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# Oil, Oil, Everywhere: Environmental and Human Impacts of Oil Extraction in the Niger Delta

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**Oil, Oil, Everywhere:  
Environmental and Human Impacts of Oil Extraction in the  
Niger Delta**

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In partial fulfillment of a Bachelor of Arts Degree in Environmental Analysis,  
2012-2013 academic year,  
Pomona College, Claremont, California

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Dr. Char Miller



## Table of Contents

Acknowledgements	5
Preface	6
Introduction	7
The Niger Delta	9
Nigerian History	12
People of Nigeria	13
The Oil Industry	16
Nigeria's Dualistic Development	17
Oil Companies in Nigeria	18
The Government	22
Corruption	22
The Role of the Government in Environmental Degradation	24
Nigerian Dependence on Oil	26
Environmental Overview	28
The Blame Game	29
Land Use Change	32
The Oil Extraction Process	32
Mangroves	33
Oil Spills	37
Impacts of Oil Spills	38
Remediating Oil Spills	40
Causes of Oil Spills	42
Operational Oil Spills	43
Sabotage and Bunkering	43
Preventing Bunkering	46
Compensation and Cleanup Policies	48
Produced Water	50
Gas Flaring	52
Environmental Impacts of Gas Flaring	54
Politics of Gas Flaring	55
Why Flare Natural Gas?	56
Benefits of Natural Gas for Nigeria	59
Human Health	61
Conclusions	65
References	69

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## **PREFACE**

Edagberi is a community in Rivers State in the Niger Delta of southeastern Nigeria. The town is on the bank of Taylor Creek, which is the location of over 40 oil wells with pipelines leading to a Shell flowstation also located nearby.<sup>1</sup> Between 2006 and 2009, the community documented 16 oil spills,<sup>2</sup> most of which were caused by failures of aging, rusty pipelines.<sup>3</sup> Fisheries in the region have been devastated and farmland has been seriously polluted by oil, severely decreasing the land's ability to support the fishermen and farmers in the area. A fisherman from the region explained that, "Fishing is my only means of living... My family is in trouble because these days, I hardly catch fish that will feed me alone, not to talk of my entire family."<sup>4</sup> The ubiquity of oil is taking a toll on the ecosystems as well. "You can see that the trees are dying," said a local non-profit coordinator about the region.<sup>5</sup> Ineffective barriers are slowly releasing oil from the contaminated area into the rest of the creek.<sup>6</sup> Cleanup efforts at the site have been minimal: "Sometimes [the oil companies] allow the spill to go inside the bush so that nobody will notice it."<sup>7</sup> In 2011, spilled oil left untreated caught fire, causing further damage to already polluted areas.<sup>8</sup>

Environmental degradation from oil extraction in Nigeria is not limited to Edagberi. In the 36,000 square kilometer Niger Delta—the area where nearly all of Nigeria's oil extraction takes place—an estimated 11 billion gallons of oil have been

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<sup>1</sup> "Field Report #258: Shell yet to effect clean-up at oil spill/fire impacted sites at JK4 [Edagberi Community]," Environmental Rights Action, March 13, 2011, <http://www.eraction.org/component/content/article/276>

<sup>2</sup> "JK 4 Oil Spill Report," The Groundwork Programme Center for Environmental Rights and Development (CEHRD), August 2009, [http://www.cehrd.org/files/Joinkrama\\_4\\_Oil\\_Spill\\_Report.pdf](http://www.cehrd.org/files/Joinkrama_4_Oil_Spill_Report.pdf)

<sup>3</sup> "Field Report #258," Environmental Rights Action.

<sup>4</sup> "JK 4 Oil Spill Report." CEHRD.

<sup>5</sup> The Groundwork Programme Center for Environmental Rights and Development (CEHRD), "Another Day, Another Oil Spill by Shell in Nigeria," Stakeholder Democracy Network Video, August 19, 2009, <http://www.stakeholderdemocracy.org/jk4.htm>

<sup>6</sup> CEHRD, "Another Day, Another Oil Spill by Shell in Nigeria."

<sup>7</sup> Ibid.

<sup>8</sup> "Field Report #258," Environmental Rights Action.

spilled every year for the past 50 years. For the sake of comparison, the Exxon Valdez oil spill in 1989 that received massive international attention released 10.8 billion gallons of oil into the Pacific.<sup>9</sup> Gas flares pollute the air day and night to the extent that some Nigerians have never known a night of complete darkness.<sup>10</sup> Mangroves and rainforests, some of the world's most biodiverse and productive ecosystems, are being cleared and degraded to make room for oil extraction.

Why is the environmental destruction in the Niger Delta so profound? What has allowed this situation to develop? Although the degradation is readily apparent, the network of motivations and objectives of the various actors involved in the Nigerian oil industry makes oil in Nigeria incredibly complex. Government corruption is not only rampant, but is the norm. Multinational oil companies are making enormous profits while the majority of the Nigerian people live on less than \$1 a day. Ethnic tensions and continued resentment from a brutal civil war hinder attempts at establishing a unified national identity. Unemployment is high, with many Nigerians turning to oil theft as a means of income. However, Nigeria is not extracting oil for its own consumption. Nigeria exports nearly 90% of the oil it produces.<sup>11</sup> How could a country so blessed with such abundant sources of natural wealth, currently 37 billion barrels of oil reserves and over 5 trillion cubic meters of natural gas,<sup>12</sup> become such a victim of that same promise?

The main players in the extraction of oil in Nigeria are the Nigerian Federal Government and multinational oil companies, both making enormous profits from Nigeria's oil. Each blames the other for the environmental degradation occurring. The oil companies are businesses and, as businesses do, are trying to maximize profits. In this case, the results of this desire for wealth are particularly tragic as

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<sup>9</sup> Adam Nossiter, "Far From Gulf, a Spill Scourge 5 Decades Oil," *The New York Times*, June 16, 2010, <http://www.nytimes.com/>

<sup>10</sup> Anene Ejikene, "The Oil Spills We Don't Hear About," *The New York Times*, June 4, 2010, <http://www.nytimes.com/>

<sup>11</sup> Data from: "Nigeria." U.S. Energy Information Administration. Last modified October 16, 2012, <http://www.eia.gov/countries/country-data.cfm?fips=NI&trk=m>

<sup>12</sup> "Nigeria," EIA.

damage to the environment and Nigerian communities is largely disregarded. The Nigerian federal government has proven to be unwilling and unable to regulate these enormous multinational companies for reasons that stem from complex historical, political, and cultural patterns.

Then there are the Nigerian people who live in the Niger Delta, whose lives have been totally dominated by oil from the physical presence in the air, water, and soil. The economy in the Niger Delta is almost exclusively oil driven, and many people are involved, legally or more often illegally, in oil extraction. These communities bear the burden of environmental degradation from the oil industry, but see very little of the benefit.

Finally there are international consumers of Nigerian oil. Most people who use products that originate from Nigerian oil are unaware that they are playing a crucial role in Nigeria by demanding their oil resources. It is the international community's need for oil and the remoteness of the problem that enables and encourages the international community to ignore the harm inherent in its reckless extraction.

I am not Nigerian, nor have I had the opportunity to travel to Nigeria. However, I hope that by untangling the history, the context, and the motivations of the actors in Nigeria's environmental degradation, I can contribute to an understanding of the current situation. I hope that this understanding can help lead to hope for a more economically rational process of oil extraction in Nigeria that benefits Nigeria as a whole over multinational oil companies, recognizes the shortsightedness of the environmental destruction and, in the long run, paves the way to a less petroleum-driven future for Nigeria.



## INTRODUCTION

“Blood may be thicker than water, but oil is thicker than both”

-Perry Anderson<sup>13</sup>

Nigeria currently lies at an unfortunate nexus of several historical patterns. The most immediately visible is the Resource Curse, where resource-rich countries are plagued by corruption and exploitation, preventing the transition from natural resource wealth to meaningful social development.<sup>14</sup> Nigeria has been exploited in one form or another since it was a British colony. The commodity has changed, from slaves to palm oil to petroleum, but the system has remained largely the same. Corruption has also long been a defining component of Nigerian government, stemming from colonial policies of the British and becoming a regrettable pillar of Nigerian governance.

Another pattern that has helped to shape Nigeria is the exploitation of oil-rich developing nations by multinational oil companies. Colonial powers established a system whereby mineral wealth left Nigeria without improving the quality of life of the majority of the Nigerian people, a system that has been perpetuated by oil companies. Although oil companies and host governments may have different objectives and motivations, the incredible amount of wealth in question often unites their interests, making the rights of local populations secondary.<sup>15</sup> The activities of the oil companies are designed to benefit distant home countries with little vested interest in the welfare of host countries.

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<sup>13</sup> Augustine A. Ikein, *The Impact of Oil on a Developing Country: The Case of Nigeria*. (New York: Praeger, 1990), 27.

<sup>14</sup> Uwafiokun Idemudia. “The Resource Curse and the Decentralization of Oil Revenue: The Case of Nigeria.” *Journal of Cleaner Production* 35 (November 2012).

<sup>15</sup> Ikein, *The Impact of Oil on a Developing Country*.

Nigeria's oil wealth has not reached the majority of the population. Nigeria is home to 170.1 million people, making it the 7<sup>th</sup> most populous nation in the world.<sup>16</sup> The GDP per capita in Nigeria is \$1,452.<sup>17</sup> However, Nigeria's Human Development Index, which takes into account life expectancy, access to education, and gross national income per capita, is rated as "low" with a value of 0.470, which is 156<sup>th</sup> out of the 183 countries rated.<sup>18</sup> In 2010, the Nigerian National Bureau of Statistics reported that 69% of Nigerians live below the poverty line, which increased substantially from 54% in 2004.<sup>19</sup> However, the economy is growing at a rate of nearly seven percent.<sup>20</sup> Estimates vary as to the actual income distribution in Nigeria due to a lack of reliable statistics,<sup>21</sup> but up to 90% of Nigeria's oil revenue goes to only one percent of the population<sup>22</sup> while 90% of the population lives on less than \$2 per day.<sup>23</sup>

Economic growth is not the same thing as development. In essential components of development, such as income equality, investment in children, resistance to economic shocks, and government accountability, development of oil and gas worldwide has been shown to be detrimental.<sup>24</sup> Only 13% of Nigeria's GDP is invested in fixed assets for future production, which is 139<sup>th</sup> in the world.<sup>25</sup> This

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<sup>16</sup> The World Factbook: Nigeria, The Central Intelligence Agency, Last modified September 25, 2012, <https://www.cia.gov/library/publications/the-world-factbook/geos/ni.html>

<sup>17</sup> The World Factbook, CIA.

<sup>18</sup> Human Development Index, United Nations Development Programme, 2011. <http://hdr.undp.org/en/statistics/hdi/>

<sup>19</sup> Ifeanyi Onuba, "112.5 million Nigerians Live in Poverty-NBS," *The Punch*, February 14, 2012, <http://www.punchng.com/business/business-economy/112-5-million-nigerians-live-in-poverty-nbs/>.

<sup>20</sup> The World Factbook, CIA.

<sup>21</sup> Chris Albin-Lackey, *Chop Fine: The Human Rights Impact of Local Government Corruption and Mismanagement in River State, Nigeria*, Human Rights Watch, (New York: Human Rights Watch, 2007) <http://www.hrw.org/reports/2007/nigeria0107/nigeria0107web.pdf>

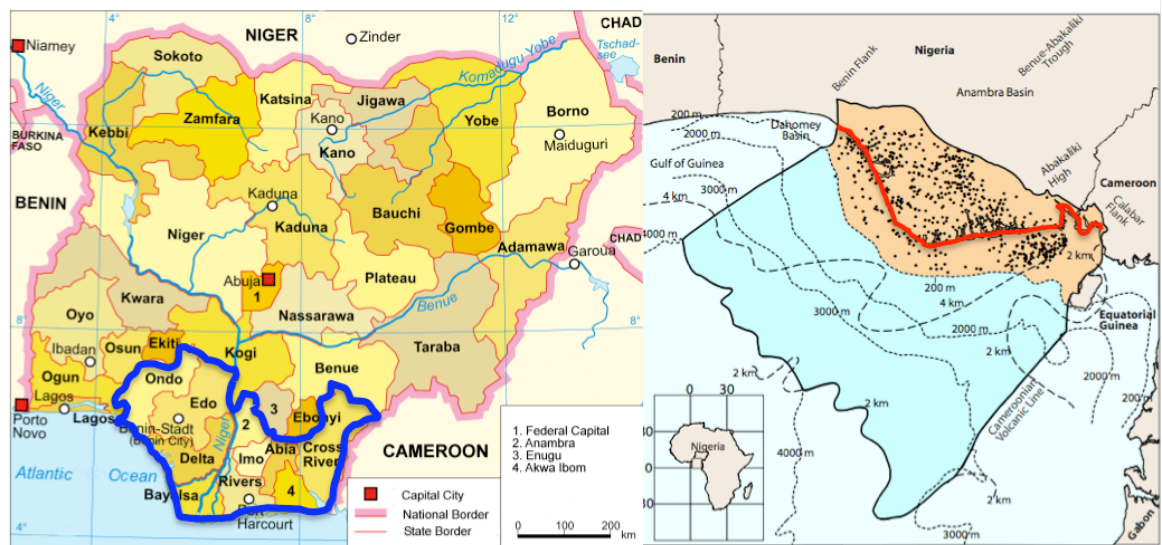
<sup>22</sup> Idemudia "The Resource Curse."

<sup>23</sup> Anblin-Lackey, *Chop Fine*

<sup>24</sup> Michael Ross, *Extractive Sectors and the Poor: An Oxfam America Report*, Oxfam America, October 2001, <http://www.sscnet.ucla.edu/polisci/faculty/ross/oxfam.pdf>.

<sup>25</sup> The World Factbook, CIA.

means that Nigeria is not investing its oil wealth in development projects or other projects that will benefit Nigeria in the future. This lack of investment is incredibly problematic as oil reserves, even large ones, are finite. Estimates vary, but some experts say that Nigeria’s oil will last about another 40 years.<sup>26</sup>



**Figure 1: Nigerian Oil Production. Left: The oil producing states of the Niger Delta are outlined in blue.<sup>27</sup> Right: The distribution of oil wells at of 1999 is shown by the black dots. The red line is the Nigerian coastline.<sup>28</sup> Oil extraction is heavily concentrated in the Niger Delta region.**

### ***The Niger Delta***

The delta of the Niger River, where virtually all of Nigeria’s oil is found, contains ten of Nigeria’s 36 states<sup>29</sup> (Figure 1). These oil-producing states make up

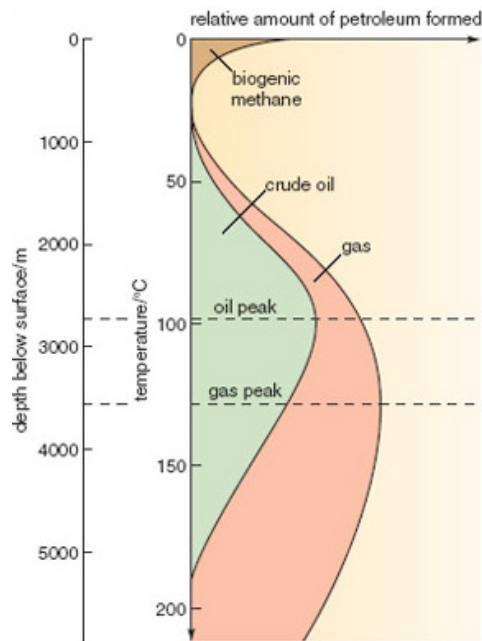
<sup>26</sup> Tom O’Neill, “Curse of the Black Gold: Hope and Betrayal on the Niger Delta,” *National Geographic*, February 2007, <http://ngm.nationalgeographic.com/>.

<sup>27</sup> Adapted from: *Political Map of the 36 States of Nigeria*, PNG, [http://en.wikipedia.org/wiki/File:Nigeria\\_political.png](http://en.wikipedia.org/wiki/File:Nigeria_political.png), Accessed September 24, 2012.

<sup>28</sup> Michele L. W. Tuttle *et al.* “The Niger Delta Petroleum System: Niger Delta Province, Nigeria, Cameroon, and Equatorial Guinea, Africa.” U.S. Geological Survey (Denver, CO 1999).

<sup>29</sup> Emmanuel Obe and Olalekan Adetayo, “FG Designates Anambra Oil Producing State,” *The Punch*, August 31, 2012, <http://www.punchng.com/business/business-economy/fg-designates-anambra-oil-producing-state/>.

12% of Nigeria's land area, but are home to 23% of the population.<sup>30</sup> The oil industry in the Niger Delta comprises 30% of Nigeria's GDP.<sup>31</sup> The oil producing regions of Nigeria are subject to intense environmental degradation that accompanies the oil extraction process, including water pollution, air pollution, land clearing, and industrial waste disposal.<sup>32</sup> The states in the Delta region have the highest population density outside of dense, urban Lagos state.<sup>33</sup> Therefore, the environmental degradation in these areas is almost always affecting communities.



**Figure 2: Geothermal Gradient. At different heats and pressure, different hydrocarbons are produced.** <sup>34</sup>

<sup>30</sup> The World Factbook, CIA.

<sup>31</sup> Oil rents (% of GDP), The World Bank, 2011, <http://data.worldbank.org/indicator/NY.GDP.PETR.RT.ZS>.

<sup>32</sup> Toyin Faola and Ann Genova, *The Politics of the Global Oil Industry: An Introduction* (Westport, CT: Praeger, 2005),

<sup>33</sup> Data from: States in Nigeria with Area Size and Population Data, National Population Commission, Nigeria, 2012, <http://www.population.gov.ng/index.php/about-npc/nigeria-map>

<sup>34</sup> Open University, *Earth's Physical Resources: Petroleum*, 2010, [http://open.jorum.ac.uk/xmlui/bitstream/handle/123456789/941/Items/S278\\_1\\_section3.html](http://open.jorum.ac.uk/xmlui/bitstream/handle/123456789/941/Items/S278_1_section3.html).

Oil in the Niger Delta is the result of geologic activity millions of years ago. The Delta is the site of a tectonic rift that created a low point in the Earth's surface. This rift used to be filled with ocean water. Marine life settled to the bottom of the sea over many years where it was then covered and subjected to high heats and pressures until oil and gas was formed. Over 10 kilometers of sediment have accumulated in the Niger Delta, deeply burying the marine organic material.<sup>35</sup> Figure 2 shows the geothermal gradient, which shows what type of hydrocarbon will result from a given temperature and pressure. Oil and gas are produced only by specific sets of conditions. Oil fields are found where oil has been formed and then has risen toward the surface of the Earth until it is stopped by an oil trap, which is some form of dense rock that stops the oil from rising. Geologic activity from far in the past has become an incredibly important part of Nigeria's present.

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<sup>35</sup> Michele L. W. Tuttle *et al.* "The Niger Delta Petroleum System: Niger Delta Province, Nigeria, Cameroon, and Equatorial Guinea, Africa." U.S. Geological Survey (Denver, CO 1999).

## NIGERIAN HISTORY

Foreign powers have long exploited Nigeria for its natural resources dating back to the kidnapping of slaves, which began in the 1500s and continuing until the early 1800s.<sup>36</sup> Nigeria's economy has been driven by oil exports since the late 19<sup>th</sup> century, but initially it was Nigeria's palm oil, not petroleum, that the developed world craved to lubricate the machines of the Industrial Revolution.<sup>37</sup> Although the export of slaves ceased centuries ago, where slave ships once gathered, massive oil tankers can now be found.<sup>38</sup> These ships no longer take away Nigeria's people, but they now, with the blessing of the Nigerian government, take Nigeria's natural resource wealth away, leaving behind a maimed environment, an impoverished majority, and an incredibly wealthy few. But after Nigerian independence, hopes were high in Africa and beyond for Nigeria's economic development.<sup>39</sup> Nigeria was a newly independent country with a vast supply of natural resources, ready to become a powerful economic force in the world. Unfortunately, this promise has not been realized.

Nigeria was a British colony until 1960.<sup>40</sup> The colonial Nigerian economy was not intended to develop Nigeria, but primarily to provide the British with crucial raw materials. Oil was first discovered in 1908, and in 1914, the British awarded themselves a monopoly on Nigerian oil, which remained in place until 1969.<sup>41</sup> In 1937, Royal Dutch Shell was granted rights to onshore and offshore exploration along with BP. Commercially viable quantities of oil were finally discovered in 1956. This event has been so influential that every Nigerian

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<sup>36</sup> "The End of Slavery," BBC World Service, Date Accessed December 2, 2012, <http://www.bbc.co.uk/worldservice/africa/features/storyofafrica/9chapter8.shtml>.

<sup>37</sup> Ikein, *The Impact of Oil on a Developing Country*.

<sup>38</sup> O'Neill, "Curse of the Black Gold."

<sup>39</sup> Scott R. Pearson, *Petroleum and the Nigerian Economy*, (Stanford, CA: Stanford University Press, 1970).

<sup>40</sup> Falola and Genova, *The Politics of the Global Oil Industry*.

<sup>41</sup> Falola and Genova, *The Politics of the Global Oil Industry*.

elementary school child knows the story of Shell’s first oil discovery in Oloibiri <sup>42</sup>. In response to the Suez Canal Crisis of the 1950s, the British were very interested in finding sources of oil outside of the Middle East, which made Nigerian oil even more attractive. The Nigerian oil industry was dominated solely by foreign, vertically integrated oil companies until Nigeria formed the Nigerian National Oil Company in 1971—which has since become the Nigerian National Petroleum Corporation (NNPC)—that works with the oil companies through joint venture agreements whereby the NNPC shares a percentage of the costs and profits with the oil companies but does not take part in the exploration or extraction of oil.<sup>43</sup>

The political history of Nigeria has been tumultuous to say the least. Less than 1/3 of the past 44 years have been under a democratically elected government. Between 1960 and 2000, there were seven military coups and a civil war.<sup>44</sup> The stakes of staging a coup are incredibly high as failure means execution, but it attests to the incredible wealth available to those in power that so many overthrows were attempted.<sup>45</sup> In the early years after independence, the Nigerian government saw its revenue skyrocket, going from \$295 million in 1965 to \$2.5 billion in 1975.<sup>46</sup> This incredible wealth did not go towards developing Nigeria into a new world power as many had hoped, but instead led to civil war and corruption.

### *People of Nigeria*

The British colonial policy of “divide and rule”—where the colonizers capitalized on the differences between the many ethnic groups in Nigeria<sup>47</sup>—made the formation of a Nigerian national identity upon independence difficult. Obafemi Awolowo, one of Nigeria’s founding fathers, said 1947, “Nigeria is not a nation. It is

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<sup>42</sup> Ike Okonta and Oronto Douglas, *Where the Vultures Feast: Shell, Human Rights, and Oil in the Niger Delta* (London: Verso, 2003),

<sup>43</sup> Shell Petroleum Development Company of Nigeria, Shell Nigeria, [http://www.shell.com.ng/home/content/nga/aboutshell/shell\\_businesses/e\\_and\\_p/spdc/](http://www.shell.com.ng/home/content/nga/aboutshell/shell_businesses/e_and_p/spdc/)

<sup>44</sup> Falola and Genova, *The Politics of the Global Oil Industry*.

<sup>45</sup> Okonta and Douglas, *Where the Vultures Feast*.

<sup>46</sup> Okonta and Douglas, *Where the Vultures Feast*.

<sup>47</sup> Falola and Genova, *The Politics of the Global Oil Industry*.

a mere geographical expression. There are no “Nigerians” in the sense as there are “English,” “Welsh,” or “French.” The word “Nigerian” is merely a distinctive appellation to distinguish those who live within the boundaries of Nigeria from those who do not.”<sup>48</sup> While this lack of a unified identity is true of many countries soon after their independence, over sixty years later, Nigerians still feel stronger bonds to ethnic groups than to the country as a whole.<sup>49</sup> Regional allegiances still outweigh national interests, which is problematic because it hinders the Nigerian federal government from distributing public revenue equitably to the diverse Nigerian population. Politics in Nigeria since independence can be described as a struggle between central control and regional autonomy. The federal government wants to concentrate authority, primarily for the benefit of those in power, while individual ethnic groups try to advocate for the betterment of their own group.<sup>50</sup>

There are between 250 and 400 different ethnic groups in Nigeria today.<sup>51</sup> Despite this diversity, 4 groups make up over 75% of the population. The Hausa-Fulani, located mainly in the North of the country, comprise about 30% of the population and are the politically dominant group. The Igbo live in the southeastern part of the country, including the Delta region. Although they make up nearly 20% of the population, they are far less politically dominant. The Nigerian Civil War of the late 1960s was the result of an Igbo secessionist movement in Biafra, which, had it been successful, would have contained the Niger Delta and therefore controlled much of Nigeria’s oil.<sup>52</sup> As the move for secession was unsuccessful, this paved the way for increased exploitation of the land as the area has since been treated like an

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<sup>48</sup> Obafemi Awolowo, *Path to Nigerian Freedom*, (London: Faber) 1967, quoted in Ilufoe Sarafa Ogundiya, “Political Corruption in Nigeria: Theoretical Perspectives and Some Explanations,” *Anthropologist* 11, no. 4 (2009). 281.

<sup>49</sup> Smith, Daniel Jordan. “Kinship and Corruption in Contemporary Nigeria.” *Ethos: Journal of Anthropology* 66, no. 3 (2010)

<sup>50</sup> Falola and Genova, *The Politics of the Global Oil Industry*.

<sup>51</sup> The World Factbook, CIA.

<sup>52</sup> Noah Buhayar, “Ethnicity in Nigeria,” PBS, April 5, 2007, [http://www.pbs.org/newshour/indepth\\_coverage/africa/nigeria/ethnic.html](http://www.pbs.org/newshour/indepth_coverage/africa/nigeria/ethnic.html)



occupied territory.<sup>53</sup> Before the civil war, 50% of oil revenue went to the federal government and 50% stayed in the producing states. After the war, all of the money went to the federal government and 20% of it was to be returned to the producing states, but most of that that 20% never made it back.<sup>54</sup>

The Yoruba are the third group, who mainly live in the cities and are the majority in Lagos. The Ijaw make up 10% of Nigeria's population and live in the Delta region. The main group that has been violently agitating for more compensation from the oil industry, the Movement for the Emancipation of the Niger Delta (MEND), is composed primarily of Ijaw.<sup>55</sup> Goodluck Jonathan, the current president, is an Ijaw as well, which has given many people hope about change in the Delta.<sup>56</sup> Ethnic differences have been magnified by religious conflicts as the Hausa-Fulani in the north are primarily Muslim while the Igbo are primarily Christian. The government has worked out tentative power-sharing agreements, but many cities are ethnically and religiously segregated. These tensions often result in violence, assisted by the fact that each group has their own militia.<sup>57</sup>

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<sup>53</sup> Okonta and Douglas, *Where the Vultures Feast*.

<sup>54</sup> Okonta and Douglas, *Where the Vultures Feast*.

<sup>55</sup> Buhayar, "Ethnicity in Nigeria."

<sup>56</sup> Uche Igwe, "Nigeria: Stolen Oil, Stolen Revenue," *Think Africa Press*, October 17, 2012. <http://thinkafricapress.com/>.

<sup>57</sup> Buhayar, "Ethnicity in Nigeria."

## THE OIL INDUSTRY

“Nigeria is not an oil rich country. It is an oil producing country.... That you have oil does not mean you are an oil rich country. Wealth or poverty is relative”

-Sanusi Lamido Sanusi, Governor of Nigeria’s Central Bank<sup>58</sup>

Nigeria has enormous oil reserves with an estimated 37.2 billion barrels of oil at end of 2011.<sup>59</sup> Nigerian oil is high-quality and in high demand because it is light, meaning that it contains a high percentage of small hydrocarbons, producing valuable fuels such as gasoline and diesel with less processing than heavier oils. Nigerian oil is also sweet, meaning that it has a low sulfur content of only 0.05-0.5%.<sup>60</sup> Nigeria has a large quantity of oil located relatively close to the US and Europe and outside the Middle East, making it not only chemically attractive, but geographically and politically desirable as well.

Oil extraction dominates Nigeria’s economy. Nigeria produces 3% of the world’s oil, making it the 12<sup>th</sup> largest producer in the world.<sup>61</sup> In 2011, Nigeria produced 2.5 million barrels of oil per day,<sup>62</sup> which, for a sense of scale, is equivalent to 160 Olympic swimming pools of oil. In 2011, the total value of exported Nigerian oil was nearly \$100 billion.<sup>63</sup> However, very little of this money has gone towards social development or improvement to the lives of Nigerians.<sup>64</sup> For example, in 2010, 43% of rural Nigerians had access to clean water, and the life expectancy from birth for Nigerians was only 51 years.<sup>65</sup> A shining, or actually very tarnished,

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<sup>58</sup> Nduka Chiejina. “Subsidy Cabals Must Go to Jail, Say Sanusi, Okonjo-Iweala,” *The Nation*, November 1, 2012. <http://www.thenationonline.net/>.

<sup>59</sup> “Nigeria,” EIA.

<sup>60</sup> Ibid.

<sup>61</sup> Ibid.

<sup>62</sup> Ibid.

<sup>63</sup> The World Factbook, CIA.

<sup>64</sup> Ikein, *The Impact of Oil on a Developing Country*.

<sup>65</sup> Nigeria, The World Bank, Accessed 13 November, 2012, <http://data.worldbank.org/country/Nigeria>

example of this contrast between economic growth and social development is the city of Port Harcourt, the capital of Rivers State. Although it is the economic center of much of Nigeria's oil industry, the wealth passes through Port Harcourt without enriching the city, which is a terribly polluted, immensely poor slum: "Dense, garbage-heaped slums stretch for miles. Choking black smoke from an open-air slaughterhouse rolls over housetops. Streets are cratered with potholes and ruts. Vicious gangs roam school grounds. Peddlers and beggars rush up to vehicles stalled in gas lines."<sup>66</sup>

Oil extraction is an enormous part of Nigeria's economy, but the majority of this oil is exported unrefined. Currently, Nigeria exports 89% of the crude that it produces and imports over 50% of the refined oil that it consumes at much higher costs.<sup>67</sup> The NNPC, Nigeria's state-owned oil company, operates the country's 4 refineries, but these do not run at full capacity due to vandalism and generally poor management and maintenance.<sup>68</sup> These refine heavy, high-sulfur crude from Kuwait, Saudi Arabia, and Venezuela to make asphalt, gasoline, and kerosene. In July of 2012, Nigeria signed an agreement with US-based Vulcan Petroleum to jointly build six new refineries, which will greatly increase Nigeria's refining capacity if the project is successful.<sup>69</sup>

### *Nigeria's Dualistic Development*

Economic development in Nigeria has been markedly dualistic, meaning that different industries within the country have vastly different socioeconomic and technical environments.<sup>70</sup> The oil sector has been actively developed with crude

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<sup>66</sup> O'Neill, "Curse of the Black Gold."

<sup>67</sup> Data from: "Nigeria," EIA.

<sup>68</sup> Falola and Genova, *The Politics of the Global Oil Industry*.

<sup>69</sup> "Nigeria signs \$4.5bn Oil Refining Deal with Vulcan," BBC News, July 3, 2012, <http://www.bbc.co.uk/news/business-18687810>.

<sup>70</sup> Marwan M. Shandour, "Dualistic Development: A New Approach," *The Developing Economies* 13, no. 3 (1975).

exports making up 95% of Nigeria' exports,<sup>71</sup> and oil rents—the value of crude oil minus the cost of production—making up 30% of Nigeria's total GDP.<sup>72</sup> However as of 1999, 70% of the country was employed in agriculture and only 10% in any kind of industry.<sup>73</sup> In the case of Nigeria, the emphasis on oil extraction has created a rapidly growing oil sector while the rest of the economy is plagued by stagnation, unemployment, and decline.<sup>74</sup> Investments in agriculture and sustainable development nationwide would ease this problem, but the government has not invested oil revenue in other sectors of the economy, which has perpetuated a cycle of dependence on oil exports.

Dualism in Nigeria has had a geographic component as well an economic one. As industries other than oil have not been developed, the regions of Nigeria that do not produce oil, which is 88% of the land area and 78% of the population<sup>75</sup> are not capable of significantly contributing to an economy dominated by petroleum.<sup>76</sup> This increases the burden on oil-producing regions because the petroleum resources of the Niger Delta must support the economy of the entire country. Investment in a diversified economy would help to remedy the overexploitation of the Niger Delta and the unemployment and stagnation of the rest of the country. At the time of Nigerian independence in 1960 before the rapid expansion of the oil industry, Nigeria exported agricultural products, producing more than enough to feed its people.<sup>77</sup> However, Nigeria now imports food,<sup>78</sup> caused by lack of investment in agriculture, decreased yields due to environmental degradation,<sup>79</sup> and a rapidly

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<sup>71</sup> The World Factbook, CIA.

<sup>72</sup> Oil rents (% of GDP), The World Bank, 2011, <http://data.worldbank.org/indicator/NY.GDP.PETR.RT.ZS>.

<sup>73</sup> The World Factbook, CIA.

<sup>74</sup> Ikein, *The Impact of Oil on a Developing Country*.

<sup>75</sup> The World Factbook, CIA.

<sup>76</sup> Ikein, *The Impact of Oil on a Developing Country*.

<sup>77</sup> Okonta and Douglas, *Where the Vultures Feast*.

<sup>78</sup> The World Factbook, CIA.

<sup>79</sup> *Environmental Assessment of Ogoniland*, United Nations Environment Programme, (Nairobi: United Nations Environment Programme, 2011).

growing population. This dependence on food imports makes the country vulnerable to swings in global food prices, even though Nigeria has the climate and available land to produce far more food than it currently does.<sup>80</sup>

### *Oil Companies in Nigeria*

There are many companies involved in crude oil extraction in Nigeria. Over 95% of Nigerian oil production comes from six joint ventures between the NNPC and multinational oil companies, including Royal Dutch Shell, ChevronTexaco, ExxonMobil, Elf—a French company—and Agip—an Italian company.<sup>81</sup> There are also numerous other private companies that engage in much smaller projects.<sup>82</sup> Although it is the majority stakeholder in all of the joint ventures, the NNPC does not take part in any of the exploration or extraction and thereby has relatively little technical knowledge about oil extraction, increasing dependence on foreign companies. The largest venture, which is responsible for 40% of Nigeria's total production, is composed of the NNPC with a 55% share, Royal Dutch Shell with 30%, Elf with 10% and Agip with 5%. The daily operations of this particular venture are handled entirely by Shell.<sup>83</sup>

Shell is not the only company involved in Nigeria. However, it is the one that Nigerians most associate with environmental degradation and exploitation of their country's oil resources.<sup>84</sup> This is not entirely fair as the other oil companies have caused serious degradation as well. However, there are several reasons for Shell's particularly infamous reputation. First, the Shell-operated venture is the largest in

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<sup>80</sup> Christian Okeke, "Nigeria's Food Imports Growing at an Unacceptable Rate – Jonathan," *Nigerian Tribune*, April 16, 2012., <http://tribune.com/ng/>.

<sup>81</sup> "Joint Venture Operations," Nigerian National Petroleum Corporation, Last modified November 16, 2012, <http://www.nnpcgroup.com/nnpcbuisness/upstreamventures.aspx>

<sup>82</sup> Falola and Genova, *The Politics of the Global Oil Industry*.

<sup>83</sup> "Joint Venture Operations," NNPC.

<sup>84</sup> O'Neill, "Curse of the Black Gold."

the country and it is primarily onshore unlike four of the other five joint ventures.<sup>85</sup> Shell's operations come into contact with communities much more often than the offshore rigs. Shell is also the oldest and most established company in the country and has developed a policy of environmental disregard that set the standard for other oil companies that came into the area later.<sup>86</sup> Shell extracts oil in 38 countries worldwide<sup>87</sup> and has operations in over 100 countries, yet 40% of the oil spills attributed to its operations are in Nigeria.<sup>88</sup> An examination of Shell's activities encompasses the major economic and environmental conflicts and controversies that define Nigeria's oil industry. Therefore, I will explore primarily Shell's activities in this project.

In 2011, Royal Dutch Shell's revenue was \$470 billion,<sup>89</sup> which is almost exactly double Nigeria's GDP.<sup>90</sup> Nigerian production makes up approximately ¼ of Shell's crude oil and natural gas production available for sale worldwide.<sup>91</sup> What has made Shell's production in Nigeria particularly profitable is that Shell's African oil sold at \$111 a barrel, which was significantly higher than its oil from any other region of the world. Furthermore, Shell's costs of production per barrel are the second cheapest with Asian production being slightly less expensive.<sup>92</sup> Shell estimated that in 2011, Shell-run operations produced nearly 974,000 barrels per day in Nigeria.<sup>93</sup> Although Shell is certainly profiting substantially from its oil extraction in Nigeria, the complexity of Shell's operations and a lack of available

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<sup>85</sup> "Joint Venture Operations," NNPC.

<sup>86</sup> Okonta and Douglas, *Where the Vultures Feast*.

<sup>87</sup> Royal Dutch Shell PLC, 2011 Annual Report, Dec. 31, 2011, Available from Mergent Online. Accessed October 2, 2012

<sup>88</sup> Ejikene, "The Oil Spills We Don't Hear About."

<sup>89</sup> Shell, 2011 Annual Report.

<sup>90</sup> Data from: The World Factbook, CIA.

<sup>91</sup> Data from: Shell, 2011 Annual Report.

<sup>92</sup> Shell, 2011 Annual Report.

<sup>93</sup> "Shell Interests in Nigeria," Shell Nigeria, April 2012, [http://www-static.shell.com/static/nga/downloads/pdfs/briefing\\_notes/shell\\_interests\\_2012.pdf](http://www-static.shell.com/static/nga/downloads/pdfs/briefing_notes/shell_interests_2012.pdf)

country-specific information about Shell's financial gains in make it difficult to ascertain exactly how much money Shell makes in Nigeria.

Although the oil industry in Nigeria is immensely profitable, the oil companies still have serious challenges extracting oil in the country. In its annual report, Shell lists some of the risks to its Nigerian operations: "[R]isks include: security issues surrounding the safety of our people, host communities, and operations"<sup>94</sup> These security issues are caused primarily by protesters who believe that the oil-producing regions should benefit from the oil extraction that takes place there. Protesters occupy flow stations, shut down production, take oil workers hostage, and sabotage oil infrastructure.<sup>95</sup> These protests are in response to the lack of local benefits seen by oil producing regions, specifically unemployment and economic inequality. <sup>96</sup> This instability has caused many firms to decrease production.<sup>97</sup>

MEND is a prominent, violent group in the Niger Delta region composed primarily of young, Ijaw men seeking the redistribution of oil wealth and greater control of the local sectors of oil production. MEND and the Nigerian government reached an agreement in 2009 promising economic reform in exchange for amnesty for the militants,<sup>98</sup> which reduced the number of attacks, but the lack of any substantial job creation has increased the instances of oil theft.<sup>99</sup> One common response to the problems caused for oil companies by social unrest is to move their oil production offshore, which is expensive, but much less vulnerable to disruption.<sup>100</sup> Offshore extraction has the advantage of interacting less with

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<sup>94</sup> Shell, 2011 Annual Report, 14

<sup>95</sup> Bronwen Manby, *The Price of Oil: Corporate Responsibility and Human Rights Violations in Nigeria's Oil Producing Communities*, Human Rights Watch, (New York: Human Rights Watch, 1999)

<sup>96</sup> Okonta and Douglas, *Where the Vultures Feast*.

<sup>97</sup> "Nigeria," EIA.

<sup>98</sup> Niger Delta Amnesty Programme, Federal Government of Nigeria, 2012, <http://www.nigerdeltaamnesty.org/>.

<sup>99</sup> "Nigeria," EIA.

<sup>100</sup> O'Neill, "Curse of the Black Gold."

communities and therefore having less direct human impacts. However, as drilling moves out to deeper water, more leaks are likely as a result of the increasing complexity of drilling operations.<sup>101</sup>

Oil companies have contributed to a system of environmental degradation and governmental corruption in Nigeria. However, it is unfair to blame Nigeria's lack of social development entirely on the oil companies. The tenuous nature of the contracts between the government and the oil companies give oil companies the incentive to extract oil as quickly as possible before they lose their oil concessions. This insecurity of tenure also discourages oil companies from investing in oil-producing communities or in infrastructural improvements as the benefits from these investments would be seen in the long term. Another possible reason for multinational oil companies to balk at providing services such as education to Nigerians in oil producing regions is that the communities affected by oil extraction could then be more likely to protest the degradation of the area. If Nigeria then decided that it wanted to take control of the entire oil industry, the oil companies would not only have lost the money that they invested in communities, but would also have at least partially financed their own expulsion. However, the activities of oil companies are all dependent on the regulatory environment, or more specifically the lack of regulation, created by the Nigerian federal government.

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<sup>101</sup> Ejikene, "The Oil Spills We Don't Hear About."



## THE GOVERNMENT

“Nigerians are what they are only because their leaders are *not* what *they* should be.”

– Chinua Achebe<sup>102</sup>

Nigeria’s government has periodically changed its structure, going through periods of military dictatorship and periods of democracy.<sup>103</sup> However, regardless of the conditions under which each leader took power, the government has consistently been characterized by pervasive corruption. Corruption in Nigeria is so profound that the country has often been referred to as a kleptocracy, which is defined as thievery as a system of government.<sup>104</sup> For example, from 1988 to 1994, \$12.4 billion of government revenue was put into “dedicated accounts,” \$12.2 billion of which was thereafter unaccounted for.<sup>105</sup> Even more recently, in 2003, an estimated 70% of the government’s oil revenue was stolen or wasted.<sup>106</sup> Nigeria is widely found to be one of the most corrupt and poverty stricken countries in the world.<sup>107</sup> Nigeria’s large amounts of oil revenue do not go towards Nigerian development or even into the Nigerian treasury but instead into the bank accounts of government officials, leaving the country crushed by international debt while the leaders become enormously wealthy.

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<sup>102</sup> Chinua Achebe, *The Trouble With Nigeria*, (Oxford: Heinemann, 1983), 10.

<sup>103</sup> Ikein, *The Impact of Oil on a Developing Country*.

<sup>104</sup> Segun Osoba, “Corruption in Nigeria: Historical Perspectives,” *Review of African Political Economy* 23, no. 69 (1996).

<sup>105</sup> Okonta and Douglas, *Where the Vultures Feast*.

<sup>106</sup> O’Neill, “Curse of the Black Gold.”

<sup>107</sup> Falola and Genova, *The Politics of the Global Oil Industry*.

## *Corruption*

Corruption has been prevalent in Nigeria at least since Nigeria was a British colony. There has always been a small upper class becoming unbelievably wealthy at the expense of the majority of Nigerians. Originally, this upper crust was predominantly composed of the few British colonial officials in the colony who monopolized the Nigerian trading economy. For almost all Nigerians, wealth was incredibly scarce, a trend that continued after independence. The governmental sector was one of the few activities with the potential for significant financial gain, meaning that those in power often took what they could while they could.<sup>108</sup> The main political struggles over the years have not been for political change, but have been a struggle among elites to gain access to the exorbitant profits to be had from the government's oil revenue.<sup>109</sup>

Corruption is by no means unique to Nigeria, but a crucial and often overlooked component of Nigerian corruption is the societal context of the practice. Although corruption is one of the most prominent concerns of the Nigerian public, it is something that is not restricted to the country's elite. In many areas, "typical" Nigerians—those not in positions of power—still take part in the system of exchanging wealth and favors for access to resources. These exchanges depend on an ingrained practice of reciprocity and an emphasis on the importance of kinship.<sup>110</sup>

This same emphasis on family and tribal associations often makes it impossible to separate the motives of an individual from that of their social group<sup>111</sup> not only in small-scale decision-making, but also in decisions of greater government bodies as well. It seems that there is a vicious cycle where leaders feel obliged to do what they can to enrich their particular ethnic group, which is then perceived as

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<sup>108</sup> Osoba, "Corruption IN Nigeria."

<sup>109</sup> Ilufoe Sarafa Ogundiya, "Political Corruption in Nigeria: Theoretical Perspectives and Some Explanations," *Anthropologist* 11, no. 4 (2009).

<sup>110</sup> Smith, "Kinship and Corruption in Contemporary Nigeria."

<sup>111</sup> Smith, "Kinship and Corruption in Contemporary Nigeria."

typical behavior of the government thereby intensifying distrust of the ruling elite, decreasing national unity and development of a national identity, increasing group alliances, and giving leaders the incentive to further enrich their own group instead of the country as a whole. As a result, the factions not in power are excluded from sharing the public wealth.<sup>112</sup>

Another factor that contributes to the prevalence of corruption in local governmental bodies is that Nigerians have seen time and again that honesty and hard work are not the means to success.<sup>113</sup> The wages in Nigeria are so low and jobs so scarce that it is difficult to make a living legitimately. The Nigerian minimum wage is equivalent to \$114 a month,<sup>114</sup> not to mention the fact that environmental degradation has made traditional means of subsistence, such as farming and fishing, impossible in many areas.<sup>115</sup>

Nigerian corruption is complex, yet the negative results are readily apparent. Nigeria's wealth goes primarily towards enriching the few instead of developing infrastructure and social programs.<sup>116</sup> Therefore, schools, hospitals, access to clean water, and other such essential services are absent from many areas.<sup>117</sup> Because the government makes 40% of its revenue from oil companies<sup>118</sup> and less than 1% from tax revenue,<sup>119</sup> it is financially advantageous for the government to consider the welfare of the oil companies and their shareholders above the welfare of Nigerians.<sup>120</sup>

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<sup>112</sup> Osoba, "Corruption In Nigeria."

<sup>113</sup> Osoba, "Corruption In Nigeria."

<sup>114</sup> Niyi Odebode, *et al*, "Governors, Labour at War Over Minimum Wage," *The Punch*. August 4, 2012, <http://www.punchng.com/news/governors-labour-at-war-over-minimum-wage/>.

<sup>115</sup> O'Neill, "Curse of the Black Gold."

<sup>116</sup> Osoba, "Corruption In Nigeria."

<sup>117</sup> O'Neill, "Curse of the Black Gold."

<sup>118</sup> "Nigeria," EIA.

<sup>119</sup> Tax Revenue (% of GDP), The World Bank, 2008, <http://data.worldbank.org/indicator/GC.TAX.TOTL.GD.ZS>

<sup>120</sup> Ikein, *The Impact of Oil on a Developing Country*.

### *Role of the Government in Environmental Degradation*

Corruption also contributes to Nigeria's pervasive environmental degradation. There is little incentive for the federal government to regulate the oil activities that are the primary funders of their administration. The Nigerian government does not release statements about oil spills or even condemn such activities of oil companies.<sup>121</sup> The environmental costs of environmental degradation are not borne by the government, but are borne primarily by the Nigerians that live in the oil producing regions. In practice, Nigeria's environmental regulations are ineffective due to overlapping jurisdictions and conflicting policies between the Federal Environmental Agency (FEPA) and the Department of Petroleum Resources (DPR), the two agencies primarily responsible for instituting and enforcing environmental regulation.<sup>122</sup>

The lack of concern from Nigeria's federal government for the environment of Nigeria's oil producing regions is one manifestation of Nigeria's ethnic conflicts. Igbo and Ijaw minority groups primarily populate the states of the Niger Delta while the Hausa-Fulani people from the north typically dominate the federal government.<sup>123</sup> Each group feels that they are entitled to the oil wealth. In principle, Nigeria's oil revenues go to the central government where they are then distributed to Nigeria's 36 states. Between corruption, group loyalties, and the government's claim that this money should be distributed based primarily on state population, very little of this money finds its way back to the oil producing states. Three percent of the oil revenues are theoretically allocated to ecological considerations and other considerations unique to oil producing states. However, while 3% of Nigeria's oil revenue is a substantial sum, it is not nearly enough to address the scope of the problems caused by oil exploitation in these regions, and very little of the money is even applied effectively to ecological concerns. Estimates

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<sup>121</sup> Ejikene, "The Oil Spills We Don't Hear About."

<sup>122</sup> Manby, *The Price of Oil*

<sup>123</sup> Buhayar, "Ethnicity in Nigeria."

of what would be necessary to compensate for and mitigate the degradation are closer to 20% of the oil revenues.<sup>124</sup>

However, Nigeria's current president, Goodluck Jonathan, is an Ijaw and, as kinship and tribal affiliations are often the most important ties in Nigeria, President Jonathan has a greater social interest in the condition of the Niger Delta than previous leaders. In fact President Jonathan fired many of the top officials in Nigeria's national oil company in response to corruption charges.<sup>125</sup> Unfortunately, many of the attempts in Nigeria to remedy corruption have been symbolic and actually end up covering up corruption because those investigating were beneficiaries of the system.<sup>126</sup> It seems that any significant strides against corruption go against ingrained economic and social paradigms, which will not be altered unless there are serious structural and political adjustments to Nigeria's government.

### *Nigerian Dependence on Oil*

But does Nigeria's natural wealth inherently make it prone to corruption and lack of social development? Geographer Richard Auty cites four conditions necessary for equitable, rapid development: access to land and education, an open trade policy, public accountability, and economic diversification that provides some resistance to shocks. These qualities are most often associated with countries that are relatively poor in natural resources.<sup>127</sup> Currently, Nigeria does not satisfy any of the four conditions. Diversification, in particular, is less of a priority to the Nigerian government because oil is so profitable. Resource-rich communities also have the tendency to rely on the revenue from their exports for a longer period of

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<sup>124</sup> Ikein, *The Impact of Oil on a Developing Country*.

<sup>125</sup> "President Goodluck Jonathan Sacks Nigeria Oil Bosses," BBC News, June 27, 2012, <http://www.bbc.co.uk/news/world-africa-18606614>.

<sup>126</sup> Osoba, "Corruption In Nigeria."

<sup>127</sup> Richard M. Auty. "The Political Economy of Resource-Driven Growth." *European Economic Review* 45 (2001).

time than resource-poor countries.<sup>128</sup> Relying on exports slows industrialization and urbanization, creating a surplus of rural labor that increases social tensions and inequality.<sup>129</sup>

The Nigerian federal government is financially dependent on the actions of the oil companies and the activities of the companies are nurtured by favorable regulations from the government. However, Nigeria is so reliant on its oil that it has relatively little leverage when negotiating with the oil companies. Even though the Nigerian government has profited immensely from its relationships with oil companies, the oil companies seem to be even greater beneficiaries of the system. The Nigerian federal government pays the majority of the costs of oil extraction projects, but the oil companies determine what their costs are, values that the Nigerian government does not have the technical expertise to verify. Shell claims that its costs of production have continued to rise. However, production costs around the world are decreasing as a result of technological advances. Shell doubly benefits by claiming its costs are increasing: the Nigerian government pays for these inflated costs and Shell pays less in taxes as it can claim that a portion of its profits are actually recouping its costs.<sup>130</sup> However, whether the oil money ends up with the oil companies or the corrupt Nigerian federal government has little effect on the Nigerian people.

Oil companies and the few individuals who are able to use the national treasury for their own devices profit immensely from this system. The rest of Nigeria is left with very little benefit from oil extraction. For the oil producing communities, the main impact of the oil industry is extensive environmental degradation with little to no compensation.

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<sup>128</sup> Auty, "The Political Economy of Resource-Driven Growth."

<sup>129</sup> Auty, "The Political Economy of Resource-Driven Growth."

<sup>130</sup> Okonta and Douglas, *Where the Vultures Feast*.

## ENVIRONMENTAL OVERVIEW

It is exceedingly difficult to get an accurate picture of the global environmental impacts of the oil industry. The data are diffuse and rarely objective.<sup>131</sup> Preventing and mitigating environmental damage are costs to oil companies, giving them the incentive to under-report harm that they do to ecosystems and communities. Governments in countries that are dependent on oil revenues frequently do not want to report emissions and leaks to the international community or their citizens as doing so could jeopardize their favorable relationships with the oil companies and force them to attend to the consequences.<sup>132</sup> Therefore, there is little incentive for either the industry or such governments to quantify the damage in the first place, let alone grant public access to this data if it exists. The main reason Nigerian environmental degradation has become an issue outside of Nigeria is because community groups have taken legal action and moved to raise social awareness on an international level.<sup>133</sup> Satellite data is also starting to make it easier to more accurately and objectively determine the extent of environmental degradation around the world. There is much that we do not know about the extent and impacts of environmental damage, but that does not mean that it is not happening. Oil extraction can be destructive on a massive scale.

Reckless oil extraction has many damaging environmental impacts, from the initial clearing of sensitive ecosystems to pollution during the extraction process to the treatment of industrial wastes. However, such extraction still takes place in many countries all over the world. There are many reasons for this seeming lack of concern for the environment.<sup>134</sup> A common view is that such environmental

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<sup>131</sup> For example, the figure for Shell's total profits from its Nigerian operations is not readily available. Shell's annual report does not break down its revenue by country of origin. Between governmental corruption and the lack of objective verification of Shell's costs and revenues, it seems possible that even the Nigerian government is not aware of exactly how much Shell makes in Nigeria.

<sup>132</sup> Falola and Genova, *The Politics of the Global Oil Industry*.

<sup>133</sup> Ibid.

<sup>134</sup> Ibid

concerns are the luxuries of developed countries since environmental regulation inherently limits short-term economic growth. In fact, Shell has defended the idea of national rather than international environmental standards by arguing that higher standards could be harmful to the growth of local economies.<sup>135</sup> This growth, they say, is necessary because developing countries must attend basic needs of their people first and provide them with food and jobs before worrying about the environment.

However this “growth” is not synonymous with actual development, as demonstrated by the fact that the residents of Oloibiri, the town where oil was first found in Nigeria over 50 years ago, are still waiting for the wealth Shell promised them.<sup>136</sup> The only improvement to the community from the massive oil operations in the area was a six-room addition to the secondary school.<sup>137</sup> Oloibiri’s oil is gone, 90% of population has left, and there is no electricity, few jobs, and little food or clean water. In 2001, the federal government laid the foundation stone for the Oloibiri Oil and Gas Research Institute, a government-funded museum and library. The stone is still there, but the rest of the institute was never constructed.<sup>138</sup>

### *The Blame Game*

Oil producing countries often point fingers at the oil companies, which they say have the expertise to extract oil with less environmental degradation and therefore have the obligation to do so. However, the oil companies respond by saying that the government should be the party responsible for setting and enforcing environmental policies. Therefore, neither group takes responsibility for preventing or cleaning up the damage.<sup>139</sup> The environmental and health impacts of

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<sup>135</sup> Manby, *The Price of Oil*

<sup>136</sup> O’Neill, “Curse of the Black Gold.”

<sup>137</sup> Okonta and Douglas, *Where the Vultures Feast*.

<sup>138</sup> O’Neill, “Curse of the Black Gold.”

<sup>139</sup> Andrew Walker, “Nigeria’s Gas Profits ‘Up in Smoke,’” BBC News, January 13, 2009, <http://news.bbc.co.uk/2/hi/africa/7820384.stm>



the oil industry are not treated as economic concerns by the government or by oil companies, which is a case of major market and governmental failure.

Oil companies in Nigeria claim that they operate at the highest environmental standards<sup>140</sup> because this is a politically and socially intelligent way for them to brand themselves. However oil companies do not have an incentive to hold themselves to any sort of environmental standards in the absence of effective regulation. Shell conducts extensive environmental impact studies in its operations in many other countries, but such studies are not required in Nigeria and therefore are not performed because they are costly.<sup>141</sup> With the exception of those that directly impact their operations, environmental impacts are economic externalities to oil companies. Any money spent cleaning up spills, for example, is an additional cost that does not benefit multinational oil companies that have little financial interest in the health of surrounding communities. Instead it is the communities that farm the polluted land, the people that breathe polluted air, and all those that must drink polluted water that bear the environmental costs of these activities. This lack of concern for communities and the environment is morally suspect. However, paying for the costs of the damage, thereby internalizing the environmental externalities, would cut into the companies' profits, making it economically unattractive.

The Nigerian federal government has not created a regulatory environment that effectively prevents environmental degradation. Whether for convenience or lack of monitoring capabilities, oil-producing countries often rely on self-reporting of environmental incidents from oil companies, which is often inaccurate.<sup>142</sup> The Nigerian federal government has little incentive to regulate oil companies because a substantial portion of the government's revenue comes from oil activities. In

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<sup>140</sup> Manby, *The Price of Oil*

<sup>141</sup> Okonta and Douglas, *Where the Vultures Feast*.

<sup>142</sup> Dara O'Rourke and Sarah Connolly, "Just Oil? The Distribution of Environmental and Social Impacts of Oil Production and Consumption," *The Annual Review of Environment and Resources* 28 (2003).

Nigeria, there was not even a federal environmental protection agency until 1988, and no mandated environmental impact reports until 1992.<sup>143</sup> One major reason that the Nigerian government does not enforce their environmental regulations effectively is that these regulations are virtually unenforceable given Nigeria's current governmental structure. Jurisdictions overlap and policies conflict from one government agency to another.<sup>144</sup> Furthermore, in the face of incredibly complex operations run by multinational oil companies, Nigeria currently lacks the technical knowledge to enforce their environmental policies or verify reports from oil companies even if they wanted to.<sup>145</sup>

Nigeria's extreme dependence on its oil resources results in a broad range of environmental issues. However, there are three main environmental impacts of the petroleum industry that are the most problematic and far-reaching and therefore warrant more discussion: land use changes, pollution, and gas flaring.

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<sup>143</sup> O'Neill, "Curse of the Black Gold."

<sup>144</sup> Ikein, *The Impact of Oil on a Developing Country*.

<sup>145</sup> Okonta and Douglas, *Where the Vultures Feast*.

## LAND USE CHANGE

The Niger Delta is an incredibly biodiverse region including areas of lowland rainforests and mangrove swamps. Moreover, the area is not only rich in biodiversity, but also in natural resources, including fisheries, fertile agricultural land, forests, and petroleum.<sup>146</sup> As a result of intensive oil extraction, the region's many other natural resources have been underdeveloped and degraded, compromising Nigeria's efforts to diversify its economy.

### *The Oil Extraction Process*

Enormous regions of the Niger Delta have been compromised by oil activities. From exploration to extraction, the petroleum industry needs space, leaving behind vast tracts of cleared and despoiled land. When prospecting for oil, it is necessary to clear strips of land for seismic studies. Small explosions produce seismic waves, which are reflected by different layers in the rock. Analysis of the reflected waves can determine the composition of the earth, including the presence of oil and gas. In Nigeria, the seismic waves are often produced using dynamite charges, a method banned in most oil-producing countries because dynamite is disruptive and environmentally damaging.<sup>147</sup> The alternative is a vibrator truck that pounds the earth to produce the necessary waves. However, these trucks are more expensive and more difficult to transport into swampy areas than dynamite.<sup>148</sup> In addition to the damage caused by the dynamite, the area through which the seismic waves pass must be a swathe of land cleared of any foliage.<sup>149</sup> The exploration

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<sup>146</sup> David Moffat and Olaf Lindén, "Perception and Reality: Assessing Priorities for Sustainable Development in the Niger River Delta," *Ambio* 24, no. 7/8 (1995).

<sup>147</sup> "Looking for Oil and Gas?," San Joaquin Valley Geology, Last updated January 26, 2011, <http://www.sjvgeology.org/oil/exploration.html>

<sup>148</sup> Ibid.

<sup>149</sup> Okonta and Douglas, *Where the Vultures Feast*.

process also involves the construction of roads, which open up previously pristine areas to further exploration and degradation.<sup>150</sup>

Once oil is located, large channels are dredged to permit tugboats to tow in huge drilling machinery. This process acidifies the water and increases rates of sedimentation in addition to disturbing the hydrology of the dredged areas. To test the quality and commercial viability of the extracted oil, unlined pits are dug to build temporary gas flaring sites requiring more cleared land and polluting air, soil, and water.<sup>151</sup> Finally, once oil is extracted, it is necessary to build pipelines, pumping stations, and storage tanks, all of which need to be built on cleared land.<sup>152</sup>



**Figure 3: Healthy and Oil-Choked Mangroves. Left: Healthy mangrove roots capable of providing environmental services such as coastline protection and fish nurseries.<sup>153</sup> Right: Dead mangroves coated in oil.<sup>154</sup>**

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<sup>150</sup> Moffat and Lindén, "Perception and Reality."

<sup>151</sup> Okonta and Douglas, *Where the Vultures Feast*.

<sup>152</sup> Falola and Genova, *The Politics of the Global Oil Industry*.

<sup>153</sup> *The Encyclopedia of the Earth*, "Mangrove Roots," Accessed December 2, 2012, [http://www.eoearth.org/article/Oil\\_spills\\_in\\_mangroves](http://www.eoearth.org/article/Oil_spills_in_mangroves)

<sup>154</sup> *Environmental Assessment of Ogoniland*, United Nations Environment Programme, (Nairobi: United Nations Environment Programme, 2011).

## *Mangroves*

It is particularly unfortunate that many of the areas destroyed for oil extraction in Nigeria are mangrove forests, which are some of the world's most biologically diverse and valuable ecosystems in terms of the environmental services they provide. Mangroves can be found where salt and fresh water meet, surviving in environments that are far too brackish for most plants.<sup>155</sup> Mangroves are a diverse group of plants that can be identified by sprawling, stilted root systems that help them respire since oxygen is present in very low concentrations in the waterlogged soil. The root systems of mangroves serve as nurseries to many species of fish and home to many shellfish, making them vital to maintaining healthy fish populations.<sup>156</sup> Mangroves also help to prevent the erosion of coastline and can even increase land area by accumulating sediment in their roots.<sup>157</sup> Not only do mangroves provide important sources of food to local communities and keep the very land they live on from washing away, but they also protect the coastline. One of the most important functions of mangroves is as a buffer, decreasing the damage caused by storms and tsunamis.<sup>158</sup>

From 1986-2003, satellite images show that 50,000 acres of mangroves were lost in Nigeria, primarily to make room for oil and gas expansion.<sup>159</sup> Mangroves are incredibly slow to regenerate as well, especially in polluted areas. Adult mangroves can often survive in degraded areas, but seedlings cannot, preventing the ecosystem from regenerating. Lines cleared for seismic testing, which are only a few meters wide, can still be seen over a decade after they were cleared (Figure 4).<sup>160</sup> Although these lines themselves are relatively low impact, their continued presence is

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<sup>155</sup> The Ocean Portal Team, "Mangroves," Smithsonian National Museum of Natural History, 2010, <http://ocean.si.edu/mangroves>.

<sup>156</sup> Moffat and Lindén, "Perception and Reality."

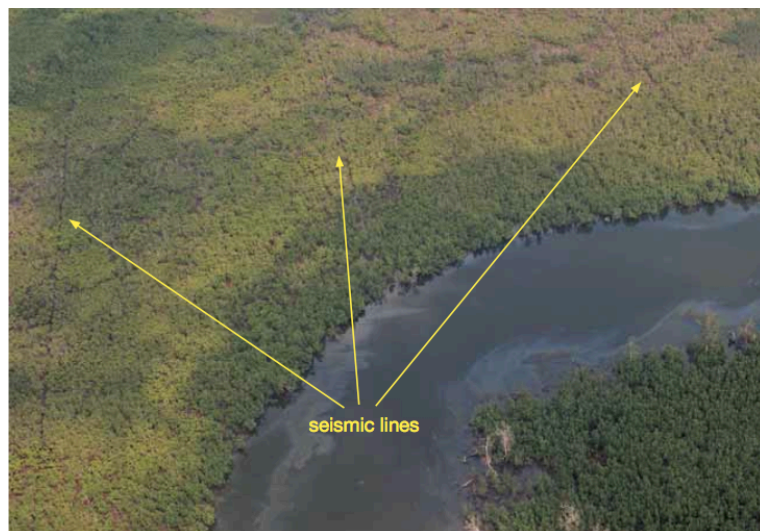
<sup>157</sup> The Ocean Portal Team, "Mangroves."

<sup>158</sup> V. P. Upadhyay *et al.* "Human-Mangrove Conflicts: The Way Out." *Current Science* 83, no. 11 (2002).

<sup>159</sup> O'Neill, "Curse of the Black Gold."

<sup>160</sup> Moffat and Lindén, "Perception and Reality."

indicative of the slow regeneration of mangrove ecosystems.<sup>161</sup> Mangroves depend on a delicate hydrological balance, relying on periodic flooding and a consistent balance of fresh and salt water. Even mangrove areas that have not been deforested have still been negatively impacted. Eighty percent of the delta region typically floods annually, which is responsible for the region's fertile soil. However, dams have altered the seasonal hydrological patterns, greatly decreasing the amount of land that is flooded.<sup>162</sup> Channels to transport machinery are dug without an appreciation for the health of the mangroves and therefore disrupt the areas of fresh and salt water necessary for the survival of the mangrove swamps.<sup>163</sup>



**Figure 4: Persistence of seismic lines in mangrove forest decades after clearing.**<sup>164</sup>

Oil extraction is also disruptive to agricultural areas. Oil companies, Shell in particular, are notorious for taking advantage of landowners who do not fully understand the impacts of the contracts that they are signing.<sup>165</sup> Therefore, fertile farmland becomes a site of oil extraction or is crossed by leaky, aboveground

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<sup>161</sup> *Environmental Assessment in Ogoniland*. UNEP.

<sup>162</sup> Moffat and Lindén, "Perception and Reality."

<sup>163</sup> Okonta and Douglas, *Where the Vultures Feast*.

<sup>164</sup> *Environmental Assessment in Ogoniland*. UNEP.

<sup>165</sup> *Ibid.*

pipelines, which often pollute the land and decrease crop yield. Although decreases in agricultural productivity in the most heavily affected areas have not been studied, indirect evidence, such as sociological studies, declining crop yields in neighboring states, and an expansion of cultivation into less desirable areas, indicates that the productivity has been adversely affected by oil operations.<sup>166</sup> Estimates range widely as to the true cost of oil extraction in communities. In the village of Utapete near an area of intensive gas flaring, an estimated \$1.5 billion worth of oil has been extracted while the community estimates that the net benefit of the oil operations to them has been negative, costing them \$300 million in lost crop yield, polluted air and water, and other environmental damages.<sup>167</sup>

Another extremely problematic pattern that has been exacerbated—although not caused—by oil extraction is massive immigration to the oil-rich states in the Niger Delta in conjunction with Nigeria’s ballooning population. While developing countries in other regions of the world have been able to bring birth rates down substantially through health and education programs and increased opportunities for women,<sup>168</sup> birth rates in Nigeria remain high with a population growth rate of 2.55%.<sup>169</sup> If growth continues at this rate, the population of the country, currently at 170.1 million,<sup>170</sup> will double in 28 years. Hopes for wealth and employment from oil have brought and continue to bring many Nigerians to oil-producing regions. The influx is primarily composed of young people who are searching for work in the face an unemployment rate of 21% nationwide<sup>171</sup> and approaching 50% for young people in urban areas.<sup>172</sup>

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<sup>166</sup> Moffat and Lindén, “Perception and Reality.”

<sup>167</sup> Okonta and Douglas, *Where the Vultures Feast*.

<sup>168</sup> Elizabeth Rosenthal, “Nigeria Tested by Rapid Rise in Population,” *The New York Times*, April 14, 2012, <http://www.nytimes.com/>.

<sup>169</sup> The World Factbook, CIA.

<sup>170</sup> Ibid.

<sup>171</sup> Ibid.

<sup>172</sup> Rosenthal, “Nigeria Tested by Rapid Rise in Population.”

This immigration has vastly increased the number of people relying on the land in the Niger Delta for food and housing, disrupting the delicate balance with the ecosystem practiced by communities native to the region for centuries.<sup>173</sup> There is only so much land that can be sustainably cultivated. Increased demand has decreased fallow periods, expanded farmland, and put a great deal of strain on an environment whose resilience and ability to mitigate damage is greatly diminished by pollution and degradation from oil extraction.

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<sup>173</sup> Okonta and Douglas, *Where the Vultures Feast*.



## OIL SPILLS

[Reckless oil exploitation] is omniscidal in effect. Human life, flora, fauna, the air, fall at its feet, and finally, the land itself dies”

–Ken Saro Wiwa<sup>174</sup>



**Figure 5: An Oil Spill in Ogoniland<sup>175</sup>**

For residents of the Niger Delta, oil spills are a frequent and consistent fact of life. Oil companies reported 6,817 oil spills in Nigeria from 1976-2001, which is an average of nearly one oil spill every day for 25 years.<sup>176</sup> Oil companies self-report the size and frequency of oil spills, claims which are not subsequently verified by regulators. Some estimates put the actual number of spills at least 10 times higher.<sup>177</sup> Small oil spills often go unreported, but the net impact of these ubiquitous, relatively minor spills is huge. Underreporting of the volume of larger

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<sup>174</sup> Ken Saro-Wiwa, Statement to Ogoni Civil Disturbances Tribunal, 1995. Quoted in Manby, *The Price of Oil*

<sup>175</sup> *Environmental Assessment in Ogoniland*. UNEP.

<sup>176</sup> O’Neill, “Curse of the Black Gold.”

<sup>177</sup> Moffat and Lindén, “Perception and Reality.”

spills is also common. Nigerian oil contains many light hydrocarbons that evaporate quickly, making it difficult to estimate the original volume of the spill.<sup>178</sup>

However, some underestimation seems far more intentional. One particularly egregious example is a spill in 2008 near the town of Bodo in Rivers State where a US oil spill consultancy firm with the backing of Amnesty International estimates that, based on video footage of the spill, at least 60 times more oil was released than Shell officially reported.<sup>179</sup> Shell, the Nigerian federal government's oil spill agency, the Nigerian oil regulator, and a representative of the community all approved the underestimated value,<sup>180</sup> which is indicative of Nigeria's pervasive regulatory failures caused by a combination of corruption and a lack of technical expertise on the part of everyone but the oil companies.<sup>181</sup> The community is currently suing Shell in British court seeking funds to clean up the area devastated by the spill, where creeks are still coated with oil four years after the incident.<sup>182</sup>

### *Impacts of Oil Spills*

Until recently, there had been little study of the impacts of oil spills in the Niger Delta on people and the ecosystems that they inhabit. In 2011, the United Nations Environment Programme (UNEP) released a comprehensive study of the environmental impact of oil extraction in the Ogoniland region of Rivers State (Figure 6), an area that has been the site of intensive oil extraction and environmental degradation as well as political action by the Ogoni people against the environmental and economic injustices perpetrated by Shell and the Nigerian

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<sup>178</sup> Okonta and Douglas, *Where the Vultures Feast*.

<sup>179</sup> John Vidal, "Shell Nigeria Oil Spill '60 Times Bigger Than It Claimed,'" *The Guardian*. April 23, 2012, <http://www.guardian.co.uk/>.

<sup>180</sup> John Vidal, "Shell Nigeria Oil Spill '60 Times Bigger Than It Claimed,'" *The Guardian*. April 23, 2012, <http://www.guardian.co.uk/>.

<sup>181</sup> Okonta and Douglas, *Where the Vultures Feast*.

<sup>182</sup> John Vidal, "Shell Nigeria Oil Spill '60 Times Bigger Than It Claimed,'" *The Guardian*. April 23, 2012, <http://www.guardian.co.uk/>.

federal government.<sup>183</sup> The UNEP found that the impact of oil spills in the region has been severe. Since the Niger Delta has heavy rainfall, any delay in cleaning up spills causes oil to be washed



**Figure 6: Ogoniland (Source UNEP)**

into rivers and lakes. One site of an oil spill mentioned in the report, Ejama-Ebubu, was still seriously contaminated after forty years and several cleanup attempts. Oil has polluted not only surface waters, but soil and groundwater as well. Out of 69 sites studied, hydrocarbons were found in soil at least 5 meters below the surface at 49 sites, which significantly decreases the soil's fertility. At 41 sites, hydrocarbons in the groundwater exceeded Nigerian governmental regulations. The most egregious site of groundwater contamination found a layer of oil over three inches thick floating on groundwater used for community wells.<sup>184</sup>

The environment has also been visibly ravaged. Dead and unhealthy vegetation is a routine sight in oil-contaminated areas. Mangroves—those crucial fish nurseries and shellfish habitats—are leafless with oil-covered roots, unable to

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<sup>183</sup> "Ogoni Bill of Rights," Movement for the Survival of the Ogoni People, June 1992, [http://www.mosop.org/Ogoni\\_Bill\\_of\\_Rights\\_1990.pdf](http://www.mosop.org/Ogoni_Bill_of_Rights_1990.pdf).

<sup>184</sup> *Environmental Assessment in Ogoniland*. UNEP.

support marine life. Areas that were once populated by mangroves have been colonized by invasive species that do not provide the same type of environmental services. The surface water is coated with oil, ranging from a sheen to a thick layer, which has driven away or killed fish populations that have been the livelihood of many fishermen in the area for generations. Crops are damaged, greatly reducing yields for the area's many farmers.<sup>185</sup> As the majority of the area is employed in either farming or fishing, the ecological damage is economically devastating as well.<sup>186</sup>

The UN report is the first of its kind in Nigeria in terms of scope and international attention. All of this degradation was found in Ogoniland, which is only a 1000 square kilometer region of the 36,000 square kilometer area of the entire Niger Delta.<sup>187</sup> More studies need to be done to assess the extent of the damage to the rest of the Niger Delta.

### *Remediating Oil Spills*

The damage caused by oil spills in the Niger Delta is easily visible, but remediation and cleanup efforts have been largely ineffective. Shell claims that, "the techniques for restoring land sites impacted by oil spills have been researched and can be demonstrated to be effective for the soil and climate conditions in the equatorial heat of the Niger Delta."<sup>188</sup> However, the UNEP reports that the only form of remediation employed in most areas has been "Remediation by Enhanced Attenuation," which relies on and encourages natural processes like evaporation, infiltration to soil and groundwater, runoff, and activity of surface microbes to disperse and break down oil. This method only deals with oil on the surface when the contamination in the Niger Delta penetrates far into the ground. Restoration of

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<sup>185</sup> *Environmental Assessment in Ogoniland*. UNEP.

<sup>186</sup> O'Rourke and Connolly, "Just Oil?."

<sup>187</sup> *Encyclopædia Britannica Online*, "Niger River," Accessed November 06, 2012, <http://www.britannica.com/EBchecked/topic/414815/Niger-River>.

<sup>188</sup> "Environmental Performance- Oil Spills," Shell Nigeria, April 2011, [http://www-static.shell.com/static/nga/downloads/pdfs/briefing\\_notes/env\\_perf\\_oilspills.pdf](http://www-static.shell.com/static/nga/downloads/pdfs/briefing_notes/env_perf_oilspills.pdf)

areas impacted by oil spills has been called “remediation without cleanup”<sup>189</sup> because contaminated sediment and spilled oil are often not removed, which limits the efficacy of remediation efforts and prolongs the environmental impacts of the spill.<sup>190</sup> There is serious debate about the time that oil remains in ecosystems. Oil companies insist that with enough time, oil will be broken down by biological and chemical processes.<sup>191</sup> However, this has not been shown to be the case.

Some techniques to manage spilled oil that are currently employed are remarkably unproductive. One such method is digging holes in the middle of an oil spill and then burying the oil.<sup>192</sup> In 1997, Shell cleaned up an oil spill by moving the spilled oil to some pits uphill from the contaminated village. The next year, heavy rains caused the oil to come out of the pits and recontaminate the village.<sup>193</sup> After another spill in Ikarama in Bayelesa State, the cleanup effort involved turning over soil, essentially hiding the oil.<sup>194</sup>

Shell’s response to oil spills seems to line up very well with its apparent priorities. Like most companies, Shell is primarily concerned with its reputation, its profits, and its access to resources. Shell can prevent damage to its reputation by minimizing the apparent environmental impact of its operations and claiming to clean up spills that it causes, even if such clean up efforts are not actually effective. Shell wants to spend as little as possible on cleanup costs because any money spent on cleanup is money that the company does not get to keep.

Shell’s access to resources in the Niger Delta is dependent on a favorable relationship with the Nigerian federal government, not favorable relations with oil producing communities, so degradation to these communities has little impact on Shell’s operations. Social unrest can and has decreased Shell’s access to oil in the

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<sup>189</sup> “Shell at Ikarama: Hiding Oil Spills by turning the Soil.” Environmental Rights Action. July 12, 2009. <http://www.eraction.org/component/content/article/174>

<sup>190</sup> *Environmental Assessment in Ogoniland*. UNEP.

<sup>191</sup> Falola and Genova, *The Politics of the Global Oil Industry*.

<sup>192</sup> Okonta and Douglas, *Where the Vultures Feast*.

<sup>193</sup> Manby, *The Price of Oil*

<sup>194</sup> “Shell at Ikarama,” Environmental Rights Action.

past, but it seems that the costs of addressing the underlying environmental problems causing unrest are greater than the savings would be from increased stability and development in Nigeria.

There are some means of improving cleanup and remediation recommended by the UNEP. Shell adopted a new remediation management system in 2010 which, although more effective, still does not meet Nigerian regulatory requirements.<sup>195</sup> The UNEP recommended that a wider variety of more intensive remediation measures are necessary, including mangrove restoration, cleaning of the topsoil, groundwater decontamination, and close monitoring of natural regeneration of the area. Most importantly, additional contamination of the area must be stopped.

However, for these measures to improve the overall situation in the Niger Delta, Nigeria's regulatory mechanisms must be strengthened.<sup>196</sup> Governmental regulations of remediation efforts are often unenforced. At 10 out of 15 sites that the government had deemed complete in their remediation, the UNEP found hydrocarbon levels that exceeded the government's and Shell's accepted levels for completed remediation.<sup>197</sup>

### *Causes of Oil Spills*

"Where there are jobs, there is peace"

-Anonymous militant in Niger Delta <sup>198</sup>

Oil spills are all environmentally damaging, but their cause and the extent of their impact varies. Small oil spills are often byproducts of normal oil operations while larger spills are primarily the result of equipment malfunctions, sabotage, or oil theft, referred to as bunkering or artisanal refining. Shell estimates that 75% of

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<sup>195</sup> *Environmental Assessment in Ogoniland*. UNEP.

<sup>196</sup> Ibid

<sup>197</sup> Ibid

<sup>198</sup> "Still an Oily Dangerous Mess: Unless Angry Young Men Get Decent Jobs, Militancy and Oil-Theft Will Persist," *The Economist*, August 11, 2012, <http://www.economist.com/node/21560299>.

oil spills from its pipelines are the result of oil theft or sabotage. Therefore, Shell claims that the majority of pollution and other negative impacts on communities are not the result of its activities.<sup>199</sup>



**Figure 7: An artisanal refinery on the banks of the Niger River<sup>200</sup>**

Determining the cause of an oil spill is often difficult and always contentious. Nigerian law does not require that oil companies provide compensation in the case of spills caused by sabotaged oil lines or criminal activity.<sup>201</sup> Shell often determines the cause of spills with little or no government oversight. Therefore, it does not have to prove that a spill was the result of sabotage in order to conclude that it was.<sup>202</sup> There are many concerns about the accuracy of these determinations.

### **Operational Oil Spills**

If we accept Shell's estimate of the percentage of spills that are caused by criminal activity as accurate—which seems unlikely given the financial incentives

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<sup>199</sup> Shell Nigeria. Royal Dutch Shell.

<sup>200</sup> *Environmental Assessment in Ogoniland*. UNEP.

<sup>201</sup> Shell Nigeria. Royal Dutch Shell.

<sup>202</sup> Okonta and Douglas, *Where the Vultures Feast*.

for Shell to underestimate the number of spills for which they are responsible—then 25% of Nigeria’s many oil spills are still the result of equipment and operational failures. The UNEP found that the control, maintenance, and decommissioning of oil machinery in Ogoniland was inadequate and inconsistent with industry best practices.<sup>203</sup> Many of the pipelines that carry oil in Nigeria are very old and very rusty.<sup>204</sup> For example, the rupture of a 40-year-old pipe caused the Nigerian spill that is the basis of the lawsuit against Shell in the United Kingdom.<sup>205</sup> The majority of Shell’s pipelines are above ground—unlike pipelines in the majority of Shell’s operations elsewhere—making them more exposed not only to thieves and protesters, but also to the elements. These leak-prone pipes often travel through villages and farms, which means that spilled oil has significant impacts on local communities.<sup>206</sup>

### **Sabotage and Bunkering**

Sabotage and oil theft are also common causes of oil spills. Sabotage of oil pipelines is typically perpetrated in protest to the oil industries or in hopes of securing a lucrative contract cleaning up the oil spill.<sup>207</sup> In 2009, lack of economic opportunities and compensation for spilled oil prompted an uprising; militants took oil industry employees captive and destroyed pipelines. Amnesty and the promise of employment for the militants restored relative peace to the area.<sup>208</sup>

Oil theft is far more widespread in Nigeria than sabotage. Although violence in the Niger Delta has mainly subsided, oil theft has increased with 224% more instances of pipeline tampering reported in 2011 than in 2010.<sup>209</sup> In the first

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<sup>203</sup> *Environmental Assessment in Ogoniland*. UNEP.

<sup>204</sup> Nossiter, “Far From the Gulf.”

<sup>205</sup> Vidal, “Shell Nigeria Oil Spill ’60 Times Bigger Than It Claimed.”

<sup>206</sup> Okonta and Douglas, *Where the Vultures Feast*.

<sup>207</sup> O’Neill, “Curse of the Black Gold.”

<sup>208</sup> “Still and Oily Dangerous Mess,” *The Economist*.

<sup>209</sup> “Nigeria,” EIA.



quarter of 2012, the Joint Task Force in the Niger Delta responsible for combating oil theft reported that it destroyed 3,778 illegal refineries, but thousands still exist.<sup>210</sup> The actual volume of stolen oil is unknown, but Shell estimates that the number of barrels stolen in Nigeria ranges from 150,000 to 180,000 daily. However, some analysts estimate that this does not take white-collar oil theft into account, and that the Nigerian Finance Minister's estimate that up to 400,000 barrels of oil stolen per day is more accurate.<sup>211</sup> This would mean that the Nigerian government loses approximately \$7 billion of revenue every year from oil theft,<sup>212</sup> which is a substantial sum compared to the government's total revenue of \$22.9 billion.

The scale of bunkering operations varies from the small to complex and local to international.<sup>213</sup> Many small bush refineries are created by unemployed Nigerians with no alternative source of income. The Delta was once an amazingly biodiverse area that provided fish and other natural resources not only to the delta region, but to inland areas as well.<sup>214</sup> Fishing and farming, which were previously the primary professions in many regions of the Niger Delta, are no longer an option in the polluted landscape. Environmental Rights Action, a Nigerian advocacy group, interviewed several Nigerians who take part in bunkering. They found that many local people could not find legitimate work, and therefore turned to illegal refining as their only alternative.<sup>215</sup> According to the ERA interviews, local authorities are easily bribed to permit oil theft. Bunkering is not only incredibly dangerous with pipeline blowouts and fires common<sup>216</sup> but it is also environmentally damaging as oil is inevitably spilled in the process. Some of the people interviewed bemoaned the

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<sup>210</sup> Bayo Ogunmupe, "Salvaging Nigeria from Oil Curse," *The Guardian Nigeria*. November 8, 2012, <http://www.nguardiannews.com/>.

<sup>211</sup> "Nigeria," EIA.

<sup>212</sup> *Oil Market Report*, International Energy Agency, November 13, 2012, <http://omrpublic.iea.org/currentissues/full.pdf>.

<sup>213</sup> Igwe, "Nigeria: Stolen Oil, Stolen Revenue."

<sup>214</sup> O'Neill, "Curse of the Black Gold."

<sup>215</sup> "Field Report 316: A Peep into the Bush Refineries," Environmental Rights Action, August 24, 2012, <http://www.eraction.org/component/content/article/5/430-field-report-316-visit-to-some-bush-refinery-sites-what-the-operators-say>.

<sup>216</sup> Falola and Genova, *The Politics of the Global Oil Industry*.

degradation and would stop bunkering if they had other means of employment. Others considered the comparatively small damage from their bunkering activities to be inconsequential compared to the extensive environmental damage caused by gas flaring and industry-caused oil spills.<sup>217</sup>

On the other end of the spectrum, some oil theft is on a very large scale. Generators are used to pump oil out of pipelines into large barges. Even more theft is thought to occur at oil terminals during oil transfer.<sup>218</sup> Crude oil prices in Nigeria are much lower than prices in surrounding countries, so smuggling oil out of the country can be extremely lucrative. There are allegations that powerful people, including politicians and oil company employees, are involved in the practice.<sup>219</sup> President Goodluck Jonathan has vehemently denied these claims, but the ubiquity and brazenness of the oil theft indicates that there is very likely some collusion with powerful people<sup>220</sup>.

Shell claims that oil thievery is a cause of Nigeria's problems as opposed to a result of them. Shell points to the "worrying criminal movement, which feeds of massive thefts of crude oil."<sup>221</sup> Shell goes on to say that, "All this [criminal activity] has reduced the amount of oil SPDC<sup>222</sup> is producing, created environmental and social problems from oil spills, and reduced government revenue that could be used to develop infrastructure and services."<sup>223</sup>

With the exception of the large, international oil smuggling cartels, the majority of oil theft is the result of a lack of employment opportunities for Nigerians. The only industry that has been significantly developed in the Niger Delta is the oil industry. However, the oil industry is not nearly labor intensive enough to employ

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<sup>217</sup> "Field Report 316," Environmental Rights Action.

<sup>218</sup> "Still and Oily Dangerous Mess," *The Economist*.

<sup>219</sup> Igwe, "Nigeria: Stolen Oil, Stolen Revenue."

<sup>220</sup> "Still and Oily Dangerous Mess," *The Economist*.

<sup>221</sup> "The Operating Environment," Shell Nigeria, April 2011, [http://www-static.shell.com/static/nga/downloads/pdfs/briefing\\_notes/operating\\_env.pdf](http://www-static.shell.com/static/nga/downloads/pdfs/briefing_notes/operating_env.pdf).

<sup>222</sup> Shell Petroleum Development Company, a wholly Shell owned subsidiary

<sup>223</sup> "The Operating Environment," Shell Nigeria.

the large number of Nigerians looking for work.<sup>224</sup> Furthermore, the jobs in the oil industry are distributed to the well connected and powerful, which are not the people who live in the areas that must bear the brunt of the degradation associated with petroleum extraction.<sup>225</sup> In addition to numerous other Nigerians in the Niger Delta, there are currently over 10,000 militants from the 2009 insurgency who have not found employment, which seriously jeopardizes continued peace in the Niger Delta. The amnesty agreement between militants and the government provided training and temporary payment to the militants in return for a cessation of violence, but did little to address the underlying issues that led to the insurgency in the first place.<sup>226</sup>

### *Preventing Bunkering*

There have been many suggestions as to how to stop bunkering. Just as it is unfair for oil companies to blame oil theft for the social unrest in the region, it is also unfair to blame only oil companies for the conditions that lead to oil theft. In order to stop bunkering, oil companies, the government, and community members need to work together to find a viable solution. The nonprofit Environmental Rights Action suggests that the government establish a technical college to train people to work in the oil industry. Furthermore, ERA emphasizes the importance of environmental accountability, starting with oil companies cleaning up their environmental damage, thereby demonstrating that environmental damage is something to be prevented and mitigated in all cases. Illegal refining must be monitored and prevented more effectively. Finally, education of communities about the negative environmental impacts of bunkering could help to dissuade people from oil theft.<sup>227</sup>

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<sup>224</sup> "Still and Oily Dangerous Mess," *The Economist*.

<sup>225</sup> Okonta and Douglas, *Where the Vultures Feast*.

<sup>226</sup> "Still and Oily Dangerous Mess," *The Economist*.

<sup>227</sup> "Field Report 316," Environmental Rights Action.

However, the Nigerian federal government's response to oil theft seems to be an indicator of exactly how out of touch the Nigerian federal government is with the economic and social conditions in the Niger Delta. The Nigerian government has responded to rampant oil theft by pushing for increased security around pipelines. The Governor of the Nigerian Central Bank even went as far as to advocate for bombing illegal refineries.<sup>228</sup> True, bombing illegal refineries and physically preventing bunkering might decrease oil theft in the short term, which could help the government regain some of the \$7 billion dollars that it loses to bunkering. However, this would do very little to improve the situation leading to the illegal refining. Furthermore, increasing instability in the region would be detrimental to development and environmentally hazardous. Many Nigerians turn to oil theft because they have no other options. If oil theft were stopped without any efforts to provide alternative sources of income for those involved, it seems that unrest and violence would increase, which, as seen with the violence caused by MEND in 2009, would be detrimental to oil production.

For the oil companies, oil theft is inconvenient and there is an opportunity cost to the loss of the stolen oil, but it is not a serious economic concern. By law, the government collects taxes and royalties on the total amount of oil taken from the ground, which includes that which is stolen.<sup>229</sup> However, the government currently has no means of metering the amount of oil produced. Therefore, oil companies pay the Nigerian government based on the number of barrels that they actually export, not the amount that they extract. The Nigerian Extractive Industries Transparency Initiative (NEITI), which was proposed in 2011 and has yet to be passed, recommends installing metering, which would allow the government to determine how much oil is actually extracted. This would require oil companies to pay an estimated \$8 million per day in taxes on the oil that is currently being stolen.<sup>230</sup> If

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<sup>228</sup> Ogunmupe, *Salvaging Nigeria from Oil Curse*."

<sup>229</sup> Ogunmupe, *Salvaging Nigeria from Oil Curse*."

<sup>230</sup> Igwe, "Nigeria: Stolen Oil, Stolen Revenue."

they were charged this money, then it is possible that they would take more of an interest in social development to prevent oil theft.

Oil companies are excellent at finding means of promoting their economic interests, so it seems that if oil companies were taxed for the amount of produced oil instead of the amount of exported oil, they would have more of an economic interest in stopping oil theft.<sup>231</sup> This would give them the incentive to put their keen profit-seeking abilities toward solving the problem of illegal refining. Ideally, the solution to oil theft would rely less on force, which has been oil companies' primary means of community relations in the past,<sup>232</sup> and would instead be through environmental education and employment for those driven to bunkering. Such a solution would undoubtedly require government participation and regulation, which currently seems unlikely. However, Nigerian unrest and increasing international attention from the United Nations and international courts may help pressure the government towards a more equitable and socially productive plan of action.

### *Compensation and Cleanup Policies*

Policies regarding cleanup of oil spills and compensation for damage are complex and often unfair to the communities in question. Legislation is inconsistent on exactly how much spilled oil requires cleanup efforts from the oil companies.<sup>233</sup> Cleanup efforts that do happen often come weeks or months after the spill.<sup>234</sup> Shell claims that delays in oil spill cleanup are the result of individuals and community groups blocking their access to the area. Although this is known to happen, there have been spills where the community waited months for Shell to even arrive in the area.<sup>235</sup> In many cases, local communities have gone out of their

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<sup>231</sup> Ibid.

<sup>232</sup> Manby, *The Price of Oil*

<sup>233</sup> *Environmental Assessment in Ogoniland*. UNEP.

<sup>234</sup> Okonta and Douglas, *Where the Vultures Feast*.

<sup>235</sup> Nossiter, "Far From the Gulf."

way to clean up the spills themselves because the damage and danger from the spills are so severe.<sup>236</sup> It is true that communities sometimes interfere with cleanup efforts. However, the lack of clear regulation involving oil spill cleanup along with the costs of such cleanups give the oil companies the incentive to avoid expensive cleanup operations, using fear of communities as an excuse.

Laws regarding compensation—for damage from oil spills and for rights to oil extraction in the first place—are vague and poorly enforced. Oil companies often promise wealth to the communities in oil-producing regions before oil extraction begins. More often than not, this wealth never arrives. For example, the Ogoni people estimate that about \$30 billion dollars worth of oil has been extracted from their land. Shell claims that it spent \$20 million dollars every year on community development projects in the region. NGOs in the region estimate that the amount spent on such projects was more like \$200,000 total from 1970-1988. Using this estimate, Shell spent 0.000007% of the value of the extracted oil on community development.<sup>237</sup> In the entire year 2010, Shell paid \$1.7 million in compensation for oil spills that it concluded were caused by operational and equipment failure.<sup>238</sup> This is less than the amount that Shell makes worldwide in a single hour.<sup>239</sup>

The Nigerian legal system makes it incredibly difficult for landholders to receive compensation from oil companies for damages to their lands. If compensation is received, it is often takes years and is nowhere near the actual cost of the damage.<sup>240</sup> However, there are currently cases pending in England<sup>241</sup> and the Netherlands<sup>242</sup> against Shell for its lack of compensation to communities. The case

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<sup>236</sup> Okonta and Douglas, *Where the Vultures Feast*.

<sup>237</sup> Okonta and Douglas, *Where the Vultures Feast*.

<sup>238</sup> Shell Nigeria, Royal Dutch Shell, Accessed October 15, 2012, <http://www.shell.com.ng/>

<sup>239</sup> Terry Macalister, "Shell makes nearly £1.6m profits every hour," *The Guardian*, February 3, 2011, <http://www.guardian.co.uk/business/2011/feb/03/shell-profits-nearly-one-point-six-million-an-hour>

<sup>240</sup> Manby, *The Price of Oil*

<sup>241</sup> Vidal, "Shell Nigeria Oil Spill '60 Times Bigger Than It Claimed."

<sup>242</sup> "Nigeria Oil Spills: Shell Rejects Liability Claim," BBC News, October 11, 2012, <http://www.bbc.co.uk/news/world-africa-19905694>

in the Netherlands has been filed by Nigerian farmers whose land was destroyed by a spill that Shell decided was caused by criminal activity and therefore did not clean up. This is the first suit in the Dutch courts brought against a Dutch multinational company for damage abroad.<sup>243</sup> No ruling has been made to date, but the international attention to Shell's activities in itself is a major step for Nigerians impacted by oil spills. Nigeria's courts have not held multinational oil companies accountable for environmental damage, but courts elsewhere may be able to do so.

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<sup>243</sup> "Nigeria Oil Spills: Shell Rejects Liability Claim," BBC News, October 11, 2012, <http://www.bbc.co.uk/news/world-africa-19905694>

## PRODUCED WATER

Oil spills are not the only source of soil and water pollution from oil extraction. There are large amounts of water trapped in the same underground formations that hold gas and oil. This water, called “produced water,” is brought to the surface during drilling. Produced water has an extremely high content of hydrocarbons from the time it spent sharing a chamber with oil and gas. It also has a salt content about four times higher than the oceans<sup>244</sup> and contains heavy metals, naturally occurring radioactive material, and the wide variety of chemicals used in the drilling process.<sup>245</sup> Worldwide, about two to three barrels of produced water is brought to the surface for every barrel of oil. In Nigeria, it is estimated that the ratio is 1:1.<sup>246</sup> Since treatment of produced water is costly, this low ratio makes Nigerian oil even more appealing to oil companies. However, similar to the self-reporting of spilled oil, it is possible that the true amount of produced water is significantly higher. Determining the actual volume of produced water is challenging even in countries with more effective regulatory mechanisms than Nigeria.<sup>247</sup> In Nigeria it is almost impossible.

The cost of produced water disposal is one of the largest costs of oil extraction. The ratio of produced water to oil increases with the age of the oil well. Eventually, the cost of disposing of produced water exceeds the value of the extracted oil, stopping oil extraction at that particular site.<sup>248</sup> In the US, produced water is trucked to offsite desalinization and treatment facilities or pumped deep underground.<sup>249</sup> In Nigeria, once produced water has been processed<sup>250</sup>, it is

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<sup>244</sup> O’Rourke and Connolly, “Just Oil?.”

<sup>245</sup> “Produced Water Management Information System: Introduction to Produced Water,” National Energy Technology Laboratory, Accessed November 3, 2012, <http://www.netl.doe.gov/technologies/pwmis/intropw/index.html>.

<sup>246</sup> S. O. Isehunwa and S. Onovae, “Evaluation of Produced Water Discharge in the Niger-Delta,” *ARPJN Journal of Engineering and Applied Sciences* 6, no. 8 (2011).

<sup>247</sup> Isehunwa and Onovae, “Evaluation of Produced Water Discharge in the Niger-Delta.”

<sup>248</sup> “Produced Water Management Information System,” National Energy Technology Laboratory.

<sup>249</sup> Jeremy Miller, “New Solutions for Oil’s ‘Produced Water,’” *The New York Times*, September 4, 2009, <http://green.blogs.nytimes.com/2009/09/04/new-solutions-for-oils-produced-water/>.



released into streams or the ocean. There are regulations regarding the chemical composition of the released water, but the enforcement of these regulations is ineffective. Levels of hydrocarbons and salt content in particular are far higher than mandated levels. Onshore, the allowed limit of oil and grease content for produced water released into the environment is 10 milligrams per liter (mg/L). Actual measured values near terminals and flow stations range from 40-80 mg/L.<sup>251</sup> The methods that Shell uses to separate oil from water in Nigeria have not been shown to consistently produce water with levels lower than 50 mg/L, far above the regulation of 10 mg/L.<sup>252</sup>

Furthermore, chloride levels, which are indicative of water salinity, are 6-8 times higher than allowable levels.<sup>253</sup> The effects of salinity and hydrocarbons on Nigerian ecosystems have not been adequately studied, but generally, high salt levels are harmful to many freshwater plants<sup>254</sup> and fish populations, especially young fish, which are essential for efforts to establish aquaculture in the area.<sup>255</sup> Furthermore, there are indications that the level of hydrocarbons in produced water is genotoxic, inducing mutations in root cells of plants, which has serious negative implications for human health as well.<sup>256</sup> The concentrations of produced water present in ecosystems are difficult to determine. However, the incredibly large amount of produced water released, lack of serious study about the impact of produced water on ecosystems and communities in Nigeria, and the serious deviations from regulatory levels is cause for alarm.

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<sup>250</sup> Likely means of filtering produced water include membrane filtration and separation of components although the particular methods used in Nigeria are unclear (Howard Duhon, "Produced Water Treatment: Yesterday, Today, and Tomorrow," *Oil and Gas Facilities*, February 2012.)

<sup>251</sup> Isehunwa and Onoyae, "Evaluation of Produced Water Discharge in the Niger-Delta."

<sup>252</sup> Okonta and Douglas, *Where the Vultures Feast*.

<sup>253</sup> Isehunwa and Onoyae, "Evaluation of Produced Water Discharge in the Niger-Delta."

<sup>254</sup> D.L. Nielsen *et al.* "Effects of Increasing Salinity of Freshwater Ecosystems in Australia." *Australian Journal of Botany* 51 (2003) 655-665.

<sup>255</sup> J.O. Ogunshye and A.O Sogbesan, "Effect of Salinity on Growth and Survival of *Clarias gariupinus*," *19<sup>th</sup> Annual Conference of the Fisheries Society of Nigeria*, (2005).

<sup>256</sup> P.G.C. Odeigah, *et al.*, "Genotoxicity of Oil Field Wastewater in Nigeria," *Hereditas* 126 no. 2 (1997).

## GAS FLARING



**Figure 8: A Nigeria gas flare (Courtesy of Global Green Grants)<sup>257</sup>**

Oil wells often contain liquid petroleum and natural gas together.<sup>258</sup> Heavier hydrocarbons are liquids at room temperature while the lightest hydrocarbons, primarily methane, are gases. Because natural gas and oil have different properties, they are responsible for different kinds of environmental degradation. There are several uses for natural gas. It can be captured and used for creating electricity or converted to liquid for use as fuel. Capturing natural gas involves separating it from oil, requiring gas-processing equipment. Natural gas can also be reinjected into oil wells, which increases the pressure and ultimate yield of the well. The least beneficial use of natural gas from an environmental and economic perspective is to

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<sup>257</sup> Global Green Grants, *Gas Flare*, JPG, Accessed December 3, 2012, <http://www.greengrants.org/2009/02/25/nigerian-government-misses-ban-on-gas-flaring-deadline/>.

<sup>258</sup> Gas found with oil is called associated gas.

dispose of it either by burning it at the site of extraction, called flaring, or releasing it into the air, called venting.<sup>259</sup>

Natural gas is a relatively clean-burning, high-energy fuel that is in high demand around the world. However, in 2011 alone, 140 billion cubic meters of natural gas was flared or vented worldwide,<sup>260</sup> which is 4% of global natural gas consumption.<sup>261</sup> The energy in this gas is unharnessed, contributing to global warming and polluting the air without doing any usable work. Nigeria flares more gas than any other country per barrel of oil produced and is second only to Russia in total gas flared.<sup>262</sup> According to the Nigerian National Petroleum Corporation, one third of Nigeria's total gas production is flared.<sup>263</sup> The National Oceanic and Atmospheric Administration (NOAA) determined from satellite data that in 2010, Nigeria flared 15 billion cubic meters of natural gas,<sup>264</sup> which is more than three times the amount of natural gas Nigeria consumed.<sup>265</sup> In the short term, flaring is a cheap and easy way to get rid of natural gas associated with oil, but this practice is incredibly damaging to the environment and communities.

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<sup>259</sup> "Natural Gas Explained," U.S. Energy Information Administration, Last modified: May 24, 2012, [http://www.eia.gov/energyexplained/index.cfm?page=natural\\_gas\\_home](http://www.eia.gov/energyexplained/index.cfm?page=natural_gas_home)

<sup>260</sup> "World Bank Sees Warning Sign in Gas Flaring Increase," The World Bank, July 3, 2012, <http://www.worldbank.org/en/news/2012/07/03/world-bank-sees-warning-sign-gas-flaring-increase>.

<sup>261</sup> "Natural Gas Explained," U.S. Energy Information Administration, Last modified: May 24, 2012, [http://www.eia.gov/energyexplained/index.cfm?page=natural\\_gas\\_home](http://www.eia.gov/energyexplained/index.cfm?page=natural_gas_home)

<sup>262</sup> Global Gas Flaring Estimates, National Oceanic and Atmospheric Administration, Accessed October 13, 2012, [http://www.ngdc.noaa.gov/dmsp/interest/gas\\_flares.html](http://www.ngdc.noaa.gov/dmsp/interest/gas_flares.html).

<sup>263</sup> "Nigeria," EIA.

<sup>264</sup> Global Gas Flaring Estimates, NOAA.

<sup>265</sup> "Nigeria," EIA.

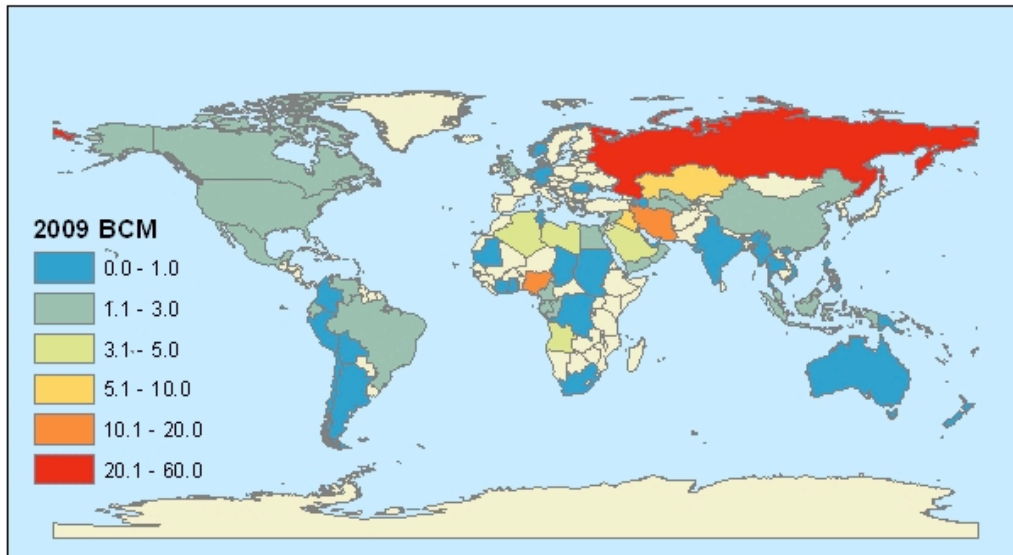


Figure 9: A map of worldwide gas flaring. Red indicates the most gas flared and blue the least. Russia is the world's leader in gas flaring followed by Nigeria and Iran.<sup>266</sup>

### *Environmental Impacts of Gas Flaring*

Natural gas flaring is a significant source of greenhouse gas emissions. Flaring creates 360 million tons of carbon dioxide every year, which is equivalent to the carbon dioxide produced by 70 million cars.<sup>267</sup> Flared gas comprises about 1% of global carbon dioxide emissions.<sup>268</sup> An entire percent of our carbon emissions are from gas that is not even used, just burned as a means of disposal. Venting releases unburned methane into the atmosphere, producing 4% of anthropogenic methane emissions. This methane has the same global warming impact as 285 million tons of carbon dioxide.<sup>269</sup> The amount of methane released from venting is much less than the amount of carbon dioxide released by flaring, but methane is a more potent

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<sup>266</sup> Global Gas Flaring Estimates, National Oceanic and Atmospheric Administration, Accessed October 13, 2012, [http://www.ngdc.noaa.gov/dmsp/interest/gas\\_flares.html](http://www.ngdc.noaa.gov/dmsp/interest/gas_flares.html)

<sup>267</sup> "World Bank Sees Warning Sign in Gas Flaring Increase," The World Bank

<sup>268</sup> T. A. Boden *et al.*, "Global Fossil-Fuel CO<sub>2</sub> Emissions" Carbon Dioxide Information Analysis Center., Last updated September 26, 2012, [http://cdiac.ornl.gov/trends/emis/tre\\_glob.html](http://cdiac.ornl.gov/trends/emis/tre_glob.html)

<sup>269</sup> "World Bank Sees Warning Sign in Gas Flaring Increase," The World Bank

greenhouse gas, trapping heat 20 times more effectively than carbon dioxide.<sup>270</sup> In terms of reducing carbon emissions, gas flaring is considered a “low hanging fruit” because, unlike more costly carbon reduction efforts, capturing flared gas can be profitable if the scale is large enough and the gas can make it to the right markets.<sup>271</sup>

Contributing to global warming is a serious problem on a global scale, but gas flaring has concentrated, local impacts as well. Many gas flares in the Niger Delta are located very near to communities.<sup>272</sup> Gas flares sound like jet engines and are hot enough to perceptibly increase the temperatures of neighboring villages.<sup>273</sup> Many flaring stacks are poorly designed, spewing unburned hydrocarbons and other chemicals into the air, which settle on roofs and fields, corroding roofs and decreasing crop yields. Some gas flares are at ground level or even flare out horizontally, increasing the concentration of pollutants in the surface environment.<sup>274</sup> The temperature in flare stacks is hot enough to split atmospheric nitrogen molecules, which then mix with oxygen to make nitric oxides. Nitric oxides become nitric acid, which produces acid rain, which also corrodes roofs, acidifies soils and water bodies, and reduces fish populations.<sup>275</sup> Acid rain can impact communities far from gas flaring activities, expanding the area of affected people outside of those who live adjacent to flare stacks.

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<sup>270</sup> Methane Gas Emissions, United States Environmental Protection Agency, Last updated: June 14, 2012, <http://epa.gov/climatechange/ghgemissions/gases/ch4.html>.

<sup>271</sup> Global Gas Flaring Reduction Partnership, The World Bank, Last updated December 4, 2012, <http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTOGMC/EXTGGFR/0,,contentMDK:21023030~menuPK:2856589~pagePK:64168445~piPK:64168309~theSitePK:578069,00.html>

<sup>272</sup> Nnimmo Bassey, *Gas Flaring: Assaulting Communities, Jeopardizing the World*, December 10 2008, Environmental Rights Action, <http://www.ERAction.org/publications/presentations/gas-flaring-ncc-abuja.pdf>

<sup>273</sup> Walker, “Nigeria’s Gas Profits ‘Up in Smoke.’”

<sup>274</sup> Okonta and Douglas, *Where the Vultures Feast*.

<sup>275</sup> C. T. I. Odu, “Gas Flare Emissions and Their Effects on the Acidity of Rain Water in the Ebocha Area,” Accessed: October 12, 2012, [www.elaw.org/system/files/Ng.GasFlares.AcidRain.Ebocha.doc](http://www.elaw.org/system/files/Ng.GasFlares.AcidRain.Ebocha.doc)

## *Politics of Gas Flaring*

Although gas flaring in Nigeria is common, it is also illegal. In 1979, the Nigerian government passed the Associated Gas Reinjection Act, requiring that associated gas be reinjected or captured with very few exceptions.<sup>276</sup> The law was soon relaxed to allow much more flaring, but with a penalty. Oil companies are fined for flaring gas at a rate of \$0.076 per million cubic feet of gas flared,<sup>277</sup> which is less than the cost of reinjection.<sup>278</sup> The total amount paid by all of the oil companies in fines each year is between \$150,000 and \$370,000,<sup>279</sup> which has proven to be an ineffective deterrent. In contrast, the Nigerian government has estimated that the amount of gas flared each year would be between \$500 million and \$2.5 billion if it were sold.<sup>280</sup> The Global Forum on Flaring and Venting Reduction estimates that 30% of the gas that Nigeria currently is flaring could be captured at a profit.<sup>281</sup>

The government periodically sets new deadlines for the end of gas flaring which have very little impact. The most recent deadline, to end gas flaring by the end of 2012, seems very unlikely to be met.<sup>282</sup> There are jurisdictional conflicts between the Department of Petroleum Resources and the Federal Environmental Protection Agency in regards to flaring resulting in the existence of two different sets of regulation.<sup>283</sup> As a result of this overlap, neither body has effectively put anti-flaring policies in place, nor have they monitored flaring activities.<sup>284</sup> The lack of

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<sup>276</sup> Global Gas Flaring Reduction Partnership, The World Bank.

<sup>277</sup> Global Gas Flaring Reduction Partnership, The World Bank.

<sup>278</sup> Ishisone, Michiko. "Gas Flaring in the Niger Delta: The Potential Benefits of its Reduction on the Local Economy and Environment." 2004.

<http://nature.berkeley.edu/classes/es196/projects/2004final/Ishone.pdf>

<sup>279</sup> Global Gas Flaring Reduction Partnership, The World Bank.

<sup>280</sup> Global Gas Flaring Reduction Partnership, The World Bank.

<sup>281</sup> Renaud Brimont *et al.*, "Waste Gas: a Crucial Component of the Energy Poverty Dilemma," Schlumberger Business Consulting, 2012, [http://www.sbc.slb.com/Our\\_Ideas/Energy\\_Perspectives/Winter12\\_Content/Winter12\\_Waste\\_Gas.aspx](http://www.sbc.slb.com/Our_Ideas/Energy_Perspectives/Winter12_Content/Winter12_Waste_Gas.aspx)

<sup>282</sup> "Nigeria," EIA.

<sup>283</sup> Global Gas Flaring Reduction Partnership, The World Bank.

<sup>284</sup> Manby, *The Price of Oil*

enforcement and history of abrupt governmental changes make regulations and deadlines functionally optional for oil companies. It seems that deadlines are mainly used by the Nigerian federal government as a political tool to negotiate more lucrative oil contracts. The fines are just considered a cost of production.<sup>285</sup>

### *Why Flare Natural Gas?*

The Nigerian government and the oil companies both say that the responsibility to stop flaring ultimately resides with the other party.<sup>286</sup> Shell officials point to the lack of security in the area and the danger to their workers as a reason that they haven't stopped flaring in Nigeria. Furthermore, the government has not encouraged the investment necessary to develop natural gas infrastructure. The government says that Shell, as the operator, is responsible for stopping flaring.<sup>287</sup> An end to gas flaring will undoubtedly require participation and sacrifices from both parties.

Shell has ended routine gas flaring everywhere except Nigeria, indicating that they have the technological capabilities necessary to stop flaring gas.<sup>288</sup> Shell has significantly decreased the amount of gas it flares in Nigeria, flaring half as much in 2010 as it did in 2002. However, Shell still flares 8.5 million cubic meters of gas in Nigeria every day. Although some of this decrease was the result of technological improvements, decreases in production also contributed to the reduction in flaring during that period.<sup>289</sup>

There are several factors that make capturing associated gas particularly challenging in Nigeria. Nigeria's gas fields are widely dispersed with many fields

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<sup>285</sup> Bassey, *Gas Flaring*.

<sup>286</sup> Global Gas Flaring Reduction Partnership, The World Bank.

<sup>287</sup> Walker, "Nigeria's Gas Profits 'Up in Smoke.'"

<sup>288</sup> Bassey, *Gas Flaring*.

<sup>289</sup> "Gas Flaring," Shell Nigeria, April 2011, [http://www-static.shell.com/static/nga/downloads/pdfs/briefing\\_notes/gas\\_flaring.pdf](http://www-static.shell.com/static/nga/downloads/pdfs/briefing_notes/gas_flaring.pdf)

that flare a relatively small amount of gas from each well.<sup>290</sup> Connecting all of these small sources of gas would require extensive pipelines, and civil unrest makes pipelines in Nigeria a risky investment. Getting the gas to a profitable market is another serious obstacle. There is very little natural gas infrastructure in Nigeria. As a result, a substantial market for natural gas has not developed,<sup>291</sup> and transport to other markets requires even more infrastructural investment.

Another concern is that there are few profitable things to be done with small amounts of natural gas. Electricity generation, for example, requires a large plant to be profitable.<sup>292</sup> Therefore, it would take a great deal of initial investment to capture a critical mass of Nigerian natural gas. Shell claims that the government is preventing such investment by giving investors mixed signals. Additionally, the government does not always follow through on the money that it promises to projects.<sup>293</sup> However, President Goodluck Jonathan has announced plans to invest in electrification. He pointed out that the government spends \$13 billion on diesel generators for Nigerians when \$10 billion dollars a year for several years would develop the necessary infrastructure.<sup>294</sup> The Nigerian federal government has not consistently followed through with social projects, leaving numerous projects half-finished and under-funded,<sup>295</sup> but the scope of the benefits from electrification and international pressure to end gas flaring<sup>296</sup> may help make this project a reality.

Furthermore, many Nigerian natural gas projects involve new ventures to exploit untapped fields that contain primarily gas, not to capture the gas that is currently flared. Shell's largest natural gas project, the Gbaran Ubie Integrated Oil and Gas Project, which reached production capacity in early 2011, extracts nearly three million cubic meters of natural gas every day from a previously undeveloped

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<sup>290</sup> Brimont *et al.*, "Waste Gas."

<sup>291</sup> Ishisone, "Gas Flaring in the Niger Delta."

<sup>292</sup> Brimont *et al.*, "Waste Gas."

<sup>293</sup> Walker, "Nigeria's Gas Profits 'Up in Smoke.'"

<sup>294</sup> Brimont *et al.*, "Waste Gas."

<sup>295</sup> O'Neill, "Curse of the Black Gold."

<sup>296</sup> *Environmental Assessment in Ogoniland*. UNEP.



field. Some of this gas will go toward a huge power plant the government is currently constructing in Gbaran while the rest will be liquefied and exported.<sup>297</sup> Developing new fields such as those in Gbaran and increasing gas capture offshore, another growing source of natural gas in Nigeria,<sup>298</sup> will not stop gas flaring. Currently, the cost of capturing flared gas is higher than capturing non-associated gas. Projects like the Gbaran Ubie project can capture large amounts of gas in a concentrated area while the gas collected from flaring is diffuse and small scale.<sup>299</sup> Pipelines and other infrastructure constructed to capture more profitable non-associated gas could be used for associated gas as well, decreasing the cost of capturing associated gas and contribution to the end of gas flaring. Furthermore, development of non associated gas resources and the construction of power plants will increase the local market for natural gas, further encouraging the capture of flared gas as it could be used locally.

In the short term, retrofitting equipment to capture natural gas requires a temporary stop to production, which decreases revenue. These retrofits would involve a great deal of training and advising as well, which is also a significant cost.<sup>300</sup> Investment in natural gas would be profitable in the long term, but political and social instability create a great deal of uncertainty about Nigeria's future. This uncertainty along with the danger to pipelines and high initial costs make these infrastructural improvements unattractive to oil companies.

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<sup>297</sup> "The Gbaran Ubie Integrated Oil and Gas Project," Shell Nigeria, April 2011, [http://www-static.shell.com/static/nga/downloads/pdfs/briefing\\_notes/gbaran.pdf](http://www-static.shell.com/static/nga/downloads/pdfs/briefing_notes/gbaran.pdf)

<sup>298</sup> Okonta and Douglas, *Where the Vultures Feast*.

<sup>299</sup> Brimont *et al.*, "Waste Gas."

<sup>300</sup> Brimont *et al.*, "Waste Gas."

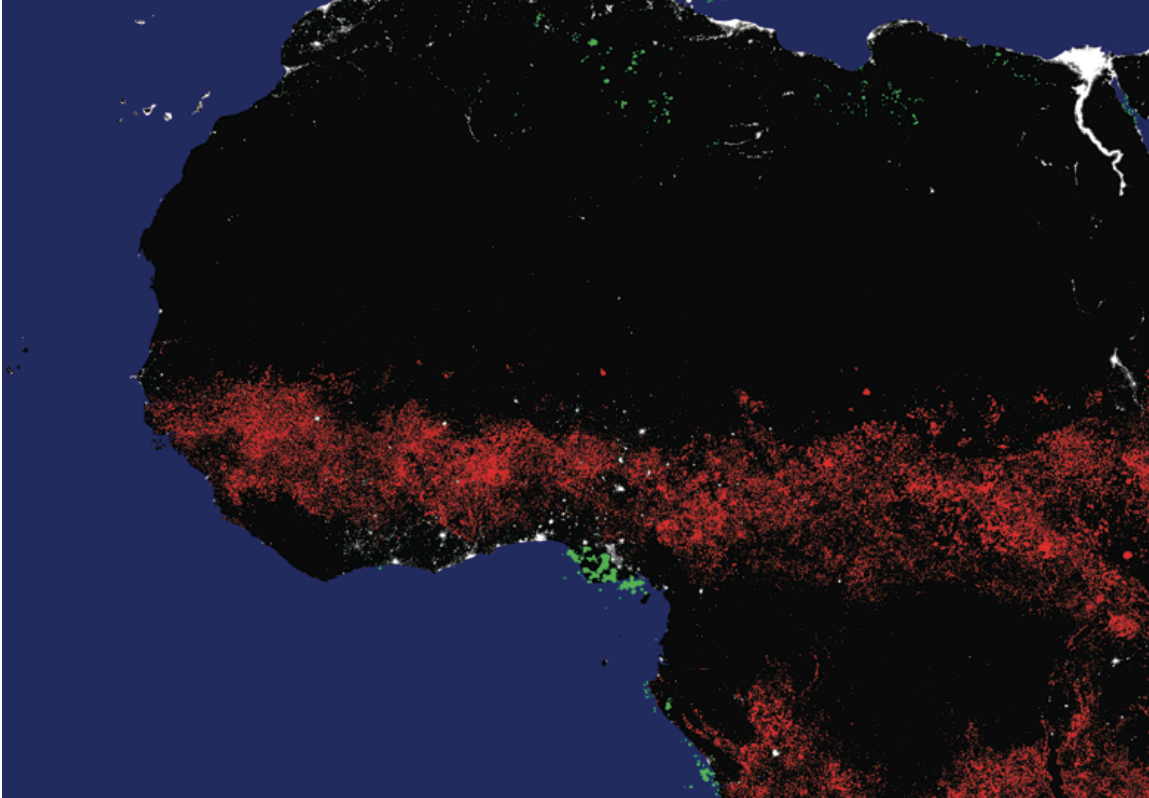


Figure 1: Nigeria at Night in 2003. The red lights are fires, the green lights are gas flares, and the white lights, which are scarce in Nigeria, are lights from cities.

### *Benefits of Natural Gas for Nigeria*

Capturing gas may not be profitable to multinational oil companies with little stake in Nigeria's social development, but using the flared gas could be incredibly valuable to Nigerians. The World Bank also estimates that if gas utilization projects are not instituted in the next 20 years, more than ½ of the gas found in sub-Saharan Africa will have been flared<sup>301</sup>. Over 80% of the energy used in Nigeria comes from wood and charcoal while only 8.2% currently comes from natural gas.<sup>302</sup> Living standards have been shown to increase substantially by replacing high polluting combustibles with natural gas and electricity.<sup>303</sup> Natural gas would be cleaner,

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<sup>301</sup> Walker, "Nigeria's Gas Profits 'Up in Smoke.'"

<sup>302</sup> "Nigeria," EIA.

<sup>303</sup> J. Goldemberg, "Chapter 10- Rural Energy in Developing Countries, In *World Energy Assessment: Energy and the Challenge of Sustainability*, New York: UNDP (2000),

lessen rates of eye and respiratory disease, lessen time spent collecting wood, and reduce deforestation.<sup>304</sup> Using natural gas instead of flaring it has numerous health and environmental benefits, making it a worthwhile investment.

The current barrier to electricity generation in Nigeria is not resources, but policies that can harness the resources and develop the necessary infrastructure. The Nigerian government developed a Gas Master Plan in 2009, promoting pipeline and gas-fired power plant construction. However, risks to infrastructure from civil unrest and lack of substantial government support for these projects have made progress slow. Nigeria currently has plans to create 30 gigawatts of electricity capacity by 2020, but analysts are not optimistic about this plan coming to fruition. Plans to build 3 new LNG plants are in the works, but have been delayed due to security concerns.<sup>305</sup> In spite of these barriers, Shell claims that it has reduced gas flaring by 60% in the past 9 years and has plans for 17 new gas projects.<sup>306</sup> NOAA data shows that gas flaring has gone down significantly in Nigeria<sup>307</sup> due to increases in natural gas capture—much of which is liquefied and exported—and decreases in production. However, Nigeria is still among the most prolific gas flaring countries world, and such reductions need to continue.

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[http://oldweb.geog.berkeley.edu/ProjectsResources/ND%20Website/NigerDelta/WP/22-BloodOil\\_Watts.pdf](http://oldweb.geog.berkeley.edu/ProjectsResources/ND%20Website/NigerDelta/WP/22-BloodOil_Watts.pdf).

<sup>304</sup> Ishisone, "Gas Flaring in the Niger Delta."

<sup>305</sup> "Nigeria," EIA.

<sup>306</sup> Elisha Bala-Gbogbo, "Shell Says It Reduced Nigeria Gas Flaring 60% in Nine Years," *Bloomberg*, June 18, 2012, <http://www.bloomberg.com/news/2012-06-18/shell-says-it-reduced-nigeria-gas-flaring-60-in-nine-years-1-.html>.

<sup>307</sup> Global Gas Flaring Estimates, NOAA.

## HUMAN HEALTH

“Even while we cry out loud for mercy, how on earth can, in oil rich Nigeria, life be this short, brutish and nasty?”<sup>308</sup>

The human health impacts of oil extraction are inextricably connected to the environmental degradation of the area. That being said, the damage to human health warrants detailed discussion. Pollution and gas flaring are hazardous to local communities. People in oil producing regions are exposed to high levels of toxic chemicals from the air, the water, and the soil. Life expectancy in the Niger Delta region is 49 years,<sup>309</sup> which is the lowest in Nigeria<sup>310</sup> although the average life expectancy is only 52<sup>311</sup>

Some hydrocarbons, such as polycyclic aromatic hydrocarbons, benzene, and benzopyrene, all of which are found in oil, are carcinogenic.<sup>312</sup> Some other compounds in oil are harmless and easily broken down by the body. However, for something as ubiquitous as oil, there is startlingly little known about the toxicity of many of its components. Some known hazards include n-hexanes, which can cause peripheral neuropathy and paralysis. Benzene, toluene, and xylene, affect the nervous system and can cause paralysis and death.<sup>313</sup> A study done in the US found that maternal benzene exposure was also a cause of low birth weight in infants, which is an indicator of childhood sickness and developmental disabilities.<sup>314</sup> This

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<sup>308</sup> Ogunmupe, *Salvaging Nigeria from Oil Curse.* 58

<sup>309</sup> Effiong, Sunday A. and Peter A Oti. “Oil Spillage, Gas Flaring Cost, and Life Expectancy Rate of the Niger Delta People of Nigeria.” *Advances in Management & Applied Economics* 2, no. 2 (2010) 211-228.

<sup>310</sup> Nossiter, “Far From the Gulf.”

<sup>311</sup> The World Factbook, CIA.

<sup>312</sup> G Grimmer *et al.*, “Quantification of the Carcinogenic Effect of Polycyclic Aromatic Hydrocarbons in Used Engine Oil by Topical Application onto the Skin of Mice,” *International Archives of Occupational and Environmental Health* 50 no. 1, (1982)

<sup>313</sup> *Toxicological Profile for Total Petroleum Hydrocarbons (TPH)*, U.S Department of Health and Human Services, September 1999, <http://www.atsdr.cdc.gov/toxprofiles/tp123.pdf>.

<sup>314</sup> S Zahran *et al.*, “Maternal benzene exposure and low birth weight risk in the United States: a Natural Experiment in Gasoline Reformulation,” *Environmental Research* 112 (2012).

finding is indicative of the pervasive health effects from oil contamination. Not only does it sicken individuals, but it affects the development of subsequent generations as well. Some wells that provide drinking water to communities have 900 times accepted WHO levels of benzene. Wells are also contaminated with large amounts of hydrocarbons, some with more than 1000 times the Nigerian drinking water standards.<sup>315</sup> Even though communities are sometimes aware that their water is contaminated, alternatives are largely unavailable.<sup>316</sup> For many Nigerians, water taken directly from streams is their only source of water.<sup>317</sup>

Studies in Canada have found high levels of a wide variety of organic compounds produced by flaring. Whether or not these compounds were found at significant concentrations at ground level was inconclusive.<sup>318</sup> However, Nigerian gas flares are far less regulated and efficient than those in Canada and are often much closer to the ground. The UN study in Ogoniland found high benzene levels in the air. In ten percent of the areas sampled, benzene levels correspond with a 1 in 10,000 cancer risk just from benzene in the air, not to mention the other means of exposure and the other chemicals involved.<sup>319</sup> Studies in industrial regions of the Niger River Delta area have shown levels of carcinogenic polycyclic aromatic hydrocarbon levels that are some of the highest in the world. All of the industrial activity in the area is petroleum related, indicating that the released hydrocarbons are the result of oil activities.<sup>320</sup>

Environmental degradation is often plain to see, but the health impacts of pollution and flaring are less acute. People who live in contaminated area tend to have little knowledge of the dangers of living near an oil field. In one village in

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<sup>315</sup> *Environmental Assessment in Ogoniland*. UNEP.

<sup>316</sup> *Environmental Assessment in Ogoniland*. UNEP.

<sup>317</sup> Manby, *The Price of Oil*

<sup>318</sup> M. Strosher, *Investigations of Flare Gas Emission in Alberta*, Report to Environment Canada Conservation and Protection, 1996, [http://www.ags.gov.ab.ca/publications/SPE/PDF/SPE\\_005.pdf](http://www.ags.gov.ab.ca/publications/SPE/PDF/SPE_005.pdf)

<sup>319</sup> *Environmental Assessment in Ogoniland*. UNEP.

<sup>320</sup> GR Ana *et al.*, "Polycyclic Aromatic Hydrocarbon Burden in Ambient Air in Selected Niger Delta Communities in Nigeria," *Journal of the Air Waste Management Association* 62 no. 1 (2012)

particular, an oil waste pit was also being used as a swimming pool.<sup>321</sup> Education about the impacts of oil contamination on communities is lacking because relatively little is known about the consequences of oil exposure. Therefore, it is imperative that long-term studies are done on the impacts of drinking contaminated water.<sup>322</sup> Furthermore, air quality needs to be measured and all of this information needs to be available to people in the communities.<sup>323</sup> Local people often use gas flares to dry food. While this is an innovative way to use the otherwise disruptive gas flares, the food is exposed to high levels of toxic chemicals. This practice needs to be dissuaded and cleaner facilities to process agricultural materials provided.<sup>324</sup> The Nigerian federal government needs to either institute programs or mandate that oil companies do so.

Another serious problem is that, “petroleum companies have conducted a number of studies regarding the health effects of TPH [total petroleum hydrocarbons] constituents and products that have not appeared in the open published literature”<sup>325</sup> It is in the interest of oil companies to have their product seem as close to harmless as possible to limit restrictions on its production and use. If they found information to the contrary, they have no incentive to publish that information unless they are forced to, which they have not been. In Nigeria, doctors say that gas flaring in particular is causing chronic health problems. However, Shell has made no comments about the health hazards of flaring.<sup>326</sup> If oil companies were to take responsibility for the sickness and death caused by their activities, they would owe an enormous amount of money to affected communities.

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<sup>321</sup> Okonta and Douglas, *Where the Vultures Feast*.

<sup>322</sup> *Environmental Assessment in Ogoniland*. UNEP.

<sup>323</sup> Basse, *Gas Flaring*.

<sup>324</sup> *Ibid*.

<sup>325</sup> U.S. Department Of Health And Human Services , Agency for Toxic Substances and Disease Registry. 1991, [www.atsdr.cdc.gov/toxprofiles/tp123.pdf](http://www.atsdr.cdc.gov/toxprofiles/tp123.pdf).

<sup>326</sup> Walker, “Nigeria’s Gas Profits ‘Up in Smoke.’”

There are currently no international agencies that collect and publish data on community health impacts from oil activities.<sup>327</sup> The UN study in Ogoniland was an important first step. However, such studies need to be done everywhere and frequently by the Nigerian government, ideally with UN oversight to provide support and ensure the objectivity of these studies. There are serious health consequences from the oil operations in Nigeria, which have serious costs to society, including not only the costs of healthcare, but also the effect of developmental disabilities and loss of productivity. Furthermore, the government needs to take care of its people that are currently having their air, land, and water poisoned by a process that destroys their environment with no benefit to them. This cannot be achieved just by increasing access to medical care, which even now is often many hours away.<sup>328</sup> It is essential to stop poisoning people in the first place.

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<sup>327</sup> O'Rourke and Connolly, "Just Oil?."

<sup>328</sup> "Still and Oily Dangerous Mess," *The Economist*.

## CONCLUSIONS

After examining the governmental, industrial, and environmental aspects of oil extraction in Nigeria, what needs to be done? Things need to change, but how?

It is easy to say that oil companies in Nigeria should clean up their operations. They are destroying the environment of the Niger Delta and impoverishing its inhabitants. Shell has claimed that if Nigeria were to kick them out, whatever entity took their place would be even worse.<sup>329</sup> But why does Shell not do better? However, unless their profits, reputation, or access to resources are in danger, oil companies are unlikely to change on their own. Therefore, these three priorities of the companies should be used as leverage points in pressuring them to change.

As a consumer, there is no way to specifically forgo consuming gasoline that comes from Nigerian oil. At refineries and in pipelines, oil is mixed together with oil from all over the world. Once it is mixed together, it is impossible to tell where it came from.<sup>330</sup> However, companies like Shell and ExxonMobil that are major players in Nigerian oil extraction, have their own gas stations. Although they are not necessarily selling gasoline that their company produced, it is the same company, and financial pressure on the gas station is still financial pressure on the company. The financial impact of individual consumer choices will not have a significant impact on a multinational oil company. Oil is a commodity in such high demand worldwide that small changes in demand just mean that someone else or somewhere else will consume that oil.<sup>331</sup> However, if consumers choose not to be patrons of these corporations and, through this choice, raise awareness about the situation in Nigeria, then these choices can still have a significant impact.

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<sup>329</sup> Okonta and Douglas, *Where the Vultures Feast*.

<sup>330</sup> Primer on Gasoline Sources and Markets, U.S. Energy Information Administration, Accessed September 22, 2012, <http://www.eia.gov/neic/experts/contactexperts.htm>

<sup>331</sup> Primer on Gasoline Sources and Markets, EIA.



Oil extraction is particularly damaging in Nigeria, but it is not a sustainable practice anywhere, and therefore forgoing Shell gasoline for Shell's actions in Nigeria likely leads us to purchase gasoline from company degrading another part of the world. Therefore, an even better change than merely choosing not to buy from Shell would be to consume less gasoline in general. Burning fossil fuels is damaging to the planet, but so is extracting them. Admittedly, this does little to specifically pressure oil companies operating in Nigeria, but it is the developed world's need for oil that is driving Nigerian production in the first place. If we as a world wanted substantially less oil, less oil would be produced. The more we can reduce our oil consumption, the less money can be made from oil extraction.

If oil extraction is less profitable, then other sources of income for Nigeria will be more attractive relatively, prompting diversification. One means for expanding the economy beyond oil is agriculture. Nigeria has the climate, land, and people necessary to have a robust agricultural sector. However, the regulatory climate, including high interest rates and general lack of support for the non-oil sectors of the economy, is currently preventing Nigerians from profitably starting farms<sup>332</sup>The Niger Delta region once contained bountiful fisheries, rich agricultural land, and extensive forests that, if restored and sustainably managed, could be profitable industries that are far more inclusive to communities and diffuse in their benefits than oil extraction.

As investors, we can divest from companies that extract oil in Nigeria and even fossil fuel companies in general. We can choose not to support their activities. We can choose not to support the destruction of communities and our planet.

Damage to the reputation of oil companies is another way to push them to change. Shell has long portrayed itself as an environmental leader and has been largely unchallenged in this assertion. This has been changing as the UN released its report on the degradation in Ogoniland and court cases outside Nigeria are now

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<sup>332</sup> Ademola Alawiye, "Young Farmers Should Determine Nigeria's Food Security," December 2, 2012, <http://www.punchng.com/business/young-farmers-should-determine-nigerias-food-security/>.

holding Shell responsible for its activities. No decisions have yet been made in these court cases, but the fact that they are being heard at all is a significant step towards accountability for oil companies. Still, oil spills in Nigeria go almost entirely unreported in the international media and even within Nigeria.<sup>333</sup> If consumers make the Nigerian environment a priority and do this loudly and publicly enough, then Shell and the other oil companies in Nigeria will be forced to change.

Beyond the actions of consumers, NGOs and IGOs<sup>334</sup> are also means of putting more focused pressure on oil companies and the Nigerian federal government to improve their practices. Small NGOs such as Environmental Rights Action are some of the only sources that provide information about the situation in Nigeria to the international community. Large IGOs have divisions that can target particular issues, such as the Global Gas Flaring Reduction Partnership of the World Bank. All of these efforts can contribute to productive change in Nigeria.

The situation in Nigeria cannot and should not be solved by the international community swooping in and fixing things. Such international influence in Nigeria is largely what caused the problems in the first place. Nigerians have been and need to continue to be a force pressing the Nigerian government and the oil companies to respect their human rights. Movements like MOSOP (Movement for the Survival of the Ogoni People) and MEND have had significant impacts on Nigerian oil production. However, these impacts have been short lived and oil companies have been successfully able to work around and repress these resistance movements in the past. Nigerian oil extraction does have important international dimensions as well. Multinational oil companies are extracting oil primarily for international consumption. Therefore, civil unrest along with international pressure could make it so that oil companies have to extract oil more cleanly and fairly or not at all.

The Nigerian government also needs to contribute to the solution. The government needs a greater incentive to stop environmental degradation. In order

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<sup>333</sup> Ejikene, "The Oil Spills We Don't Hear About."

<sup>334</sup> Nongovernmental Organizations and Intergovernmental Organizations

to have this incentive, government income needs to come from a broader variety of sources. The most unfortunate consequence of the Nigerian government's reliance on oil revenue is that it makes a relatively insubstantial amount of its money from taxes paid by citizens and non-oil economic activities in general. Financially, the government has the incentive to favor some Nigerians over others and oil companies over the majority of the Nigerian people. Purely from a perspective of the government's income, most Nigerians are merely in the way of oil development. A diversified economy would diversify the government's income sources, weakening the bonds between multinational oil companies and government officials while simultaneously providing jobs for Nigerians and making the economy less vulnerable to shocks from changes in oil prices. Employment opportunities would make bunkering a less attractive proposition, decreasing pollution from illegal refining. Less reliance on oil would also mean that the environmental damage from reckless oil extraction would not be tolerated to the same extent. The benefits of diversification are many.

Also, individuals in the government need to stop profiting hugely from the oil industry. Corruption needs to be put in check and government revenues need to go towards social programs. The cultural foundation of reciprocity and the extent of corruption in Nigeria's political structure makes moving away from corruption difficult. However, in order for social development and an end to environmental degradation to become realities in Nigeria, curbing corruption and increasing government accountability are essential.

The government needs not only the incentive, but also the ability to stop environmental damage. Currently, the Nigerian National Oil Corporation is not involved in the oil extraction process, which is conducted almost exclusively by multinational oil companies. In order to effectively regulate oil activities, it is essential for the Nigerian government to have a technological understanding of the process and to be able to hold the oil companies accountable for their actions and verify their reports. If Nigerians were included in the oil extraction process, then

that would give them the knowledge necessary to regulate and monitor the oil companies.

There has been a staggering amount of environmental degradation in the Niger Delta. However, much of the delta remains and, with intensive restoration, could be restored.<sup>335</sup> Serious governmental reforms as well as diversification can start to set the economy along a path not entirely determined by oil. Nigeria's history is not working in its favor. But it is undeniable that oil will one day run out. The wanton destruction of the land and people in Nigeria's most productive region is incredibly shortsighted. The Niger Delta can support its communities, but not if it is broken and polluted. Economically, the finite nature of Nigeria's oil resources make it imperative that they invest in the sustainable industries that they are currently destroying in the Niger Delta. Environmentally, Nigeria has an incredibly biodiverse landscape that can nourish its people if we let it. This is not just something that Nigerians have to figure out. This is not something that we can idly stand by and hope is resolved on its own. We as the consumers of oil cannot and should not change Nigeria all by ourselves. But just as treating sicknesses caused by oil exposure will do little while the people are still being poisoned, trying to stop the damage caused by oil extraction will do very little while we are still demanding the extracted oil.

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<sup>335</sup> Nossiter, "Far From the Gulf."

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