Neoliberal Nigeria, The United States, and Oil: Linking Production and Consumption

A Senior Honors Thesis

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by

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Abbreviations

$-United States. Dollars

CO_{2-} Carbon Dioxide

DOE- United States Department of Energy

E85- Corn-based ethanol

EIA- United States Energy Information Administration

EPA- United States Environmental Protection Agency

GHG- Greenhouse Gases

IMF-International Monetary Fund

IPCC- Intergovernmental Panel on Climate Change

MEND- The Movement for the Emancipation of the Niger Delta

MOSOP- The Movement of the Survival of the Ogoni People

NNPC- Nigerian National Petroleum Corporation

SAP-Structural Adjustment Program

UNFCCCC-United Nations Framework Convention on Climate Change

Introduction

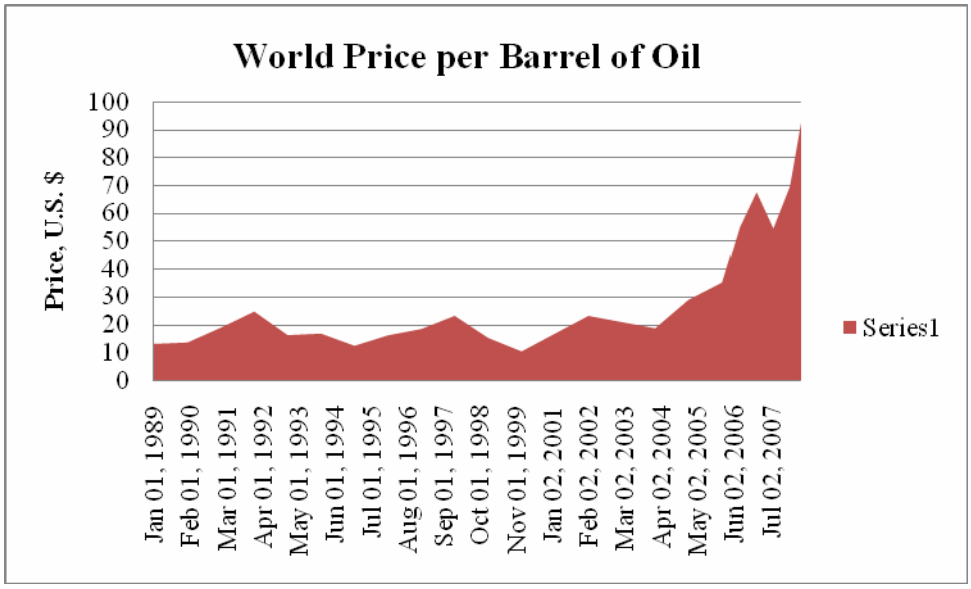
The great danger of confronting peak oil and global warming…[is that] we will plunge after 'solutions' that will make our problems even worse.-Jeff Gödel, *Rolling Stone Magazine*

In 2006, a militant group gained power in the Niger Delta, an oil-rich area in Nigeria: MEND. MEND asserted itself as a force by blowing up pipelines and kidnapping oil-workers. Typical media coverage of MEND portrayed members as terrorists and guerrillas.[1] One particular article in *Vanity Fair* described MEND as, "a collection of walking nightmares, everything…terrifying to the human psyche…" (Junger, 2007). What made MEND "terrifying" was their unique use of force and willingness to kill. Unlike many groups, MEND does not claim to want their "fair" share of oil revenue-they want control over the land.

[1] Cf. *Crude Tactics* in The Wall Street Journal, April 10, 2006*; Nigeria's Deadly Days* in Time Magazine, May 14, 2006.

After one attack in 2007 a MEND spokesperson sent out a warning to all foreign oil workers, writing that they should "leave our land while you can or die in it. Our aim is to totally destroy the capacity of the Nigerian government to export oil" (Junger, 2007). MEND had declared war on foreign oil companies.

That same year, across the world quite a different war on foreign oil was being declared. In his 2006 State of the Union Address, President Bush declared that: "America is addicted to oil, which is often imported from unstable parts of the world." To end this addiction, Bush then introduced his Advanced Energy Initiative: a push towards energy that would be clean, renewable, and emphatically national. America, as the world's largest oil consumer, was fighting what it perceived as intolerable oil prices-prices that have continued to climb. Gavin Bridge stated that Bush's statement indicates that oil is a producer's market, and that this is a "startling admission given the [U.S.] invasion of one of the world's major producers and the continued massive [U.S.] military deployment in the Middle East" (G. Bridge, pers. Comm.., May 1, 2008). In other words the consumer had lost all control over the price of a commodity.



Souece: EIA

From Nigeria to the White House, 2006 seemed to illuminate doomsday: peak oil had arrived. By peak oil I am referring to a peak in both oil prices and an actual peak in world-wide oil reserves.[2] Both wars were not just about the price of oil, but were also responses to the environmental degradation caused by its use. Members of MEND have seen their surroundings destroyed by oil extraction, which has brought with it an erosion of livelihood strategies and a slew of health problems. At the same time, America's purported addiction to oil has helped produce anthropogenic climate change. In their fourth assessment on climate change, the IPCC's *Summary for Policymakers* (2007) plainly stated that,

[2] For material on peak oil reserves and production c.f. *The Next Oil Crisis Looms Large-and Perhaps Close* and *Predicting the Next Peak in World Oil Production*.

"Warming of the climate system is unequivocal." The IPCC also concluded that CO_2 is the most important atmospheric gas driving current climate change, and that the primary source of all CO_2 emissions is the burning of fossil fuels by humans (IPCC, 2007). Projected effects of climate change range from massive droughts to the complete melting of the polar ice caps, all of which either directly or indirectly affect humans (IPCC, 2007). It has become accepted globally that reliance on fossil fuels must end to prevent more extensive climate change.

The 2007 IPCC report effectively ended the debate on whether or not climate change was occurring; however, over a decade earlier the United Nations formed an international treaty on climate change, UNFCCCC, which encouraged the reduction of GHG. The treaty was unfortunately unenforceable, and failed to reduce global GHG emissions. Thus, UNFCCCC member countries began negotiations of a new international treaty, which committed member countries to reducing their national GHG through a measure called a protocol.[3] The Kyoto Protocol became adopted by member counties in December of 1997, but was not entered into force until February of 2005.[4] A major goal of the Kyoto Protocol was for major industrial countries to reduce their GHG emissions, and for member countries to communally cut global GHG by just over 5% of the 1990

[3] http://UNFCCCc.int/essential_background/items/2877.php

[4] http://UNFCCCc.int/essential_background/items/2877.php

baseline.[5] However, Kyoto has been fraught with many failures (addressed in chapter three)

I argue that the findings of the IPCC and the sheer existence of the Kyoto Protocol demonstrate how peak oil and climate change are interrelated, addressing one problem necessitates addressing the other. Together peak oil and climate change constitute what I refer to here as the 'global problem.' This thesis seeks to go beyond conventional understandings of the above mentioned wars on oil in order to draw out the material linkages between the United States and Nigeria, and demonstrate that these linkages are important for both understanding and addressing the current global problem.[6] More specifically, my research aims to understand the array of recent responses to the global problem by different social groups, to theorize their underlying assumptions, and ultimately explain the

[5] http://UNFCCCc.int/kyoto_protocol/items/2830.php

[6] In response to a presentation based on this paper, Gavin Bridge responded, "What are the material connections between Nigerian extraction and the U.S.?" Material connections could be interpreted as: power relations-the flows of capital or perhaps the lifecycle of the carbon atom itself. By material connections, I specifically mean the global contradictions that are produced, reproduced, and made more complex due to the global capitalism. (G. Bridge, personal communication, May 1, 2008).

reasons for their utter failure to adequately address these issues. My starting point is the political economy of oil.[7] More narrowly, I study the contradictions within and between oil production and consumption as a dialectical whole. On the production side, I have examined what has led to the rise of MEND, and on the consumption side I consider America's attempt to find an alternative fuel through the case study E85. The key questions that have framed my research are: how are socioeconomic stratification and environmental degradation interrelated? And how have societies' conceptions of nature facilitated the current problem? As I will argue, capitalism has both aided in the creation of the global problem, and simultaneously prevented it from being addressed in a meaningful way. The root of the global problem, are ethical questions of value-value in capitalism, capitalism's valuation of nature, and the representation of these values; all of which are problematic.

[7] Kojin Karatani defines political economy as "a science that cannot acknowledge the being of an enigma in human exchange" (2005, p. 188).

Chapter 1

Production: Dysfunctional Dualism in Nigeria

In pursuit of their comparative advantage, these nature-exporting nations are frequently recast in their old colonial role as sources of primary products, a role now rewritten in terms of the neoliberal rationality of globalizing capitalism.

–Fernando Coronil

Part 1: Introduction

It has been more than forty years since Nigeria gained its independence from Britain. Despite hopes that the end of colonial rule would improve life, living conditions in Nigeria are steadily deteriorating. On the 2006 Human Development Index, a measurement of quality of life produced by the United Nations, Nigeria ranked 159th out of 177 countries (p. 317).

Nigerian Statistics

Population (2008)	Life Expectancy (2008)	Population below Poverty Line (2007)	Total Fertility Rate (2008)	Literacy (2008)	Population Living with HIV/AIDS (2003)

138,283,240	47.8 Years	70%	5.4 children/ woman	68%	5.4%

Source: CIA World Factbook

The Niger Delta region provides a striking example of the multiple failures of the independent, neoliberal Nigerian state.[8] Despite vast natural resources and a strategic geographic location, the overwhelming majority of Nigerians living in the Niger Delta region have no running water, no electricity, and no sanitation (United Nations Development Programme, 2006). These conditions are met with

[8] Throughout this thesis I refer to neoliberalism to describe an ensemble of the political and economic strategies that have become prominent since the 1970s. The hallmarks of these strategies are the liberalization of trade, finance, and investment on the one hand, and towards privatization of state owned enterprises and resources on the other. Neoliberalism is based on the ideology of liberalism. Bob Jessop states that "liberalism claims that economic, political, and social relations are best organized through formally free choices of formally free and rational actors who seek to advance their own material or ideal interests in an institutional framework that, by accident of design, maximizes the scope of formally free choice" (2002, p. 453).

the presence of foreign oil companies who are seen as extracting money out of the Delta region, while leaving behind a devastated environment. 2006 saw the emergence of a new militant anti-oil group in the region, MEND. Unlike previous groups of this region, MEND is demanding all foreigners associated with oil, including Nigerians not native to the Delta, withdrawal from the region. A BBC news article in 2007 wrote that "the situation [in the Niger Delta region] has gone from bad to worse to disastrous recently with the emergence of armed militant groups willing to kill as part of their campaign…" Essentially, MEND has declared war within the Niger Delta.

It is facile and reactionary to classify MEND as a terrorist organization. I therefore propose another interpretation of this organization by arguing that the rise of MEND cannot solely be attributed to the presence of foreign oil companies. Broadly, the rise of MEND should be viewed as a result of the interplay between the Nigerian government and the neoliberal global economy. More narrowly, I argue that MEND should be viewed as a symptom of Nigeria's continually deteriorating political, economic, and social conditions.

Within a political-economy perspective, in order to interpret Nigeria we should first gain a historical perspective that illuminates the rise of current Nigerian state institutions and the country's place in the global economy. Through an analysis of MEND as a symptom, I seek to demonstrate that Nigeria, as a whole, is on the brink of collapse. Unless dramatic change occurs, it is

probable that the violence of the Delta region will spread throughout Nigeria, and possibly spill into surrounding nations. On a global level, the emergence of MEND should signify the utter failure of neoliberal economics.

Part 2: Nigeria's Economy

Since Nigeria gained independence from Britain in 1960 its economy has operated as what Alain de Janvry described in *The Agrarian Question* as a disarticulated export-enclave economy (1982).

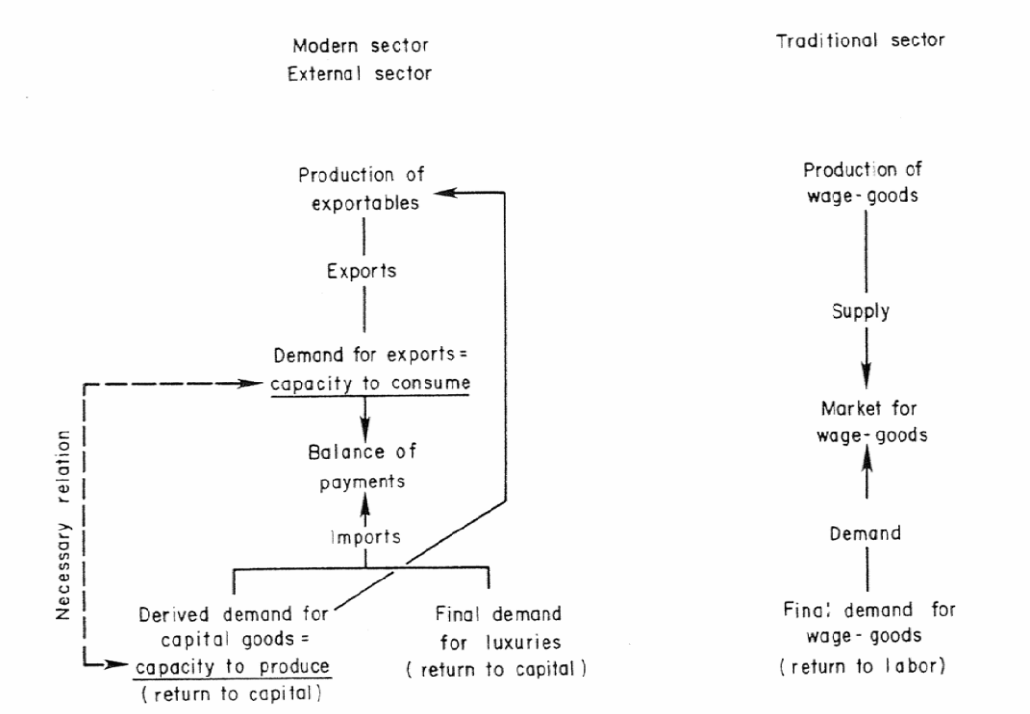


Figure 1.2. Structure of Disarticulated Export-Enclave Economies

Source: de Janvry, 1982

In disarticulated economies, the modern and traditional sectors existed separately from one another (de Janvry, 1982, p. 32). In export-enclave economies, national economic interest is focused on earning capital through the exportation of goods, often primary or raw commodities (de Janvry, 1982, p. 32). This focus on exports translates into a lack of national industries, and this in turn means that excess capital is reinvested in foreign markets, the purchasing of military weapons by the Nigerian government for example. In *Political Economy in Nigeria: The Military, Ethnic Politics, and Development* author Kelechi Kalu confirms the existence of Nigeria's export-enclave economy by asserting that Nigeria's "existing strategies of economic development reflect the colonial model of 'central planning' and emphasis on export over consumption products" (1996, p. 231). As a disarticulated economy, Nigerians of subaltern social groups survive under the "functional dualism" between capitalism and peasant agriculture (de Janvry, 1982).[9] De Janvry characterizes functional dualism as "both a source of

[9] In his prison notebooks Antonio Gramsci writes that "subaltern classes…are not unified and cannot unite until they are able to become the 'State'" and that "subaltern groups are always subject to the ruling of the activity of ruling groups…" (p. 54- 55). The subaltern is a marginalized social class, meaning they lack power and do not comprise the State. However, they are under control of

primitive accumulation…and a contradictory process that leads to the destruction of the peasantry" (1982, p. 4). In a disarticulated economy, members of the traditional sector are identified as semi-proletarians because they are able to earn livelihoods either through subsistence living or as a wage earner.[10] A large section of Nigerians have literally existed outside the formal economy; this population has been surviving mainly through subsistence living. In the Niger Delta, semi-proletarians have historically utilized their natural resources-farms and fisheries-to live. As I will demonstrate, the livelihoods of Nigerians living in the Delta are being destroyed by oil activities.

As an export-enclave economy Nigeria has long relied on the exportation of goods to earn capital, thus it is also viewed as a price taker in the global economy. Prior to the 1970s, Nigeria's exports were mainly agricultural goods. However, the oil boom of the 1970s coupled with industrial nations' reliance on oil has shifted the focus of Nigerian exports and has allowed for the dominance of

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State power meaning that subaltern classes are integrated into the overall hegemonic society.

[10] In *Capital Vol. 1*, Marx defines a proletarian as a person whose only means to survive is by selling their labor power in capitalism. A semi-proletarian is a person who mediates between selling their labor power and subsistence living, meaning that they are not fully participatory in the capitalist system.

oil. This focus on oil has been accompanied with a decline in the overall agricultural sector. Switching from an economy focused on agricultural goods to oil has simultaneously eroded subsistence living. This phenomenon is largely visible in the form of mass migration from rural areas into urban centers. Lagos, for example, has seen its population explode from 300,000 in 1950 to >10 million in 2004 (Davis, 2006, p. 26).

Part 3: Colonial Nigeria

Although the history of Nigeria certainly does not begin with British colonialism, the colonial experience forms the critical starting place for understanding many contemporary problems. Although Lagos became a British colony in 1861, it was not until 1914 that Britain unified what are today the southern and northern regions of Nigeria in the creation of one country (Kalu, 1996, p. 248). This macro-level unification did not translate into unification at regional or local levels. Instead, it laid the groundwork for a fractured society. Under colonial rule, Nigeria remained fragmented into three distinct regions: northern, western, and southern. The geography of Nigeria under British rule can largely be seen as the basis for Nigeria's current political and economic failures (Mbabuika, 2005, p. 203). It is no exaggeration to say that Nigeria was created by the British to serve British purposes; thus, the very foundation of Nigeria in a theoretical sense can be viewed as illegitimate. Fragmenting Nigeria into three

distinct parts prevented unification of Nigerian society, which aided Britain in its colonial rule over Nigeria. Instead of unification, each region was comprised of distinct ethnic groups with one or two groups as the dominant power of that region, and this still largely exists today: Hausa-Fulani in the north, Yoruba in the west and Igbo in the east. This has translated into deep, long-standing ethnic competition and conflict within Nigeria.[11] Today, the Igbo, Yoruba, Hausa and Fulani remain the political and economic elite, while the ethnic groups of the Niger Delta remain marginalized (O'Neill, 2007, p. 2).

Although the oil industry began under colonialism, during this time Nigeria mainly exported tin, cotton, cocoa, groundnuts and palm oil. As with many other colonized nations, colonialism left Nigeria dependent on the exportation of raw commodities to industrial nations. Kelechi Kalu emphasizes this point writing that, "the emphasis on cash crops in colonial Nigeria cannot be overemphasized for its relevance to the current economic problem" (1996, p. 231). Additionally, during colonialism foreign companies were given competitive advantages. This helped prevent and delay the rise of Nigerian industries after Nigerian independence. This situation can most clearly be seen in Nigeria's oil industry. While under colonial rule oil was first discovered in the village of Oloibiri (O'Neill, 2007, p. 4). The dominance of foreign oil companies can largely be attributed to the fact that the oil industry began in Nigeria under

[11] See http://www.nigeriaembassyusa.org/histroy.html

colonial rule. Royal Dutch Shell, today known as the Shell Corporation, was of Dutch and British origin. Despite nationalization of the oil industry in 1971, Shell continues to be a dominant force in Nigeria. In 1999 Nigeria was producing approximately 2.25 million barrels of crude oil per day, and Shell had a 39.58% share of total crude oil production in Nigeria (Frynas, 2000, p. 414).[12] Shell also has rights to 43,052 sq. km of land, which is 19% of all oil licenses and leases (Frynas, 2000, p.721). To contrast this, NNPC has rights to only 690 sq. km of land.

Upon independence, Nigerian society collapsed into civil war. Competition to control the oil industry by different ethnic groups has been cited as a reason for the civil war. Although history has seen Nigeria transform from colonial rule to authoritarian rule to its current form of authoritarian democracy, conflict to control oil remains at the heart of political and economic instability and conflict. At the end of colonialism, Nigeria inherited weak state institutions, and largely failed to build its own. Nigeria inherited its present-day institutions from British rule, institutions which have been determined inappropriate for social renewal (Szeftel, p. 431). This inappropriateness has translated into a country in which the overwhelming majorities of citizens are excluded from economic power and view their government as corrupt.

[12] The figure 2.25 million barrels per day is from EIA's Nigeria Energy Profile.

Part 4: Today's Economy

Nigeria's economy remains reliant on oil. Oil accounts for 95% of its export earnings and 80% of total government revenue (Watts, 2004, p. 50). For the majority of Nigerians life in Nigeria remains short and bleak. In Nigeria a very small percentage, approximately 1%, of the population earns an income from the oil industry (Junger, 2007). State revenue earned from oil is distributed solely by the Federal government. According to the Nigerian constitution, a little less than 50% of total governmental oil revenue is distributed to state and local governments, with an additional 13% of the revenue to the nine-states that comprise the Niger Delta (Junger, 2007). This means that oil revenue is filtered down to local populations through a corrupt, authoritarian state structure.

Vast sums of money are often stolen or misappropriated for personal use. Since 1960 out of $270 billion earned from oil, $50 billion has simply vanished (Watts, 2004, p. 51). A former military ruler, Sani Abache, hid nearly $3 billion in foreign banks (BBC, 2000). Even though the overwhelming majority of oil being extracted solely comes from the Niger Delta region, these communities lack control over this resource. Nigeria's nationalization of the oil industry can be viewed as elites seizing and consolidating state power.

The oil boom that took place during 1970s gave Nigeria a false sense of achievement; during this time revenue earned from oil was seen as *the* indicator of Nigeria's development both nationally and internationally (Gandy, p. 381).

Even with the oil boom of the 1970s, by 1985 the Nigerian government had borrowed $19.1 billion in its efforts to implement a national development plan (Kalu, 1996, p.234). By 1986 Nigeria's economy seemed on the brink of collapse, and the government was unable to procure additional credit from international financial institutions (Dibua, 2006, p. 252). Predictably, Nigeria signed a SAP with the IMF in July 1986 (Dibua, 2006, p. 252). The SAP failed to improve Nigeria's economy, and today their debt portfolio is around $30 billion. All of this led to much failure of the national Nigerian industrial sector, which at the time was in its infant stage.

Under neoliberalism, the global economy has become dominated by market forces. Thus, Nigeria's position in the unequal global economy means that it is largely at the hands of banks, transnational corporations, and state elites. The rise of neoliberal policies has translated into an increase of worldwide disparity. In *Is Globalization Reducing Poverty and Inequality?*, Robert Wade asserts that the "most striking feature" about GNPs since the 1970s has been the size of gaps between developed and peripheral countries (2004, p. 384). Wade also concludes that despite the claim that neoliberal policies will reduce poverty, "world inequality…is probably rising" (2004, p. 400). Finally the figures for sub-Saharan Africa in the 2005 Millennium Development Goals Report showed that from 1990 to 2001 the following had occurred: an increase in the number of people living on less than a dollar a day, an increase in the number of annual

AIDS related deaths, and a growth in the number of people living in slums (2005, p. 364-393).

Part 5: Geopolitics and Nigerian Oil

One of the major events that shaped politics in modern day Nigeria was the civil war that took place from 1967 to 1970 (Frynas, 2001, p. 30). Prior to the civil war, Nigeria functioned through semi-autonomous regions. At the end of the civil war, Nigeria devolved into 12 states (presently 36) all under the control of a centralized state government based in Lagos (Frynas, 2001, p. 30). The centralization of power into the government was met with and derived by the centralization of oil. During the oil boom of the 1970s, several important federal actions took place signaling that the priority of the Nigerian government was the oil industry. In 1971 the Nigerian government nationalized the oil industry, today known as NNPC (Frynas, 2001, p. 30). Nationalization of the oil industry meant that state officials became, effectively, the sole decision-makers (Frynas, 2001, p. 30). Additionally, the NNPC was created in partnership with foreign oil companies; such a relationship ensures that the government acts with foreign oil interests mind (Frynas, 2001, p. 30). For example, in the joint-venture between Shell and NNPC, as of 1993 NNPC had a 55% share (Frynas, 2000, p. 416). In 1978 the government enacted The Land Use Act which shifted landownership into possession of state governors and provided government sanctity to evict

inhabitants (Frynas, 2001, p. 30). The Nigerian government has been constructed in a way to meet oil needs, not the needs of Nigerian society. Finally, Nigeria is presently one of the lowest-cost sites for oil extraction, thus making it attractive to transnational oil companies (Zalik, 2004, p. 404).

The Nigerian government has been internationally condemned as corrupt. In 2000 Nigeria was ranked the most corrupt country in the world by Transparency International (BBC, 2000)[13]. Corruption in Nigeria is widely seen as the result of oil.[14] Indeed oil does not just dominate economic life it also dominates politics in Nigeria. Politics of Nigeria have been categorized as "authoritarian governmentality" and "petro-capitalist" (Gandy, 2006, p. 373). Whichever term is used to discern the authentic meaning of Nigerian politics, the reality is that the Nigerian government operates with corporate oil interests, not the livelihoods of its citizens, in mind (Gandy, 2006, p. 373).

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[13] Transparency International, a Berlin-based NGO that tracks state corruption, corruption is defined as an abuse of power for private gain.

[14] Much has been written about the connections between oil and the Nigerian state. C.f. *Politics and Economic Development in Nigeria* by Tom Forrest (1995); *Where Vultures Feast: Shell, Human Rights and Oil in the Niger Delta* by Ike Okonta & Douglass Oronto (2001); and, *State, Oil, and Agriculture in Nigeria* by Michael Watts (1987).

Nevertheless, corruption within Nigerian politics should not be viewed as the sole result of oil; nor should it be viewed that corruption is unique to Nigeria. As author Morris Szeftel writes, "One reason corruption has been so destructive and resilient in post-colonial Africa is because of the forms taken by clientelism and its importance for local capital accumulation and class formation" (2000, p. 429). In Nigeria, clientelism has meant that 'democratic' leaders have not been elected by their stances on political issues, but on their ability to distribute economic 'gifts'.[15] Clientelism allows for the mobilization of marginalized groups, but only in context of unequal relations with those in power (Szeftel, p. 434). Thus, clientelism allows for a false sense of empowerment to marginalized groups, while upholding and reinforcing unequal power relations. Widening gaps of inequality and the interests of oil companies only exacerbate these conditions. In 1999 Nigeria transitioned from authoritarian rule to democratic rule under President Olusegun Obasanjo (Lewis, 2003, p. 131). Despite transitioning to democratic rule, the presence of clientelism has only aggravated political corruption. Under these conditions the vast majority of Nigerians have come to view their government as dishonest and dismiss the entire political system.

Today, the oil companies and the state collaborate for their mutual benefit. In 1996 it was discovered that Shell had imported arms for the Nigerian police (Okeagu, 2006, 2006, p. 210). The oil companies argue that employing police is

[15] In Nigeria, clientelism takes the form of relationships built on patronage.

necessary to ensure the protection of their workers, but the truth is that they use the police to suppress anti-oil activism. In 1990 a Shell manager made a written request for 'protection' from the Mobile Force, a notoriously brutal Nigerian military force. The Mobile Force then in turned killed eight unarmed civilians and destroyed one hundred homes (Okeagu, 2006, 2006, p. 211). More than 15 years later, Shell remains a prevailing force in the Niger Delta and continues to employ the Mobile Police. The ability of oil companies and the Nigerian state to use violence is best explained by Nicos Poulantzas's statement that "in a class-divided society, it is always the State, as the practitioner of legitimate violence and physical repression, which takes precedence over law" (1978, p. 85). In the Delta region Shell largely acts as the defacto state; basic services such as transportation and education in the region are both regulated and controlled by Shell (Zalik, 2004, p. 406).

Socio-economic crises in the Niger Delta have disrupted the oil industry, and in response oil companies have enacted various development plans; Shell's current tactic is "Sustainable Community Development" (Zalik, 2004, p. 408). These latest plans are a continuation of the previous model called "Community Development" (Zalik, 2004, p. 412). Although community development projects are supposed to be built on partnerships with local actors, these projects merely promoted non-confrontational and respectful negotiations between local

authorities and Shell (Zalik, 2004, p. 409). The development plans created by Shell, similarly to clientelism, only strengthen unequal relations.

By allowing the oil companies to enact development plans, the Nigerian government has further de-legitimized itself in the Niger Delta. Nigerian expert Michael Watts asserts that the Niger Delta was the "epicenter of voting fraud in the April 2003 elections" (Watts, 2004, p. 51). The May 29, 2007 presidential elections 'won' by Umaru Yar'Adua only demonstrates the continual deterioration of any notion of a democratic Nigerian government. An article in *The Economist* described the elections as "so badly run and marred by such widespread rigging [that] they lacked even a pretense of democratic plausibility" (2007). Yar'Adua's presidency is not being accepted, and is seen as a mere continuation of Obasanjo's rule and power (Ibid). Despite former President Obasanjo's claims that his presidency would end political corruption and improve conditions in Nigeria, little changed and today 70% of Nigerians are living on less than a dollar a day (Economist, 2007, p. 56).

Part 6: Life in the Niger Delta

Today the gross domestic product per capita in Nigeria is only $1,154 (United Nations Development Programme, 2006). With the majority of wealth concentrated in the hands of a few, for the majority of Nigerians this figure is actually much lower. Over half of the population is living without access to

improved water sources (Ibid). The life expectancy for Nigerians is only 43.4 years; to put this into perspective, the life expectancy in Japan is almost double at 82.2 years (Ibid). Life in the Niger Delta region is particularly brutal. Life exists under conditions which Watts has coined "petro-violence;" a society in which protest over the oil industry is mitigated through the usage of force by both the Nigerian military and oil companies (Zalik, 2004, p. 401). At the same time, livelihoods in the Delta are being threatened and destroyed. Until 1988 there was no federal environmental agency overseeing the oil companies' activities impact on the region (O'Neill, 2005, p. 5). For the oil companies, this has allowed for cheap oil extraction, but for the people living in the Delta it has meant acid rain, deadly explosions, crop failure, respiratory diseases, collapse of the fishing industry, and the destruction of private property (O'Neill, p. 5). On average Nigeria has 300 oil spills per year (Watts, 2004, p. 69). Nigeria's lack of a natural gas infrastructure has meant that 75% of this gas is simply burned off, known as gas flares (Okeagu, 2006, p. 202). Gas flares are not only dangerous, but in Nigeria these flares have produced millions of tons of both methane and CO_2 (Watts, 2004, p. 69). The authors of *The Environmental and Social Impact of Petroleum and Natural Gas Exploitation In Nigeria* best synopsize the problem of gas flares:

> It is pathetic that at a time when more than 19,000 people have died in Europe because of global warming that results in the greenhouse effect,

flaring of natural gas is still being carried out in Nigeria (Okeagu, 2006, p.202).

Problems of the Delta region have filtered out negatively impacting Nigeria as a whole. A large example of this is the massive migration into urban cities previously mentioned. An increased population in urban areas has in turn caused a dramatic increase in the number of people, who were once able to live by subsistence means, who must now gain capital in order to purchase commodities for their survival. By and large these people lack access to formal means of income, and again this is largely tied to the dominance of oil and lack of national industries. This lack of access has thus meant that large numbers of people must operate outside the formal sector in illegal or informal sectors

. Nigeria can no longer be seen as operating under de Janvry's functional dualism, for its subaltern class can no longer even survive. The vast majority of Nigerians who find themselves excluded from the formal political and economic structures have no other choice but to operate in informal often deemed illegal sectors. Exclusion from the formal sectors forces citizens to turn to alternatives- oil bunkering for example.[16] As global demand for oil increases, driven

[16] Bunkering is the illegal siphoning off of oil, and this oil is then sold for highly profitable amounts of money on underground markets (Okeagu, 2006, p. 208).

increasingly from China, it is unlikely that the conditions of the Delta region will improve.

Nigeria's lack of control over the foreign oil companies has only compounded the environmental and social problems attributed to oil. With no ramifications, oil companies have no consideration for long-term environmental consequences or how they affect local communities. For example, the large volumes of polluted water that are produced through pumping oil out of the ground are recycled into the subsurface (Okeagu, 2006, p. 202). For the oil companies this enhances oil recovery. However, once the land is no longer used for oil extraction there is concern about how this polluted water may adversely affect living and/or agricultural production on such lands (Okeagu, 2006, p. 202). Environmental degradation has meant that many residents of the Delta region can no longer live through subsistence means, which is seen as a push factor driving migration into urban centers (Okeagu, 2006, p. 204). The Land Use Act of 1978 has compounded these forces pushing Delta residents off their lands (Omeje, 2005, p. 324).

Part 7: A Re-examination of MEND

We may now return to MEND to examine this social movement. While one may view MEND as anomalous, I conclude that MEND reflects only the evolution of anti-oil activism in the Niger Delta. This evolution can be traced

back to November 10, 1995, when civil rights leader Ken Saro-Wiwa was hung by the Nigerian government after being convicted of murder charges-charges viewed internationally as erroneous (Junger, 2007). Saro-Wiwa was the leader of the non-violent, anti-Shell organization MOSOP (Junger, 2007). MOSOP advocated for local control over the oil industry, equitable distribution of oil revenue, and greater resources devoted to both environmental clean-up and control (Okeagu, 2006, p. 207). Saro-Wiwa's unjustified death can in hindsight be viewed as the end of non-violence as a viable method for anti-oil activism. Although MEND has taken on a starkly different form from MOSOP and is affiliated with a different ethnic group, the Ijaw, they have adopted much of the same ideology (Junger, 2007). Until the emergence of MEND, existing groups in were viewed as less interested in ideology than in money. Yet, MEND wants sovereignty over land that they view as theirs. It is this paper's conclusion that MEND should be viewed as an expression of frustration. Watts' assessment of modern day Africa articulates the social formation behind MEND:

> Across Africa you have a huge number of alienated youths, politically footloose, who thought they could achieve something with the countries' moves to independence and democracy. Those hopes have been almost everywhere been violently snuffed out. The youth are pissed off and willing to up the ante (2004).

To conclude, I argue that the situation in the Niger Delta indicates that what de Janvry described as functional dualism is no longer functional: the reproduction of labor-power has been stifled largely due to mass-migration out of the region, and at the same time the conflict taking place intervenes in national capitalist accumulation by disrupting the oil industry's ability to export. Essentially, Nigeria is in transition from functional to dysfunctional dualism. Neoliberal policies failed to bring developmental progress to Nigeria, and they instead have lead to an escalation of poverty, disparity, and violence. The rise of MEND should be viewed as an important indicator of the multiple failures of neoliberalism, and more broadly the contradictions of global capitalism.

Chapter 2

Consumption: Fueling Contradictions in the United States

"Green is the color of mold and corruption."-James Lovelock

Part 1: America, Oil, and Cars

Presently in the United States there are over one-hundred million passenger cars on the road, and this number continually grows. When motorcycles, trucks, and all other vehicles are accounted for the above figure soars to well over two-hundred million. The majority of all these vehicles run on only one fuel: petroleum.[17] In *Fortune Magazine's* 2007 list of the 500 largest American companies, the criteria for which is partially based on company revenue and profits, 6 of the top 10 were either petroleum refining or automobile manufacturing industries; three of the top five were Exxon Mobile, Chevron, and ConocoPhillips. Automobile transportation is the backbone for much of American society and economy. In 1974 geographers Richard Walker and David Large observed that "…the growth and dominance of automotive transportation [has] restructured the entirety of urban life," and that "the urban [American] economy is embodied in the structures built…to transport people and commodities" (1975, p. 384). Today, over 30 years later, this very same economy is not only still in existence: it has only grown in size. With life in the United States constructed around automobile use, it is easy to comprehend why the majority of top grossing American companies are all a part of the transportation

[17] According to the United States White House, the transportation sector accounts for 2/3 of all U.S. petroleum use (http://www.WhiteHouse.gov/stateoftheunion/2006/energy/index.html).

industry. However, the 2007 IPCC's assessment of anthropogenic climate change determined that fossil fuel usage, a major one being petroleum, is the main source of current CO_2 emissions. The IPCC's report further determined that CO_2 is the most prevalent greenhouse gas driving current climatic changes (IPCC, 2007). Petroleum usage has been further complicated by depleting fossil fuel reserves. This depletion has provided evidence for the acceptance that oil production has a peak and its usage is finite, both of which are based on M. King Hubbert's curve.[18] It has become increasingly clear that American reliance on petroleum is no longer a viable option, but at the same time ending dependence on transportation is neither practical nor feasible. This lies at the heart of America's quest for an alternative fuel-a contradictory search that has thus far proven fruitless.

Part 2: America's History of Alternative Fuels and the Case for E85

Although the American public may only recently have begun demanding an environmentally clean alternative to petroleum, scientists have conducted research on the impact of fossil fuel emissions on the environment for decades. In 1963 the United States Congress passed the first form of the Clean Air Act, a bill

[18] M. King Hubbert developed a curve to predict peak oil in 1956, which accurately predicted the peak of oil production in the United States.

which specifically aimed at mitigating atmospheric pollution. A specific goal of the Act was to reduce air pollution emissions by vehicles. One outcome of the Act was that the auto industry had to design all automobile engines to meet specific federal standards. The 1960s and 1970s saw several other important federal Clean Air Acts and amendments, and was seen as an era of strong environmental regulation. The Clean Air Acts of this time period clearly demonstrate that regulation of automobile emissions and research into alternative fuels is not unique to the current era of peak oil and climate change (Dias de Oliveira, 2005, p. 593). The monumental Clean Air Act of 1990 established a national emissions permits program, proposed emissions trading, and had additional previsions to address environmental hazards caused by emissions. The emissions program of the 1990 Act is largely the model for current global GHG cap-and-trade programs (analyzed in the following chapter).

Recently there has been an emphasis on research and development as a means to combat GHG and produce technology that will overcome the limits of peak oil. According to the White House, since 2001 President George W. Bush's administration had spent over $10 billion on research and development into alternatives to petroleum, and Bush's 2006 Advanced Energy Initiative pledged to increase that amount by 22% (Bush, 2006). Currently, the DOE recognizes ten different automobile fuels: gasoline, no. 2 gasoline, biodiesel, CNG, electricity, E85, hydrogen, liquefied natural gas, LPG, and methanol. All of these fuels are

derived from different sources, have different availabilities, and different energies per gallon. While gasoline is produced from only one source-oil- fuels like E85 have multiple sources. Today in the U.S., biofuel-specifically corn based E85-is one of the most prominent alternative fuels. President Bush's 2005 National Energy Policy specifically required the usage of 7.5 billion gallons of ethanol, and provided tax credits for the instillation of alternative fuel stations (Bush, 2006).

While conventional gasoline can be blended with other types of fuel, it is limited to a maximum of 10% blending with renewable fuels. E85 is a specific hybrid fuel that is comprised of 85% ethanol and 15% conventional gasoline. Ethanol can be obtained through the sugars of a variety of plants, but 90% of current ethanol production comes from corn.[19] According to the EIA, "The most commonly used processes [to derive ethanol] today [uses] yeast to ferment the sugars and starch in corn." Tp many, ethanol seems like a new fuel, but the history of ethanol usage in the United States actually began in the nineteenth century. It was first used for lighting purposes, but in 1826 Sam Morey created the first engine that could run on ethanol fuel. Morey's engine did not run on pure ethanol though, and was comprised of a mixture of ethanol and turpentine. Despite the exploration into the usage of ethanol as a fuel, its popularity largely died off in the 1920s. In the 1920s conventional gasoline became the dominant

[19] Alternative Fuels & Advanced Vehicles Data Center (2006, April 22).

automobile fuel worldwide. Dominance of gasoline is just now starting to end, and ethanol is once again gaining popularity. E85 became defined as an alternative fuel under the 1992 U.S. Energy Policy Act, and this largely marks the history of the current ethanol-fuel trend.[20]

The attacks by Al-Qaeda on the United States in September 2001 accelerated the growing trend to find a petroleum alternative. Presently, the U.S. imports over 600,000 thousand barrels of oil per month, and two of its main importers are Saudi Arabia and Venezuela-states widely regarded as authoritarian and (in quite different ways) not conducive to U.S. interests. Today in America dependence on oil is widely seen as dependence on foreign nations, which has increasingly become perceived as dangerous to the American economy and way of life. In his 2006 State of the Union Address President Bush blatantly categorized many of the countries that America imports oil from as "unstable," and his Advanced Energy Initiative specifically aimed to end "more than 75 percent of [American] oil imports from the Middle East by 2025." In short, Americans are demanding an alternative fuel that is not only clean, but are also domestically produced. E85 is the alternative fuel being pursued in America, not just by the American government, but also by American companies. General Motors is one of numerous automobile manufacturers designing engines

[20] Alternative Fuels & Advanced Vehicles Data Center (2008, April 29).

specifically for E85; in fact the company has designed a marketing and advertising campaign called, *Live Green Go Yellow*, that was specifically designed to promote E85.[21]

The case for E85 in the United States is two-fold. First E85 is promoted as an environmentally clean and renewable alternative to gasoline. Proponents of E85 argue that this fuel not only reduces GHG emissions, but also reduces emissions of particulate matters that have direct affects on human health. Additionally, because ethanol is derived as from plants it is advertised as renewable, meaning that unlike petroleum it is not a finite resource. The other side of the argument for E85 is economic. As stated previously, a main plant that ethanol is derived from is corn; according to the U.S. Department of Agriculture, "Corn is the most widely produced feed grain in the United States." There is already an established corn agricultural industry in place in the United States, thus it is perceived that that the corn industry would be able to produce corn for fuel.[22] In 2000 U.S. farmers earned approximately $246.67 per acre of corn, and with around 80 million acres of land being used for corn this industry generated more

[21] http://www.gm.com/explore/

[22] The National Corn Growers Association alone represents 32,600 corn farmers (Boisen, 2003).

than $19 billion in 2000.[23] Demand for corn for fuel only effectively increases the amount of money a farmer can earn per acre of corn, so many have concluded that fuel derived from corn would be beneficial to the American economy. Finally, since corn is produced domestically, E85 is hailed as a fuel that will end American reliance on foreign nations. The Midwest will grow us out of the Middle East.

Part 3: E85 Inefficiencies

One of the main critiques against ethanol-based fuel is that its production causes a net energy loss. A net energy loss means that production of the fuel requires more energy input than the fuel itself produces as a finished product. As David Pimentel concludes in his article, *Ethanol Fuels: Energy Balance, Economics and Environmental Impacts are Negative*, 22,119 BTUs of energy are lost producing a single gallon of ethanol, in other words one gallon of ethanol requires 29% more energy input than it itself yields as a fuel (2003, p. 128). E85 creates an overall energy inefficient system. Even though energy for production and energy for combustion occur at different points the cycle of a fuel. Since in

[23] It should be noted that this figure does not account for profits earned from corn sold as finished food products or profits earned through international trade of corn.

the U.S. the number of automobiles on the road continually increases, switching to reliance on domestically produced E85 would require ever increasing production, and this would perpetuate this inefficient energy system.

Presently ethanol accounts for only 2% of total fuel consumption in the United States, but generating this small amount of fuel requires 3.3 million hectares of land (Patzek, 2005, p. 68). Tad Patzek emphatically states that "even if the average net fossil energy ratio were 1.2 for the corn ethanol-cycle, which it is not, the entire U.S. corn crop would replace only 2% of the energy in motor gasoline" (2006, p. 2). The conversion of lands into corn fields for E85 has lead to issues of food security-choosing corn for fuel or food. Mexico City erupted in protests in 2007 over rising tortilla prices (Malkin, 2007). The rising tortilla prices were attributed to corn-based ethanol driving up the overall cost of corn, and rising corn prices were also predicted to drive up the cost of other foods, such as meat (Said, 2007).

Moreover, E85 cannot be used in engines designed for conventional gasoline. The vast majority of the more than 200 million automobiles already operating in the United States are gasoline engines. Thus, the majority of existing vehicles would have to either be converted to flex-fuel engines or be completely replaced. Such a conversion would require both large monetary investments, as well as a large amount of time. It is clear that in terms of both production and viability, E85 is simply too inefficient to be a plausible alternative to petroleum.

Part 4: Pollution of a 'Clean' Fuel

Many proponents of E85 refer to the fuel as an environmentally friendly alternative to petroleum; however, both producing and combusting E85 causes significant amounts of environmental degradation. First and foremost, E85 is not pure ethanol; it still contains 15% traditional gasoline. Presently all ethanol based fuels contain some percentage of conventional gasoline; thus, any ethanol based fuel produces some of the same GHG emissions as conventional gasoline.[24] In order to fully account for the ecological footprint of E85 the pollution generated from its agricultural production must also be accounted for. The IPCC's 2007 *Summery for Policymakers* concludes that global emissions of methane are very likely due to agriculture, and that nitrous oxide emissions are defiantly due to agriculture. Switching from gasoline to E85 would not end emissions causing climate change: it would largely only shift the site of these emissions from fuel combustion to fuel production. In 2000, the nine top corn-producing states, known as the Corn Belt, used more than one-hundred thousand pounds of herbicides and close to ten-thousand pounds of insecticides in the production of corn alone (Graboski, 2002). The usage of insecticides and herbicides can have

[24] See Dias de Oliveira (2005) for specific amounts of CO_2 emitted from E85 production.

direct impacts on the health of those who handle them; epidemiological studies have shown that the use of these products can cause a variety of cancers (Blair, p. 206). In a study of how pesticides, which is the larger classification for herbicides and insecticides, affect aquatic life researcher Rick Relyea found that 3 out of 4 common pesticides examined led to a reduction of species richness (2004). Relyea additionally concluded that the usage of Roundup®, a common herbicide used on corn fields, reduced species richness by 22% (2004).[25]

Uses of fertilizers in agriculture, the most common of which are nitrogen and phosphorous, also have numerous environmental effects. In 2001 U.S. corn farmers used a combined 9 billion pounds of nitrogen and 3 billion pounds of phosphorous (Patzek, p. 321). Fertilizer usage alone accounts for 90% of global nitrous oxide emissions (Ayoub, 1999, p. 119). The global warming potential for nitrous oxide is 180 times that of CO_2, and methane is 10 times larger than CO_2 (Lashof, 1990, p. 530). Thus, substituting gasoline with E85 would not minimize emissions nor would it prevent further climate change. Also for both freshwater and saltwater, the agricultural runoff of fertilizers can cause dead zones,

[25] A specific type of corn that is used in conjunction with Roundup® was created to be jointly used with it Roundup®, Roundup Ready Corn®. In 1998 900,000 acres in the United States were planted with Roundup Ready Corn®, which means that Roundup® was applied to at least 900,000 acres of land.

eutrophication, and an overall loss in biodiversity. It is clear that current corn agricultural practices in the United States contribute to significant amounts of environmental degradation, and the conversion from gasoline to E85 would only exacerbate this degradation.

Converting the corn feedstock into ethanol presents another array of environmental problems. The conversion of feedstock into ethanol requires the usage of methane, oil, and coal, and the usage of all three directly release GHG. There are two different processes that convert corn into ethanol: dry mill and wet mill. The wet mill process requires more capital and the input of more energy, thus the dry mill process is more commonly practiced (Graboski, 2002). Both methods require a fermentation process. Fermentation requires some form of a nitrogen source, often ammonium sulfate or urea. Usages of these forms of nitrogen in the production of ethanol have their own potential environmental impacts, acid rain for example (World Bank, 1998). However, the manufacturing of ammonium sulfate and urea yields additional environmental impacts; industrial plants that produce ammonia emit CO_2, nitrous oxide, and sulfur dioxide (World Bank, 1998). Additionally, the production of ammonium sulfate and urea causes the release of significant levels of particulate matter, which can have direct impacts on human health and are non-point sources of air pollution (World Bank, 1998).

In sum, when evaluating the life-cycle of ethanol production, it is evident that significant amounts of GHG are released. However, emissions do not end with ethanol production; the authors of *Emissions of Nitrous Oxide and Methane from Conventional and Alternative Fuel Motor Vehicles* examined emissions of nitrous oxide and methane from a variety of automobiles, and found that, "…methane emissions tend to increase with ethanol content" (2002, p.500). They also state that "Virtually all [alternative fuel vehicles] built or constructed to date use stock gasoline-vehicle catalytic control systems (or systems very similar to gasoline systems), and emit as much nitrous oxide as do gasoline vehicles" (2002, p.492). While E85 may reduce CO_2 emissions it will emit as much, if not more, methane and nitrous oxide than conventional gasoline in combustion alone.

In order to analyze the full environmental impacts of E85, several more factors need to be considered. Water demand is a serious concern. The irrigation of corn fields requires significant amounts of freshwater; about 30% of irrigation water drawn from ground water comes from one source, the Ogallala aquifer (Rosenberg, 1999, p. 677). The Ogallala aquifer is also a significant source of freshwater used for human intake, and with global climate change projected to diminish the amounts of available freshwater, irrigation practices should be minimized (Rosenberg, 1999). Freshwater is also required in both the wet and dry mill processes. One bushel of corn requires 35 gallons of freshwater, and

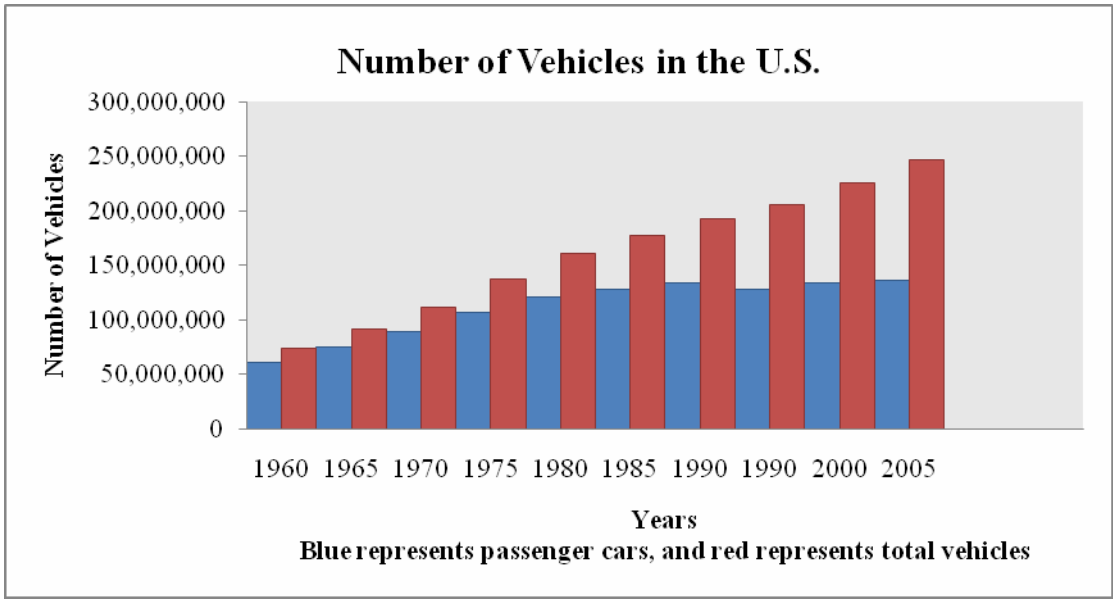
yields ~2.7 gallons of ethanol. In 2004 approximately 3,251,881,000[26] barrels of conventional gasoline were used, and since the current energy ratio of ethanol to gasoline is 1.42, to meet this fuel demand close to 5 billion gallons of E85 would be needed. In terms of freshwater, this means that roughly 65 billion gallons of freshwater per year would be used in just the manufacturing of E85. If climate change reduces the availability of freshwater, which is a widely accepted belief, it may not be possible or acceptable to use such amounts of water for fuel production. Finally, E85 is corrosive and cannot be transported using the current pipeline network that is used to transport petroleum in the United States. Transportation of E85 would have to be done by either truck or train, and this would only increase fuel usage, perpetuating the cycle of environmental damage. Conversion of cars, the disposal of conventional vehicles to vehicles capable of using E85, alone would generate significant amounts of CO_2 (Kim, 2005). . Even if E85 was clean, which clearly it is not, conversion to an E85 automobile society would produce large amounts of inorganic waste.

Part 4: A Look to the Future from the Past

The case study of E85 demonstrates that substituting petroleum with an alternative fuel only shifts environmental degradation associated with automobile use. Researchers Erling Holden and Karl Georg Høyer analyzed the ecological

[26] From EIA's estimated petroleum consumption.

impact of 16 different fuels and found that hydropower was the least environmentally damaging, and was thus, the best alternative to petroleum. However, the researchers were quick to point out that hydropower is "not a global resource with sufficient volumes to support the ever increasing transport systems" (2005, p. 402). It is clear that an alternative fuel is not in fact the solution to environmental degradation associated with petroleum. Pollution generated from petroleum is only a symptom of a larger problem: continual and ever-growing transportation consumption.



Source: U.S. Bureau of Transportation Statistics

The connection between continual transportation consumption and environmental degradation is hardly new. Walker and Large articulated this very connection in 1974 in their paper titled *The Economics of Energy Extravagance.*

Despite this, the same practices that Walker and Large identified as encouraging and perpetuating transportation are still in existence. President Bush's 2006 Presidential Address only confirms that transportation consumption will only grow in the future; the energy plan that Bush outlined largely relies on technology to minimize environmental damage and to end dependence on 'unstable' nations. Bush's plan does not attempt to minimize transportation consumption; it seeks to find an alternative fuel specifically so reliance on automobiles can continue. There is a long history of U.S. transportation policy advocating expansion of transportation consumption. Walker and Large cite transportation consumption as a vital part of American society, and history provides evidence of this. In his 1956 State of the Union Address President Eisenhower directly called for the construction of "a modern, interstate highway system." The passage of the Federal Aid Highway Act in 1956 helped enable the construction of much of today's highway system; this helped lay the foundation of a society dependent on automobile use. More recently the spending of billions of dollars on the development of alternative energies indicates that transportation consumption is only being encouraged.

Since transportation consumption has been recognized as problematic for at least 30 years, there must be a more complex reason behind the continual environmental degradation associated with petroleum. The global economy can be cited as an overarching reason for the continuation of this problem. The global

economy is fundamentally capitalist, and the U.S. is a principal economic power in this system. As a capitalist nation, operating under neoliberal principals, an underlying belief guiding American society is that consumption is not only morally good, but a good-a commodity, in effect-best left to individual choice. Implementing regulations and controls that would reduce transportation consumption would violate a crucial tenant of capitalism: the avoidance of an economic crisis. In the years since Walker and Large first wrote their paper advances in technologies have taken place, and more scientific knowledge about the effects of GHG has been generated and spread to the public; yet, GHG emissions have only increased.

According to the IPCC, humanity is facing unprecedented climate change-with negative consequences for humanity caused by glacier melt, rising temperatures, loss of freshwater, and so on. Despite all the evidence that American society must dramatically transform, no new path has been created. The U.S. is caught in set of contradictions. Current socio-economic behavior is contributing to massive, unprecedented environmental damage, impacts of which are largely perceived to be devastating and result in massive losses of life. Yet, no serious attempts to correct our collective problems have been proposed. The famous economist John Maynard Keynes once wrote: "There is no evidence from experience that the investment policy which is socially advantageous coincides with that which is most profitable." In 2007 the combined profits for Exxon

Mobile, Chevron and Conco Philips soared well above $70 billion; it is clear which investment policy America values (Fortune, 2007, p. 226).[27]

The inability of American society to limit transportation consumption despite all of its negative impacts seems proof that Keynes statement rings true. Perhaps only the effects of climate change can force the change that would limit American transportation consumption. But by that time it may simply be too late.

[27] Profits were up 2.8% for Exxon and 9% for Chevron from 2006.

Chapter 3

Theorizing the Contradictions: A Green-Marxist Analysis

"We cannot sustain earth's life-support system within the present economic systems."-Robert Newman, *The Guardian*

Part 1: Capitalism and Kyoto

The case studies on Nigeria and the United States demonstrate the necessity for states world-wide to address the current problem. However, it has become clear that addressing this problem must be a global effort. A global solution means that states must act together, which has proven to be difficult and coordination has not yield positive results. The Kyoto Protocol presents insights into present contradictions and the future under climate change may prove Newman prove to be correct.

The objective of the Kyoto Protocol is to reduce GHG emissions, and cap-and-trade is the method in which these emissions are to be reduced. The term cap-and-trade refers to the usage of neoliberal policy in the mitigation and

reduction of emissions. The U.S. initiated the first cap-and-trade program in 1990 under President George H. Bush; the 1990 Clean Air Act sought to reduce ozone depletion and address issues of national air quality. According to the EPA, the 1990 Clean Air Act, "encourage[d] the use of market-based principles and other innovative approaches, like performance-based standards and emission banking and trading."[28] In cap-and-trade programs, a specific quantity is set as the limit for allowable emissions of a particular pollutant, and this is referred to as the "cap".[29] The EPA defines an allowance as "an authorization to emit a fixed amount of a pollutant" (Ibid). The allowances based on the 1990 Clean Air Act are used by individual firms or industries, whereas allowances in the Kyoto Protocol are used by countries.

The overall goal of the Kyoto Protocol is for member countries to collectively reduce GHG emissions by ~5% of 1990 emissions by 2012. The foundation of Kyoto's design was the phrase "common but differentiated responsibilities;" this phrase essentially exonerated peripheral countries from having GHG limits.[30] Kyoto has three provisions that provide "a certain degree of flexibility" for countries to meet the 2012 goal (Ibid). The three provisions are:

[28] http://www.epa.gov/air/caa/peg/index.html

[29] http://www.epa.gov/airmarkt/cap-trade/index.html

[30] http://UNFCCCc.int/kyoto_protocol/items/2830.php

Emissions Trading, the Clean Development Mechanism, and Joint Implementation. Emissions Trading is a program to facilitate the buying and selling of GHG allowances among Annex 1 members (Ibid). [31] The Clean Development Mechanism is an offset trading system to assist trading between developed and peripheral countries; essentially a developed country would purchase offsets from one or several peripheral countries (Ibid). Similarly to the set-up of the Clean Development Mechanism, Joint Implementation aims to transfer advanced technologies from developed to peripheral countries; it is a system in which a donor country invests in pollution reduction measures in a host country, and in return the donor country would receive allowances to use for its own emissions targets (Ibid).

Part 2: Limits and Failures of Kyoto

In 2001 President Bush stated that the United States would not sign the Kyoto Protocol, effectively ending the country's participation in the global effort to address climate change. The unwillingness of United States to sign Kyoto was a shock to the international community. Since the U.S. has been the greatest

[31] Annex I countries are countries that have specified GHG emissions targets, and who have been the biggest emitters of GHG. In general, they are wealthy industrial nations.

contributor of GHG emissions its withdrawal from participation was seen as a severe failure for Kyoto; in 2004 the U.S. accounted for 24.3% of global CO_2 emissions (Marland, 2007).[32] However, since 2001 it has been argued that the actions of the United States actually helped accelerate the implementation of Kyoto, and ultimately strengthened it. I argue that Kyoto's ultimate failure lies not with the U.S. withdrawal and China's exemption, but in the design it uses to reduce GHG emissions, specifically cap-and-trade. Cap-and-trade programs are neoliberal policies. However, by and large neoliberal development polices have not yielded developmental progress in peripheral countries; nor have they improved the quality of life for those living in abject poverty. The case study of chapter 1 provides much evidence of this. Neoliberal economics have lead to greater socioeconomic stratification both within and between countries (Wade, 2004). This socioeconomic stratification heightens societal conflict and has further complicated the prospect for a global reduction of GHG.

The consequences of using neoliberal policies to mitigate emissions can be highlighted through an analysis of offsets. An offset is a method to counterbalance emissions that exceed a cap. In terms of a cap-and-trade program, instead of purchasing an allowance an offset could be purchased. Offsets function

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[32] In 2007, from petroleum usage alone America emitted 2.6 billion metric tons of CO_2 (http://tonto.eia.doe.gov/energy_in_brief/greenhouse_gas.cfm).

by having emissions above a limit in one location be compensated for by either non-emissions or an emissions reduction measure, like sequestration, in another location. For the Kyoto Protocol, Clean Development Mechanism means that wealthy, industrial countries will be able to purchase offsets to mitigate their own emissions, meaning that non-emissions by peripheral countries are in the interest of wealthy countries. The Clean Development Mechanism merely perpetuates uneven relations and creates incentive for developed nations to stifle developmental, specifically energy, progress in peripheral ones. It is also important to note that offsets do not ensure that emissions are actually reduced; they only aim to prevent an increase in total emissions. The IPCC expressed that mitigation of emissions will not prevent the impacts of climate change (2007).

Like offsets, cap-and-trade programs are only mechanisms to reduce emissions; they do not ensure that reductions will occur at all. Here, the Kyoto Protocol has failed to reduce world-wide GHG emissions. It has not only failed to reduce them, but has not even been able to mitigate them; the IPCC stated in 2007 that GHG emissions will have risen by between 25 and 90 per cent by 2030 (*U.N. report*, 2007). Gwyn Prins and Steve Rayer reiterated this point by writing in *Nature* that "On present trends, for another 20 years, the world will continue installing carbon-intensive infrastructure, such as coal power plants… (2007, p. 974)." Furthermore, most Annex I member will not meet their Kyoto Protocol

emissions targets.[33] The failure, due perhaps by sheer unwillingness, of the industrial countries to reduce their GHG emissions has also had geo-political ramifications; this failure is cited as the reason why China and India are already demonstrating that they will refuse to sign any pact that replaces Kyoto in 2012 if it binds them to emissions targets (Adam, 2008).[34] The economic competition, which is has been intensifying, between the United States and China means that if China does not sign onto the agreement the agreement will likely be rejected by the United States Congress (Adams, 2008). Indeed, the perceived negative impact that Kyoto would have had on America's economy was the main reason the United States pulled out of the negotiations to begin with. In 2001, when discussing the United States withdrawal, then White House Spokesmen Ari Fleischer told the press that, "[President Bush] does not support the Kyoto treaty. It is not in the United States' economic best interest (The Associated Press, 2001)." Kyoto was not just unfavorable to President Bush though, prior to the agreement even being reached the U.S. senate passed a resolution by a vote of 95-0 that was essentially a preemptive rejection of Kyoto (The Associated Press, 2001). The failures of Kyoto should indicate that neoliberal policies are wholly

[33] Out of 15 European Union Nations who are Annex 1 members, 10 are failing short of meeting their Kyoto targets, and several haven even had their GHG emissions rise (Daly, 2003).

[34] China has now become the world's number one producer of carbon. CITE

inadequate to address the global problem. Furthermore, the conflict between addressing the global problem and economic growth clearly demonstrates that global capitalism is itself problematic.

Part 2: Critiquing Capitalism and Valuing Nature

The discipline of ecology dictates that species are bound to a carrying capacity, meaning that growth, specifically in this context population growth, is a limited process.[35] Similarly, the growth of an actual organism is also a fixed process that takes place between birth and death. In stark contrast, economic discourse perceives that it is possible to have gross world product continually grow at 3-4% per year; the underlying assumption here is that economic growth is infinite. As of January, 2008, seven major pieces of climate change legislation had been introduced into the United States Congress. All seven are cap-and-trade programs, adhere to the belief that economic growth is infinite, and additionally express that economic growth is a national priority. Based on these, the premises that for a piece of legislation to be successful, it must allow for continual

[35] While there is widespread debate about whether or not humans are bound by a carrying capacity, this paper is not addressing this argument. I am using the ecological concept of carrying capacity merely to demonstrate the scientific acceptance of finite growth.

economic growth and should have a minimal, if any, negative impact on the economy can be assumed. United States Senator Norm Coleman had this to say in regards to American climate change policy:

> It is imperative that our nation acts now to address the concerns over growing greenhouse gas emissions, while carefully addressing the effects it could have on working families and our economy. The Lieberman-Warner America's Climate Security Act meets this need by taking a responsible approach to greenhouse gas reduction that *will not undermine our economy*[emphasis added] (Sawicki, 2007).

Even if economic growth itself is not bound to a carrying capacity, the problem arises that capitalism is based on continual accumulation and expansion (Marx, 1867).[36] Accumulation and expansion entail the usage and consumption of nature-expansion into new territories or the usage of fossil fuels to name but a few examples. Technology has been widely viewed as a way to overcome supposed natural limits; in other words technology allows the triumph of man over nature. But in terms of finite resources, such as oil, technology can only prolong and/or manipulate the usage of these resources; it cannot create them. Furthermore, the projected effects of climate change-in spite of advancements in

[36] This is based on the accumulation process and cycle of capital, famously put forth by Marx as money-commodity-money (M-C-M').

oil extraction and automobile engines-indicate that technology does not prevent natural disasters or environmental problems.[37] To fully realize the limitations of technology, one only needs to recall the catastrophic failures of the levees and massive loss of life that occurred during Hurricane Katrina in New Orleans.[38]

Examining how nature is valued under capitalism further draws out the complexities for addressing the current problem. Existing and proposed climate change polices only alter the monetary valuation of nature and seek to correctly 'price' GHG emissions. This is inherently problematic for several reasons. One is getting the correct price; however, this problem circumvents larger dilemmas. The money form itself is problematic. Money is supposed to reflect a commodities value, but as Marx states:

> "Money, like every other commodity, cannot express the magnitude of its value except relatively in other commodities. This value is determined by the labour-time required for its production…" (1990, p.186).

In other words money does not reflect the use-value of a commodity, but produces value and surplus-value (Karatani, 2005, p. 268). As Marx famously pointed out in *Capital Volume 1*, surplus-value is nothing more than exploited labor-power, or

[37] For information about projected effects see the IPCC website.

[38] The total number of persons dead or missing from Hurricane Katrina is 1,889 (http://www.katrinalist.columbia.edu/stats.php).

for the purposes of this thesis, the exploitation of nature (1990, see chapter 9). This then leads to the quandaries of how outside the money-form nature can be valued, and whether or not nature is inherently valuable. As David Harvey points out though, "the choice of values lies within us, [meaning society], and not in nature" (1996, p. 163).[39]

Valuation of nature stems from a dualism of man and nature. The separation of humanity from nature is the foundation for the underlying and hegemonic belief that society and the environment ultimately conflict with each other and that only one can prevail. This belief is explicit in the dominant attitudes of ecocentrism and technocentrism, which utterly conflict with one

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[39] The history of national parks sheds light onto how nature is being valued. In the United States, national parks were born out of two distinct perspectives: the sublime and the frontier (see Cronon, 1995 and Williams, 1976). The sublime entails the preservation of an area based on society's romanticism of that particular site, and this romanticism is often tied to religious overtones: The Grand Canyon for example. From the frontier perspective, an area would be preserved in order to prevent its destruction or usage by humans: Yosemite is an example. Both perspectives implicitly involve the perception that humanity is separate from nature, and that to preserve nature human use of that space must be minimized, regulated, controlled, or completely prevented.

another and create divergent social groups (Castree, 2005). This dualism of humanity and nature puts for the notion that society must choose between preserving the environment and preserving the global economy, which ultimately is seen as preserving humanity. In *The Magical State*, Fernando Coronil writes:

> The worldwide expansion of capitalism and the creation of a global market of commodities has been driven by the profit-seeking effort to control not only cheap labor, technology or markets, but also nature (1997, p. 30).

Coronil's statement demonstrates not only the dualism of humanity and nature, but that the motivation behind this dualism and the 'domination' of man over nature is purely capitalist. Thus, using capitalist means to address the global problem is not at all for the purpose of mitigating environmental damage or even avoiding loss of human life. It is for the preservation of capitalism itself. A troubling example of this is provided by the conflict in the Niger Delta. Conflict in this region that suspends oil production helps to drive-up oil prices world-wide, which leads to larger profits for transnational oil corporations (Zalik, 2004, p. 419). The interest of these transnational corporations demonstrates that under capitalism, profit is valued above all, even human life. Capitalism's valuation of nature is not solely an environmental issue: it is also an ethical one.

Coronil comments on the human-nature relation that "human beings are a part of nature whose human nature is transformed by acting upon external nature"

(1997, p. 27). What is vital of Coronil's statement is the recognition that the transformation into an oil intensive society is a transformation of human nature itself. Meaning that addressing the global problem means that humanity must also transform itself into a post-oil society, not merely substitute oil with an alternative or become consciousness-consumers.

Part 3: Ethical States or State Ethics?

The green-Marxist critique of capitalism's valuation of nature is limited though because it does not provide insight into why these critiques are not being incorporated into discourses on the global problem. However, the above section demonstrates that societal valuation lies at the root of the current problem. This sentiment is explicitly articulated by Al Gore's statement that climate change is not "a political issue, [but]… a moral issue." This claim leads to the conclusion that altruism can solve the global problem: that individuals need to choose to emit less GHG.[40] The failures of Kyoto clearly demonstrate that nobody is choosing this.

[40] This freedom of choice is tied to the ideology of capitalist societies: "both buyer and seller of a commodity, say of labor-power, are constrained only by their free will" (Marx, quoted in Jessop, 2002, p. 455).

Yet, individual choices are constricted by social classes and social institutions. These form the foundation of the state, and thus, both figuratively and literally govern everyday life. The reality of the choice to drive less for Americans living in suburbs, which is nearly impossible, is an example of the governance of choice. Thus, to understand why there is a global failure to adequately address the current problem, a critique of the State is also needed. Antonio Gramci's concept of hegemony illuminates why states are wholly unable to address or even acknowledge the problems of capitalist growth. Writing in his prison notebooks, Gramsci argues that force and coercion alone cannot account for the dominance of capitalism, and that an analysis of hegemony is needed to explain this dominance (1971). This type of hegemony is achieved through what Gramsci argues as the "naturalization" of bourgeoisie values to society at large (1971). Bob Jessop, drawing on Gramsci, presents the concept of economic hegemony in his book *State Theory: Putting the Capitalist State in Its Place* (1990). Economic hegemony is the acceptance of a particular accumulation strategy, and this acceptance provides what Jessop writes as "a stable framework within which competition and conflicting interests can be conducted without disturbing the overall unity of the circuit of capital" (1990, p. 199). The conclusion that can be drawn from this is that current failures to address the global problem are due to a particular form of hegemony.

The global economy is a product of capitalism, and is currently operating under neoliberal principals. Capitalist states are the largest integrative force, meaning that they are the dominate powers globally, and capitalism is their binding agreement. As Karatani states "no matter how social democratic the state appears within itself, it is hegemonic to its exteriority" (2005, p. 275). Since capitalism is what binds these states together, it is illogical and irrational for them to accept that capitalism is ineffective and detrimental for addressing the global problem. If this were somehow to occur, global hegemony would break down. If such a break down were to occur, reaching a global solution for addressing the current problem would be highly improbable, perhaps impossible. However, this does not mean that the global problem would not or could not be addressed; it only means that it unlikely to occur in the form of a coordinated global effort.

The global problem is a complex and multifaceted one facing humanity. This thesis has argued that capitalism has both produced the global problem and prevented it from being dealt with. Perhaps Al Gore is correct in stating that climate change, and more broadly the global problem, is a moral, and not a political issue. Thus, the global problem is not an environmental or even economic issue. Rather it is an ethical problem that encompasses all of these issues. In the final chapter of *Transcritique,* Kojin Karatani writes that, "Revolution [against capitalism] is a practical problem. And this practical problem must be interpreted in the Kantian sense: the movement against

capitalism is an ethical and moral one." The crucial conclusion that can be drawn is that the task before humanity is to manage the global problem both outside the state and capitalism.

Critical Reflections:

The ultimate conclusion that I draw-that the global problem is a question of ethics that must be dealt with outside the State and capitalism-is both unsatisfactory and problematic to me. On the one hand, the predicted effects of climate change have the potential to destroy humanity, but globalizing ethics seems to be just as dangerous. Whose ethics will be accepted as the global norm? And how can non-capitalist ethics become globalized given capitalisms integrative force? To me it seems like society is locked in a paradoxical situation. For me this brings up two larger questions: Can capitalist societies transform ethics without some monumental disaster forcing this shift? And, as a person who has grown up in a capitalist society can I even conceive of what the ethics of a non-capitalist society would be? These questions lead me to a quote by Karl Marx.

> No social order is ever destroyed before all the productive forces for which it is sufficient have been developed, and new superior relations of production never replace older ones before the material conditions for

> their existence have matured within the framework of the old society (Marx, 1859).

This is not to suggest that Marx's view on class struggle as the means to destruction is correct, but rather that destruction might be the path towards a different set of ethics. As a human being, Marx's quote is unsettling because it entails the acceptance of destruction, which in the face of climate change is the acceptance of massive loss of life. However, I am ultimately left with another quote: "So we might gesture towards the next moment by asking not how to think, but what to think about" (Peet & Watts, 2004, preface). Perhaps I can only "gesture to the next moment" by putting forth the idea that society needs to shift from discourses of environment and economics to one of ethics.

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