – and their specific impact on populations and ecology in the city. Also the data was revealing of the connection between the global environmental debate and the emergence of local oil-related environmental issues in the area.

Content review of Gas flaring and soot

Studies have shown that gas flaring, oil spillage, and pipeline networks – the by-products of oil activities in Niger Delta - might have contributed to the environmental degradation in that region directly, and or indirectly (Oyelara-Oyeyinka and Okoosi, 1995). Many communities are experiencing unprecedented environmental degradation which generates significant, often large scale, risks to human health (Landrigan et al., 2004; World Health Organization, 1992). As a consequence, managing the risks arising from environmental degradation is a key priority for health and safety (Donohoe, 2003), and a particularly challenging one given the uneven

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distribution of risks and benefits. Sub-Saharan Africa have been centre of recent discoveries of oil and gas reserves in countries such as Ghana, Kenya, Uganda, Tanzania, and Mozambique (McDonald, 2012; Vasquez, 2013). The result is that many of the poor, often uneducated locals in these oil communities find themselves having to manage and cope with complex environmental and health issues for which they are not equipped. Invariably, they lack the skills, information, and capital needed to mount an effective challenge to the powerful interests that lie behind local resource exploitation. According to data from the Shell Petroleum Development Company (2014), around 324,000 barrels of crude oil in about 1500 incidences were spilled from its facilities between 2007 and 2013 (Figure 2). Shell reports that of the total volume of oil spilled from SPDC facilities in 2013, about 75%is due to sabotage/theft, and 15% due to operational spills resulting from corrosion, equipment failure, or human error. However, Amnesty International has challenged Shell, accusing the company of misrepresenting oil spill data and misleading the public (Amnesty International, 2013).

Health implications of oil spills in the Niger Delta

Frequent and collectively substantial spills have amplified the health challenges faced in the region. Adekola et al. (2012) examining, a United Nations Environmental Programme (UNEP) report revealed that drinking water in Ogoniland was found to contain a known carcinogen at levels 900 times above World Health Organization guidelines (United Nations Environment Programme, In another study, it was found that oil spills reduce the ascorbic acid content of vegetables by as much as 36% and the crude protein content of cassava by 40%, which results in a 24% increase in the prevalence of childhood malnutrition in the region (Ordinioha and Brisibe, 2013). In the same study, it was found that animals that come in contact with crude oil could be hemotoxic (destroying red blood cells) and hepatotoxic (destroying the liver), and could suffer infertility and cancer. The study also shows that a polluted fishing lake with oil crude could be detrimental to human health when consumed.

Respiratory problems such as asthma and bronchitis, lung disease, heart attack, miscarriage, and skin disease are just some of the reported cases becoming prevalent as a result of exposure to heat from oil exploration-related activities (Ovuakporaye et al.,2012). However, the extent to which other confounding variables (e.g. economic instability and a lack of understanding of the exposure to risk) have contributed to these health problems requires further investigation. The federal and state governments have the legislative mandate of communicating such health risks to local people.

Reviews on Soot and Its Health Impact

Weli(2014) in an extensive research involving in-depth quantitative analysis of the spatial and seasonal atmospheric levels of PM10 in Port Harcourt, and the environmental health implication

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of their occurrence at measured concentrations revealed that relative quantities of the pollutant in various areas based on land use, and the time of the year were compared with land use, including commercial, high-density residential, low-density residential, industrial, and rural. PM10 sampling and analysis was conducted in the dry, transition, and wet seasons. Findings suggest that land use and season influenced atmospheric concentrations of PM10. For all land use type, the trend in the seasonal levels of PM10 was dry > transition > wet. In terms of land use, the commercial and industrial areas had the highest values in the dry season. The Low-density residential areas had the lowest PM10 value. The seasonal total atmospheric loading for the wet, transition, and dry seasons were 3436.1 _g/m3, 8573.12 g/m3, and 16,148.87 _g/m3. the implication of the above findings suggest that amongst the land use types, People who live and work around the areas with a high concentration of PM are susceptible to respiratory disease infection. This includes high-density residential areas.

The environmental soots [black carbon (BC)] and carbon blacks (CBs) cause many health issues in humans and animals (Agarwal, Awasthi,et al (2013); Buchner, Ale-Agha, Jakob, Sydlik,et al(2013). The terms soot and CB have been used interchangeably but, both are physically and chemically distinct entities (3–5). Soot is considered as unwanted byproducts derived from incomplete combustion of carbon-containing materials (3–5 Long, Nascarella, Valberg.(2013); Watson, Valberg.(2001); Medalia, Rivin, Sanders.(1983)). In contrast, the CBs are manufactured under the controlled conditions in the rubber, printing and painting industries for commercial use (long et al (2013). Soot is a powdery mass of fine black particles (6–8 Lewis, Coughlin.(1973); Kettner, Langmann.(1970); Chuang, Jones, Chen et al(2011). It consists of impure carbon, formed after the incomplete combustion of hydrocarbons (Canagaratna, Onasch, Wood, Herndon,et al (2010). The main source of environmental soot is the combustion of fossil-based fuels and biomass burning at the Earth’s surface (Glaser, Dreyer, Bock, Fiedler,et al (2005). The other examples of soot may include coal, charred wood, petroleum coke, cenospheres, and tars (Scheepers, Bos.(1992); Birky, Voorhees.(1989). Soot particles range from about 10 nm to 1 mm in size (Niessner(2014), China, Mazzoleni, Gorkowski, Aiken, et al (2013). Among hydrocarbons, the poly aromatic hydrocarbons (PAHs) are the main carcinogenic compound in the soot Cain, Gassman, Wang, Laskin.(2010); Wang, Levendis, Richter, Howard et al,(2001); Boffetta, Jourenkova, Gustavsson.(1997). At elemental level, the most characterized diesel soot contains carbon (as a main component), hydrogen, oxygen, sulfur, and trace amount of metals (Fernandes, Brooks (2003); Yang, Jin, Wang, Liu,et al (2012); Vedal, Campen, McDonald, Larson,et al(2013). The major component of soot, the BC, causes premature human mortality and disability Goto (2014).

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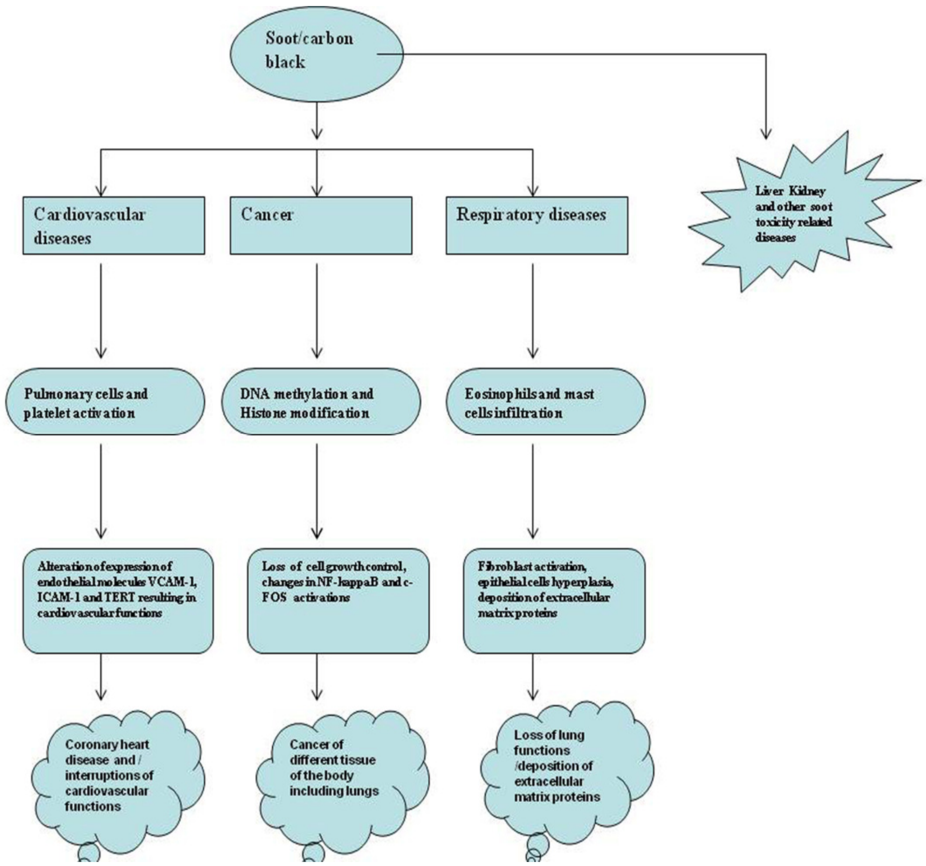
The impact of soot on the human health and to the entire environment depends on its distribution and its distance from the source of origin Liu, Xia, Zhai, Wang, Liu,et al(2011); Gramsch, Reyes, Oyola, Ma,et al(2014); Liggio, Gordon, Smallwood, Li, et al.(2012;Zhan, Cao, Han, Huang, Tu et al.(2013). Recently, Parent et al.(2000) demonstrated an association between esophageal cancer and in occupational exposures of sulfuric acid and CB.



Adapted from *Rituraj and Ashwani (2017)*

In their analysis of the above diagram they found that the major health problems due to soot and carbon black (CB) shows soot and CB- induced major health problems. The first hazard is cancer that is caused by DNA adducts formation; DNA strands breaks, or mutation in genes. Second is the respiratory toxicity caused by dysfunctional immune response involving activation of eosinophils and mast cells. The third is cardiovascular toxicology that also includes the coronary heart disease. Apart from these, soot also causes damage to the different organs of the body by some unknown mechanisms.

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To elucidate the above findings major diseases and rare pathological manifestations due to soot and CB were analyzed. Goto D. (2014) cited in *Rituraj and Ashwani (2017)* noted that over three centuries, the linkages of soot and CB with different diseases have been observed. Furthermore, he asserts that soot and Carbon Black cause many diseases but only three are understood to some details see figure1 above). The more complex disease associated with the soot and CB is the occurrence of cancer. The second major health issue with soot and CB is respiratory disorders, which sometimes can be very severe. The third one is the cardiovascular dysfunctions. Apart from these diseases, some unique pathological observations have also been seen in response to soot or CB exposures (see **Table 1**). In another study Jackson, Vogel, Wallin, Hougaard et al.(2011) they observed that prenatal exposure of pritex-90 caused sexual and neuro inflammatory changes in mice. Surprisingly, lung exposure of diesel engine exhaust significantly influenced pro-inflammatory markers of the rat brain and lowered the sperm production Gerlofs-Nijland,Berlo, Cassee, Schins et al (2010).

Similarly, carbon nano particles were found to adversely affect the male reproductive system of mice (Saber, Halappanavar, Folkmann, Bornholdt,et al.(2009). Recently, it was known that CB exerts developmental toxicity by the immune activation in the male offspring of mice (El-Sayed, Shimizu, Onoda, Takeda, et al (2015). Findings from these studies show the interplay of systemic response of the body in the development of different pathologies that further need extensive exploration. Also, it has been shown in rat model that soot particle interactions with lung tissue is responsible for morphological changes in the lungs Pylev (1969). The diesel exhaust (DP) and CB when regularly inhaled by rats showed toxic and pulmonary carcinogenic properties (Mauderly, Jones, Griffith, Henderson, McClellan (1987), Mauderly, Snipes, Barr, Belinsky, et al.(1994). *In vitro* study on the carcinogenic potency of CB confirmed the genotoxic basis of soot toxicity Roller (2011).

Rituraj and Ashwani (2017) in analyzing the mechanisms of pathophysiology in respiratory diseases due to soot and carbon black (CB) exposed that respiratory epithelium of the lungs is the first tissue to get constant exposure with different kinds of soots and CBs present in the environment. Soot or CB toxicity causes the interruption of respiratory process by alteration in lung functions (Brauer, Hoek, Van, Meliefste, Fischer et al 2002 cited in *Rituraj and Ashwani (2017)*. These toxicological mechanisms may be of two kinds. The first mechanism is the direct contact-mediated dysfunctions of lung cells that include ROS generation, cell hyperplasia, cell death, or apoptosis of lung airway epithelium and other adjacent cells (Hussain, Thomassen, Ferecatu, Borot, Andreau et al 2010). The second mechanism includes the involvement of systemic immune response resulting in the development of tissue remodeling and fibrosis that causes problem in breathing and lung dysfunctions. In this section, we would discuss these two

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types of toxicities caused by soot or CB in the context of human clinical and animal studies. The two respiratory diseases that are mainly reported in humans due to soot exposure are chronic obstructive pulmonary disease (COPD) and asthma (Brauer, Hoek, et al. 2002). The pathophysiology of asthma involves the inflammation of airways, tissue remodeling and fibrosis, obstruction of airflow intermittently, and hyper responsiveness of bronchi (Ozier, Bara, Girodet, Marthan, et al (2011), Fireman,(2003)). The pathophysiology of COPD includes airway inflammation, mucociliary dysfunctions, and structural changes (Margelidon-Cozzolino, Chbini, Freymond, Devouassoux,et al(2016)& Schmeck, Jerrentrup, Bals.(2015)). There are numerous evidences that support the linkage of soot or CB with asthma and COPD. A study reported that an early exposure to the air pollution leads to the development of childhood asthma Clark, Demers, Karr, Koehoorn,et al.(2010) . Ultrafine particles (UFPs) (soot) and carbon monoxide concentrations are associated with asthma enhancement in the urban children (139. Evans , Halterman, Hopke, Fagnano, et al (2013). DEP initiate the alveolar epithelial cell movement by alterations of polarity mechanisms (LaGier, Manzo, Dye (2013). An epidemiological study reported that healthy subjects were affected by agriculture crop burning with their altered peak expiratory flow rate and pulmonary functions (Agarwal, Awasthi, Singh, Mittal et al 2013). The patients prone to COPD or asthma already exhibit preexisting oxidative stress and hence are more susceptible toward soot-mediated oxidative damage. Interestingly, it is known that ufCB causes adverse effects *via* ROS and may have worse manifestations in these susceptible persons (Dick, Brown, Donaldson, Stone (2003)). The evidences from animal models also supported soot- and CB-mediated mechanisms of toxicity. A rat model of study described that the flame-generated ultrafine soot increased the ROS and upregulated Nrf2 antioxidants in the lungs (Chan, Charrier, Kodani, Vogel et al (2013).

Similar studies found that the neonatal lungs are more susceptible to ultrafine soot as compared to adults (Chan, Fanucchi, Anderson, Abid, et al 2011). The ultrafine soot also generates ROS and induces DNA damage Chuang, Jones, Lung, BeruBe (2011). Moreover, CB enhanced ROS in the rat alveolar macrophages, this is an example where non-biodegradable components of CB can generate an immune and oxidative stress response (Aam, Fonnum(2007). Another study showed excessive generation of ROS by monocytes upon exposure of CB (Stone, Tuinman, Vamvakopoulos, Shaw, Brown et al (2000). It is already known that increased production of pro-inflammatory mediators are linked with the activation of specific transcription factors such as NF-kB, through the Ca2+ upregulation and ROS formation (Stone et al (2002), Lu, Chai, Yu, d'Uscio, et al (2012)). A study suggested that ufCB triggers an increase in cytosolic Ca2+, possibly through entry of extracellular Ca2+ *via* the Ca2+ channels in the plasma membrane (Stone et al. 2002). Therefore, nano particles activate the opening of Ca2+ channels by means of ROS (Stone et al. 2002). It has now been unrevealed that alterations in the glutathione and

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superoxide dismutase activities are the key enzymatic mechanisms involved in the generation of oxidative stress by CB (Zhen, WC, Fendy, Tong, Dai et al 2017).

Theoretical Framework

The Treadmill of Production and the Environmental State was examined and used to explain the social relations of the state, man and the impact of their interaction contributing to environmental destruction adverse health impact.The *treadmill of production* (TOP), a concept first introduced in 1980 bySchnaiberg (1980), arose from two observations. First, a major change appeared in theimpact of production processes upon ecosystems in the last half of the 20th century.Second, social and political responses to these production processes were quite variable and volatile. They noted that while some people rebelled against this modern production system, others embraced these new technologies as their best hope for solving environmental problems.Schnaiberg (1973). Ironically, the theoretical assumptions present a dual valence at the end of the twentieth century. Schnaiberg, Pellow,& Weinberg (2000), noted that among environmental sociologists, proponents of ecological modernization (EM) have postulated that there is a growing independence or "emancipation" of the ecological sphere from the political and economic spheres in state and industry policy-making (Mol 1995; Mol and Spaargaren 2000; Spaargaren 1997; Hogenboom et al 2000; Sonnenfeld 2000; Frijns et al 2000).

Schnaiberg (1980) argued that one major change in the U.S. production system during the post-1945 era was a rising status of workers, moving from a working to a middle class, albeit within a society still marked by considerable poverty (Rubin 1996; Reich 1992). Workers gained new income and occupational opportunities through the post-1945 expansion of production and trade, but at the expense of new ecological disruptions. The modern factories used many more chemicals in the new production processes. The modern factory used new "efficient" energy/chemical intensive technologies to transform raw materials into finished products. Thus, workers were increasingly engaged in managing energy and chemical flows, and directing their flows through the complex machinery, to create marketable products. This feature led to a second set of environmental problems, pollution -- which Schnaiberg termed *additions* to the ecosystem. In a later series of empirically-grounded works (Gould, Schnaiberg, and Weinberg 1996; Schnaiberg 1994; Gould 1991, 1992, 1993; Weinberg 1997a, 1997b; Weinberg, Schnaiberg and Pellow 1996; Gould, Weinberg, and Schnaiberg 1995), this earlier concept of the treadmill was further elaborated, as Schnaiberg was joined by a succession of Pellow & Weinberg students, including Gould, they viewed environmental impacts of production and analyzed the outcomes from the changing relationships between capital owners, workers, and the state. The five axes of such changes outlined below differ markedly from ecological modernization principles:

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1. Economic expansion was generally viewed as the core of any viable social, economic, or environmental policy. This was the state of the Nigerian post-oil development era were economic expansion was thought to increase the profits that corporate managers and their investors require for capital outlays. Workers were also believed to benefit from these outlays because investments lead to increased production, creating new local employment. Capital outlays also led to higher levels of productivity, a precondition for rising wages. Government agencies needed to ensure that national production generates sufficient profitability to: (a) induce investments by capital owners; (b) provide enough additional market values to maintain a level of wages adequate to sustain consumer demand; and (c) generate enough tax revenue to cover the state's social expenditures. Governments believed that tax revenues from the accelerating treadmill would rise more rapidly than citizen demands. Thus, government officials and agencies increasingly shared a stake in the economic expansion with the private sector.

2. On increased consumption of oil which propelled or drove the post independence economic growth, it was thought of comingon through increased production of the amount of oil production. Consumers needed to have the disposable income to purchase the goods. Therefore the state, along with private capital, worked to make low-interest loans available to consumers for the purchase of homes and other items. This would ensure a continued cycle of production and consumption. These were evidently unarguable in the development plans of the Nigerian state.

3. Solving social and ecological problems by speeding up the treadmill. Social and ecological problems were thought to be best solved "through the market." Thus, there arose an untenable, almost magical, sense that any type of economic expansion will reduce social and ecological problems. Poverty would be reduced by a growing economy because there was an expanded job base and increased wages at the bottom. A growing economy also supported government social expenditures (for education, housing, and other needs of the poor), and provided the source of funding for technological development that could address environmental ills.

4. Economic expansion via large firms. Economic expansion was seen as fostered primarily through the growth of large firms, "core firms." Large firms were thought to be the driving engine of the economy. Their growth created the most demand for jobs and secondary demand for supplies, which fueled the growth of smaller entrepreneurial firms. The wages paid to the large labor pools provided consumption capacity among consumers, who kept main street American merchants in business. The earlier popular slogan "What's good for General Motors is Good for America" captured this thinking.

5. Alliances among capital, labor, and governments. The post-1960 political economy was largely held together by an implicit contract. Private capital's need for a reliable labor force permitted the development of strong trade unions, which could also collectively bargain for wage

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increases and safer working conditions. Workers' need for jobs and their general satisfaction with unprecedented material gains led to a "no strike" pledge with management. The state played its part by expanding public education in order to produce a higher quality labor force, while also expanding consumer credit to make sure that domestic demand for goods kept pace with the increase in production.

Analysis

Within the study context, it was noted that as early as the 1960s in the Nigerian State, the treadmill had already begun to undergo significant changes as observed in the case of the United State of America (Gordon 1996; Reich 1992; Rubin 1996). With increasing international competition, investors and managers became concerned about the existing pact between management and labor, which had ensured a relatively high rate of return to workers, as workers' price of accommodating to the treadmill. A higher allocation of profits to labor had occurred because of rising rates of unionization, and the growing agreements between unions and investors/managers. However, beginning in the mid-to-late 1960s, and increasingly in the 1980s and 1990s, managers began to undermine unions. These were evident and undoubtedly the salient process that the Nigeria government, the multinationals and the economy was driven through.

To some extent, the earlier form of the treadmill had followed the "high road" to development (Harrison 1994), allowing the communities a greater share of material gains. But in recent times, the treadmill began to shift to the "low road", in which Niger Delta communities were left disarticulated and impoverished to ensure higher profits of the multinationals. Arising from this shift, negative ecological and social outcomes emerged such as kidnapping, militancy, pipeline and infrastructural vandalization, and recently the artisanal refineries (cooking ports). This theoretical strand argues that the shift can be attributed to a convergence of technological and political changes that made it possible for firms such as the multinationals to act on their recurrent desire to minimize labor costs.First, ever more of the production process shifted to energy- and chemical-intensive forms, replacing these elements for human labor and simpler machinery. Second, a smaller share of the work force was involved in the production process, evident on the retrenchment and downsize by oil firms in recent timesin Niger Delta coupled with the recessed economy. Though there is paucity of data due to buttress this fact, yet it cannot be denied that there has been dramatic reduction of Oil multinational workers. Thirdly, those workers remaining onboard were increasingly become redundant, as a result of reliance on automation for the execution of many tasks previously done by human beings (Edwards, 1979).

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With increasing displacement of the labor force from production, there were growing demands for social safety nets to cushion displaced workers and their families such as evident in the amnesty programs that was instituted to cushion the agitations of the oil but poor Niger-Delta States and or oil producing communities. Under these pressures, the Nigerian state moved in an uncritical fashion to further support the expansion of the treadmill, now under the rubric of "restricted trade". Implicit in this statement was the hope that the new accelerated treadmill would resolve the "creek game" of the boys in the community incubating more problems that the Amnesty state of the treadmill had created. But the reverse became the trend when the rules didn't change no matter how often the state security apparatuses were used to break them.

Examining the variance of the social and ecological elements against the backdrops of cooking our lungs from the treadmill of production perspective, it would suffice to state that as most multinational firms made more products using more efficient technologies, they also garnered rising profits, which could be invested in still more productive technologies. This suggested a kind of *ecologicaltreadmill.* This expansion required greater inputs (raw materials and energy) and hence greater withdrawals of natural resources. It also led to greater additions (toxic chemical pollution and other forms of liquid and solid waste). The implications of this model were that ecosystems were increasingly becoming used as sources of raw materials and as "sinks" for toxic wastes, degrading ecosystems while enhancing profit levels.

A second form of the treadmill was *social*. After each cycle of production, a growing share of profits was allocated to upgrading the technological "efficiencies" of the firm against the host communities hence the agitation for resource control. Analogously to ecosystems, the Nigerian government helped to sow the seeds of the Niger Delta environmental degradation. By generating profits in one cycle (through compromise and unequal exchange of the environmental gains from oil exploration activities), they helped set in motion a new level of investment in labor-saving technology, ultimately leading to the removal and disenchantments of the youths from the production process as noted by Rifkin (1995). Moreover, as this treadmill expanded, it created new sources of revenue for governments. Some of this revenue was used to give displaced workers social and economic compensation (e.g., income supplements and alternate employment). There were thus losses and some gains as the treadmill expanded, replacing earlier forms of production, natural resource utilization, and employment.

Inherent in its logic was a necessary and simultaneous shift in social relations within production, and social relations between producers and other institutions. From its inception, then, the treadmill's dual focus has been *within the firm* and *within the society in which the firm is embedded*. In addition to ecological indicators, the treadmill notes that the changing nature of theworkforce, the relationship between social inequality and environmental quality, the growingautonomy of firms from control by local and national governments, and the

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growingdependency of governments on treadmill organizations for fiscal and political support such as largely experienced by the Niger-Delta agitation for resource control were believed to be the ecological outcomes and by-products of economic (and political)reorganization, which helped predictenvironmental actions of firms and states. As Weinberg (1994) found that the weakly Illinois government like the Nigerian government supported citizen access and engagement with artisanal refinery. This situation culminates into the production of toxic substance around as a result of the crude process of artisanal refineries in the area which leave the shades of health challenges that cooks the lungs of the entire people in the area.

Discussions and Conclusion

From the extant literature reviewed one can argue that in the context of this study been the Port – Harcourt city where growing incidences of artisanal refinery and oil pipeline vandalization (oil theft) is increasing on daily basis confronts the health of its citizens and or inhabitants. Unarguably, the paper points on the deficiencies of relevant institutions such as the Nigerian security apparatuses and the offices of the number one security officers of the state at the national and state levels as responsible for the incubating these environmental crimes against our common future and most despicably the realization of sustainable health for the common and poor communities where these nefarious activities undergoes. Hence one can state efforts geared towards the fight against unsustainable environmental practices in the area has been unflinchingly axiomatic to showcase the institutional weakness and ineptitude of our political class to ensure at least the sustainable health of its people through policy actions that are well driven. In addition to the above one can admit to the fact that for the past years several non-governmental organizations have stood up to create the awareness of the growing incidence of artisanal refinery and its claims on health of children, women and men but however their voices and cases have been treated with kid gloves because of a cold war of relevance between the government based authorities on environment and the interest of the NGOs and CBOs. Finally, the level of interplay of politics and economic deprivations of the rural communities, the restive youths and women remains a clog perpetuating the destruction of our ecosystem due to the deficiencies of government programs to address the shadows of unemployment, inequity and inequality that is largely expansive through generations. The simultaneous effect of the above permutations thus shreds and cooks up the health and livelihoods of our cities in Port Harcourt.

Recommendations

The paper recommends that the government should fastidiously assent to programs geared towards integrating the artisanal refiners and the multinationals on a common productive treadmill. This would help reduce the disenchantments of the youths in the area and thus give them a sense of been part of the production of the natural resource. by implication it would help reduce Oil theft through artisanal refining that portend significant health risks for all in the city.

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Authors' Profile

Akujobi, Chiedoziem Theophilus holds a Bachelor of Science in Sociology from Imo State University, a Masters' degree in University of Port Harcourt. He is currently a PhD student in the University of Port

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Harcourt. His research interest spans across environmental issues, security, conflict, indigenous system, and migration. He has published works in edited books, conference papers and journal publications. Akujobi is an experienced field researcher and facilitator who had conducted fieldworks researches for international institutions like Chattam House/ PENN Song & Nigeria Bureau.

Odubo, Tonbra Robert holds a Bachelor of Science Degree in Sociology and a Master of Science Degree in Sociology, from the University of Port Harcourt. He also holds a Master of Science Degree in Business Administration (Marketing), from Rivers State University, Port Harcourt. He is currently a PhD student in the University of Port Harcourt. He has contributed meaningfully to academic knowledge through his published works in conference papers, edited books and research articles in both local and international journals. His research interest cuts across environmental studies, rural development, population studies and conflict. He is a staff of the Niger Delta University, Wilberforce Island, Bayelsa State, Nigeria.

BOROH, Stanley Ebitareis a lecturer with the Department of Sociology & Anthropology, Federal University Otuoke. He had his BSc and MSc at the University of Port Harcourt and is presently a PhD student with the same institution. He majors in Development studies but his research interest are environmental studies, gender studies and sustainable development. He has also published with several journals both indigenous and international.