Environmental Injustices:

Conflict & Health Hazards in the Niger Delta

Picture Courtesy of Fatoumata Barry (Delta State, Nigeria)

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TABLE OF CONTENTS

ACKNOWLEDGMENTS....4

INTRODUCTION....5

CHAPTER I: Global Environmental Injustices – Conceptual Framework....16

The Birth of the Environmental Justice Movement....16

Global Environmental Injustices....19

CHAPTER II: The Niger Delta: A History of Conflicts & Injustices....25

Theoretical Framework....25

Root Causes of Environmental Injustices in the Niger Delta....28

Implication of National Economic Security....33

CHAPTER III: Health Hazards: The Oil Industry in the Niger Delta....36

Overview: Environmental Degradation....38

Oil Spills: A Contentious Issue....40

Gas Flaring: Will it Ever End?....44

CHAPTER IV: Analysis – An Overdue Response....52

"Leave Oil in the Ground"....53

Oil Revenue Legislation and Distribution Reform....55

Update, Upkeep, and Respond Effectively....57

More Public Awareness....59

More Public Involvement....61

CHAPTER V: Conclusion – A Way Forward....64

BIBLIOGRAPHY....70

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ENVIRONMENTAL INJUSTICES: CONFLICT & HEALTH HAZARDS IN THE NIGER DELTA

INTRODUCTION – Research Context, Problem, and Methodology

"Oil kindles extraordinary emotions and hopes, since oil is above all a great temptation. It is the temptation of ease, wealth, fortune, power. [But] oil, though powerful, has its defects."[1] These defects are observed in the Niger Delta region of Nigeria, where oil has become more of a curse than a blessing (interview with Orubebe, June 2009). With power held in the hands of the Government of Nigeria and the Multinational Oil Corporations, environmental injustices have and continue to be a widespread reality in the Niger Delta. Environmental injustices, the deliberate targeting of disadvantaged populations and the disproportionate distribution of toxic substances and hazardous activities into their communities (Bullard, 1994, 2005; Johnston, 1994; Adeola, 2001; Maantay, 2002; Schlosberg, 2007), has a global dimension that is increasingly manifested in developing countries (Adeola, 2000, 2001; Bullard, 2005; Newell, 2007; Roberts, 2007; Schroeder *et al.,* 2008).

In spite of the research emphasis of environmental justice in the United States, several scholars and activists in recent years have acknowledged the need to examine the nature and scope of this problem at a global scale. Specifically, these scholars have noted a direct relationship between the global economic linkages among the world's economies and the pollution of the living environments of the world's poor, minorities and indigenous groups (Asante-Duah *et al.,* 1992; Karliner, 1997; Adeola, 2000, 2001; Newell, 2007; Schroeder *et al.,* 2008). These communities are increasingly the sites of noxious facilities such as chemical

[1] Quote from Ryzsard Kapucinski (as cited in Watts, 1999: 6)

industrial plants, extractive facilities (oil and mining) and other destructive land use activities that are owned and / or managed by Multinational Corporations (Watts, 1999; Schroeder *et al.,* 2008; Ako, 2009). Other communities have been used as dumping grounds for hazardous materials and electronic wastes generated and transported illegally from industrialized nations (Adeola, 2000, 2001; Margai, 2001; Gbadegesin, 2001; Clapp, 2001; Schmidt, 2004; Bullard, 2005; McDonald, 2005). Although certain regions of the world have comprehensive environmental laws to deal with extractive and other polluting industries, the Nigerian Government has both weak environmental laws and enforcement mechanisms. Consequently, their neglect has generated hazardous health and poor living conditions for the Niger Delta population.

Environmental injustices in the Niger Delta mostly stem from the oil industry's activities, which have degraded the land, contaminated neighboring bodies of water and groundwater, and polluted the air (interview with Bassey, July 2009). As a result, many communities have become frustrated and some groups decided to take violent action against the onslaught of destruction of their communities without proper compensation (Ibeanu, 2000; Ukiwo, 2007). The Niger Delta of Nigeria is located on the coast of the Gulf of Guinea and is one of the world's largest and most vital wetlands, comprising 1400 square miles (Ibeanu, 2000; United Nations Development Program [UNDP], 2006: 19). According to the National Bureau of Statistics in Nigeria, the region historically known as the Niger Delta, including Delta, Bayelsa, and Rivers States, had a population of 11,393,338 (2006: 1). However, the population of this region has become a contentious issue when the Obasanjo administration decided to group all southern Nigerian States that produce oil as part of the Niger Delta (Focus group discussion with community representatives, NGO representatives, and Government officials in Bayelsa State, July 2009).

Therefore, according to the 2006 Census by the National Bureau of Statistics, the Niger Delta has an approximate population of 31 million (Amnesty International [AI], 2009).

As with many other developing nations, Nigeria continues to have leadership that is detrimental to society. Specifically, the Niger Delta region has dealt with decades of endemic violence because of oil production in the area, which has also destroyed the environment without proper compensation to the local communities. The abundance of resources has pressured the Nigerian Government to adhere to a mono-economic system, which is mostly financed by the oil industry with oil revenue accounting for approximately 80 percent of government income and 90 percent of foreign exchange earnings (Watts, 1999: 5; Douglas *et al.,* 2005: 240). This provides the space for the environmental injustices observed in the Niger Delta where overexploitation of crude oil has become a necessity, while the needs of host communities are not adequately addressed (Adeola, 2000; Watts, 1999; Chokor, 2004; Douglas *et al.,* 2005; Ako, 2009).

Moreover, the Niger Delta region has a very diverse population with over 40 ethnic groups and 250 dialects, which also exacerbated conflict over ownership of oil resources once this resource became a highly valued commodity (UNDP, 2006). Residents in this region find that exploitation of crude oil in their communities has not only contributed to inter-ethnic conflict, but it has also degraded their environment, worsened their health and reduced their attempts at improving their quality of life (Ibeanu, 2000; Adeola, 2000; Ogri, 2001; Jike, 2004; Ikporukpo, 2004; Osuji & Ajwiri*,* 2005; Abdulkareem & Odigure*,* 2006; Essoka *et al.,* 2006; Ndubuisi & Asia, 2007; Dung *et al.,* 2008; Ana *et al.,* 2009; Focus group discussions, July 2009). Furthermore, many residents also claim that the conflict between the Government, MNOCs and their communities is mostly a result of the extensive environmental degradation from oil activities (Ndubuisi & Asia, 2007; Focus group discussion with community

representatives and leaders in Delta State, July 2009). This suggests that the people of the Niger Delta have and continue to experience environmental injustices.

The Research Problem

Although environmental injustices have been observed for over 50 years in this region, it is only recently that empirical studies have been conducted to assess the implications of environmental damage from the oil industry for this marginalized population. The United Nations Environmental Program (UNEP) is conducting one of these studies with public and private partnership: the Nigerian Government, Shell Petroleum Development Company (SPDC), and the United Nations Development Program (UNDP). This environmental assessment is investigating over 300 oil-impacted sites in four Ogoni Local Government Areas (LGAs) in Rivers State (UNEP, 2007: 1-2). This will include field investigations of the oil industry's impact on rivers and other bodies of water, agriculture, fisheries, biodiversity, and human health in the four LGAs. One limitation of this assessment is that the Niger Delta region includes nine States with approximately 185 LGAs and therefore, UNEP's assessment will not account for environmental impacts of the oil industry in other areas. Furthermore, the Government and SPDC will strictly use this assessment to clean up and remediate oil spill sites and will neglect gas flaring that continues at an alarming rate in many communities in the Niger Delta (UNEP, 2007: 2). Lastly, although this is a step forward, the international focus on Ogoniland may have persuaded the Government to proceed with this assessment and currently, no other areas have been identified for potential sites for environmental assessment. On the other hand, some scholars and activists note that the international attention on insurgent activities in the region, which includes kidnapping oil workers, blowing up pipelines, and bunkering oil may have

played a larger role in the Government and Multinational Oil Companies' (MNOCs) response to begin improving the poor living conditions of Niger Delta residents (Ukiwo, 2007).

Although remediating four out of 185 LGAs affected by the oil industry is a start, the Government and MNOCs have to do more to improve living conditions for Niger Delta residents. The Government's heavy reliance on the oil sector for the economic development of Nigeria has put their nation at a high security risk, while disregarding the livelihood and health conditions of the Niger Delta population. Some scholars and activists from the internal colonialism theoretical model argue that marginalization and disenfranchisement of Niger Delta residents are necessary conditions to continue extracting oil resources without proper compensation (Blauner, 1972; Adeola, 2000, 2001). This includes the failure of the Government and MNOCs to prioritize remediation efforts for damage on the environment and better health and livelihood conditions of host communities. For instance, there are currently no empirical studies conducted by the Government or MNOCs on the health implications of the oil industry's activities on the Niger Delta population. Although some MNOCs have conducted Environmental Impact Assessments (EIA) concerning the impact of their oil production sites, many shortcomings have been identified concerning these assessments (Eaton, 1997; ECCR, 2010).

Some international NGOs such as UNDP and Amnesty International (AI) have attempted to obtain health and livelihood information related to the oil industry's activities. They have found that respiratory ailments are the third most serious health concern in the region (UNDP, 2006: 87). Although these health consequences may not only be caused by the oil industry, there is a need to identify the oil industry's contribution to public health hazards. There is ample evidence of the environmental impact of the oil industry in the region and therefore, more investigations on public health impacts will provide better solutions for preventive and

remediation measures. For instance, the combustion of petroleum products is known in some cases to be carcinogenic, which may help explain increased cancer rates and respiratory problems in the region. If proper studies are conducted, better controls may be put in place to reduce the health consequences of the oil industry. Furthermore, oil spills have contaminated rivers and groundwater, which have contributed to skin rashes, unsanitary drinking water and reduced fish stock for consumption and sale (Ogri, 2001; Ikporukpo, 2004; Essoka *et al.,* 2006; Ajayi *et al.,* 2009; AI, 2009: 35-36). Unfortunately, the Government has no medical data available concerning these health concerns.

In many industrialized nations, there is strong evidence of negative health implications of extractive industries and other polluting industries (Margai, 2001; Bullard, 2005; Wright, 2005). For example, 11 percent of the petroleum reserves of the United States are located in the state of Louisiana (Wright, 2005: 102). One particular region in this state, which is known as "Cancer Alley" has been the breeding ground for petrochemical activities, which has negatively impacted host communities. Not only have some of these communities been displaced without proper compensation, but carcinogenic substances were released, which impacted the air that they breathe and contaminated the land and rivers (Wright, 2005: 96). Health problems such as asthma, respiratory problems, cancers and sarcoidosis, which is a rare disease that affects the lungs, were much more evident in these host communities (Wright, 2005: 100). Fortunately, some of these communities were able to pressure the U.S. Government to account for these health outcomes through assessments and regulation of the petrochemical industries.

Similar studies and actions are long overdue in the Niger Delta, and some scholars and activists have at last begun to engage in research on the health consequences of the oil industry. For instance, Ana et al. (2009) conducted research on environmental risk factors and health

outcomes by comparing highly industrial and less industrial communities in the Niger Delta. Furthermore, the Environmental Rights Action (ERA) advocacy group, an affiliate of Friends of the Earth in Nigeria, has documented the health effects of oil spills and gas flares on Niger Delta residents for a number of years (Bassey, 2008). Although some of the most recent studies are limited to certain States in the Niger Delta region, it is very important to recognize that steps have been taken to understand the impacts of the oil industry on the health of the Niger Delta population.

Despite environmental injustices having an economic focus in the Niger Delta because of high poverty levels in this region, most residents have not forgotten to advocate for better health conditions, including remediation of oil spill sites and halting gas flares (ERA, 2008: 6; Focus group discussions, July 2009). Most residents are aware that without decent health, fertile land, and clean waters, their quality of life will remain low. Yet, the leaders of Nigeria have actively dismissed health consequences due to the oil industry's activities. In essence, the Nigerian Government and MNOCs have compounded poor health and livelihood conditions of Niger Deltans in order to remain competitive in the international markets and to increase national economic growth. A few scholars have noted that these injustices can be explained by the global economic structure that forces developing nations, such as Nigeria, to depend on industrialized nations, while colonizing their own people (Blauner, 1972; Asante-Duah *et al.,* 1992; Hilz, 1992; Clapp, 1994; Ibeanu, 2000; Adeola, 2000, 2001; Ayoob, 2002). Therefore, there is a great need for the Government of Nigeria to listen to its citizenry, account for poor health and livelihood conditions, and conduct the necessary studies to reduce health hazards in the Niger Delta.

Research Objectives

The lack of investment by the Nigerian Government and MNOCs in assessing environmental health outcomes in the Niger Delta begs the question: should national economic security triumph human security? And if not, then what are the factors that drive the Government and MNOCs' lack of concern for environmental health implications? This paper will examine empirical studies to identify the causes and remedies for environmental health consequences observed in the Niger Delta region. It begins with a chapter of background of the birth of the environmental justice movement in the United States and its impact in communities in the "Global South". This will then be followed with a brief overview of the nature and impacts of the global economic structure in developing nations. It will then discuss the history of the Niger Delta region with an emphasis on MNOCs' activities how it has contributed to conflict and poorer living conditions for vulnerable populations in the region. The main study consists of an analysis of empirical studies on environmental health issues related to the oil industry and provides a series of recommendations to reduce environmental injustices in the Niger Delta. It concludes with an overview of the paper and a way forward for lasting peace and improved health conditions in the Niger Delta region of Nigeria.

The research questions are fourfold:

i. What are the various forms, manifestations, and causes of environmental injustices in the region?
ii. What methods or measures have been used by the Nigerian government, MNOCs and academic researchers to identify, assess and validate these forms of environmental injustices?
iii. What is the magnitude of the risks for the health and livelihood of those involved?
iv. What are the appropriate mechanisms that governmental bodies, MNOCs, and civil society taken or need to take to reduce risks of hazardous activities on affected populations?

The above questions may enable a better understanding of the underlying causes and the measures that need to be considered to improve the health and livelihood conditions of Niger Delta residents.

Methodology

In assessing environmental injustices in the Niger Delta, a case study methodology was used, which considered both quantitative and qualitative research because of the complexity of environmental health issues in this region. This paper will focus primarily on textual analysis, semi-structured interviews and participatory observations in Delta and Bayelsa States between June and August 2009. The textual analysis will include information from academic journal articles; reports from the Nigerian Government, MNOCs, International Non-Governmental Organizations (NGOs), Local NGOs; and media commentary. The semi-structured interviews were conducted between June and August 2009 and involved 10 individuals ranging from NGO representatives, community representatives, community leaders, and Government officials. During my visit, I also attended various workshops and negotiations between MNOCs and communities for the Global Memorandum of Understanding (GMoU) initiatives. This study will also be supplemented with information from various focus group discussions that took place in July 2009 concerning International Oil Companies' (IOCs) social investments in the Niger Delta.[2] The focus groups were conducted in the following way:

- Community representatives, NGO representatives and government officials in Bayelsa State on July 24, 2009;
- Women community leaders in Delta State on July 25, 2009;
- Community representatives and leaders in Delta State on July 27, 2009;

[2] This study was sponsored by Chevron Nigeria LTD (CNL) and was facilitated by the organization that I worked for during my visit to the Niger Delta region between June and August 2009, Niger Delta Professionals for Development (NIDPRODEV). CNL wanted to get a better understanding of the impact of their social investment programs in the region, such as the Global Memorandum of Understanding (GMoU) initiatives, and wanted community representatives, NGOs, Community-Based Organizations (CBOs), and government officials' to offer recommendations for improvement.

- NGO representatives in Delta State on July 27, 2009; and
- Delta State Government representative on July 29, 2009. [3]

Research Limitations

Although the research I conducted to some extent contributes to a better understanding of the perceptions of health and livelihood concerns in Delta and Bayelsa States, my visit to this region was too brief to have a substantial contribution to environmental justice studies in the Niger Delta. Another limitation was that my interactions were limited to those who spoke English, although I was provided with a translator when needed by a locally based NGO, Niger Delta Professional for Development (NIDPRODEV) with which I interned during the period. Finally, due to the onslaught of violence by the military forces in the Gbaramatu region[4] of Delta State between May and July 2009, my interactions were mainly with community leaders, representatives from NGOs and Community Based Organizations (CBOs) rather than community members.

Intended Audience

There is a growing need to identify the contributing factors for poor health outcomes in the Niger Delta in order to propose better solutions. When people hear about the Niger Delta around the world, they hear that it is a conflict-ridden region with insurgent groups menacing society. However, the Niger Delta is not just another conflict zone, it is a region that has experienced the burdens of the international communities' demands and a Government's violation of human rights. Poor health outcomes in this region is only one aspect of these

[3] The footnotes will sometimes delineate 'Focus group discussions, July 2009', which means that there was an overall consensus on the position noted from all the focus group discussions. Otherwise, the citation will specify which group made the comment.

[4] My study was going to be supplemented with an in-depth study of the Gbaramatu Clan and how oil spills and gas flares in their community had impacted their health and livelihoods. The violent steps taken by military forces, during the brief study period, displaced community members for weeks; some were hiding in the mangrove forests, others were able to reach the 'displaced persons camp', which was not in such good physical shape for the number of people that were forced to live there.

injustices and local NGOs, international NGOs, and academic researchers located in the Delta region are attempting to gather data on health conditions related to extractive industry activities. Sharing the concerns with local NGOs, international NGOs, and academic researchers and viewing them as an audience, this paper will examine environmental health hazards related to the oil industry's activities in the Niger Delta and will propose recommendations to reduce these health consequences. The latter will be addressed to policy makers and MNOCs as an audience that this paper appeals to as well.

Outline of Chapters

This Substantial Research Paper is divided into five chapters. The first chapter is called 'Global Environmental Injustices – Conceptual Framework', which discusses the birth of environmental justice movement in the U.S. and the shift of environmental burdens to the "Global South". The second chapter is called 'The Niger Delta: A History of Conflicts & Injustices', which examines the history of the region and how oil and insurgency has shifted the priorities and policies of the Nigerian Government. The third chapter is called 'Health Hazards - The Oil Industry in the Niger Delta', which examines the overall environmental health situation and recent empirical studies conducted on health concerns related to oil industry activities in the region. The fourth chapter is called 'Analysis – An Overdue Response', which provides recommendations to the Government, private sector, civil society, and international community to improve the health and livelihood conditions of Niger Delta residents. The fifth chapter is the 'Conclusion – A Way Forward', which summarizes the discussions in the former chapters and will give a last outlook on what needs to be improved for lasting peace and better health outcomes in the Niger Delta.

CHAPTER I:

Global Environmental Injustices – Conceptual Framework

The Birth of the Environmental Justice Movement

In order to understand environmental justice, there is a need to recognize the history behind this movement. The environmental justice movement began in the United States (U.S.) in the 1970s, when industries were increasingly culprits for toxic dumping in neighboring bodies of water and landfills, which endangered residents' environment and health (Bullard, 1994, 2005; Johnston, 1994; Adeola, 2001; Margai, 2001; Maantay, 2002; Schlosberg, 2007; Schroeder *et al.,* 2008: 547). Prior to this movement, Rachel Carson, the author of *Silent Spring* (1962), was one of the pioneers for bringing together concerns for the natural world and human health (Schlosberg, 2007: 7). This link was inevitably vital for the justice that was obtained in Lois Marie Gibbs' Love Canal, the African-American protests of the toxic wastes dumped in Warren County, North Carolina and many others.[5]

In most cases, residents that were and that still are targeted by toxic industries are those of lower socio-economic status, which primarily consist of African-Americans and Latinos in the U.S. These groups have been negatively impacted by toxic wastes and polluting industries with various health problems including, but not limited to respiratory illnesses (Margai, 2001: 423; Maantay, 2002; Bullard, 2005). These health disparities are a clear violation of the basic rights given in 1948 under the United Nations Universal Declaration of Human Rights, which acknowledges the fundamental right to life, health, and a healthy environment (Bullard, 2005: 6).

[5] Szasz's 1994 "Ecopopulism: Toxic waste and the movement for environmental justice" and Di Chiro's 1998 "Environmental Justice from the grassroots: Reflections on history, gender and expertise" (as cited in Schroeder *et al.,* 2009: 547).

Environmental justice is defined by the United States Environmental Protection Agency (U.S. EPA) as the fair treatment and involvement of all people regardless of race, color, national origin, education or income, with respect to the development, implementation and enforcement of environmental laws, regulations and policies (Bullard, 2005: 4; Ako, 2009: 289). Therefore, any activities or policies that are against the above-mentioned definition may be labeled as an environmental unjust act. Today, environmental injustices should be distinguished from environmental racism, which was coined by Dr. Benjamin Chavis.[6] In other words, environmental injustices not only include racial and ethnic dimensions, but people with lower economic status or less education have also been targeted with toxic activities.

Identifying Environmental Injustices in the U.S.

In the U.S., environmental injustices have been identified in various ways with the use of science, statistics and more recently, Geographic Information Systems (GIS) (Bullard, 2005: 13; Margai, 2001: 422; Maantay, 2002: 161). A GIS is essentially an organized assemblage of computer hardware and software that can be used to capture, store, retrieve and analyze various forms of spatial data. It is a very powerful tool for understanding spatial relationships between various phenomena and to uncover possible hazards and risk factors. Margai (2001) exemplified this through a geographic analysis of accidental releases of hazardous materials in Monroe and Suffolk counties in the state of New York in the U.S. The research objective was to assess whether certain socio-economic groups were more likely to be impacted by accidental releases of hazardous materials than others. She used a dispersion-based modeling method called, Areal Location of Hazardous Atmospheres (ALOHA), which allows researchers to assess the magnitude of risks involved in single and multiple releases of hazardous materials (Margai,

[6] Environmental racism is "the deliberate targeting of communities with people of color for toxic waste facilities, poisons and pollutants" (Newell, 2007: 75).

2001: 427). This enabled her to map the impact of these hazardous releases and identify the groups at risk based on proximity or nearness to the pollution sources in the GIS software. This is only one example of the growing use of GIS in analyzing environmental injustices in the U.S.

However, less attention has been paid to what Gbadegesin (2001) coined as "toxic terror" and what Bullard (2005: 5) also discussed, which is residents' fear of the unknown; fear that hazardous industries in their neighborhoods may be discharging toxic chemicals that may be negatively impacting their health. Toxic terror was assessed in Checker's study in a low-income and predominantly African-American community in Augusta, Georgia (2007: 113). Checker explains that for many years the residents of this community have complained about the contamination from neighboring industries and the high rates of illnesses in their communities. Unfortunately, the U.S. EPA and its sister agency, the Agency for Toxic Substances and Disease Registry (ATSDR), determined that the contaminants were not significant enough to cause severe health consequences (Checker, 2007: 112). Checker (2007) argues that environmental risk assessments should be conducted with knowledge of the local context and therefore, this particular assessment conducted by the U.S. EPA and ATSDR was inadequate. For instance, the ATSDR analyzed fish samples from a fishing pond in the area to estimate whether the amount of contaminants found in the fish would negatively affect an average adult. The ATSDR estimated that the consumption of 18 grams of fish per day by an average U.S. adult is not enough to pose a threat to the adult. However, they did not consider how many grams of fish the affected community ate per day, which was as high as 24 grams of fish per day (Checker, 2007: 113). Additionally, the ATSDR's study on fish consumption did not include the impact on the elderly or children, which is a large proportion of the community. This example shows the importance of conducting environmental risk assessments within the context of local communities in order to

make fewer assumptions and to grasp the problems at hand, especially when dealing with environmental health hazards.

Environmental Justice in the U.S. creates Environmental Injustices in the "Global South"?

Although the environmental justice movement in the U.S. is still making greater changes, it has come a long way from the 1970s. Initiatives such as, Not-In-My-Backyard (NIMBY) has promoted some positive changes in middle and low income neighborhoods in the United States or as Newell (2007) would call the low income communities, "the Souths of the Norths". However, this has also inadvertently induced more trouble for "the Souths of the Souths", which are located in developing nations through the shifting of environmental burden to their communities (Adeola, 2000, 2001; Newell, 2007; Schroeder *et al.,* 2008). Some communities in developing nations have been used as dumping grounds, while others have been the 'resource baskets of the West' for centuries (Asante-Duah *et al.,* 1992; Hilz, 1992; Clapp, 1994; Adeola, 2001; Le Billion, 2001; Ayoob, 2002). These nations have unfortunately been confronted with setbacks such as, corruption, rise of insurgency groups, and enclaved economies. 'Global Environmental Injustices' have been observed around the world and many scholars note that these injustices are a direct consequence of the global economic structure (Adeola, 2001: 42; Watts, 1999; Schroeder *et al.,* 2008; Ako, 2009). However, the lack of data on health outcomes related to polluting industries in many developing nations may have played a role in government officials' disregard for environmental justice.

Global Environmental Injustices in the Developing World

"Global Environmental Injustices" can be defined as the unfair distribution of toxic wastes and other acute and chronic hazards from polluting industries on marginalized populations, which have contributed to negative health consequences in less developed nations

(Adeola, 2000: 686, 2001: 45; Roberts, 2007: 286; Schroeder *et al.,* 2008: 551). There is ample evidence from several developing nations documenting the historical acute and chronic pollution of the environments of marginalized populations, low income communities, and populations that have been discriminated against for decades because of their ethnic ties (Adeola, 2000, 2001; Margai, 2001; Clapp, 2001; Gbadegesin, 2001; Adam, 2001; Bullard, 2005; McDonald, 2005). A number of communities in developing nations have been forced to accept the establishment of toxic industries; dumping of hazardous wastes, including electronic wastes (e-wastes), and extraction of resources in close proximity to their homes (Adeola, 2000, 2001: 45; Schmidt, 2004; Newell, 2007: Schroeder *et al.,* 2008; Roberts, 2007: 287). These are all environmental burdens that have been shifted from the "Global North to the Global South" (Newell, 2007).

Some scholars and activists have associated this shift of environmental burdens as a form of environmental racism or eco-racism instituted by past colonial powers (Adam, 2001: 204; Ako, 2009: 293). This is mainly a result of the global economic structure, which provided the space for the environmental injustices observed in many developing nations. However, there is some contention as to what environmental injustices mean in a developing nation context compared to industrialized nations. For instance, some scholars note that environmental injustices in Africa are more related to resource control and determination by marginalized populations rather than maintaining the intrinsic value of nature (Ako, 2009: 292). While others argue that there is a value to nature, but still through an anthropocentric lens (Adeola, 2000, 2001; Ikpokrupo, 2007; Bassey, 2008; ERA, 2008). Environmental injustices encouraged by the global market-based economy has encouraged leaders of many developing nations to ignore human rights, while maximizing national security and economic development (Adeola, 2001: 42; Le Billion, 2001; Ayoob, 2002; Roberts, 2007: 287). This in turn has contributed to health

consequences such as immune deficiencies, neurological disorders, reproductive dysfunctions, and cancers in communities that host polluting industries (Adeola, 2000, 2001).

Studies in other developing regions of the world have found significant associations between crude oil activities and health consequences. One study conducted by Meo, S.A. et al. (2007: 1) investigated the health implications of a Greek tanker that spilled over 28,000 tons of crude oil into a sea in Karachi, Pakistan in 2003, with 11,000 tons of volatile organic compounds[7] released into the air. Through spirometry tests[8] on human subjects that were hired to cleanup the spill and statistical analysis, they found that the lung function of those exposed to this spill was significantly reduced (Meo, S.A. *et al.,* 2007: 3). However, once these human subjects were no longer participating in the cleanup efforts, their lung function significantly improved. Janjua et al. (2006) conducted a study on this same incident, but explored health consequences for the population living in close proximity to the spill. They assessed whether symptoms of irritation to the eyes, respiratory tract and skin, and damage to the nervous system of residents were aggravated closer to the spill site. They found that the farther away residents lived, the lower the presence of the listed symptoms. It is important to note that this was an acute incident and therefore, it was easier to identify and assess the environmental health outcomes.

However, in many African nations, particularly in the Niger Delta region, residents are dealing with chronic pollution, with decades of oil spills and gas flaring in their communities. In the Niger Delta, these health hazards are aggravated with other sources of environmental pollution such as steel mills, fertilizer plants, plywood factories and motor vehicles, which still use leaded gasoline (UNDP, 2006: 80, 87). These are just some of the limitations in assessing

[7] Volatile Organic Compounds are known to be detrimental to health and include carcinogenic substances such as benzene and toluene (ATSDR, 2009: 1).

[8] Spirometry tests are used to measure and assess lung volumes and flow and to describe the obstruction or restriction on lung function (Meo, S.A. *et al.,* 2007: 2).

environmental health impacts of the oil industry's activities in the Niger Delta region, which inadvertently favors the Government and MNOCs' agendas.

The Global Economic Impact in Africa

The activities of industrialized nations have negatively impacted marginalized groups in developing nations. Industrialized nations have been the world's greatest consumers and generators of hazardous wastes (Adeola, 2001: 45). It is unfortunate that when citizens from industrialized nations protest against toxic wastes and polluting industries in their communities, these environmental burdens may then be transferred to the "Global South" (Adeola, 2000, 2001: 45; Schmidt, 2004; Newell, 2007; Roberts, 2007: 287; Schroeder *et al.,* 2008). In the 1980s, the African continent became the toxic dumping ground for many industrialized nations (Adeola, 2001; Clapp, 2001; Adeola, 2001; Gbadegesin, 2001). During that decade, an average of 300 million metric tons of toxic wastes per year was disposed in West Africa (Gbadegesin, 2001: 190). This was an annual $12 billion business for West African governments, while the ecosystems and health of their populations were increasingly being damaged.[9] Between 1989 and 1994, there were 30 documented cases of hazardous wastes dumping in Africa (Adeola, 2001: 47). This past decade, electronic wastes (e-wastes), which contain toxic chemicals such as, lead and mercury, have also dominated the global shipment of wastes (Schmidt, 2004: A102). However, at the moment these wastes are considered recycling products, which is not considered illegal under international law (Schmidt, 2004: A101). This is a direct consequence of the global economic structure, where some economists in the past have found this scheme very cost-

[9] The Government of Benin Republic in the 1980s negotiated with a Gibraltar-based company that for every ton of toxic waste, the company would pay $2.50 to the Government. Whereas, this Gibraltar-based company would have paid approximately $2,000 to $3,000 per ton in an industrialized nation (Gbadegesin, 2001: 190). These types of negotiations were observed all over the African continent.

effective and even beneficial for some developing nations.[10] Unfortunately, it has only made matters worse by threatening the health and livelihood of communities in these developing nations.

Gbadegesin (2001) argues that populations that live in areas that have been exploited by extractive activities or used as sites for toxic dumping feel threatened at all times. He calls this "toxic terrorism", which creates restlessness amongst residents because of their concerns for negative implications on their health and livelihood (Gbadegesin, 2001: 191). Extractive industries and toxic dumping schemes have contributed to a myriad of health consequences including, respiratory illnesses, birth defects, premature births and deaths, brain damage, cancer, and stunted growth (Adeola, 2001: 50). These activities are a clear violation of human rights as identified by Adeola (2001), who ran Pearson correlation coefficients and found that poverty and inequality are positively correlated to hazardous wastes and other environmental hazards in 124 developing nations.[11] With numerous studies conducted in industrialized nations and some in developing nations concerning these types of activities and their negative implications, why aren't there better controls to reduce the impact of these activities in developing nations?

Some scholars and activists argue that the global economic structure has created the space for these injustices and therefore, when discussing environmental injustices in developing nations, it is necessary to tie environmental harm to economic injustices (Roberts, 2007: 287; Ako, 2009). In her paper, Maantay (2002: 162) discusses the uncertainty some scholars have concerning the study of environmental justice in the U.S. These scholars question whether these

[10] When Lawrence Summers was the Chief Economist of the World Bank, he argued that toxic waste dumping in countries that have the lowest wages is economical logical because the lives that would be foregone in lower wage countries is less valuable than those in industrialized nations (Gbadegesin, 2001: 192; Adeola, 2001: 46).

[11] Adeola (2001: 48-49) ran numerous Pearson correlations and found that poverty and inequality were positively related to hazardous wastes and other environmental hazards, total external debts ($r = .510$, $p < .01$), Gini index ($r = .271$, $p.< .01$), and poverty ($r = .298$, $p < .01$).

injustices are merely based on the lower value of the land rather than discrimination.[12] In essence, these scholars find that the low value of land in some areas in the U.S. is a rational selection for dumping or to establish polluting industries. However, in many developing nations, certain regions have abundant natural resources, which are considered, in most cases, by the international market as highly valued commodities. Therefore, it is not only a market-based issue, but it rather includes a dimension of discrimination of certain groups or communities.

Conclusion

Environmental injustices have taken different forms around the world. In the United States and other industrialized nations, neighborhoods with lower socio-economic status have been targeted for environmental harm. This has led to a myriad of health consequences because of the toxic nature of some of the activities. In many developing nations, the greed and corruption that plagues government officials has also opened the doors for similar toxic schemes to take place. Specifically, in the African continent, vulnerable populations have been exposed to health hazards through the dumping of toxic substances and establishment of polluting industries. Some scholars argue that the global market-based economy is at the forefront of environmental injustices in many communities in developing nations.

[12] Environmental justice research concerning market dynamics instead of racial discrimination in the U.S. for injustices can be obtained in Been's 1994 article "Locally undesirable land uses in minority neighborhoods: disproportionate sitting or market dynamics?" and Hamilton's 1995 article titled "Testing for environmental racism: prejudice, profits, political power?" (Maantay, 2002).

CHAPTER II:

The Niger Delta – A History of Conflicts & Injustices

Global environmental injustices in the Niger Delta in the past 50 years stem primarily from the oil industry's activities in the region. The exploitation of resources did not begin with the exploitation of oil, but it rather began as early as the 17th Century with extensive rubber and palm oil extractions for the European markets (Watts, 1999; Ukiwo, 2007). In the second half of the 20th Century, the Niger Delta region experienced overexploitation of crude oil, which contributed to the impoverishment of host populations through the destruction of their lands and increasing health hazards. This chapter will provide incites on the theoretical perspectives that explain environmental injustices in this region. It will then be followed with a brief overview of the root causes of environmental injustices and conflict in the region.

Theoretical Framework

Many scholars have offered theoretical explanations for global environmental injustices and the lack of concern for human rights through the dependency / world-system perspective and internal colonialism theoretical model (Asante-Duah *et al.,* 1992; Hilz, 1992; Clapp, 1994; Adeola, 2001; Ayoob, 2002). First, the dependency / world-system perspective suggests that the global economic system initiates a hierarchical structure where industrialized nations promote dependency through loans and debts, in exchange for natural resources in developing nations (Adeola 2000; 2001). Le Billion (2001: 565) argues that the institution of this global economic system has forced most 'resource rich' developing nations to be dependent on the revenue of their resources. In many cases, this has lead to a series of conflicts in developing nations due to the scrambling and exploitation of resources with the conviction that the only way to be secure is to grow economically (Ayoob, 2002: 35-36). The theories of neo-realism and neo-liberalism

have contributed to these unsustainable practices of state-centric interest and trade liberalization, while equitable approaches for state formation have been ignored.

Secondly, after the Scramble of Africa in the late 1800s, a different form of colonialism emerged in many developing nations. The internal colonialism theoretical model suggests that numerically dominant groups exploit minority groups in the name of national security (Blauner, 1972; Adeola, 2000: 693). These minority groups are also known as subaltern groups, which are groups that are alienated from economic and social relations based on historical discrimination or religious intolerance (Krueger, 1998: 70; Ayoob, 2002: 47). There are four elements of internal colonialism as identified by Blauner (1972: 84); an ethnic-centered political dominance employed to exploit the minority groups' natural resources, the alliance of the core ethnic groups and the government, the detriment of the ecology for resource-dependent national economies, and the minority group experienced some form of colonization by others in the past.

The Niger Delta region has fallen victim to the dependency / world-system and internal colonialism perspectives for various reasons. One is that post-colonial nations, such as Nigeria were put at a disadvantage because of premature economic liberalization, which led to structural adjustment, deindustrialization, political and social upheavals, and intra-conflicts (Ayoob, 2002: 36). This in turn provided only short-term monetary gain for 'resource rich' developing nations like Nigeria in exchange for long-term health and livelihood consequences on vulnerable populations. In essence, industrialized nations have pursued their own agendas, while displacing environmental burdens and fueling intra-conflict in 'resource rich' developing nations like Nigeria (Adeola 2000, 2001; Le Billion, 2001; Ayoob, 2002; Newell, 2007; Roberts, 2007; Schroeder *et al.,* 2008; Ako, 2009). For example, in the years following Nigerian independence from Great Britain, the Government of Nigeria adopted many of the laws that were instituted by

their past colonial master. Two of these laws were the Petroleum Act of 1969 and the Land Use Act of 1978 (annexed in 1979), which both exclude the extraction of any resource or use of any land in Nigerian boundaries without the approval of the Government (Ikelegbe, 2001; Ako, 2009: 293). While these Acts promoted industrialized nations' interests through foreign investments in oil exploration and production, they also encouraged the placement of noxious facilities in close proximity to residents and degradation of the environment in certain regions in Nigeria. According to a World Bank study published in 1990, Nigeria lost approximately $5.1 billion annually because of the effects of erosion, soil degradation, deforestation, water pollution and other environmentally degrading activities (Chokor, 2004: 305).

Internal colonialism is also observed in Nigeria where ethnic groups in the south are marginalized because they host the nation's economic entity. The subaltern groups such as the Ogonis, Ijaws, Itsekiris, Urhobo, and others continue to be alienated from economic decisions and social relations in Nigeria. This is a result of the northern ethnic groups such as the Hausa-Fulani, Igbo, and others' political dominance over national interests and affairs fueled by past colonial powers (Adeola, 2001; Ukiwo, 2007). For example, despite the revenues from oil production in the Niger Delta accounting for the majority of the Nigerian GDP and national government revenue, living standards of Niger Delta communities remain extremely poor (Ibeanu, 2000; Ikelegbe, 2001; UNDP, 2006; AI, 2009; Ukiwo, 2007; Ako, 2009). The sub-standard living conditions are a result of the marginalization of minority ethnic groups in the region since colonialism (Ukiwo, 2007) and the emphasis of majority ethnic groups to develop northern Nigeria, while destroying the environment of southern Nigeria, where the subaltern groups are mainly located. This may be one reason why studies on the health implications of

extractive industries are almost non-existent, which makes it even more difficult to prove that there is a link between polluting industries and poor health today.

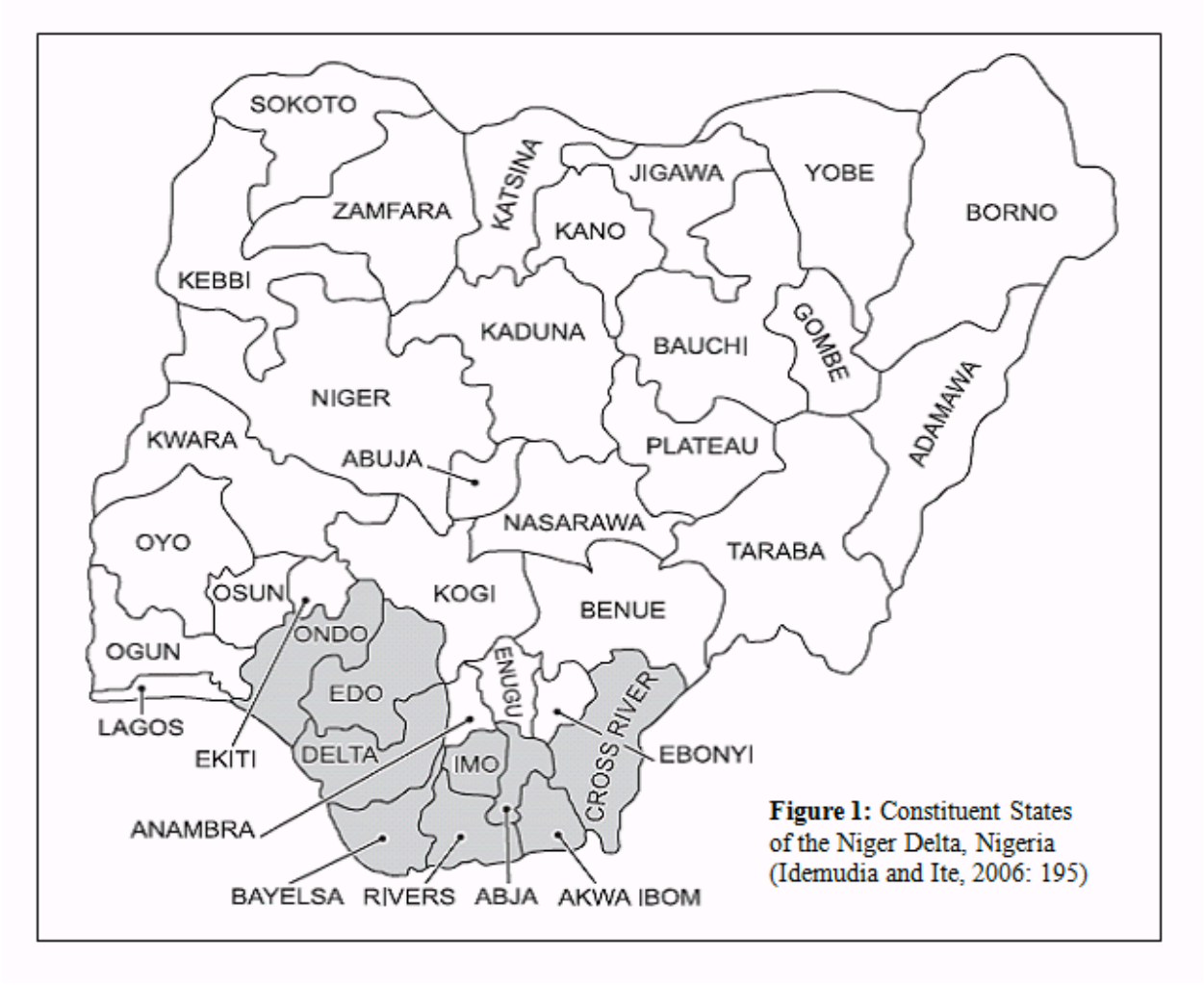
The Niger Delta region has been 'cursed' by a market-based economy and historical marginalization of certain groups, which has promoted global environmental and economic injustices (Watts, 1999; Africa Network for Environment and Economic Justice [ANEEJ], 2004). These injustices have been perpetuated by Nigerian leaders' lack of concern for human security in southern Nigeria, which has led in recent years to the rise of insurgency groups. Consequently, the onslaught of violence by insurgent groups has shifted the focus of the Nigerian State to protect its economic entity by fighting insurgent groups rather than to improve the health and livelihood conditions of host populations in the Niger Delta region (Ibeanu, 2000; Ukiwo, 2007).

Root Causes of Environmental Injustices in the Niger Delta

The Niger Delta is located on the coast of the Gulf of Guinea and is known as one of the largest and most vital wetlands in the world, comprising 1400 square miles (Ibeanu, 2000; UNDP, 2006: 19). There are conflicting data concerning the population of this region because the Obasanjo administration in the early 21st century decided to classify all oil producing States in southern Nigeria as part of the Niger Delta region (Focus group discussion with community representatives, NGO representatives, and Government officials in Bayelsa State, July 2009). The States that are considered in the Niger Delta region today are Abja, Akwa Ibom, Bayelsa, Cross River, Delta, Emo, Imo, Ondo, and Rivers States (refer to *Figure 1* for a map of Nigeria, delineating the Niger Delta region). Therefore, according to the 2006 Census by the National Bureau of Statistics, the Niger Delta has an approximate population of 31 million, with over 40 ethnic groups and 250 dialects (UNDP, 2006; AI, 2009). The ethnic diversity has also

exacerbated conflict over ownership of land in oil producing areas when oil became a highly valued commodity (UNDP, 2006).

Figure 1: Map of Nigeria, West Africa[13]



In terms of environmental injustices, the resource curse has been a reality in the Niger Delta since the first successful drill at Oloibiri, Bayelsa State in 1956 (Ikporukpo, 2004). There is a rather strict dichotomy between the abundance of oil and conflict in this region (Ibeanu, 2000; Ikelegbe, 2001). At first, the discovery of oil brought new hope to Niger Delta residents because

[13] Idemudia & Ite, 2006: 195

it would bring infrastructural development and social investments for better living conditions. However, dominant ethnic groups in northern Nigeria benefited more from oil revenue through the establishment of various laws and policies that disregarded the needs of residents hosting the oil companies (Eaton, 1997; Ako, 2009).

During colonialism, some ethnic groups in southern Nigeria wanted to split from the north. However, as early as 1914, the British argued that northern Nigeria would be unable to survive without some form of financial flow from the south (Ikporukpo, 2004: 321). Although oil was not successful drilled in Nigeria until 1956, as early as 1938, Shell d' Arcy Development Company of Nigeria obtained concessions in many areas in Nigeria (Ikporukpo, 2004: 325-326; Ejobowah, 2000: 34). The oil resources were already claimed by the colonial state under the Mineral Act, which promoted leases and licenses for oil exploration to British nationals (Ejobowah, 2000: 34) They concentrated their concessions in southern Nigeria because of the geological structures that signified heavy presence of crude oil deposits. At first, the discovery of oil boomed the local economy, which was faltering due to weakened palm oil sales (Ukiwo, 2007: 596). However, this also brought a new dimension to the conflict: who owned the land that bared the oil?

Who Owns the Oil and the Land?

In 1969, after Nigerian independence, the Nigerian Government issued the Petroleum Decree, which cancelled all concessions held by oil companies and gave the Government control of all crude oil found in, under, or upon Nigerian land and waters (Ejobowah, 2000: 35). Following this declaration, the Nigerian Government created the Nigerian National Oil Corporation (NNOC) in 1971, known today as the Nigerian National Petroleum Company (NNPC), to obtain a stake in the oil companies and to begin to producing and marketing oil

found in Nigeria (refer to *Table 1* for MNOCs in Nigeria). As of 2005, the Nigerian Government had at least a 55 percent stake in all the oil companies that decided to work in Nigeria (ERA, 2005: 8). In the early 1960s, the Nigerian Government only procured five percent of all oil revenue generated in the nation, while the States and the communities hosting the oil companies received well over half of the revenue (Ejobowah, 2000: 35). During the military regime in the late 1960s, the earlier Nigerian Constitution was suspended and the derivations were greatly reduced from 50 percent to 30 percent in the 1970s and it stands today at 13 percent (ANEEJ, 2004: 45).

Table 1: Multinational Oil Companies in Nigeria[14]

Operator (%Interest)	Other Partners (%Interest)	NNPC (%Interest)	Major Producing Fields	Production (barrels per day-BPD) (Est.2003)
Shell (30%)	TotalFinaElf (10%) Agip (5%)	55%	Bonny or Eastern Division-Nembe, Cawthorn Channel, Ekulama, Imo River, Kolo Creek, Adibawa and Etelebou	950,000
ExxonMobil (40%)	None	60%	Edop, Ubit, Oso, Unam and Assa	500,000
ChevronTexaco (40%)	None	60%	Meren, Okan, Benin River, Delta / Delta South, Inda, Meji and Robertkiri	485,000
Agip (20%)	Phillips (20%)	60%	Obama, Obiafu, M'Bede, Abgara and Oshi	150,000
TotalFinaElf (40%)	None	60%	Obagi, Aghigo, Okpoko, Upomami, Afia and Obodo-Jatumi	150,000

The oil boom of the 1960s to the 1970s and the reduction in derivation payments led to a series of conflicts in the Niger Delta among various ethnic groups. In 1976, violence erupted between the Gbaramatu Clan, which is an Ijaw community, and the Itsekiri communities of

[14] Data obtained from ERA (2005: 8).

Ugborodo because of ownership of land that bared oil deposits (Ukiwo, 2007: 596; interview with Orubebe, June 2009). Not only were the Itsekiris claiming the land, but the preferential treatment they received by European traders and the British officers during colonial times influenced some Multinational Oil Companies (MNOCs) decision to sometimes deny concessionary employment and contracts to Ijaw communities hosting oil activities. Nevertheless, proving that one ethnic group owned a particular piece of land was difficult information to provide. It did not make it any easier when the Federal Government split the Nigerian State into 301 Local Government Areas (LGAs) without any input from communities (Ukiwo, 2007: 597).

In 1978, the Nigerian Government took more discriminatory action and nationalized all land in the country under the Land Use Act of 1978, annexed in 1979 (Ako, 2009: 294). Although in some cases nationalizing all land is done to protect citizens from exploitation by companies, the Niger Delta residents were not fortunate enough to obtain such protection. Prior to the Land Use Act, host communities were consulted before oil operations began on their land. After the Act's inception, host communities had lost this right and the Federal Government had the sole right to determine what occurred on any land in Nigeria (Ako, 2009: 297). By 1980, the Federal Government received approximately 80 percent of all revenue generated from oil, while the States and the host communities were appropriated a very small percentage. In some instances, host communities were still receiving some benefits such as jobs and homage from the MNOCs. However, the Federal Government was purely interested in national economic development rather than local development.

Implication of National Economic Security

With the Federal Government's heightened interest in the Niger Delta region and the Structural Adjustment Programs of 1986, host communities' concerns were being increasingly ignored (Ukiwo, 2007: 600). Many groups in the early 1990s were not only peacefully protesting the derivation principle for revenue allocation, but they wanted control and the ability to determine what to do with resources found on their land. They were also demanding a democratic process and good governance in the decision-making process, infrastructural development, employment opportunities (not only in the oil industry) and environmental protection (Adeola, 2000, 2001; Ibeanu, 2000; Ikelgebe, 2001; Ejobowah, 2000: 36; Ukiwo, 2007). In return, the Federal Government used their military forces to abuse the Niger Delta population. The most recognized case of human rights abuse was the Ogoni struggle in the Niger Delta.[15]

Albeit all the peaceful measures taken to demand that the Government develop the region and reduce environmental health hazards from the oil industry, the Niger Delta population was being increasingly threatened by poor living and health conditions. In the late 1990s, the youth of the Ijaw ethnic group wrote the Kaiama Declaration to demand withdrawal of military occupation and to stop all oil operations and activities in the region (Omotola, 2009: 136).[16] This was an ultimatum and if the Nigerian Government and the MNOCs did not abide by this declaration in 19 days, violent action would precede to disrupt oil activities. These youth saw violence as a *last* resort and believed that taking violent measures would potentially force the National Government and MNOCs to listen to their demands in order to make some positive

[15] Please refer to Watts (1999) and Adeola (2000, 2001) listed in the bibliography for more information on the Ogoni struggle.

[16] It is extremely important to understand the history of the Niger Delta region and the conflicts between the minority ethnic groups promoted by the colonial powers. If you are interested in the rise of insurgency groups and the colonial history of the region, refer to Ukiwo (2007) and Ejobowah (2000) articles listed in the bibliography.

changes. The Ijaw Youth Council, the group that drafted the Kaiama Declaration, did not receive a response and as they promised, coordinated with other Ijaw organizations that were taking violent action and began killing police men, kidnapping oil workers and bombing oil pipelines (Ukiwo, 2007; Omotola, 2009).

Some activists and scholars note that violent actions instilled fear into the Government and MNOCs, which has promoted social investments in certain communities this past decade (Ukiwo, 2007; Ikporukpo, 2004). Unfortunately, violent action by these groups has directed the attention of the Government and MNOCs to fight these groups rather than investing more in the social and infrastructural development that is greatly needed in this region (Ukiwo, 2007: 609). Furthermore, the communities and insurgent groups that participate in bombing pipelines are also exacerbating oil pollution in the region, which is contributing to health hazards. Environmental degradation in the Niger Delta continues with serious implications on the natural environment, livelihood and health of host communities.

Conclusion

The global economic structure has promoted environmental injustices in the Niger Delta as described by the dependency / world-system perspective and internal colonialism theoretical model. Instead of abundant oil resources in the region improving living conditions, it destroyed the environment and worsened health outcomes and living conditions for communities that host oil activities. The Niger Delta population was forced to accept resource extraction since the early 20th Century and it continues to be a driving force for environmental injustices in the region. Not only has this population lost its right to the land because of the extensive oil deposits, they have been maimed by the violent interactions between the military forces and the insurgent groups.

The extraction of oil and the violence that came as a result has increased health hazards in the region for decades.

CHAPTER III:

Health Hazards – The Oil Industry in the Niger Delta

"The oldest man died in my community in 2007 because of the gaseous effects from the gas flares and the oil in the water."[17]

Some scholars note that the Niger Delta region is plagued with economically focused environmental injustices because host communities have been stripped of their mineral rights and are unable to obtain adequate compensation for the environmental degradation on their land (Ako, 2009). However, other scholars and activists note that 'traditional' environmental injustices have not been forgotten, but rather ignored by the Government and the Multinational Oil Companies (MNOCs) in Nigeria (Ukiwo, 2007; Bassey, 2008). There are environmental laws and regulations concerning polluting industries in Nigeria. However, the Nigerian Government relies on a mono-economy spearheaded by the oil sector, which promote activities that are destructive to the land and human health. Therefore, threats to national economic security triumph human security, which provides the space for Nigerian leaders to actively dismiss environmental health hazards, while more impetus is put towards fighting insurgent groups that threaten their economic entity (Ukiwo, 2007). For instance, a Kebbi State representative in the House of Representatives from northern Nigeria, Bala Ibn N'Allah, was quoted saying that it would be better to kill 20 million Niger Deltans in order to protect the interest of the nation.[18]

Power imbalances have generated much conflict and environmental health hazards in the Niger Delta region (Ibeanu, 2000). Although the oil industry is not the only polluting industry in

[17] Interview an Iduwini region community representative on July 21, 2009.
[18] Uranta, 2009.

the region,[19] numerous studies have shown that their activities have had widespread and detrimental impacts on the environment and health of the population in the region (Adeola, 2000, 2001; Ogri, 2001; Ikporukpo, 2007; Bassey, 2008; ERA, 2008; Ana *et al.,* 2009). Yet, the Government and MNOCs continue to disregard the health of populations in close proximity to these facilities. For instance, the Nigerian Government's National Bureau of Statistics has noted on their website that they are aware that they lack very important data on public health in the nation, but they are trying to synthesize data to fix this problem.[20] Despite a well-written statement acknowledging their lack of data, the Nigerian Government is notorious for corruption and lack of transparency and accountability and therefore, such data may never be made available to the public. Moreover, such data may also prove that there are widespread human rights violations against the Niger Delta people, which may prevent the release of such information.

Niger Delta residents are also mostly dealing with chronic pollution, with decades of oil spills and gas flaring in their environment, which makes it difficult to assess the immediate health impacts today. Fortunately, some studies and assessments have more recently been conducted concerning environmental health consequences from oil activities in the region. Thus far, these studies have shown increasing health hazards because of oil activities in the Niger Delta region (Ogri, 2001; Chokor, 2004; Ndubuisi & Asia, 2007; Nkwocha *et al.,* 2008; Ana *et al.,* 2009; Ajayi *et al.,* 2009). For instance, one study conducted by Ndubuisi & Asia (2007) in Delta State found that 51.63 percent of the population surveyed expressed that the number one reason that communities are against the oil activities in the region is because of environmental pollution. Another study found that there is a relationship between the oil industry's presence

[19] Other sources of environmental pollution in the Niger Delta region are steel mills, fertilizer plants, plywood factories, and motor vehicles, which still use leaded gasoline (UNDP, 2006: 80, 87).
[20] National Bureau of Statistics Website, 2010.

and higher rates of miscarriages, deformities, cancers, respiratory illnesses and painful body outgrowths (Ana *et al.,* 2009: 186). Therefore, not only is there "toxic terror"[21] in these host communities, which exacerbated conflict with MNOCs and the Nigerian Government, but there also is evidence of environmental health hazards.

This chapter will focus on the oil industry's impact on the environment and its health and livelihood consequences in the Niger Delta region. It will begin with an introduction of the impact of oil exploration and exploitation on the natural environment and community livelihoods. It will then discuss two main factors for environmental health consequences in the region: oil spills and gas flares. The health hazards from these two environmentally degrading activities have been studied; however, there is still a need to conduct more empirical studies.

Overview: Environmental Degradation

Prior to Nigerian independence, the Niger Delta region experienced environmental degradation as a result of the intense rubber extraction between the 17th and 19th centuries (Watts, 1999: 5). Since exploration of oil reserves in 1908, 'black gold', also known as oil, intensified environmental degradation in the region (Watts, 1999: 1). The first oil concessions date back to 1938, when Shell d'Arcy Petroleum Development Company of Nigeria acquired the first oil rights (Watts, 1999: 5; Ogri, 2001: 15; Ikporukpo, 2004: 325-326). While the demand for oil from industrialized nations intensified, environmental injustices in oil-rich areas such as the Niger Delta were increasingly observed (Ndubuisi & Asia, 2007: 18). It has not only promoted environmental degradation and public health consequences, but it reinforced poor conditions and poverty for Niger Delta residents.

Exploration and exploitation of oil reserves are two of the most destructive activities to the environment. They usually include the clearing of trees and the installation of drilling

[21] Gbadegesin (2001)

equipment and pipelines (Ogri, 2001: 18). Within this process, seismic activities and drilling are the most harmful to the environment. Seismic activities involve deforestation and the use of explosives to produce sub-surface maps (Ikporukpo, 2004: 327). These have serious ecological impacts, with disruption of soil structure, vegetation, flora and fauna, and increases in deforestation and erosion rates. Drilling includes 'bush clearing' to make space for access roads and waste pits (Ikporukpo, 2004: 327). In mangrove areas, dredging is done to provide access routes, which creates major hydrological changes and groundwater pollution. Furthermore, oil exploration often contaminates surface and groundwater with benzene, xylene and other chemicals, which are known to be detrimental to health (Ana *et al.,* 2009: 184). This is extremely important because most rural communities in the region rely on shallow hand-dug wells, which tap aquifers (Ndubuisi & Asia, 2007: 24). Therefore any disturbances to the aquifers may contaminate community drinking water. There is also evidence in other parts of the world of land subsidence due to extraction of large quantities of oil and gas, which can worsen coastal erosion (UNDP, 2006: 79). Although there is limited information on this in the Niger Delta region, this is suspected in two Local Government Areas (LGAs) in Ondo and Rivers States.

Oil exploration and exploitation is also carried out offshore with serious environmental implications. Offshore drilling in the 1980s accounted for approximately 30 percent of production levels and is still a major source of revenue today (Ogri, 2001: 15-17). Since production of crude oil began in the Niger Delta, residents were confronted with more environmental and health hazards. The mere concentration of oil activities along the Niger Deltan coast puts residents in harm's way through oil leakages and spills that contaminate drinking water and marine life (Ogri, 2001: 17). Furthermore, air quality in the region worsened,

which not only threatens public health, but it disrupts their livelihoods. Unfortunately, lack of data on health and livelihood impacts provides the space for the Government and the MNOCs to ignore these injustices. In particular, oil spills in the region have become a contentious issue, where the MNOCs blame insurgent activities and oil bunkering[22] for more than half of all the spills, and therefore refuse to cleanup certain contaminated sites.

Oil Spills: A Contentious Issue

> ***"When oil spills occur, they destroy farmlands and fishing activities, which are the main sources of employment for women in certain areas."***[23]

As of 1999, the Ministry of Petroleum Resources stated that the Niger Delta region had 150 oilfields and 1481 oil wells (Ana *et al.,* 2009: 183). Nigeria has one of the worst records for oil spillage in the world (Ikporukpo, 2004: 328). Although numbers vary in the literature, between 1976 and 1980, there were approximately 2,696 oil spill incidents, or approximately 2.1 million barrels of oil spilled (Ogri, 2001: 14). Ndubuisi & Asia (2007: 21) found that between 1976 and 2003, the incidences and quantity of spills stayed within a particular range, with the exception of larger spills in 1978, 1979, and 1981. It is estimated that between 1976 and 1996, Shell alone accounted for 4,835 oil spill incidents (Ikporukpo, 2004: 329). During this period, 69 percent of the oil spilled by Shell occurred offshore, 25 percent occurred in mangrove areas, and 6 percent occurred on drier land in the Niger Delta region. Furthermore, between 1982 and 1992, Shell's worldwide spills were the highest in Nigeria, while only 14 percent of their oil production occurred in the Niger Delta region (Ikporukpo, 2004: 328). Despite MNOCs' access to

[22] Oil bunkering is defined in this instance as the illegal tapping of oil from pipelines or other reservoirs without the permission of the Nigerian Government. This illegal activity has been estimated to account for 10 percent of daily oil production in Nigeria. One of the reasons it is so embedded in the system is that there are many actors in the region that are involved (Douglas *et al.,* 2004: 7). The profitability of bunkering oil has led a few militant groups to target each other instead of the MNOCs (Bekoe, 2007: 3). These violent exchanges have heightened the instability in the region.

[23] Focus group discussion comment by a women community leader from Delta State on July 27, 2009.

technologies to reduce spills, the lack of enforcement of environmental regulations by the Government of Nigeria appears to permit MNOCs to take few steps to reduce oil spills.[24]

Oil spills in the region occur for various reasons. Some include human error and corrosion of pipes and storage tanks. However, according to MNOCs, insurgent activities have drastically increased the incidences of oil spills in the region. For instance, the Shell Petroleum Development Company (SPDC) states that 70 percent of oil spills between 2004 and 2009 are the result of 'sabotage' (Shell-Nigeria, 2009: 1). Not only have these incidents damaged flora and fauna, but also properties, groundwater and rivers used by residents for subsistence farming and fishing have been contaminated. Specifically, the coastline between Lagos and Port Harcourt has experienced frequent marine oil spills because of pipelines that leak and crude oil discharges from ships (Ogri, 2001: 18). This has reduced potentials for economic growth in the region for non-oil related sectors such as agriculture and aquaculture.

Although MNOCs are held liable under Nigerian law to cleanup oil spills, they are not held responsible for spills that occur through sabotage or without their knowledge (Eaton, 1997: 285). In other words, if oil from the pipelines were bunkered by a third party and this led to a spill, the MNOCs would no longer be legally responsible for remediation of the site. Although this may be justifiable, many MNOCs have used the excuse of 'sabotage' to avoid remediation efforts (Eaton, 1997: 286). For instance, SPDC argues that they were only responsible for 15 percent of all the oil spills from their facilities in 2008. Furthermore SPDC argues that communities do not give them access to cleanup the spills caused by pipeline leakages, failure of equipment, or human error. Therefore, in 2008, SPDC was unable to properly cleanup certain

[24] For instance, Eaton (1997: 283) states that Shell's EIAs in Scotland were very detailed, with 17 surveys commissioned. However, EIAs in Nigeria tend to be less detailed because their operations in Nigeria would be illegal in many other parts of the world, specifically industrialized nations.

sites, which led to 13,000 more barrels of oil to be discharged in the region (Shell-Nigeria, 2009: 1).

Health Implications of Oil Spills

Regardless of whether insurgent activities or the MNOCs are primarily responsible for the oil spills, the degradation of the environment continues, with serious health implications for Niger Delta residents (Ibeanu, 2000: 23). Unfortunately, the lack of data on health outcomes of the oil industry's activities has promoted the continued degradation of the environment and health of residents. However, in recent years, more scholars have conducted research on perceptions and actual health implications of oil spills. For example, Ndubuisi & Asia (2007: 21) conducted interviews, provided surveys and interacted with stakeholders to identify community attitudes and perceptions of Delta State residents concerning their environment. They found that 30.63 percent of respondents to the surveys believed that oil spills have deteriorated their living conditions. This excludes the 37.85 percent that believe that water contamination and 11.2 percent that believe that land / soil contamination were the biggest problems in their communities. As noted before, the Niger Delta environment is vulnerable to groundwater contamination because of its ecology and residents' reliance on hand-dug wells (Ndubuisi & Asia, 2007: 24). They also found that the biggest reasons expressed for conflict in the region was environmental pollution (Ndubuisi & Asia, 2007: 24).

Ana et al. (2009) conducted a study between two communities in Rivers State, one with heavy presence of the oil industry (Eleme LGA) and the other with less presence of industrial facilities (Ahoada East LGA). They found that the Eleme LGA had more environmental risk factors than Ahoada East LGA. For instance, the soil quality, which is mostly affected by oil spillage, had significantly higher acidity, iron, and nickel levels contributed by the oil industry's

activities in the region (Ana *et al.,* 2009: 185). Despite the higher concentrations of chemicals in the soil, they were still under national guideline limits. Surface water quality was also assessed in this study and they found that water quality was two times higher than the World Health Organization (WHO) limits. In addition, Ana et al. (2009: 186) found that Eleme LGA had more cases of painful body outgrowths, however, both LGAs were significantly associated with this health issue ($p < 0.0001$).

Other studies have been conducted on the metal content in oil and how its exposure to the environment can cause long-term health consequences (Ajayi *et al.,* 2009: 67). Some metals such as arsenic and cadmium are carcinogenic when exposed to the environment and act as enzyme inhibitors that disrupt the metabolic process of organisms (Essoka *et al.,* 2006: 210). Studies find that oil in the Niger Delta has low metal content, but its exposure in the environment through spills and combustion of refined crude can pose serious health problems (Ajayi *et al.,* 2009: 67). One study conducted by Essoka et al. (2006: 213) found that heavy metals contained in crude oil or added during the refining process can be released to the environment and be harmful to health. Ajayi et al. (2009) argue that cleanup of oil spills usually only handles the remediation of organic material and not metals. Metals are difficult to break down to a non-toxic form and therefore, the more spills in an area, the more concentrated metals are in an environment (Essoka *et al.,* 2006: 213). When oil is spilled in rivers or contaminates groundwater, it has a toxic effect because it enters the food chain through consumption of fish, agricultural crops, and drinking water (Essoka *et al.,* 2006: 210; Ndubuisi & Asia, 2007: 19).

Oladimeji et al. (1987) found that fish accumulated trace metals a hundred-fold even when petroleum waste products were treated.[25] Fish are very important to local livelihoods and the local economy in the Niger Delta. Such toxic chemicals in fish can be harmful to populations that consume these on a daily basis. Furthermore, some studies have found that bioaccumulation of these metals by plants and animals can occur, which can create more health consequences.[26] Metals in crude oil have also impacted food crops in certain areas in the Niger Delta. One study found that food crops that were harvested in oil-producing areas had higher concentrations of these metals than other areas (Ajayi *et al.,* 2009: 68). This affects the mainstay of the rural economy of the Niger Delta, which is agriculture (Essoka *et al.,* 2006: 214).

Gas Flaring: Will It Ever End?

"International Oil Companies do not consider environmental impacts when extracting crude oil and disregard health impacts as well, particularly concerning gas flares."[27]

Although oil spills have aggravated environmental risk factors in the Niger Delta, gas flaring has been one of the most damaging activities to the livelihood and health of residents. As the Executive Director of the Environmental Rights Action (ERA) advocacy group, a subsidiary of Friends of the Earth, Nnimmo Bassey states, "Making profit out of every situation is the game of the oil and energy industry."[28] Despite human ingenuity in creating alternative technologies, gas flaring continues in various parts of the world. The gas flared in the Niger Delta is associated gas that is separated from the crude in order to make crude oil a commodity (Bassey, 2008: 2).

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[25] Cited in Ajayi *et al.,* 2009: 67. Despite Oladimeji and Onwumere (1987) findings, they note that their analysis may have been misleading because it was a chemical analysis and suggested that more studies be conducted with a multi-disciplinary approach.

[26] This study was conducted by Osuji and Onojake (2004), where they found that there was a higher concentration of trace metals in the soils of an oil-spill site and compared it to a geographically similar site that was unaffected by oil-spills (Ajayi *et al.,* 2009: 67).

[27] Focus group discussion comment by a woman community leader from Delta state on July 27, 2009.

[28] Bassey (2008: 8).

These flares comprise various toxic chemicals such as particulate matter, sulfur dioxide, nitrogen dioxide, benz[a]pyrene, dioxin, benzene, and toluene (ERA, 2008: 1). A study conducted in 1996 found that volatile oxides of carbon, nitrogen oxides (NO_x), sulfur oxides (SO_x), carbon monoxide and particulate matter exceeded the Nigerian Federal Environmental Protection Agency's 1991 standards (UNDP, 2006: 79). These emissions are not only contributing to climate change, but diseases that should not be observed in this region have been detected because of gas flaring (interview with Bassey, July 2009). Nigeria is at the top of the list for countries that contribute to global emissions from gas flared around the world, with approximately 16 percent[29] compared to .06 percent from the U.S. (Abdulkareem & Odigure, 2006: 157; Dung *et al.,* 2008: 297). It is suggested that 67 percent of associated gas produced per day in Nigeria is flared,[30] which is equivalent to 40 percent of natural gas consumption in the continent of Africa (Dung *et al.,* 2008: 297).

Not only is this activity a health hazard, it is one of the largest contributors to climate change in sub-Saharan Africa, with NO_x accounting for 77 percent[31] of the gas flared (ERA, 2008: 1; Dung *et al.,* 2008: 298). Most of these flare sites are localized in the Niger Delta region, with over 100 flare sites that are almost never turned off. In some communities, there are so many flares that the villages are illuminated throughout the night, which have detrimental effects on people's livelihood and health (UNDP, 2006: 79; Dung *et al.,* 2008). Fifteen percent of Delta residents that were surveyed in the Ndubuisi & Asia (2007: 24) study stated that gas flares had deteriorated their living conditions. Respiratory diseases, in particular, have been on the rise in

[29] The percentage has been debated, some say 13% (ERA, 2008), others say 19% (Abdulkareem *et al.,* 2006). The 19% is a figure obtained through the World Bank in 2004 (Dung *et al.,* 2008).
[30] Percentage is according to Labele-Awala and Hart (2001) as cited in Ndubuisi et al. (2007: 20).
[31] Cited in Ndubuisi et al. (2007: 22).

this region and it is difficult to discern which industries or activities contribute most to this problem (UNDP, 2006: 88).

The most interesting predicament is that Nigerian law outlawed gas flaring since 1979, through the Associated Gas Reinjection Act, which was instituted because the technology was available to re-inject the gas rather than to allow the toxic chemicals to enter the atmosphere (Bassey, 2008). One component of the Act allowed companies to flare gas only if they obtained a field-specific, lawful, ministerial certificate (Bassey, 2008: 3). The deadline for zero flares was set for January 1, 1984 and the penalty for continued flaring started at half a Naira (less than 1 USD today) per million cubic feet. The penalty was increased more recently to $3.5 for every 1000 cubic feet of gas flared (Bassey, 2008: 7). Due to the heightened efforts from the international and local communities, the current Nigerian Government had announced that all flares would be turned off by January 1, 2008 and then it was later changed to December 31, 2008 (Bassey, 2008: 5; interview with an Iduwini Community Representative, July 2009). It is April 2010 and gas is still being flared in the Niger Delta. Some scholars note that zero gas flaring may not even be achievable by 2015 (Ndubuisi & Asia, 2007: 20).

Shell announced in 2006 that they would stop flaring at all their sites around the world, but would not stop in Nigeria before 2009 because it would be a $1.85 billion investment (Bassey, 2008: 5). Gas is still being flared around the Niger Delta region and Shell and ExxonMobil blame the insecurity and violence in the region for not achieving zero flares. It is estimated, however, that Nigeria has lost over $2.5 billion annually between 1970 and 2006 because they have not invested in enough infrastructure, such as Liquefied Natural Gas projects[32] to re-inject the gas for energy use (Bassey, 2008: 2; ERA, 2008: 2; Dung *et al.,* 2008: 297).

[32] Liquefied Natural Gas (LNG) exports began in 1999 in Bonny (Ibeanu, 2000: 22), but this activity is still degrading the environment with possible health implications.

Therefore, not only is valuable income lost, they intentionally damage the environment and the health of residents in the process.

Environmental Health Implications of Gas Flaring

Many studies have been conducted investigating the impacts of gas flaring on the environment and human health around the world. Gas flares in the Niger Delta are a major source of carbon, NO_x, SO_x, and particulate matter emissions, which all have extensive climate change contributions (refer to *Table 2*) and respiratory health implications (Ndubuisi & Asia, 2007: 20: Nkwocha *et al.,* 2008). Acid rain[33] has also been linked to gas flares with residents complaining about corroded roofs, lower quality agricultural soils, surface and ground water, and skin irritation (Benson & Etesin, 2008: 196; interview with an Iduwini community representative, July 2009; interview with Olisakwe, July 2009). A study conducted by the Institute of Oceanography at the University of Calabar in Cross River State confirmed residents' concerns. Samples taken from bodies of water close to gas-flaring pumps in Abwa Ibom State had a pH level of 5.4 (ERA, 2005: 26). Any samples less than pH 7 are classified as acidic.

Table 2: Carbon Dioxide (CO_2) Emissions from Nigerian Gas Flaring, 1980-2002[34]

Year	Million Metric Tons of CO_2 Per Year
1980	4,271
1985	2,370
1990	3,833
1995	4,768

[33] Acid rain is a combination of sulfuric acid, nitrogen oxides, and atmospheric moisture, which forms sulfuric and nitric acid (ERA, 2005: 26).

[34] Data provided by the U.S. Energy Information Administration as cited in ERA, 2005: 21.

Year	Million Metric Tons of CO_2 Per Year
2000	3,129
2002	3,438

Although comprehensive studies analyzing health impacts of gas flaring on Niger Delta residents are limited, host communities have complained about the foul smells and fumes for years and fear that these have led to serious illnesses. These are similar complaints to the ones described in the state of Louisiana's "Cancer Alley", where petrochemical industries sprung up in communities with lower socio-economic statuses with detrimental health consequences (Wright, 2005). However, unlike the U.S. and many other industrialized nations, a large proportion of Niger Delta residents spend most of their time outdoors for farming, fishing and cooking, which puts them at greater risk for health problems associated with ambient air pollution (Ndubuisi & Asia, 2007: 20). From the array of toxic substances found in the gas flared, benz[a]pyrne, dioxin, benzene and toluene are known carcinogenic substances (ERA, 2008: 1; Ana *et al.,* 2009: 184). Particulate matter, SO_x and NO_x emissions are known to contribute to aggravated asthma, coughing, painful breathing, chronic bronchitis, decreased lung function and premature death (ERA, 2008: 1; Ndubuisi & Asia, 2007: 20). A study conducted by the World Bank published in 1995 showed that a reduction in particulate matter in Port Harcourt, Rivers State would avoid 134 premature deaths per year (Ndubuisi & Asia, 2007: 21). ERA conducted a similar study, but estimated the health implications for people living in close proximity to 17 flow stations in Bayelsa State in the Niger Delta: 49 premature deaths, 4,960

respiratory illnesses among children, 120,000 asthma attacks and 8 cases of cancer per year (ERA, 2005). These are figures of lowest implication for one State in the Niger Delta.

A component of the study conducted by Ana et al. (2009: 186) was air quality in Eleme, Rivers State (highly industrial area) compared to Ahoada East, Rivers State (less industrial area) and whether there were any differences. Eleme had significantly worse air quality and was even above the Nigerian Environmental Protection Agency (NEPA) limits. However, Eleme and Ahoada East had similar rates of respiratory illnesses. Nkwocha et al. (2008) conducted a study on the effects of industrial air pollution on respiratory health of children in Eleme, Rivers State. They found that younger children in a highly polluted zone compared to a less polluted zone were the most susceptible to respiratory health hazards. High positive correlations were observed between the pollutants examined (NO_x, SO_x, and particulate matter) and sinusitis, bronchitis, colds and coughs with phlegm in children (Nkwocha *et al.,* 2008: 512). Children were also more vulnerable to the health consequences of particulate matter because it contains lead, which could impact their neurological development (Ndubuisi & Asia, 2007: 20).

Although studies on noise and its health implications in the Niger Delta region are limited, some recent studies have found that noise from gas flares also have adverse health implications for populations living in close proximity to gas flare sites. Noise is a stress, which can lead to neuro-sensory hearing losses for employees of MNOCs and unpleasant, impulsive noise patterns for communities that host oil activities (Abdulkareem & Odigure, 2006: 158). The most dangerous zone for noise pollution is within a 20 to 80m radius from a flare station, where people do live. In Delta State, a survey conducted by Nduibusi et al. (2007: 24) found that 5.35 percent of rural residents complained that excessive noise pollution was one of the biggest problems in their communities.

There is also much evidence that gas flares stunt the growth of certain crops and release chemicals, which are then found in neighboring land and bodies of water. This is detrimental to the local economy because most Niger Delta residents are either involved in farming or fishing (Dung *et al.,* 2008: 298; Focus group discussions, July 2009). Increased concentration of heavy metals in the soils and water sources also have adverse impacts on fertility of the soils and contaminates fish. One study conducted in Eleme, Rivers State investigated crop growth near a gas flaring station through a spatial gradient analysis (Dung *et al.,* 2008). The three main crops that were assessed were cassava, waterleaf vegetable plant, and pepper, which are all main staples in the region. They found that air and soil temperatures on farms 40 to 100m from the gas flare location had higher air and soil temperatures than areas farther away (Dung *et al.,* 2008: 301). The nutritional content in the cassava crop drastically reduced and its growth was stunted closer to the gas flare point compared to those farther away. The pepper plant grew shorter and thinner closer to the gas flare. However, the waterleaf plant thrived around the gas flare site because of the high temperatures. Although these are very limited studies conducted in one part of the Niger Delta, they provide the necessary incentives to conduct more studies on livelihood and health implications of the oil industry.

Conclusion

Health hazards in the Niger Delta are a grave reality with the oil industry at the forefront of these environmental injustices. Ibeanu (2000: 30) states that, "Security [should have] to do with protection from poverty, exploitation, disease, bio-chemical contamination, injustice, and the like." However, in the Niger Delta this is not the reality because health consequences and environmental injustices continue to be widespread. Exploration and exploitation of oil have degraded the environment and changed the ecology and hydrological systems. Oil spills from

MNOCs and insurgent activities made the soil less fertile, contaminated drinking water and marine life, and contributed to body outgrowths and skin rashes. Gas flares release toxic chemicals, which have aggravated respiratory illnesses, cancers, and other illnesses. Although there are only limited studies conducted on the health implications of the oil industry's activities, it is clear that they have contributed to health hazards in the region. However, more studies must be conducted to properly address whether there are environmental health disparities by comparing oil-producing States to non-oil producing States in Nigeria. The more research that can be conducted, the better informed and accountable the Government and MNOCs will have to be to reduce the negative implications of their activities on the Niger Delta population.

CHAPTER IV:

Analysis – An Overdue Response

Environmental injustices in the Niger Delta have been observed since colonialism when the Europeans arrived to extract resources and initiate trading activities. In many nations around the world, whether industrialized or developing, these injustices have drained certain communities from the wealth of their environment, their traditions, and even their humanity. In industrialized nations, neighborhoods with lower socio-economic status have been targeted for environmental harm. In many developing nations, like Nigeria, the greed and corruption that plagues government officials have also opened the doors for similar toxic schemes to take place. In the Niger Delta context, exploitation of oil has provided the space to rape a people from its land, further impoverishing and damaging the health of this population. The time to evaluate the impact of the oil industry in the Niger Delta region is long overdue. Oil wealth in a nation should not inevitably lead to a resource curse and unsustainable development. Unfortunately, oil has been regarded as the emblem of human survival and coupled with corrupt leadership and industrialized nations' interests, this resource falls prey to overexploitation at the expense of the health of residents and the ecosystems.

Clearly, the Niger Delta case is one of global environmental injustices, with harm fueled from the 'Global North', which promotes human rights violations in the 'Global South' (Newell, 2007). Yet, these injustices are buried behind the frustrations and the violence sponsored in part by the communities. Violence that has taken place due to a corrupt and non-transparent government system that puts economic growth ahead of its citizenry needs. Peace in the Niger Delta region will not come from maintaining a system negligent of the needs of the people, but it will rather come with community, not elite, representation in the decision-making process that

affects the region (Ibeanu, 2000). This chapter will provide a series of recommendations to the Nigerian Government, Multinational Oil Corporations (MNOCs), Civil Society Organizations (CSOs), and the international community to restore peace in the region, while addressing environmental health hazards as a major part of the peace process.

"Leave Oil in the Ground"[35]

The Nigerian Government has failed to address the needs of the Niger Delta people because they may fear that acknowledging the poor conditions and injustices will lead them to recognize that they have violated Article 3 of the United Nations Universal Declaration of Human Rights of 1948, to which they are a signatory (Eaton, 1997: 293). *Article 3* of this *Declaration* declares that, "everyone has the right to life, liberty, and security of person."[36] This right is part of *jus cogens* in international human rights law, which means that it cannot be removed or ignored by any other laws or treatises (Eaton, 1997: 293).

In November 2009, community-based organization (CBOs), CSOs, civil leaders, development experts, legal practitioners, academic researchers, media commentators, and government representatives met in Port Harcourt, Rivers State to discuss the oil industry's activities and its impact on the health, livelihood, economy and greenhouse gas emissions in the Niger Delta region (Okenwa, 2009: 1). They found that the negligent behavior of the Government of Nigeria and the MNOCs have prompted the need to halt all new oil finds and planned exploitation of bitumen[37] until community members are able to become part of the

[35] Environmental Rights Action (ERA) advocacy group has been at the forefront of this phrase, which demands that the Government of Nigeria no longer continue exploitation of resources until they restore peace in the region (interview with Bassey, July 2009; Okenwa, 2009:1).

[36] Universal Declaration of Human Rights, art.3, I.L.M 2 (1948) as cited in Eaton (1997: 293-294).

[37] Bitumen found in Ondo State, Nigeria, which is part of the Niger Delta may provide 1.5 billion Naira daily (approximately USD 10 million). This resource includes methane and ethane, propane and butane, and asphalt, which can be used for natural gas, liquefied petroleum, road construction, respectively (Fadare, 2010: 1).

decision-making process. One hundred and sixteen individuals, groups, and communities signed this communiqué at the end of the consultation, which is an enormous statement to the Government of Nigeria and MNOCs to halt their activities. Another statement by the communities was made in the Ndubuisi & Asia (2007: 24) study, where 26 percent of Delta State residents surveyed no longer want oil exploration or production in their communities. Yet, their voices continue to be ignored.

It is in the best interest of the Nigerian Government and MNOCs to listen to those voices despite the financial losses. The Government should no longer provide permits for oil exploration until peace is restored and should force the MNOCs to stop their exploration activities. The Government of Nigeria should also plan a post-oil era, one that does not reinforce the excessive exploitation of natural resources, including bitumen, that threaten the health of the population (Bassey, 2008: 11; interview with Bassey, July 2009; Okenwa, 2009:1). Activities can include investments in cleaner alternative sources of energy and rebuilding the agriculture sector that used to be the mainstay of the economy. Also, in spite of the financial losses, MNOCs are urged to not work in an environment with such hostility and aggression that was formed as a result of their activities. Many companies from industrialized nations prefer working in developing nations because of the weak environmental standards (Newell, 2007). This is an area where international law can demand that foreign-owned or multi-national businesses comply with the strictest environmental standards when they are conducting their affairs in a foreign country (Adeola, 2000: 703). Despite weak environmental regulations in Nigeria, MNOCs should follow the environmental regulations set by whichever country has the strictest standards, whether it is the country they operate in or the country they represent.

The international community also has a major role to play to stop shifting environmental burdens and conflicts to developing nations (Adeola, 2000: 701). Overconsumption and the belief of limitless energy in industrialized nations should be re-evaluated. Individuals and organizations working in the U.S. and other industrialized nations are prompted to continue their efforts not only to cut down emissions, but to also make citizens of these nations more responsible and accountable for their environmentally degrading activities. For instance, although this may be a 'pipe dream', demanding that governments adopt eco-labeling[38] with relevant information of where gasoline for motor vehicles at a particular pump is coming from would allow consumers to choose whether they want to purchase gasoline from a company that works in a region with widespread human rights violations and environmental health consequences.

Oil Revenue Legislation and Distribution Reform

Although it is very unlikely that the Government of Nigeria and MNOCs will stop oil exploration and production in the Niger Delta region, there is still a need to reform legislation that has promoted unequal access to oil revenue, degraded the environment and worsened health conditions. Ako (2009: 304) suggests that the primary cause of deprivation and conflict in the Niger Delta region comes from the Land Use Act of 1978, annexed in 1979, when communities lost the right to make decisions about the activities on their land. Similar to the Offshore Oil Revenue Decree of 1971 and the Land Use Act of 1978, the Petroleum Act of 1969[39] continued the colonial legacy and stripped the oil rights of the all communities in Nigeria (Ako, 2009: 296). While these Acts promoted the unjust distribution of wealth in communities that host oil

[38] A number of studies in various sectors of the economy have found that eco-labeling can be useful in altering consumer choices to reduce negative environmental impact (Teisl *et al.,* 2002: 340).
[39] More information on the Petroleum Act of 1969, please visit: http://www.nigeria-law.org/Petroleum%20Act.htm .

activities, it provides approximately 40 percent of the Nigerian Gross Domestic Product (GDP), 95 percent of its exports, and 83 percent of Government revenue (ANEEJ, 2004: 6). The revenue from oil production is distributed accordingly:

- Government of Nigeria- 43 percent,
- States (including non-oil producing)- 30 percent,
- Local governments (including non-oil producing)- 20 percent,
- Special fund (to deal with environmental pollution)- 7 percent, and
- Oil-producing States- additional 13 percent derivations based on volume of oil produced in each State (ANEEJ, 2004: 7).

Therefore, residents from oil-producing States are not receiving the funds directly, but through intermediary sources, such as the State and Local Governments. This is a drastic change from Section 134 of the 1960 Nigerian Constitution, which proclaimed that 50 percent of all revenue of any mineral extracted from a region be paid to that region (ANEEJ, 2004: 43). During that period, the Niger Delta region was coming out of a serious economic downturn in palm oil sales and had seen 'black gold' as a blessing rather than a curse (Watts, 1999). In short, the Government of Nigeria needs to address the "conflict of securities" and govern with a human security scope rather than to solely advance national economic security (Ibeanu, 2000: 31). Reforming the Acts related to mineral and land rights are the first steps in a series of many, which will begin to reduce the 'extra-legal' action that insurgent groups and communities have taken, which also contributes to environmental harm (Ako, 2009: 304). Furthermore, most CSOs and community members agree that there should be a special fund for environmental protection. However, this fund needs to adequately address environmental pollution in the region and remedies that would be appropriate for improved environmental health outcomes. The ecological fund provided through the Niger Delta Development Commission (NDDC) is not well funded and is still unable to prevent and control oil spills and gas flares (ANEEJ, 2004: 57). The

Government of Nigeria needs to also keep in mind that reducing environmental health consequences in this region cannot be done only through money, but enforcement of strong environmental standards is also necessary.

Update, Upkeep, and Respond Effectively

The time to fix pipelines, stop gas flaring, and to monitor and ensure environmental safety measures by the Government and MNOCs is long overdue. Corroded pipelines have led to numerous spills with serious health implications for residents. Not only should there be better enforcement by the Government to demand MNOCs to replace all old pipelines, but regular monitoring and auditing of these pipelines is also necessary to ensure compliance (Eaton, 1997: 289; Ana *et al.,* 2009: 191). This should not be limited to military forces occupying areas around the pipelines to reduce oil bunkering, but it should rather involve the community to identify possible hazards from these pipelines (Focus group with community representatives and leaders in Delta State, July 2009). The Environmental Rights Action (ERA) advocacy group has provided "green hotlines" for community members to call toll-free if they witness any environmentally degrading activities such as an oil spill or fire.[40] Local governments of oil-producing areas should partake in such initiatives, which will allow them to quickly respond to the needs of the people.[41] Additionally, local communities have an obligation to allow MNOCs to access the oil spill sites for remediation, preferably with a third-party observer to assure compliance (Focus group discussions, July 2009).[42]

[40] For more information on ERA and its initiatives, please visit: http://www.eraction.org/ .
[41] Sixty-seven percent of Delta State residents surveyed want positive and quick responses to environmental degradation (Ndubuisi *et al.,* 2007: 24).
[42] UNEP and UNDP are acting as third-party consultants / observers and coordinating with the Nigerian Government and SPDC to investigate over 300 oil-impacted sites in four Ogoni LGAs in Rivers State (UNEP, 2007: 1-2). The Government and SPDC will strictly use this assessment to clean up and remediate oil spill sites.

Although gas flaring has been illegal since 1984, it continues in the Niger Delta and contributes to greenhouse gas emissions and health consequences (Bassey, 2008: 11). The Nigerian Government has shown their lack of preparedness to deal with environmental pollution and its impact in Niger Delta communities (Okenwa, 2009: 1). Clearly, the Nigerian Government has a conflict of interest, which provides them few incentives to stop gas flaring. Penalizing MNOCs to stop this harmful activity is not enough; the Government must force them to halt production. However, MNOCs should also be held accountable for not using the available technology to harness the energy that is lost daily through gas flaring (Ogri, 2001: 20). One initiative by the World Bank, the Global Gas Flaring Reduction (GGFR) Partnership, is making headway by establishing a global standard for gas flaring and encouraging MNOCs in oil producing nations to coordinate and use available technology to harness natural gas rather than to waste it.[43] This should be an incentive for MNOCs to make the necessary changes to reduce environmental health impacts.

Moreover, better devices need to be installed to monitor atmospheric pollution around oil production facilities (Nkwocha *et al.,* 2008: 513). This would allow the Nigerian Government to monitor harmful pollutants such as particulate matter, sulfur oxides, nitrogen oxides, benz[a]pyrene, dioxin, benzene, and toluene that are harmful to public health (ERA, 2008: 1). This is particularly a problem for women because they suffer the most from environmental health impacts for two reasons: they have more organs than men and they are the ones mostly involved in agricultural production, which forces them to be outdoors for longer periods of time (interview

[43] For more information on the World Bank's GGFR Partnership, please visit: http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTOGMC/EXTGGFR/0,,menuPK:578075~pagePK:64168427~piPK:64168435~theSitePK:578069,00.html .

with Bassey, July 2009). Therefore, environmental injustices in the Niger Delta also encompass an aspect of reproductive justice, which should also be tackled.

Nigerian environmental laws are somewhat comprehensive, but enforcement is weak. One of NDDC's major responsibilities is to coordinate with MNOCs in order to prevent and control pollution from the oil industry (ANEEJ, 2004: 57). However, the politics of oil has prevented them from being effective in their efforts to reduce environmental harm and threats to public health. Close monitoring of MNOCs and their impact on the environment with enforcement mechanisms is necessary (Eaton, 1997: 289). This should include better training and job opportunities for the local population on environmental monitoring and assessments (Eaton, 1997: 290; Focus group discussions, July 2009). Furthermore, Nigeria is a signatory to various international treatises concerning environmental issues. Therefore, the international community also needs to strengthen its enforcement mechanisms in order to deal with nations that are not adhering to these treatises.

More Public Awareness

The politics of oil in the Niger Delta have promoted lack of transparency and accountability throughout the region. MNOCs and the Nigerian Government have inadequately assessed the impact of the oil industry on the health of the host communities. While cancer rates, respiratory ailments, and other illnesses are increasing, the MNOCs do not want to fully acknowledge their contribution to these health outcomes. More comprehensive studies with a multi-disciplinary approach are necessary to identify public health consequences from the oil industry (Ogri, 2001: 20; Dung *et al.,* 2008; Ana *et al.,* 2009). This should include coordination among all groups in the region: CSOs, CBOs, academic researchers, Government at all levels,

and MNOCs. For instance, Nigerian academic researchers should continue working with universities abroad that can provide technology such as Geographic Information Systems, which is continuing to be a very useful tool in identifying public health hazards. Studies also need to be conducted across Nigeria to properly assess environmental health disparities. For instance, assessing respiratory health in Delta State compared to a non-oil producing State in northern Nigeria. Furthermore, the Ministry of Health and the National Bureau of Statistics need to coordinate and create a national database with health data for every State in the Nigeria. MNOCs also need to write detailed Environmental Impact Assessments (EIAs), especially for riverine areas because of their fragile environment,[44] conducted by third-party consultants and reviewers (Ogri, 2001: 20). International NGOs and Aid Agencies should also be more willing to provide funds for other health concerns, not solely HIV/AIDS and other infectious diseases. Respiratory illnesses have been on the rise and identifying the causes and the remedies is necessary. All of the aforementioned points would allow all stakeholders to better understand the health situation in the Niger Delta, which would promote improved health and livelihood conditions. For instance, routine health screenings and more access to healthcare are some of the major needs in this region (Ana *et al.,* 2009).

Public awareness campaigns in local communities are also necessary to discuss the risks of oil pollution, learn more about the oil industry and how to safeguard their health and livelihood (Ana *et al.,* 2009). These should be coordinated between the Government, MNOCs and communities in close proximity to oil production sites. They can include environmental education, workshops, conferences, movie screenings, forums, and other activities that will be informative for the population.

[44] Focus group discussion comment by a community representative from Delta State on July 27, 2009.

More Public Involvement

Although there have been efforts by MNOCs to involve the community in development projects and EIAs, many of these initiatives are still carried out by elites in the region (Ibeanu, 2000). Between 1992 and 1997, Shell Petroleum Development Company (SPDC) had invested in many projects to become a more socially responsible company. However, out of the 900 projects completed, only 57 percent were functional (Ikporukpo, 2007: 338). They also invested in vocational trainings and provided awards and scholarships for youth to obtain degrees in higher education. Yet, their social investments are forgotten because they are notorious for bribing community members and leaders in the region (Ikporukpo, 2007: 338). Some have also found that MNOCs viewed their investments more like charity in the past, but there seems to be a shift towards a participatory approach more recently (Focus group discussions, July 2009).

In the past decade, various MNOCs promoted Global Memorandum of Understanding (GMoU) programs with various communities in the Niger Delta with the facilitation of NGO personnel, which would provide funds to the communities to develop their communities (Ibeanu, 2000; Focus group discussions, July 2009). Although these initiatives have brought positive changes in some communities (interview with two Iduwini community representatives, July 2009; interview with Olisakwe, July 2009), this process still needs to be strengthened:

- The GMoU documents need to become legally binding otherwise, MNOCs can back out of the agreements;[45]
- Community representatives find that they need more training to provide the best results for their communities;[46]
- "Compensation merchants" and "conflict entrepreneurs", who are usually leaders of some NGOs that preach peace, but actually see this conflict as a money making scheme have been on the rise (Ibeanu, 2000: 31);

[45] Interview with Bassey, July 2009; Focus group discussions, July 2009.
[46] Interview with two Iduwini community representatives, July 2009.

- The conversation continues to be between the elite of the region and the MNOCs rather than the communities;
- There is a major gender disparity in the decision-making process because women are barely involved;[47] and
- Community budgets are not published.[48]

Therefore, MNOCs need to coordinate and cooperate with local residents (men and women), not middlemen, even though the insecurity in the region may be a problem. If these companies can continue production in this region, then they should also be willing to talk to the people. MNOCs are also known to align with Government officials that have increasingly become corrupt and violate human rights. MNOCs have to become neutral and accountable to the Niger Delta population (Ibeanu, 2000: 32). One way to do this is to involve the communities in the EIAs and listen to their health and livelihood concerns.

Conclusion

Overall, there is still much work to be done to restore peace and healthier conditions in this region. Although stopping oil production may not be viable, residents and other stakeholders in the region are increasingly hoping that oil activities in the region will be halted. The unequal distribution of oil revenue still continues to be a major problem in the injustices observed in the region. Host communities have been calling for resource control and determination for decades and the Government should take this into consideration. MNOCs have to also take some serious steps in updating their equipment to minimize oil spills and reduce gas flaring. The Government should also strengthen environmental monitoring of oil activities in the region. More importantly, public awareness activities and involvement needs to take place to help reduce the fear that host communities have concerning oil industry activities.

[47] Focus group discussions, July 2009.
[48] Focus group discussion comment by an NGO representative in Bayelsa State on July 24, 2009.

To better environmental health outcomes in the Niger Delta the Government of Nigeria and the MNOCs must:

1. Stop gas flaring;
2. Take the necessary steps to stop oil spills;
3. Abide by the strictest environmental standards;
4. Adhere to reproductive justice and mainstream women in all activities;
5. Conduct multi-disciplinary and cross-country studies concerning environmental health to identify environmental health disparities;
6. Try to get agencies to fund research for other health problems, not just HIV/AIDS and other infectious diseases; and
7. Strengthen the GMoU programs.

Although some of these recommendations are harder in practice, they are necessary to improve the health conditions of the Niger Delta population.

CHAPTER V:

Conclusion – A Way Forward

"Global Environmental Injustices", the unfair distribution of toxic wastes and other acute and chronic hazards from polluting industries on marginalized populations, which have contributed to negative health consequences in less developed nations (Adeola, 2000: 686, 2001: 45; Roberts, 2007: 286; Schroeder *et al.,* 2008: 551) has been observed in the Niger Delta for over 50 years due to the exploitation of crude oil. As the 'resource basket' for countries like the United States, where Nigeria is legally obligated to provide 25 percent of the United States' oil capacity by 2015,[49] these injustices will continue to be observed if action is not taken. The Niger Delta region is not just another conflict zone, this region has been burdened by the international market's demand for crude oil, which has frustrated communities that host oil activities. Without the attention from the international community and better enforcement of environmental regulations in the region, environmental injustices will continue to be observed.

In particular, health hazards in the region have been documented and communities that host oil activities fear that they have been unjustly harmed. In order to reduce public health hazards, more health assessments and research of the implications of the oil industry in this region are necessary. Furthermore, environmental health disparities research is vital in understanding whether the Niger Delta population is indeed observing worse health outcomes than non-oil producing regions in Nigeria. In essence, cross-country studies need to be conducted to properly identify environmental health disparities in the region. In addition, there should also

[49] Ikokwu, 2010: 1.

be more emphasis on assessing the environmental health impacts of all polluting industries in the region not just the oil industry.

Environmental health research has primarily been conducted in the U.S. and other industrialized nations, where neighborhoods with lower socio-economic status have been targeted for environmental harm. This has led to a myriad of health consequences because of the toxic nature of some of the activities in these communities. However, since the 1970s, there has been a strong environmental justice movement led by people who feared that polluting industries were affecting the health of people in their communities. Unfortunately, communities in many developing nations have also been targeted by polluting industries. In some communities, the greed and corruption that plagues government officials has opened the doors for these toxic schemes to take place. Particularly in the African continent, vulnerable populations have been exposed to health hazards through the dumping of toxic substances and establishment of polluting industries. The global market-based economy seems to be at the forefront of the environmental health hazards observed in these communities. Some scholars note that this has even brought in a new dimension of colonialism, referred to as internal colonialism.

In the Niger Delta, the global economy and internal colonialism has indeed affected the livelihood and health of the communities. The Nigerian Government has actively dismissed the environmental health implications of the oil industry in the Niger Delta in order to increase national economic growth. This region was forced to accept resource extraction since the early 20th Century and it continues to be a driving force for environmental injustices. Not only has this population lost their right to the land because of crude oil, they have been maimed by the violent interactions between the military forces and the insurgent groups. In addition, Niger Delta residents also find that exploitation of crude oil in their communities has not only contributed to

inter-ethnic conflict, but it has also degraded their environment, worsened their health and reduced their attempts at improving their quality of life (Ibeanu 2000; Adeola, 2000; Ogri, 2001; Jike, 2004; Ikporukpo, 2004; Osuji & Ajwiri, 2005; Abdulkareem & Odigure, 2006; Essoka *et al.,* 2006; Ndubuisi & Asia, 2007; Dung *et al.,* 2008; Ana *et al.,* 2009; Focus group discussions, July 2009). As a result, many communities have become frustrated and some groups have even taken violent action against the onslaught of destruction of their communities without proper compensation (Ibeanu, 2000; Ukiwo, 2007).

It is only recently that empirical studies have been conducted to assess the implications of environmental and livelihood damage from the oil industry for this marginalized population. It is important to note that health consequences in the region are not only caused by the oil industry. However, there is a need to identify the oil industry's contribution to public health hazards. This is mainly necessary because of the ample evidence and perception of Niger Delta residents of the health impacts of the oil industry in the region. In many industrialized nations, there is strong evidence of negative health implications of extractive industries and other polluting industries (Margai, 2001; Bullard, 2005). Similar studies and actions are long overdue in the Niger Delta, and some scholars and activists have at last begun to engage in research on the health consequences of the oil industry.

Health hazards in the Niger Delta are a grave reality with the oil industry at the forefront of these environmental injustices. Exploration and exploitation of oil have degraded the environment and changed the ecology and hydrological systems of this region. Oil spills from MNOCs and insurgent activities have made the soil less fertile, contaminated drinking water and marine life, and contributed to body outgrowths and skin rashes. For instance, Ana et al. (2009: 186) found that Eleme, Rivers State (highly industrial area) had more cases of painful body

outgrowths than Ahoada East, Rivers State (less industrial area), but both were significantly associated with this health issue ($p < 0.0001$). Another study found that some metal content found in crude oil such as arsenic and cadmium are carcinogenic when exposed to the environment and act as enzyme inhibitors that disrupt the metabolic process of organisms (Essoka *et al.,* 2006: 210). Therefore, when oil is spilled whether on the ground or in rivers, it has a toxic effect because it enters the food chain through consumption of agricultural crops, drinking water, and fish (Essoka *et al.,* 2006: 210; Ndubuisi & Asia, 2007: 19). One study found that food crops that were harvested in oil producing areas had higher concentrations of toxic metals than other areas (Ajayi *et al.,* 2009: 68).

Gas flares in the Niger Delta also have major health implications. They are a major source of carbon, nitrogen oxides (NO_x), sulfur oxides (SO_x), and particulate matter emissions, which all have extensive climate change contributions and respiratory health consequences (Ndubuisi & Asia, 2007: 20; Nkwocha *et al.,* 2008). Although comprehensive studies assessing health impacts of gas flaring in the Niger Delta are limited, host communities have complained about foul smells and excessive fumes for years and fear that these have led to serious illnesses. It is also important to note that unlike the U.S. and many other industrialized nations, a large proportion of Niger Delta residents spend most of their time outdoors farming, fishing and cooking, which puts them at greater risk for health problems associated with ambient air pollution (Ndubuisi & Asia, 2007: 20). From the array of toxic substances found in the gas flared, benz[a]pyrne, dioxin, benzene and toluene are known carcinogenic substances (ERA, 2008: 1; Ana *et al.,* 2009: 184). Particulate matter, SO_x and NO_x emissions are also known to contribute to aggravated asthma, coughing, painful breathing, chronic bronchitis, decreased lung function and premature death (ERA, 2008: 1; Ndubuisi & Asia, 2007: 20).

A component of the study conducted by Ana et al. (2009: 186) was air quality and they found that Eleme, Rivers State (highly industrial area) had significantly worse air quality compared to Ahoada East, Rivers State (less industrial area). However, Eleme and Ahoada East had similar rates of respiratory illnesses. Nkwocha et al. (2008) conducted a study on the effects of industrial air pollution on respiratory health of children in Eleme, Rivers State and found that younger children in a highly polluted zone compared to a less polluted zone were the most susceptible to respiratory health hazards. Furthermore, there is also much evidence that gas flares stunt the growth of certain crops and release chemicals, which are then found in neighboring lands and bodies of water. This is detrimental to the local economy because most Niger Delta residents are either involved in farming or fishing (Dung *et al.,* 2008: 298; Focus group discussions, July 2009). Noise from gas flares has also been identified as a health hazard in the Niger Delta region because of the flare stations' proximity to the host populations (Abdulkareem & Odigure, 2006: 158).

Although there are only limited studies conducted on the health implications of the oil industry in the Niger Delta, it is clear that they have contributed to health hazards in the region. The more research that can be conducted in the region, the better informed and accountable the Government and MNOCs will have to be to reduce the negative implications of their activities on the Niger Delta population. Therefore, there is a great need for the Government of Nigeria to listen to its citizenry, account for poor health and livelihood conditions, and conduct the necessary studies to reduce health hazards in the Niger Delta.

Unfortunately, there is still much work to be done to restore peace and healthier conditions in this region. Although stopping oil production may not be viable, residents and other stakeholders in the region are increasingly hopeful that oil activities in the region will be halted.

Other host communities have been calling for resource control and determination for decades and the Government should take this into consideration. Furthermore, MNOCs have to take some serious steps in updating their equipment to minimize oil spills and reduce gas flaring. The Government should also strengthen environmental monitoring of oil activities in the region. This includes conducting multi-disciplinary and cross-country studies concerning environmental health to identify environmental health disparities in the Niger Delta. Furthermore, more funding has to be directed towards respiratory health and cancer not just infectious diseases. More public awareness, education and involvement also need to take place concerning oil industry activities. In particular, the GMoU programs have rendered positive changes and therefore, should be strengthened to maximize its potential.

Environmental injustices in the Niger Delta have drained certain communities from the wealth of their environment, their traditions, and even their humanity. The exploitation of oil has provided the space to rape a people from its land, further impoverishing and damaging the health of this population. Clearly, the Niger Delta case is one of global environmental injustices, with harm fueled from the 'Global North', which promotes human rights violations in the 'Global South' (Newell, 2007). Yet, these injustices are buried behind the frustrations and the violence sponsored in part by the communities. Violence that has taken place because of a corrupt and non-transparent government system that puts economic growth ahead of its citizenry needs. Peace in the Niger Delta region will not come from maintaining a system negligent of the needs of the people, but it will rather come with community representation and involvement in the decision-making process that affects the region (Ibeanu, 2000).

BIBLIOGRAPHY

Abdulkareem A.S. and J.O. Odigure. (2006). Deterministic model for noise dispersion from gas flaring: A case study of Niger-Delta area of Nigeria. *Chemical and Biochemical Engineering Quarterly*, 20(2), 157-164.

Adam, H. (2001). Somalia: Environmental Degradation and Environmental Racism. In L. Westra and B. Lawson (Ed. 2), *Faces of Environmental Racism: Confronting Issues of Global Justice (pp. 187-201).* Oxford, England: Rowman & Littlefield Publishers, Inc.

Adeola, F. (2000). Cross-National Environmental Injustice and Human Rights Issues: A Review of Evidence in the Developing World. *American Behavioral Scientist,* (43), 686-705.

Adeola, F. (2001). Environmental Injustices and Human Rights Abuse: The States, MNCs, and Repression of Minority Groups in the World System. *Human Ecology Review,* 8(1), 39-59.

African Network for Environment and Economic Justice (ANEEJ). (2004). *Oil Poverty in the Niger Delta*. Benin City, Edo State, Nigeria: ANEEJ.

Agency for Toxic Substances and Disease Registry (ATSDR). (2009). Glossary of Terms: Volatile Organic Compounds. Retrieved April 23, 2010 from ATSDR website: http://www.atsdr.cdc.gov/glossary.html#G-T-.

Ajayi, T.R., N. Torto, P. Tchokossa, and A. Akinlua. (2009). Natural radioactivity and trace metals in crude oils: implication for health. *Environmental Geochemistry and Health*, 31(1), 61-69.

Ako, R. (2009). Nigeria's Land Use Act: An Anti-Thesis to Environmental Justice. *Journal of African Law*, 53(2), 289-304.

Amnesty International. (2009). *Pollution and Poverty in the Niger Delta*. London: Amnesty International Publications.

Ana, G.R., Mynepalli K.C. Sridhar, Elijah A. Bamgboye. (2009). Environmental risk factors and health outcomes in selected communities of the Niger Delta area, Nigeria. *Perspectives in Public Health*, 129(4), 183-191.

Asante-Duah, K., D. Saccomanno, F.F. and J. H. Shortreed. (1992). The Hazardous Waste Trade: Can it be controlled? *Environmental Science and Technology* (26), 1684-1693.

Ayoob, M. (2002). Inequality and Theorizing in International Relations: The Case of Subaltern Realism. *International Studies Association*, 27-48.

Bassey, N. (2008). Gas Flaring: Assaulting Communities, Jeopardizing the World. Paper presented at the *National Environmental Consultation:* Nigeria, 1-12.

Bekoe, D. (2007). Strategies for Peace in the Niger Delta. United States Institute of Peace Briefing, 1-5.

Benson, N.U., and U.M. Etesin. (2008). "Metal Contamination of surface water, sediment and Tympanotonus fuscatus var. radula of Iko River and environmental impact due to Utapete gas flare station, Nigeria. *Environmentalist*, 28, 195-202.

Blauner, R. (1972). *Racial Oppression in America*. New York: Harper & Row.

Bullard, R. (1994). *Unequal Protection: Environmental Justice and Communities of Color*. San Francisco, CA: Sierra Club Books.

Bullard, R. (2005). *The Quest for Environmental Justice: Human Rights and the Politics of Pollution.* San Francisco: Sierra Club Books.

Checker, M. (2007). "But I Know It's True": Environmental Risk Assessment, Justice, and Anthropology. *Human Organization*, 66(2), 112-124.

Chokor, B.A. (2004). Perception and response to the challenge of poverty and environmental resource degradation in rural Nigeria: Case study from the Niger Delta. *Journal of Environmental Psychology*, 24, 305-318.
Clapp, J. (1994). The Toxic Waste Trade with Less- Industrialized Countries: Economic Linkages and Political Alliances. *Third World Quarterly,* 15(3), 505-518.
Clapp, J. (2001). *Toxic Exports: The Transfer of Hazardous Wastes from Rich to Poor Countries.* Ithaca, NY: Cornell University Press.
Douglas, O., D. Von Kemedi, I. Okonta, M. J. Watts. (2005). Alienation and Militancy in the Niger Delta: Petroleum, Politics, and Democracy in Nigeria. In R. Bullard (Ed. 1), *The Quest for Environmental Justice: Human Rights and the Politics of Pollution (pp.239-254)*. Los Angeles, California: Sierra Club Books.
Dung, E. J., L. S. Bombom, and T. D. Agusomu. (2008).The effects of gas flaring on crops in the Niger Delta, Nigeria. *GeoJournal,* 73, 297-305.
Eaton, J.P. (1997). The Nigerian Tragedy, Environmental Regulation of Transnational Corporations and the Human Rights to a Healthy Environment. *Boston University International Law Journal*, 15, 261-299.
Ecumenical Council for Corporate Responsibility (ECCR). (2010). *Shell in the Niger Delta: A Framework for Change*. Oxford, United Kingdom: ECCR.
Ejobowah, J.B. (2000). Who owns the Oil? The Politics of Ethnicity in the Niger Delta of Nigeria. *Indiana University Press*, 29-47.
Environmental Rights Action (ERA). (2005). Gas Flaring in Nigeria: A Human Rights, Environmental and Economic Monstrocity. *The Climate Justice Programme*, 1-34.
Environmental Rights Action (ERA). (2008). Toxic Flares: Harmful Gas Flaring in Nigeria. *Environmental Impact Issues*, December 2008, 1-8.
Essoka, P.A., A.E. Ubogu and L. Uzu. (2006). An overview of oil pollution and heavy metal concentration in Warri area, Nigeria. *Management of Environmental Quality*, 17(2), 209-215.
Fadare, S. (2010, March 28). Bitumen – A People's Wealth Caged by Politricks, Policy and Administratiive Incompetence. Retrieved on April 10, 2010 on Allafrica.com: http://allafrica.com/stories/201003290824.html.
Gbadegesin, S. (2001). Multinational Corporations, Developed Nations, and Environmental Racism: Toxic Waste, Exploration, and Eco-Catastrophe. In L. Westra and B. Lawson (Ed. 2), *Faces of Environmental Racism : Confronting Issues of Global Justice (pp. 187-201).* Oxford, England: Rowman & Littlefield Publishers, Inc.
Hilz, C. 1992. *The International Toxic Waste Trade.* New York: Van Nostrand Reinhold.
Ibeanu, O. (2000). Oiling the Friction: Environmental Conflict Management in the Niger Delta, Nigeria. *Change and Security Project Report* 6, 19-32.
Idemudia, U. and U. E. Ite. (2006). Demystifying the Niger Delta Conflict: Towards an Integrated Explanation. *Review of African Political Economy,* 33(109), 391-406.
Ikelegbe, A. (2001). Civil society, oil and conflict in the Niger Delta region ramification of civil society for a regional resource struggle. *Journal of Modern African Studies,* 39(3), 437-469.
Ikokwu, C. (2008, December 17). Nigeria: Country to Supply 25 percent of U.S. Oil by 2015. Retrieved on April 10, 2010 from Allafrica.com: http://allafrica.com/stories/200812170150.html.

Ikporukpo, C. (2004). Petroleum, Fiscal Federalism and Environmental Justice in Nigeria. Space and Polity, 8(3), 321-354.

Janjua, N.Z., P. M. Kasi, H. Nawaz, S. Z. Farooqui, U. B. Khuwaja**,** N. ul-Hassan**,** S. N. Jafri**,** S. A. Lutfi**,** M. M. Kadir**,** and N. Sathiakumar. (2006). Acute Health Effects of the Tasman Spirit oil spill on residents of Karachi, Pakistan. *BioMedical Public Health*, 6, 84.

Jike, V.T. (2004). Environmental Degradation, Social Disequilibrium, and the Dilemma of Sustainable Development in the Niger-Delta of Nigeria. *Journal of Black Studies,* 34(5), 686-701.

Johnston, B. R. (1994). Environmental Degradation and Human Rights Abuse. In Johnston, B.R. (ed.), *Who Pays the Price? The Sociocultural Context of Environmental Crisis, (pp. 7-15)*. Covelo, CA: Island Press.

Karliner, J. (1997). *The Corporate Planet: Ecology and Politics in the Age of Globalization*, San Francisco: Sierra Club Books.

Krueger, R. (1998). Review: Environmentalism and Economic Justice: Two Chicano Struggles In the Southwest by Laura Pulido. *Human Ecology Review*, 5(2), 70-71.

Le Billon, P. (2001). The Political Ecology of War: Natural Resources and Armed Conflicts. *Political Geography* 20(5), 561-584.

Maantay, J. (2002). Mapping Environmental Injustices: Pitfalls and Potential of Geographic Information Systems in Assessing Environmental Health and Equity. *Environmental Health Perspectives,* 110(2), 161-171.

Margai, F. (2001). Health Risks and Environmental Inequity: A Geographical Analysis of Accidental Releases of Hazardous Materials. *The Professional Geographer*, 53, 422-434.

Meo, S.A. A.M. Al-Drees, I.M. Meo , M.M. Al-Saadi , and M.A. Azeem. (2007). Lung Function in subjects exposed to crude oil spill into sea water. *BioMedical Public Health*, 1-7.

McDonald, D. (2005). Environmental Racism and Neoliberal Disorder in South Africa. In R. Bullard (Ed. 1), *The Quest for Environmental Justice: Human Rights and the Politics of Pollution* (pp. 239-254). Los Angeles, California: Sierra Club Books.

National Bureau of Statistics. (2006). Federal Republic of Nigeria 2006 Population Census. Retrieved on December 15, 2009 from National Bureau of Statistics Website: www.nigerianstat.gov.ng.

National Bureau of Statistics Website. (2010). "Health and Human Services". Nigerian Government, Retrieved April 10, 2010: http://www.nigerianstat.gov.ng/index.php/pages/sectorStatistics.

Ndubuisi, O.L. and I.O. Asia. (2007). Environmental Pollution in Oil Producing Areas of the Niger Delta Basin, Nigeria: Empirical Assessment of Trends and People's Perception. *Environmental Research Journal*, 9 (1-4), 18-26.

Newell, P. (2005). Race, Class and the Global Politics of Environmental Inequality. *Global Environmental Politics*, 5(3), 70-94.

Nkwocha, E.E. and R.O. Egejuru. (2008).Effects of industrial air pollution on the respiratory health of children. *International Journal of Environmental Science and Technology*, 5 (4), 509-516.

Ogri, O.O. (2001). A review of the Nigerian petroleum industry and the associated environmental problems. *The Environmentalist*, 21, 11-21.

Okenwa,S. (2009, December 16). Groups call for Suspension of Oil Exploration in the Niger Delta. Retrieved on April 10, 2010 from Allafrica.com: http://allafrica.com/stories/200912170189.html.

Omotola, J.S. (2009). Dissent and State Excesses in the Niger Delta, Nigeria. *Studies in Conflict & Terrorism*, 32(2), 129-145.
Omotor, D. (2009). The impact of oil exploration on the inhabitants of the oil producing areas of Nigeria. *Journal of Food, Agriculture and Environment*, 7(2), 726-730.
Osuji L.C. and G.O Aywiri. (2005). Flared gas and other pollutants associated with air quality in industrial areas of Nigeria: An overview. *Chemistry and Biodiversity*, 2(10), 1277-1289.
Roberts, T. (2007). Globalizing Environmental Justice. *Environmental Justice and Environmentalism: The Social Justice Challenge to the Environmental Movement,* 285 321.
Teisl, M. F., B. Roe, and R. L. Hicks. Can Eco-Labels Tune a Market? Evidence from Dolphin-Safe Labeling. *Journal of Environmental Economics and Management*, 43, 339-359.
Schlosberg, E. (2007). Defining Environmental Injustice. In *Defining Environmental Injustice: Theories, Movements, and Nature* (pp. 3-9. Oxford, England: Oxford University Press.
Schmidt, C. (2004). Crimes: Earth's Expense. *Environmental Health Perspectives*, 112, A97-A103.
Schroeder, R., K. St. Martin, B. Wilson and D. Sen. (2008). Third World Environmental Justice. *Society for Natural Resources,* 21, 547-555.
Shell-Nigeria. (2009). Environmental Performance - Managing Oil Spills, May 2009 report. Shell-Nigeria, 1-2.
Taylor, D. 2000. The Rise of Environmental Justice Paradigm: Injustice Framing and the Social Construction of Environmental Discourses. *American Behavioral Scientists*, 43, 508-566.
United Nations Development Programme (UNDP). (2006). *Niger Delta Human Development Report*. Lagos: UNDP Nigeria.
United Nations Environmental Programme (UNEP). (2007, November 5). UN Environment Programme to Assess 300 Oil-Polluted Sites in Nigeria's Ogoniland. Retrieved on February 24, 2010 from UNEP Website: http://www.unep.org/Documents.Multilingual/Default.asp?DocumentID=521&ArticleID=5692&l=en.
Ukiwo, U. (2007). From "Pirates" to "Militants": A Historical Perspective on Anti-State and Anti-Oil Mobilization Among the Ijaw of Warri, Western Niger Delta. *African Affairs*, 587-610.
Uranta,T. (2009, May 29). Niger Delta- Refuse to Roll Over and Die. Retrieved From Allafrica.com on April 9, 2010: http://allafrica.com/stories/200905290752.html.
Watts, M. (1999). Petro-Violence: Some Thoughts on Community, Extraction, and Political Ecology. *University of California, Berkeley Institute of International Studies* WP 99-I, 1 -26.
Wright, B. (2005). Living and Dying in Louisiana's Cancer Alley. In R. Bullard (Ed. 1), *The Quest for Environmental Justice: Human Rights and the Politics of Pollution (pp.87-107)*. Los Angeles, California: Sierra Club Books.