

## **Palm Oil Plantations and Environmental Change: Perspective from Okomu Forest Reserve in Nigeria**

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### **Abstract**

This study compiles and analyses land use change its causes and impact on the ecology in the Nigeria oil palm industry specifically around the Okomu forest reserve which has received a major hit from the activities of Okomu Oil Palm Company Plc. Palm oil is a contentious crop which has been at the centre of global debate regarding the economic and socio-ecological impacts of land conversion and forest destruction. Over the span of thirty five (35) years, the activities of Okomu Oil Company have destroyed the environment that it operate and displaced people around the forest reserve in its operations on over 20,000 hectares of land around the Okomu Forest belt. Data collected in the course of the study revealed that over time, the quality and quantity of data on land use change are very low as a result of poor government monitoring of the sector, therefore large land use changes have occurred in the Okomu forest reserve leading to depletion of the forest in an accelerating manner which affects several species of animals and changing the ecology of the area leading to erosion sometimes. More than 60% of the forest reserve has been destroyed as a result of palm oil plantation. As of 2005, Nigeria had the highest deforestation in the world according to the Food and Agricultural Organisation (FAO), between 2000 and 2005 the country lost 55.7% of its primary forests and the rate of forest change increased by 31.2% from 3.12% per annum. The livelihoods of the local people have been affected tremendously as most of the trees they depend on have been destroyed and they have been pushed away from their aboriginal settlements because of oil palm plantation expansion. The paper uses secondary data garnered from publications of journals, company reports and books. Findings of the paper reveals direct and indirect land use change which causes land degradation, land conflicts and contestation between the communities and the company and other social impacts. Therefore, improved monitoring of land use and more research needs to be conducted to uncover the dynamic forces of the causes and drivers of land use change in Okomu forest reserve and prevention of further expansion of the company into the reserve.

**Key Words:** Destruction, Displacement, Ecology, Land Use, Land Degradation, Oil Palm, Okomu.

## Introduction

In recent decades, countries the world over have been exploring renewable sources of energy as a result of the high cost of crude oil prices and global warming impacts. The tremendous loss of foreign exchange through fossil fuel production has caused the government and private sector to consider new sources of energy to substitute the expensive petroleum products. Presently the United States of America and the European Union are leading markets for the consumption of biofuel. Biofuel have in the twenty first century been the leading carbon free energy demand product in the world, the production of this energy has led to a lot of questions on the environmental implication of large scale biofuel cultivation. Nigeria is one of the largest supplier of biofuel feedstock from oil palm biodiesel.

The palm oil (*Elaeis guineensis*) is the dominant source of vegetable oil consumed in the world, in the form of oil palm (mesocarp oil) and kernel oil (seed oil). Nigeria is an area in which the oil palm flourishes practically everywhere in the country's forest belt, and the people have been accustomed to collecting, processing and marketing palm products for centuries. Large quantities of oil were consumed initially as diet in local dishes and also sold as export. With the development of modern processing technology, Okomu Oil Plc have been on the leading team of oil palm production in Nigeria in its own grown plantation right in the heart of the famous Okomu Forest Reserve. Its operation no doubt has increased the local production, employment creation and contribution to the Gross Domestic Product of Nigeria (GDP). Despite this progress the activities of the company have depleted the Okomu Forest Reserve thus leading to environmental destruction and changing ecologies and livelihood of the communities around the plantation through impact of social exclusion, effects on food security, changing of the land cover, erosion. There is the urgent need for government attention in regulating the ever increasing expansion of the oil palm industry in Nigeria which will be elaborated in the ongoing discussion.

### **Okomu Oil Palm Company**

Okomu Oil is located in Okomu Forest reserve in Edo State, the company was established in 1976 as a commercial pilot project aimed at rehabilitating palm oil production, which has mainly been dominated by subsistence farmers. At inception, the project covered an area of 15,580 hectares, by 1989, the company began infrastructural development on the estate.<sup>1</sup> In 1990 the technical committee on privatisation and commercialisation of the Federal Republic of Nigeria privatised the company to SOCFIN S.A Group of Luxembourg which now holds 62.69% shares in Okomu oil as the major shareholder and 37.31%<sup>2</sup> by a diversified spread of Nigerian individuals and institutional investors.

In 1993 a new 20 tonne per hour mill was completed with a processing capacity of 80,000 fresh fruit bunch (FFB) per annum. The company in an aggressive drive of expansion in the year 2000 acquired additional 6000 hectares of land 15 kilometre East of its site called Extension one (1), the company upgraded its mill in 2004 to 30 tonnes per hour.<sup>3</sup> Okomu has begun Extension two (2) by planting 4,000ha palm trees. In 2017 another 4,000ha of palm will be planted and in 2018 the last 1,000ha will be planted to give a total area of about 9,000ha. As at the end of 2016, the company had spent nearly Nigerian Naira 4.5 billion in developments on the project. In 2018 the most important project to be taken on at Extension 2 will be the funding of the new oil mill which would need to be built in 2019 in anticipation of it being commissioned in 2020.<sup>4</sup> The increasing expansion of Okomu Oil Palm over the years from phase one to phase two have led to serious environmental concerns on the ecosystem.

The privatisation of the Okomu Oil Palm Company Plc has been a huge encouragement for the Nigerian agricultural sector, with profound positive consequences of stable socio-economic growth for the region where it is implanted. The success of the company was further exemplified by the strong increase of its net income which allowed doubling of its

dividend. This company has consistently posted profits in the last 10 years, a period during which most other agricultural initiatives in the country had either folded up or were performing sub-optimally. What is most inspiring is not just the growth and profitability of the company but the fact that The Okomu Oil Palm Company Plc is ranked 10th among listed companies with the largest turnovers quoted on the Nigerian Stock Exchange (NSE).<sup>5</sup> It is the only Agric-business in the NSE's top 16 companies with the largest turnovers. According to the June /July issue of the Bottomline magazine, The Okomu Oil Palm Company Plc is the ninth company with the highest profits before tax among companies quoted on the NSE, and the only agro-business on the Exchange's top 16. Today, what is now known as The Okomu Oil Palm Company Plc has transformed into an economic success, earning presidential commendations and rated as one of the top 10 companies on the Nigerian Stock Exchange in terms of turnover. The excellent quality of oil produced by Okomu has guaranteed a premium selling price on the local market, which absorbs the whole production. Just as its expanding in size, its corporate environment is also expanding. Currently, the company employs over 800 permanent and several independent sub-contractors.<sup>6</sup> All these have added up to place it on top in the burgeoning oil palm business and to position it as an emerging leader in rubber production

Okomu Oil and other European-owned plantation companies are expanding their businesses tremendously in Nigeria without caring much about the consequences. Also, the potential for economic gains, weak governance structure and poor land tenure system have pushed federal and state governments to be non-compliant of current environmental laws and to collude with large-scale plantation companies in shady negotiations. As a result, land grabbing expansion appears unstoppable and the threats that it is posing to the Nigerian environment and people are becoming ever more severe.<sup>7</sup>

### **Oil Palm plantation and the Changing Ecology of the Forest and biodiversity**

The company according to print media have not been conducting environmental impact assessment that is mandatory for Grade ‘A’ of pristine forests before commencement of the expansion drive.<sup>8</sup> Where such approval are sought, it is believed that they are issued without stakeholder participation. The destruction is fuelling deforestation and clearance of forests cover in the impacted local government areas of Ovia south west, Ovia North east, and Uhumwonde and Owan. Some of the communities impacted include Udo, Odighi, Odiguette, Oke, Uzebba, SabongidaOra, Owan, Uhiere,<sup>9</sup> and several other communities. The company disrespect to the communit is similar to that of Wilmar in its environmental and social impacts. Some community members have been arrested for dissent and protest to halt the continued expansion of the plantation by a temporary stop to the bulldozers mowing down the forests. Apart from arrests, there have been cases of eviction and destruction of livelihood sources of the local communities.

Another externally driven panacea is the European Union Biofuel policy initiated since 2003 that has impacted negatively on oil palm production. While this may not be a direct impact, its unintended consequences are grievous. According to EU policy Briefing, research shows that this policy is inducing “indirect land use change which triggers an increase in global food prices and in food insecurity for the poor, promotes the creation of large land holdings and the use of available (‘marginal’) land in developing countries.” Since then, there has been a growing ambition to diversify Europe energy mix from sources other than petroleum products. In particular, Articles 8 and 9 of the Directive 2009/28/EC of the European Parliament on the promotion of the use of renewable energy sources stated the need for a mandatory “20% target for the overall share of energy consumption from renewable sources and a 10% target for energy from renewable sources in transport from biofuels to fuel and diesel mix by 2020”.<sup>11</sup> This European biofuel policy trust to increase its energy needs from

biofuel is contributing to land grabs in diverse forms. This type of development is bound to have ripple effect in shaping land use change in Nigeria and elsewhere in developing countries induced by the cultivation of palm oil and other biofuel feedstock.<sup>12</sup>

The severity of oil palm plantations' impact is driven by a number of factors, including changes in the forest structure, use of dangerous chemicals, frequent human disturbance, and increasing habitat fragmentation. Plantations are markedly less complex than natural forests, as they have a uniform tree age structure, lower canopy height, and sparse undergrowth.<sup>13</sup> Above ground biomass of mature palm trees is less than 20% of the original forest which has consequences for microclimate and shade-adapted species. The conversion of complex native forest to oil palm (*Elaeis guineensis*) monoculture results in the local removal of the majority of specialized species.<sup>14</sup> The resulting biological community reflects the available habitat: simpler, species-poor communities dominated by a few generalist species.

“In 1982, Oates and Anadu carried out a survey of the conservation status of forest reserves in Ondo, Ogun, and Bendel States (part of Bendel State in 1982 is now part of Edo State). Because of the high rate of exploitations within the Reserve especially by Okomu Oil and human settlements on its periphery, they recommended inter alia that a Wildlife Sanctuary be set up in the core of Okomu Forest Reserve to protect the unique flora and fauna of the tropical forest ecosystem”. In particular it was thought that the creation of the Sanctuary was the last hope for the protection of endemic and endangered species of wildlife including the endemic white-throated guenon monkey, (*Cercopithecus erythrogaster*), of which there is an estimated population of about 3000.<sup>15</sup> The creation of the Sanctuary was gazetted in June 1988, as of 2016 the number of this monkeys have dwindled with rare citation.

According to the United Nations Food and Agricultural Organisation (F.A.O), Nigeria's forests contain 1,085 million metric tons of carbon in living forest biomass biodiversity and

protected areas, Nigeria has some 1417 known species of amphibians, birds, mammals and reptiles according to figures from the World Conservation Monitoring Centre, of these 1.2% are endemic, meaning that they exist in no other country and 3.5% are threatened. Nigeria is home to at least 4715 species of vascular plants of which 4.3% are endemic, 3.6% of Nigeria forest is protected under the IUCN categories I-V.<sup>16</sup> With the accelerated pace of deforestation for oil palm production, there is bound to be a heavy destruction of the forest resources except if the Nigeria Government have step in to regulate it.

Studies are in agreement that forest clearing for any reason has strong, negative impacts on biodiversity, though, plantation agriculture has assumed increasing importance and acceptance in tropical countries like Nigeria where they are grown in large commercial scale, oil palm plantations translates into competing uses of land, and in most cases, the destruction of ecologically valuable tropical forests. Losses of endemic species, foregone carbon sequestration, forest fires, and negative impacts to human health and welfare are all consequences of this phenomenon. It is further noted that although not all biodiversity loss is directly attributable to oil palm plantations, palm production has been found to reduce biodiversity more than other types of crop plantations. It is further found that oil palm supports fewer species than rubber, cocoa, or coffee plantations, although all plantation types decrease species richness when compared to intact forest. For example, the conversion of rubber plantations to oil palm resulted in a 14% decline in bird diversity.<sup>17</sup>

### **Implications of the oil palm plantations on Host communities**

In the light of the oil palm plantations growth in the area, expansion and infrastructural development led to pollution of streams and water bodies by fertilizers and other agrochemicals used by Okomu Oil plc. Consequent upon further expansion, forested watersheds dry up due to exposure to high levels of sun. This exposure has given way to high

level of evapo-transpiration within the watersheds. There is also Loss of source of income that were usually generated from the extraction of non-forest timber products (NTFPS) in the area occupational dislocations have also been observed in the area as most of the community depended on the forest resources for their daily livelihood such as loss of dependable materials like medicinal herbs, forest snacks and spices. However, for those who still depend on forest herbal products now travel long distances to fetch required materials.<sup>18</sup> Conflicts among landlord communities and the companies have also arisen as the result of royalties, rent, job opportunities, contracts allocation and the general allocation of resources in the area. Loss of biodiversity is high as animals cannot be longer seen within and around the plantations.

### **Implications of oil palm plantations on Deforestation**

The Forests provide essential ecosystem services such as absorbing greenhouse gasses, providing clean water, food, wood, medicine and habitat to more than half of the world's land-based species. Moreover, forests serve as buffers in natural disasters such as erosion, flooding and landslides, to more than half of the world's land-based species. Keeping forest intact is also of key importance in fighting climate change. Stopping deforestation and forest degradation will provide up to 33% of the carbon mitigation needed annually to avoid further rises in global temperature.<sup>19</sup> However, palm oil comes with a high environmental and social cost: palm oil production is the fastest-growing cause of tropical deforestation. In Edo State Nigeria for instance where Okomu Oil operates, the Government has alleged that the Oil Plantation Company is operating an illegal sawmill within thereby removing about 734 logs of various species of trees over the years. These are contrary to Section 41 of the Bendel (Now Edo) State Law of 1976.<sup>20</sup>



The accelerated pace of palm oil expansion have led to deforestation in different parts of the world. In South East Asia to other rainforest regions in Central Africa and Latin America, where nearly 90 percent of global production comes from such as Indonesia and Malaysia, 55-60 percent of palm oil expansion since 1990 has occurred at the expense of native rainforests. Deforestation is also responsible for some 10-15 percent of global greenhouse gas emissions – more than the combined emissions from all the cars, trucks, trains, and buses in the world each year combined. In Indonesia and Malaysia, deforestation to clear land for palm oil production is especially polluting because it often happens in peat swamp forests carbon rich wet ecosystems that have sequestered billions of tons of carbon through thousands of years of accumulating leaf litter and organic material.

Thus, in Nigeria, there is widespread perception that the collapse of forest management in recent decades has led to rapid deforestation. One aspect of this is the Taungya system, an agro-forestry method introduced to southern Nigeria by the Colonial Forest Department in the late 1920s. With this method, reserve land is first cleared for farming, and then economic timber species are planted in between the plots, growing into forest as the farm is left fallow in the agreed rotational scheme. By the late 1960s and early 1970s, it had become a widespread method of forest regeneration throughout southern Nigeria, but today, whilst reserve land is still allocated under the Taungya system, no more trees are planted and Taungya land is used for farming alone. Consequently, Taungya is now regarded as having 'failed in the okomu forest reserve which have been fuelled by the increasing expansion of Okomu Oil Palm estate without a break.

People in the communities around Okomu Oil have reported several climatic extreme events as a result of vegetation removal. Implications of vegetation degradation on local climate are not very obvious presently, it is needless to say that the future cumulative effect of this change on the region may not be ignored. Unlawful expansion of oil plantation in the Okomu

Forest reserve is a big contributor to deforestation. Earlier studies have shown that a conservation project that started in Okomu Forest Reserve in 1987 by Nigerian Government was not effective. For example, Coastal News (11 July 2010) reported that the Oil Palm company has over 4,500 hectares of plantation within Okomu Forest Reserve and other forests scattered around.<sup>23</sup>

Deforestation connected to palm oil expansion also poses a specific threat to biodiversity in many regions, in part due to the fact that oil palm grows best in some of the most biodiverse and pristine forest areas on Earth<sup>24</sup> In the last half-decade, large commodity producers from Asia have moved rapidly into Africa. Wilmar is charged with illegal land purchasing, forest destruction and failure to produce an environmental impact assessment before establishing 50,000 acres of palm oil plantations in Nigeria.<sup>25</sup>

### **Implications of oil palm plantations on Social Exclusion**

Despite its positive impacts on economic growth, oil palm expansion is associated with social exclusion of local indigenous groups, this is as a result of expansion of large-scale plantations in frontier lands, facilitating dispossession of native populations that held customary rights over lands taken over by Okomu Oil Company.<sup>26</sup> While oil palm expansion has clear economic benefits and has become a lucrative option for many companies, this option is often only available to the most capitalized farmers, who have the investment capital available to open up land and develop new plantations. In many cases, immigrants have benefited more than native people. In addition, not all experiences with schemed smallholders have been positive. In some cases, native populations have been forced to give up their lands due to oil expansion by companies and those who cannot afford to invest in oil palm are faced with threats on their marginal lands.

### **Impact on shifting production dynamics and food Security**

Oil palm expansion, as mentioned above, is driving the conversion of agro forestry systems and food crops. This trend, however, is not well understood as data is limited. There are three dimensions to the food security problem. The first is related to the availability of food as result of the displacement of food crops by industrial crops – those that require processing to be consumed, such as palm oil. The second is the capacity of rural households to access food from markets, which is related to their income levels and to the availability of food substitutes in the market. The third is related to the quality in terms of nutrients of the food acquired in the market that replaces the food produced on farms.

With regard to the first dimension, it is a well-understood fact that oil palm expansion has occurred to the detriment of some food crops. The production area for food crops has fallen, due to the rapid expansion of oil palm. While the profitability of oil palm may be the major driver behind this shift, anecdotal evidence also suggests that increasingly unpredictable rainy seasons are having an influence. As a consequence, the area notable for crop production like rice and cassava has become a net importer, along with other food items, including fruits. It can also be argued, however, that this is in fact a result of the growing purchasing power derived from higher incomes because of palm oil agriculture. This additional income gives farmers, as well as other local people, greater access to purchasable food items. Although the income earned from oil palm cultivation enables local people to buy their food in shops, the reduction in rice production has become a national concern in Nigeria which prompted the government to ban the importation in 2016. Falling rice production has wider implications for food sovereignty and has made the country more vulnerable to internal price fluctuations. As such, the Government has made rice production, including its intensification, one of its major agricultural policy concerns.<sup>27</sup> This is considered important for national stability, as rice accounts for a relatively large share of household expenditures in the country.

A coalition comprising farmers' association, lawyers, teachers, environmentalists, human rights defenders marched against what it called "the growing wave of Okomu Oil expansion with concern for rising food prices due to scarcity of farmlands for small-scale farmers growing staple food."The protesters recalled that on November 5, 2015, the Edo State Government through government revocation Order under the leadership of former Governor Adams Oshiomhole revoked 13,750 hectares de-reserved land in Owan and Okomu Forest Reserves from Okomu Oil Palm Company Plc, a member of the global SOCFIN Group which it illegally acquired.<sup>28</sup>

The trio, are among several farmers from over 25 communities who are currently at war with Okomu Oil Palm Plc over alleged encroachment of their farm lands for agriculture.The land in dispute covers 13,750 hectares spread in Okomu Village, Agbede, IK Camp, Makilolo, Memo, Oweike, Aibiosi, Sobe, Uhiere, Owan, Ugbebezi, Oke-Ora, Ekpan, One, Atorunu, Ogbetu, Umokpe, Orhua, Ozalla, Sabongida Ora, Odiguete, Agudezi, Uhunmora, Uzebba, Odighi to mention a few.In order to resolve the dispute between the communities and Okomu Oil Palm after several complaints by the affected farmers in these communities, the Edo State Government revoked the land in a Gazette dated November 5, 2015.It was gathered that the land in question was originally allotted to Iyayi Group of Companies for the purpose of planting trees, who in turn allegedly sold it to Okomu Oil.<sup>29</sup> Upon taking possession, the company was said to have drafted bulldozers to these reserved lands to expand their operation thus, fuelling the protest by the communities. Having waited for nearly two years without the state government enforcing the revocation order, the affected communities resorted to taking their case to Environmental Rights Action/Friends of Earth Africa and other Civil Society Organisation (CSOs).

## **Destruction of the Land Cover**

Social survey shows that over 80 % of local people perceived high rate of heavy erosion and flooding from year 2000 to 2011. The majority of people perceived that severe flood events were noted during the years 2003, 2008, 2010 and 2011. It is obvious as well from climatic analysis that these years were unrestrained felling of forest in the reserves has rendered the environment very vulnerable to erosion and flooding. Since considerable parts of the vegetation in the reserves have been removed over the study period, a little increase of rainfall above normal, made the region susceptible to flooding in low topography, coupled with poor drainage. The local people perceived that the impacts of flooding have assumed increasingly significant proportions in recent years in Okomu and Gilli Gilli Forest Reserves, which are located in Ovia South-West Local Government Area of Edo State, Nigeria.<sup>30</sup> Accurate statistics about this dilemma are not actually available. The majority of people in focus group discussion stated that “a typical example is the unprecedented flooding, which submerged houses, displaced some residents in many villages and paralyzed agricultural activities in 2011”.<sup>31</sup> Besides, there are about 3,000 hectares of other farmland owned by private people in the local government whose activities also contributed to felling of trees.<sup>32</sup>

The oil palm sector in Nigeria and its associated value chain provides a significant opportunity for Nigeria’s economy. There are already over four (4) million people [33] working in the sector, generating significant livelihoods and returns to the Nigerian economy. Demand for palm oil in the domestic economy is high, its cultivation and associated impact by Okomu Oil plc on the environment is worrisome, the sector is however plagued by many of the problems that face the agricultural sector more broadly environmental issues, food security and sustainable development, these should be addressed through the different social actors, such as governments, NGOs and private companies. Deforestation for oil palm

expansion has led to reduced species richness when compared with primary and secondary forests, and that the composition of species assemblages also changes after forest conversion to oil palm plantation.<sup>34</sup>

### **Conclusion and Recommendations**

It has been garnered from the discussion so far that large-scale land clearing for oil palm production have given rise to massive destruction of the forest and dilapidation of lands for crop production purposes which is a threat to food security, a condition that has been epitomized in the actions of Okomu Oil Company as have been elaborately discussed. Several people that have suffered as a result of the activities of Okomu Oil operations have been left with no option than to move away in search of a new settlement to start a new life all over again. It is the responsibility of government to stop the expansion of the Okomu oil plantation which is affecting livelihood which constantly leads to contestation. The Federal Government should also make an effort to revoke lands that have been forcefully taken by the company and reinstate it back to their owners. The Taungya system of Forest regeneration should be revived and strict monitoring be put in place for implementation.

The Federal Government needs to increase its funding of the Ecological fund to help in combating the environmental associated problems of the palm oil industry. The Federal Government should immediately implement a robust forest policy across all its products to address the grave environmental and human rights impacts associated with its palm oil holdings. It should have a clear and effective implementation system in place that is transparent to all stakeholders. In case of a complaint, there should be a clear and effective procedure in place with a timeframe to ensure that direct action is taken and followed up on grievances of communities around oil palm plantation, the Federal Government should implement zero deforestation policies to preserve its natural resources.

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